**Understanding: The Mutual Regulation of Cognition and Culture**

**Gebhard Rusch** ◦ Siegen University (Germany) <rusch@mefo.uni-siegen.de>

**Purpose:** Demonstrate that cognitive and social approaches towards understanding do not at all oppose but rather complement each other. Constructivist concepts of understanding paved the way to conceive of understanding as a cognitive-social “mechanism” which mutually regulates processes of social structuration and, at the same time, cognitive constructions and processing. **Findings:** Constructivist approaches bridge the gap between the cognitive and the social faces of understanding. They demonstrate how comprehension and cultivation, cognition and cultural reproduction are mutually linked to each other by the cognitive-social “mechanism” of understanding. As a consequence, the unavoidable immunisation against communicative demands from others jeopardizes the achievements of our communicative culture. **Practical implications:** Communicators are even more responsible for success or failure of communication than recipients. Moreover, as educators they are responsible for both cultural reproduction and the reinforcement of creativity and innovation. This double bind can only be managed with strong and resistant personal relations. All construction of meaning and all interpretation should be conceived of as a pre-construction, a hypothetical provisional reading made for the tough going of public or scholarly discourse. **Original value:** Concept of understanding integrating philosophical, psychological and sociological approaches within a constructivist theory of communication and reception. **Key words:** Understanding, communication, reception, cognition, structuration, hermeneutics.

"Try not to think of understanding as a 'mental process' at all.— For that is the expression which confuses you." — Ludwig Wittgenstein (Philosophical Investigations, § 154)

The concept of understanding has a Janus-like nature. Its shows faces in two different, not to say opposite, directions: first, it offers a psychic or mental face. Understanding appears as a cognitive process or mental operation ending up with some recognition, insight, knowledge or discovery. At the same time, however, the concept of understanding shows its social and interactional nature when it comes to learning and to the evaluation of knowledge, competences or abilities. Some “authority” — be it mother nature in the case of the experiments of scientists or a school teacher in the case of examinations — selects the viable from all the offered and tested solutions.

As indicated by the history of hermeneutics and by the cognitivist tendency to avoid the use of “understanding” (and instead say “comprehension” or “information processing”), the double nature of understanding, despite more than 2000 years of theorizing, still seems to be misunderstood or, eventually, not understood at all. The following reflections on the semantics of understanding, the history of hermeneutics and constructivist concepts of understanding try to demonstrate that cognitive and social approaches towards understanding do not at all oppose but rather they complement each other. Both faces of understanding match pretty well and together make up an important part of the big picture of the mutual regulation of cognition and culture. The following lines essentially propose to take understanding as both at the same time: a special kind of social regulation as it is constrained by the cognitive autonomy of actors (i.e., regulation at the social level through the conditions of cognitive autonomy of actors), and as a special kind of cognitive regulation (i.e., regulation at the level of cognition through social conditions of acting), a social selection of cognitive concepts and operations, styles and preferences as it is constrained by the cultural environment, especially by the partners and counterparts in interactions and communication. The phenomena of understanding, thus, instance the underlying setting of cognitive and social conditions of communicating, acting and interacting. Understanding is the way that cognitive autonomous individuals commune.

**The semantics of understanding**

Two dominant meanings of understanding can be observed in ordinary language use:

(i) “Understanding” in the sense of comprehend, access mentally, realize the meaning of something, have the ability or know how to do something, have a good command of something, have learned something.

This field of meanings characterizes understanding as a psychic process or an intellectual ability (what the mind does). The quality of understanding, thus, directly depends upon the quality of mental presuppositions and talents, the quality of cognitions from perception and recognition up to memory and reasoning.

(ii) “Understanding” in the sense of correspond with someone, congenial thinking and acting, get along well with someone, have similar interests or aims, not take something amiss.

Here, understanding refers to states or qualities of social relations, a parallel or complementary way of looking at things, a familiarity of reasoning, thinking and acting, a kind of empathy or closeness originating from the idea of knowing the points of view, the motives or the affections of the other.

