

## 2. The turning point in theorizing

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**Dialogue - The Mixed Game**

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# The turning point in theorizing

## Starting from the integrated whole

### 2.1 Towards a theory of competence-in-performance

Having dealt with various attempts to come to grips with ‘the unit beyond the sentence’ (Weigand 1997a), we will now address the question of what ‘*understanding pragmatics*’ really means. ‘Understanding pragmatics’ presupposes acknowledging the incompatibility of orthodox theory with the new object ‘language use’ as an object of performance. Starting from a methodology of reduction means distorting the natural object. Language is not an example for a theory. Before any theory can be designed, the object should be addressed by goal-directed observation in order to find out how it works. Observing verbal means has to be guided by the attempt to understand what they are used for and how they are used. Theory thus emerges from combined observation and reflection as a possible explanation of what can be observed. The first step in holistic theorizing aims at attaining an understanding of language use by grasping the minimal autonomous whole in which it works. The second step then aims at deriving an adequate methodology which retraces the way the natural whole works. Before I propose a theory of this type in Part II, it will be useful to prepare the reader by introducing a few crucial points and by analysing an authentic example which can illustrate what is implied by holistic theorizing.

In my view any scientific endeavour is at its core directed at a better understanding of the complex which surrounds us. Such an attempt is intrinsically connected with a better understanding of human nature. Different disciplines are not separate, independent systems of knowledge but are connected on the basis of consilience (Wilson 1999). The complex is not stable but ever-changing. The world in which we live is perceived and understood by means of human abilities, not the world as such. We may remind us of the ‘Schleier von Sais’ (“The veiled image of Sais”) depicted by Schiller and Novalis to grasp the mystery of life. As long as we can only touch the veil but not look behind it, we will be unable to recognize any absolute truth. Human cognition remains human cognition. Human beings are however endowed with an extraordinary ability which allows them to come to grips with the challenges life forces on them: they are capable of adaptive

and creative behaviour. *Adaptation* to the complex mix of order and disorder is one of the passwords of human beings' *competence-in-performance*.

As a first approximation, adaptation can be characterized as *tentatively proceeding from standard cases to particular ones*. Standard cases are regular cases governed by rules or conventions. If appropriate understanding cannot be achieved by regularities, the standard case has to be specialized by taking account of particular features which trigger off individual, non-conventional techniques of understanding. Meaning and understanding are thus negotiated from the very outset according to principles of probability. Even the normal, regular case is only a probable case.

Adaptive behaviour must not be confused with proceeding by trial and error but presupposes some orientation towards probable courses of the affair. We do not simply go through a list of possibilities, one after another, but look for structure. Simon (1962) made some interesting comments on the "architecture of complexity" by describing it as a *hierarchy of complex subsystems*. He introduced two criteria which are constitutive to a genuinely holistic procedure: the "near decomposability" of the subsystems and their derivation from the whole by "specialization". These two criteria are crucial for the theory I am going to propose in Part II. They form the basis for displaying the hierarchy of subsystems ranging from 'minimal games' described in Part III to 'complex action games' dealt with in Part IV.

The hierarchy of complexity is quite different from the simple hierarchies we know from orthodox linguistics, which are based on division. The hierarchy of complexity is based on *interaction*. The whole is more than the sum of the subsystems. Interaction cannot be equated with the addition of parts achieved by division but means *integration* of the components. Human dialogic interaction is based on the integration of different abilities: the ability to speak is integrated with other abilities, mainly with the ability to think and to perceive. Human abilities are partly innate and partly learned by experience. There is no pure rationality; rationality is always human rationality, i.e. bounded or practical rationality, to use terms introduced by Simon (1983) and Toulmin (2001). Bounded rationality and reliance on probability principles do not mean ignorance: on the contrary, they mean superior rationality in adapting to the complex. The challenge for science will be to reflect in theory what human beings are able to do in practice, to a great extent unconsciously, by their competence-in-performance. What is needed is a change in theorizing from closed rule-governed systems to open theories based on probability.

*Competence-in-performance* means being able to master the complexity of human affairs. A theory that takes this ability as its object-of-study has to start from the complex whole and needs a key concept to open it up. The minimal

complex whole must be the unit that guarantees the autonomous functioning of the whole. The whole is not simply human affairs or the world. The key to the world is *human nature*. As living beings we do not simply exist or think but have needs, desires, purposes and interests which are related to other human beings. They are the driving force of our actions and behaviour. It is these *purposes and interests* that allow us to circumscribe *the minimal whole* where dialogic action takes place and to open it up.

Dialogic action not only means face-to-face dialogue with another interlocutor. As mentioned above (1.3.4), the term ‘*dialogue*’ comprises any form of communicative language use, including the monologic form without turn-taking. In this general sense, we can also speak of the dialogicity of language use. Strictly speaking, we should distinguish between two different terms of ‘*dialogue*’, one referring to the form, the other to the function of language use. The traditional dichotomy of the terms ‘*dialogue versus monologue*’ relates to the formal level and means the dialogic form based on turn-taking in contrast to the monologic form without turn-taking. At the functional level, both forms are dialogically directed according to the general dialogic principle of any communicative language use (Weigand 1986, 2003a: 35ff.). In this sense, a monologue is also directed towards an audience which, for instance, in the case of a speech is not expected to respond or which is only a virtual audience. In so-called inner monologues we are in a dialogue with ourselves. The scope of the general term ‘*dialogue*’ is therefore broader than the scope of ‘*conversation*’ which usually corresponds to the ‘*dialogic form*’ of turn-taking. Dialogue in the general sense of a fundamental dialogic principle means what Wilhelm von Humboldt (1827/1963: 138) emphasized centuries ago: “Es liegt aber in dem ursprünglichen Wesen der Sprache ein unabänderlicher Dualismus, und die Möglichkeit des Sprechens selbst wird durch Anrede und Erwiderung bedingt.” (“A pervasive dualism is at the core of language and the possibility of speech itself is determined by address and response.”) Dialogic interaction is therefore not restricted to turn-taking; the ‘*response*’ can also be a mental action and need not be verbally expressed.

The question of the *unit of description* has been tackled in modern linguistics since its beginnings. We went from the phoneme to the morpheme and then on to the sentence. After the pragmatic turn we moved on from the sentence to the sequence of sentences as well as to the utterance or speech act and eventually to the sequence of speech acts. However, not even the level of actions can be considered as an autonomous level since actions depend on human beings and human beings depend on the world in which they live. ‘*Language as dialogue*’ means dialogic interaction which is action by human beings in cultural surroundings. The minimal autonomous whole thus emerges as the *cultural unit of the dialogic action game* in which human beings try to come to an understanding about how

to coordinate their views and action. The action game is played as a *mixed game* by integrating different communicative abilities and techniques in negotiating co-ordinated action.

In a strict sense, it is not only speaking that constitutes action. The basic thesis of speech act theory, that ‘we do things with words’ or ‘act by speaking’, has to be modified: *speaking is an integrated part of acting*. It is the complexity of our object-of-study which inevitably requires us to cross academic boundaries. The individual disciplines get their specific profile by the particular scientific interest with which they address the same object language. The aim of linguistics, as I see it, is to describe and explain language as an integrated part of dialogic interaction which necessarily requires taking account of the state of the art in neighbouring disciplines, not only of the humanities.

Let us now finally turn to an authentic example which can verify and illustrate these premises of the mixed game. It is an example I used a few years ago in order to demonstrate the limitations of corpus linguistics (Weigand 2004b). Even if corpus linguistics has greatly improved linguistic methods by providing representative corpora which can justify presumed conventions, its concept of language – as long as it is restricted to a text corpus – cannot cope with dialogic interaction. Sinclair’s maxim “Trust the text” (1994) takes the object text to be autonomous. The example we are going to analyse is not in the slightest a special case which could be excluded from analysis; it is a normal example of language use.

Let us start with the authentic text without any description of the context and see what the text yields:

(5) (in English translation)

H Don’t let yourself get infected!

E Are you ill?

H Didn’t you see the water? Everyone’s got a hobby.

F I’d never do that when we pay so much just for the cleaning.

E Ah, now I understand. You’re right. No, I won’t let myself get infected!

(the original German text)

H Lassen Sie sich nicht anstecken!

E Sind Sie krank?

H Haben Sie nicht das Wasser gesehen? Jeder hat sein Hobby.

F Das würde ich nie machen, wo wir soviel bezahlen allein fürs Putzen.

E Ah, jetzt verstehe ich. Sie haben recht. Nein, da lasse ich mich nicht anstecken!

I am quite sure that you will not understand what is going on in this action game. You may try to find some thread running through the text and arrive at an approximate partial understanding by guessing. But does guessing play a role in language

action? Not at all, we *do not need to guess* because we not only trust the verbal text but quite normally and unconsciously include what we know and perceive.