While the first group of meanings clearly focuses upon cognitive processes and their respective qualities the meanings of the sec-
The conflict between these two positions also dominated the further development of hermeneutics in the Middle Ages. Most important are the works of Origines and Augustine, namely their doctrines of the multiple senses of the written. Origines distinguished three senses of the written: (i) the somatic — literal, historical-grammatical, (ii) the psychic — moral, and (iii) the pneumatic — allegorical, mystical sense. Augustine even differentiated four senses of the written: (i) the sensus litteralis, the literal sense, (ii) the sensus allegorius, the figurative sense, (iii) the sensus moralis, the moral, ethical sense, and (iv) the sensus anagogicus, the sense within the history of salvation. Actually, these doctrines were designed to function as strategies to cope with the increasingly obvious fact of semantic openness and under-determination of pragmatically decontextualized writings. While the number of literate people slowly increased, the barriers between the traditional social classes became more and more fragile, trade and crafts slowly developed the middle classes, and writing became a social technique present in all domains of human action — private and professional. The proponents of the multiple-sense-doctrines — and that was a kind of trick — at the same time accepted the semantic openness of writing and restricted or controlled it by formal criteria. Therefore, the main advantages of these doctrines were: (i) to harmonize (or neutralize) the extremes of the intentionalist and the allegorist position by integrating them into a more abstract position as formal and methodical principles; (ii) and the most important aspect: a certain type of relation between the different senses, namely, congru-
ity, correspondence, accordance, consistency, etc. represents an abstract, formal, seemingly logical and controllable criterion for the appropriateness of interpretations. This step finally emancipated the ars interpretandi from the culture of oral communication. From then on all kinds of interpretations of all kinds of texts (spoken or written) could be argued for by formal correctness or adequacy. The authority of the authors had finally become totally superfluous. The interpreters, the commentators, the teachers, etc. – from then on – presumed this authority.

The doctrine of the consistency of literal, allegorical, grammatical, etc. dimensions of readings dominated the hermeneutical theory throughout the Middle Ages. It was practised as a hermeneutics of problematic passages of texts, hardly recognizable phrases, unknown words and terms. It was the so-called hermeneutics of text pieces (Stellenhermeneutik).

Actually, this is still the dominating paradigm of interpretation courses everywhere in schools and universities – independent from the changing fashions and so-called methods of interpretation, e.g., Close Reading, History of Ideas, Psychoanalysis, Structuralism, New Criticism, History of Mentalities, Feminism, Post-Structuralism and Deconstruction. Despite all their differences all these approaches set out from the basic assumption of the coherence of readings of literary texts. And they must do so, because their plausibility and persuasive power depends on coherence in the first place. A tour along the lines of hermeneutical traditions will illustrate this.

At the beginning 19th century Friedrich Schleiermacher picked up general hermeneutical ideas of the enlightenment period and investigated the problem of understanding from a philosophical point of view – thereby strongly influenced by Immanuel Kant’s idealism. In his famous works Hermeneutik und Kritik (1838) and Über den Begriff der Hermeneutik, mit Bezug auf F. A. Wolfs Andeutungen und Asts Lehrbuch (1829) he realised and emphasized that: (i) understanding written texts (written language) is not in principle different from understanding people (spoken language); (ii) understanding written or spoken text always and unavoidably is a matter of – as it were – lucky guesses, a matter of hypotheses about the meaning, which in the ongoing communication or reading process may (or may not) turn out as suitable, consistent, fruitful or just personally satisfying; Schleiermacher pointed out that (iii) because one never knows for sure whether one understands correctly or truly, misunderstanding has to be taken as the usual (and not as the exceptional) case; From this he concluded that, although (iv) working on a text and its contexts may then reduce the degrees of misunderstanding, one will never really know when this work is finished. It is only given up after some time, mostly for pragmatic reasons.

So, Schleiermacher: (i) generalized hermeneutics as a theory of understanding of all kinds of texts; and (ii) universalized misunderstanding as the natural basis and outcome of communication. Almost a hundred years later, Wilhelm Dilthey elaborated on the psychological dimensions of understanding. Like Schleiermacher, he conceptualized the process of understanding as a reconstructive creation of the author’s situation, motives, intentions and actions. Like Schleiermacher, Dilthey generalized this concept of understanding to cover all types of communication. But, unlike Schleiermacher, Dilthey believed in true understanding among all human beings across the borders of space, time, history and culture. This belief finally paved the way for Dilthey’s most influential – and most disastrous idea: the opposition of the humanities (Geisteswissenschaften) and the sciences (Naturwissenschaften). For Dilthey, understanding in the sense of going deeply into the thoughts and actions of the other was the only adequate way to treat human utterances (verbal or non-verbal). So understanding as the process of interpretation became the rational procedure for the explication of human action, whereas explanation as a kind of syllogistic procedure on the basis of observed regularities or natural laws (e.g., in the sense of the Hempel and Oppenheim Scheme) became the rational tool for explicating all other natural phenomena.

Martin Heidegger with his existentialist approach again widened or further universalized the concept of understanding. He defined “understanding” as a basic and necessary task of human beings in order to realize her/his own identity as well as the identity of the environment around him/her. In this sense, understanding becomes the elementary operation one has to perform as a cognitive being that is thrown into existence. Understanding texts, then, is only part of the complex and lifelong process of creating an understanding of the world. This view includes all cognitive activity within the frame of understanding. Actually, this is Heidegger’s contribution to universalizing, i.e., existentializing, the concept of understanding.

Hans Georg Gadamer follows Heidegger in universalizing hermeneutics. He takes understanding as a constituent of human social life. Interpretation, then, has to reflect critically the historical conditions of understanding and, thereby, has to fuse the intellectual horizons (Horizontverschmelzung) of authors and readers across all historical and cultural borders. This idea is based upon two contradictory assumptions, (i) that historical conditions of text production are contingent and unique, and (ii) that the interpreter, who is aware of this, will be able to fully understand ancient sources by clarifying such presuppositions. But historical relativism on the one hand and hermeneutical optimism on the other hand do not match very well. Therefore, Gadamer was heavily criticized for this and other inconsistencies in his work, especially by Hans Albert. Similarly, Albert’s critique also holds for other conceptions generalizing or universalizing hermeneutics either as the very basis of the humanities (e.g., Paul Ricoeur) or as their fundamental methodological principle (e.g., Emilio Betti).

The critical-theory approach to understanding, as represented by Karl Otto Apel and Jürgen Habermas (following H. Marcuse and Th. Adorno), aims at a better, more egalitarian and more satisfying social life. One step to attain this goal is supposed to be a better understanding of each other. This, however, was thought to be achieved by a critical hermeneutics and symmetrical communication (i.e., no asymmetry in power, status, authority etc. among communicants) within an ideal communicative situation.

The phenomenological and reception-aesthetics approach in the line of Edmund Husserl, Roman Ingarden, Wolfgang Iser and Hans Robert Jauß appears to be a radical reduction of hermeneutics (i) to the reader’s or recipient’s perspective and (ii) to the psychological dimension of the reading process. The author and her/his intentions and meanings are further marginalized. The construc-
tion of meaning by readers (in past and present) becomes the central aspect. But this approach only seemingly answers the question of the proper meaning of texts. Historical (collections of) documents of reading are, without any doubt, interesting material. But, recalling Schleiermacher, we must realize that these readings are at best lucky guesses. And, remembering Gadamer, we have to consider the historical relativity of these readings, too. Altogether, this means that the basic hermeneutical problem of understanding another person or her/his utterances has been complicated even more by reception aesthetics instead of being solved.