Consequently, *dialogic action is not action by verbal means but action by the integrated use of communicative means*, verbal, perceptual and cognitive. In the action game we approach each other as social individuals with different cognitive backgrounds and cannot presuppose understanding. We negotiate meaning and understanding and have to tackle problems of different understanding. In our example, the first utterance, *Don't let yourself get infected!* is not immediately understood by the interlocutor, instead he or she is the victim of a *misunderstanding*. Language-in-use can accept the risk of misunderstandings because they are normally immediately repaired, as in our example.

It becomes evident that we have to go beyond the empirical level of the text and provide the reader with a description of the cognitive and perceptual background from which the interlocutors derive their cognitive and perceptual means of communication. An observer cannot understand the cognitive means, associations and allusions used in the game. Thus in our example H refers to a person not present in the action game without explicitly expressing it, a person who, some days ago, had spilled water on the ground when cleaning the roof of the house entrance: *Didn't you see the water?* The action game takes place near the entrance of the house. It is therefore enough for H to raise his head and to look and move his body in the direction of the entrance hall, thus alluding by perceptual means to what had happened a few days ago, as well as ironically commenting on it: *Everyone's got a hobby*. He deliberately only uses the anonymous term *everyone* and takes it for granted that the interlocutor will understand. His wife F, too, uses an anonymous phrase: *I'd never do that*, trusting that E will understand, because they are supposed to share knowledge as a result of the fact that all three live in the same house. She adds a critical comment on the price they have to pay for the cleaning of the hallway. All these means together, verbal, perceptual and cognitive, are necessary for E to come to an understanding and to arrive via negotiation at the right meaning of *to be infected*, namely 'to be infected by a mania for cleaning'. There is no explicit disambiguation by verbal means.

I think the *conclusions* to be drawn from this example are evident: when looking at authentic examples in a corpus we are in the same situation as Yule when observing the conversations of others (see above). We address the object conversation as an observer and cannot understand examples which require us to go beyond verbal means. *Coherence* is not established in the text but in the minds of the interlocutors who, as insiders of the game, try to understand and to give sense to what is going on in the action game (Weigand 2000b, Givón 1993). Trusting the text does not lead to an understanding of what is negotiated in interaction. The corpus therefore constitutes only a part of the complex object we are trying to

investigate. To argue against Stubbs (1996: 233), the corpus is not a record of our behaviour because only part of the behaviour is recorded.

*To sum up:* as has become manifest from the analysis of this authentic dialogue, it is not the authentic text as such which can explain what is going on in dialogic interaction. We have to look at the integrated whole of the game which is being played with various communicative means some of which are transparent only to insiders of the game. In the mixed game different cognitive and cultural worlds, different competences-in-performance interact and even misunderstandings are tolerated.

## 2.2 Object and methodology: Uncovering the language myth

The issue of theorizing poses the problem of addressing the object-of-study with an adequate methodology. In Western science the assumption has prevailed that a theory has to reduce empirical variety by abstraction to a system of rules. Consequently it seemed legitimate to start from rule-governed methodology and to deconstruct the object in a way that fitted the methodology. This procedure resulted in the creation of artificial objects such as the sign system or theories of language competence and communicative competence. Performance was excluded as object of theoretical study.

Many scientists find it difficult to break free from tradition. Despite the pragmatic turn the dogma of *methodological rigour* or formal precision still exerts power in science. Seuren (1998: 407), for instance, excludes pragmatics and language use from linguistic description because it seems “difficult to achieve the degree of formal precision considered desirable in the linguistic sciences today” (cf. also Gazdar 1979: 11). Chomsky (1975: 25; 2000) presupposes “human science-forming capacities” and talks about “our very limited progress in developing a scientific theory of any depth to account for the normal use of language”. He refuses to acknowledge the progress that has in fact been made in many studies of language use because they do not comply with his benchmark of “a scientific theory of any depth” or the benchmark of formal precision. His concept of “human science-forming capacities” simply does “not extend to this domain”. For him it is still generalizations which are “considered desirable in the linguistic sciences today” as they secure the foundations on which generative linguistics hopes to survive. There is no theory without generalizations, that is true; but they are not all.

For orthodox theory, methodological rigour has priority over the question of whether the resulting object is of relevance to human life. The dogma of formal precision has strong and ancient roots. It is the belief in certainty or rather the

hope of finding certainty in generalizations and abstractions which has dominated Western thinking since Plato's and Aristotle's times. Sticking to eternal truths of, for instance, Plato's 'first true philosophy', prevents philosophers from coming to grips with what is actually going on. Contemporary philosophical speech act theory has thus become an abstract theory which can easily be disregarded by linguists. For instance, in a volume of 1994 with the ambitious title "Foundations of speech act theory", the same simple simulated examples are analysed, the same annoying questions are posed as fifty years ago (cf. Tsohatzidis 1994, Weigand 1996b). Why should we still tolerate absurd theses such as "that there is no important difference between formal and natural languages" (Vanderveken 1994: 99)? This is poor philosophy if it needs such a patently mistaken view in order to justify the type of language it is dealing with. Why is it so difficult to overcome the obstacle of formal precision in approaching natural language use? Even if some scholars are aware of the complexities of language use, they nevertheless persistently try to reduce them to logical rules. If this is not possible, they claim the reason for it to be a mystery (cf., e.g., Piattelli Palmarini 1995: 160).

Formal precision was not only aspired to in logical and formalized models but, to a certain extent, also in pragmatic multi-level models and in the pattern model of dialogue grammar (e.g., Levinson 2000, Hundsniischer 1980, see above 1.2). 'Searchers after hidden laws' (Searle 1972) never questioned the methodological stance of 'we have to start from the model' and 'the model must be a rule-based or conventional system'. As a consequence, natural language use was excluded or was changed to well-formed dialogues.

Pattern models are based on a code, on rules or conventions. A pattern model for dialogue is not really a model of dialogic language use as it is restricted to one pattern for both sides of the dialogue. Speaker and interlocutor obey the same rules. Language use is considered to be similar to a chess game with meaning defined and understanding presupposed. The pattern model allows choice, but only choice on the basis of certainty, i.e. rational or conventional choice that can be planned in advance (cf. Lewis 1969). If we admit that we are 'living with uncertainty', we have to recognize the limits of pre-planning (Toulmin 2001, Simon 1983). To come to terms with the complex requires us to go beyond rule-governed patterns and to adapt to ever-changing surroundings.

Very early on, the pattern view of language had undergone severe criticism, to mention only Baker and Hacker (1984) and their brilliant critique of compositional models of language or Harris (1981) who exposed the code model of language as a myth. Taylor and Cameron (1987) joined them by arguing that there are 'no units, no rules at all' underlying language use. Despite such massive attacks, 'searchers after hidden laws' were not prepared to change their minds and to abandon what they believed to be solid ground. On the other

hand, the critics did not make much effort to propose a new type of theorizing in order to rebuild what they had left in ruins. It seems to be the general opinion that where rules come to an end chaos begins. This amounts to allowing us the choice between two extremes: either there is a theory as rule-governed pattern or no theory at all.

Very few scholars took up the challenge of thinking about a new constructive view that could lead the way out of the ruins. Brown (1995) drew our attention to the fact that understanding cannot be taken as guaranteed and joined attempts to design a 'post-Chomskyan linguistics' (cf. also Moore & Carling 1982). Clark (1996) tried to create an 'ensemble' of multiple aspects, which at least pointed to the whole where all the different variables of language use are joined together (see above 1.3.3). Similarly, Toolan (1996) proposed the concept of "total speech" which offers a new perspective even if it does not reach the status of a theory. These approaches faced the challenge of performance and took the first steps in mediating between the natural object and methodology.

As the limits of sign linguistics, of language competence and even of communicative competence slowly but inevitably became manifest, problems arising from restricting language to patterns and definitions could no longer be neglected. Chomsky's attraction was flagging. Beyond competence there is no wastepaper basket of performance but human beings who effectively act and react in performance. We are not victims of chaos and chance but masters of the complex.

The ability to deal with complexity or human beings' competence-in-performance forced us to rethink our understanding of science. A *change in theorizing* was inevitable. In other disciplines such a change had already been achieved decades ago, first of all in the so-called exact disciplines of science, for example, in physics, by establishing modern physics or quantum physics (e.g., Gell-Mann 1994), or in biology and chemistry (e.g., Prigogine 1994, Gross, Lewitt & Lewis 1996, Lumsden & Wilson 2005). The new wave crossed over to social disciplines such as economics (Simon 1997) where it led to the change from rational economics to practical economics, or to jurisprudence (Haft 1999) where legal dialogic action took priority over legal codes. The humanities however hesitated to accept that there was not only the choice between rule-governed theory and no-theory at all. Nonetheless, the necessity of going beyond patterns, of mediating between order and disorder has slowly been taken into consideration. Instead of focusing on pure rationality scientific interest turned to 'rationality-in-life', i.e. bounded rationality (Simon 1983). In modern science certainty has been replaced by probability, division of disciplines has been replaced by a crossing of disciplinary boundaries which properly understood means accepting the unity of knowledge or "consilience" (Wilson 1999). Consilience is the basis of the "stair-case model" of the different disciplines developed by Gell-Mann (1994: 111f.) who

emphasizes that “while the various sciences do occupy different levels, they form part of a single connected structure” ranging from physics or the natural sciences to the social sciences and the humanities.

The central object-of-study in the humanities is human beings’ action and behaviour in cultural surroundings. At its core we are faced with the concept of intention which goes beyond strictly causal relations and is beyond the reach of orthodox theory. The postmodernist view of an action theory without intentions (e.g., Derrida 1988) does, according to Wilson (1999: 234), “not conform well to evidence” and “is blissfully free of existing information on how the mind works”.

*To sum up:* The theory we are looking for must be a theory that starts from an understanding of the complex object and derives an adequate methodology from it. The complex object is human beings’ competence-in-performance, an amazingly far-reaching ability, but nonetheless an ability subject to human limits. The world as such, including our mind, remains beyond human reach. My aim is directed towards a theory of which I can say “I believe this with certainty”.

### 2.3 Justifying evidence: Evolution and culture

If there is *no absolute truth*, no evidence as such, then everything we state in a theory will, in the end, be theses within the scope of insight permitted to human beings. As long as the theory focuses on an object constructed and defined by human beings, such as traffic signs or logic, it might suffice if we were explicit and conformed to the inner consistency of the theory. The object of the theory in this case is methodology. If the theory however aims to explain a natural object of performance, we need *criteria that allow us to verify its theses*.

Insofar as the theses refer to *what can be empirically perceived*, for instance, how words are used in utterances, we might ask *native speakers* whether they consider certain ways-of-use to be conventional usages. We must however not forget that their introspective knowledge is relative. Other native speakers might use the same words differently according to other conventions. If we want to verify presumed conventions precisely, we have to refer to representative *corpora*. Corpora inform us about the degree of conventionality by indicating percentages for the frequency of use (e.g., Biber, Conrad & Reppen 1998). Yet, verification by frequency in a corpus can only confirm conventions related to the use of empirical means; its access to meaning is restricted, as could, for instance, be seen with Example (5) above (cf. Teubert 2010). If we are looking for criteria appropriate for *verifying explanatory theories*, native competence and corpora do not seem to be of much help.

So let us pose the question in principle: how can we verify our assumptions about human beings' action and behaviour in general and dialogic action in particular? Where can we find evidence for our claims? In my opinion, our reflections have to relate to biological findings on the basis of consilience and have to conform to the fundamental principle of the *co-evolution* of "genes, mind and culture" (Lumsden & Wilson 2005, Weigand 2007a). It is not only genes which determine human abilities; it is the interaction between genes and culture or the epigenetic rules which shape human behaviour. Culture however emerges from specific predispositions of the human genotype (Wilson 1999: 163). Wilson (p. 171) sums up "the steps of gene-culture coevolution, circling from genes to culture and back around to genes" as follows:

Genes prescribe epigenetic rules, which are the regularities of sensory perception and mental development that animate and channel the acquisition of culture.  
 Culture helps to determine which of the prescribing genes survive and multiply from one generation to the next.  
 Successful new genes alter the epigenetic rules of populations.  
 The altered epigenetic rules change the direction and effectiveness of the channels of cultural acquisition.

The focus is to be laid on the "new synthesis" of sociobiology (Wilson 1975), that is the synthesis of biology and sociology or of genes, mind and culture, which contradicts what is nowadays proclaimed as "New Biology" (Lipton 2008: xxvii). On the one hand, "New Biology" is nothing new. Calling it the "new science of *Epigenetics*" (p. xv) and not even mentioning Wilson (1975) or Lumsden and Wilson (2005) simply ignores – deliberately or not – the fact that the term "epigenetics" had been introduced decades ago. On the other hand, explaining the term as "control above the genes" does not coincide with the original term. Lipton seems to put the whole emphasis on influences coming from the environment and to neglect the fact that the environment can take effect only if perceived and recognized by some genetic predisposition which Seligman (1970) called "prepared learning".

We know human beings are social beings, yet they are individuals. It is from this *double nature* that the basic motivations for human action emerge: self-assertion and respect for the other human being. Even if both forces can be biased quite differently in individual human beings, they are in principle interconnected: every individual being is simultaneously the other being for their fellow beings. From the very outset human beings have to negotiate their positions with other fellow beings in dialogue. Negotiation proceeds by the *integrated use of different communicative means*, verbal, cognitive and perceptual, as neurological experiments confirm (e.g., Damasio 2000). It is due to human nature that there is no

simple at the beginning. What might seem to be the simple, for example, the mirror neuron, turns out to be a firing cell, matter and energy at the same time.

I am aware of the fact that there is, in principle, a divide between symbolic and dialogic theories of language. Symbolic theories take cognition as their starting point in putting forth theses such as 'language is used for the expression of thoughts'. By contrast, dialogic theories consider communication as the driving force that caused language to evolve. This controversy between symbolic and dialogic models represents, in the end, a controversy about the human species. If we were hermits on an island we would not need language when reflecting in our minds. Nor would we be able to reproduce and to survive as a species. Here we are at the crucial point. Human beings are epigenetically programmed as social beings who need dialogue for reasons of survival. Communication could also proceed in a rough-and-ready way by gestures, without language, though with serious deficits. It is therefore plausible that by the time language evolved from gestures it was initially accompanied by unstructured sounds.

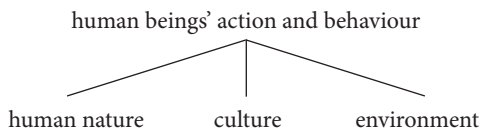
Giving priority to the need for communication does not exclude the fact that language use can in addition fulfil other subordinate functions, among them the function of symbolizing. But it is precisely within communication that symbols attain their specific value because by the use of symbols dialogic interaction becomes free of the restrictions of the speech situation. Even if generativists continue to proclaim the symbolic species, sociobiologists have long ago provided solid arguments for the conclusion "that it is no longer possible to say [...] that human behavior is symbolic behavior and symbolic behavior is human behaviour" (Wilson 2004: 26).

The epigenetic rules based on the interaction between genes or *human nature* and *culture* are decisively influenced by the *environment*. We live *in* – not in front of – a world which changes and requires adaptation and creativity. When evolving from small groups to large societies, human beings had to organize their needs, i.e. to form specialized groups or institutions for the division of labour. Human needs and purposes come into play as the key concepts for explaining human behaviour.

The environment, to a certain extent, includes culture. We can make the distinction between an environment which exists independently of human beings and the cultural environment as created by human beings. The complex of a culture not only comprises observable facts like habits and routines of everyday life but also evaluations that shape the image of the individual (Grein & Weigand 2007). *Culture* can be approached as a *complex of evaluations* which become in part visible in customs and can be changed and in part are innate and unconscious as mental attitudes. These innate attitudes or 'culturgens' can hardly be changed within one generation (Lumsden & Wilson 2005: Ixvi, Weigand 2007a).

*Evaluations* are rooted in human nature (Wilson 2004: 169ff.), in part due to genetic predispositions or so-called “prepared learning” (Seligman 1970) and in part due to the basic integration of human abilities. We not only perceive but also evaluate what is going on from our point of view. As human beings are social individuals, evaluation has to mediate between the interests of the group and individual interests. Depending on the environment different evaluations will be made and different human societies and cultures formed on the basis of some sort of ideology.

The debate between “nativists” and “empiricists”, to use Sampson’s terms, starts from two extremes ‘nature *versus* culture’ both of which mark theoretical positions (Pinker 1994, Sampson 2005). Everyone who has experienced working with fellow human beings from foreign cultures knows that seemingly universal concepts such as rationality heavily depend on culture. Cognitive differences are deeply rooted, inherited over centuries and not easily made conscious, not to speak of being explicated or even changed. It is human nature, culture and the environment which determine human beings’ action and behaviour (Weigand 2007a):



**Figure 1.** The integrated whole of human beings’ action and behaviour

These three pillars of human action and behaviour are closely interconnected: human nature in the strict sense means biology or the genes which interact with culture. Culture has an external and an internal face. The external face of culture is part of the environment or the world any interaction between nature and culture is dependent on.