One of the latest developments, deconstructionism, celebrates a simple sign-theoretical insight, namely, that “meaning of a sign” presupposes the difference between signs and the difference between sign and designation. Because of these differences, however, Jacques Derrida’s sign-philosophy ends up with the assertion that an understanding of signs must be absolutely impossible. In this respect Derrida’s position meets the latest developments of the German systems-philosophy as it was created by the theoretical sociologist Niklas Luhmann. From his point of view, successful communication is improbable because of the closure and operational autonomy of the systems involved (i.e., first and foremost the difference between consciousness and communication). Positions like these mark the one pole of a kind of everyday hermeneutics. (ii) One of the most significant features of text-processing approaches is — by and large — the avoidance of the term “understanding.” Instead, they generally employ the terms “comprehension” and “processing.” One may speculate that these concepts are taken as substitutes for “understanding” because of their different (i.e., non-hermeneutical) connotations. While “understanding” is supposed to be an object of thinking for philosophers, psychologists and literary scholars, terms like “comprehension” and “information processing” promise to designate more serious objects of inquiry and research as done by psychologists, linguists, neuroscientists etc. This terminological demarcation no longer indicates a sub-differentiation of the concept of understanding but completely different approaches or paradigms.

The information-processing approach to understanding

The following presents only a very brief characterization of what here is called the “information-processing approach.” This is only to indicate that special frame of thinking and to recall some of the major representatives and concepts of this paradigm.

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(ii) The tradition most of the proponents of the comprehension-approaches may feel related to directly refers to Immanuel Kant, the German idealist, who was the first to introduce — besides his basic categories — the term “schema” (Scheme) for mental or cognitive structures (scenes) which let the things appear in our perception (on the stage of consciousness). Then, H. Ebbinghaus introduced the idea of an active, creative memory. And F. C. Bartlett investigated the constructive nature of remembering. G.A. Miller explored the breadth and functioning of working memory and reported his findings in his famous “Magical Number 7”-article. M. Minsky, T. Winograd, D. E. Rumelhart, P. H. Lindsay, D. A. Norman, R. Schank, W. Kintch, T. A. van Dijk, P. N. Johnson-Laird and many others developed models of semantic memory, the concepts of frames and scripts, propositional representations of discourse, story-grams, the concept of macrostructures, the theory of mental models etc. This whole enterprise is to work out theories, models and machines that conceptualize, represent or generate what human information processors do — starting from sensory perceptions and ending up with related behavioural outputs.

(iii) The present state of affairs may be summed up as follows: information processing is viewed as an interactive process between e.g., text and reader. This process is directed by top-down and bottom-up operations. Information processing requires an organized multidimensional knowledge base which is supposed to be kept in memory (short-term and long-term memory). As a cognitive process, information processing is generative, constructive and creative, synthetic (as Ulric Neisser put it) rather than analytical or reconstructive. Information processing is a hierarchical and sequential process tending towards the creation of coherent and subjectively satisfying or appropriate structures and functioning. At the same time this process shows some tolerance for ambiguities and inconsistencies. Information processing, however, is socially contextualized or embedded. That is to say, there is some impact of social and situational factors on cognitive operations. Remarkably, this aspect has been reinforced by cognitive scholars like Terry Winograd:

“My current work is moving in the direction of a fourth domain for understanding language (besides linguistic structure, relation of linguistic structure and world,
cognitive processes, G.R.): *The domain of human action and interaction*. In this domain the relevant regularities are in the network of actions and interactions within a human society. An utterance is a linguistic act that has consequences for the participants, leading to other immediate actions and to commitments for future action.” (Winograd 1980, p. 233).

Finally, those insights brought about some cognitive situations. Also, “social cognition” has been investigated in terms of concepts for social partners, social relations and social institutions. All this, however, only demonstrates that the dominant view of the information processing approaches nevertheless by and large remained nativist, psychological or neuro-physiological.

With this in mind we come to conclude that from the information processing point of view understanding is conceptualized only as a certain type of cognitive operation or process associated with conceptual coherence, problem solving and affective or emotional effects.

From a constructivist cognitive-social perspective – as will be outlined in the next sections – there is no need to reduce the phenomena of understanding to cognitive activity. Instead, understanding can be treated in its full complexity.

**Constructivist approaches to understanding**

Do constructivist approaches to language, communication and understanding really enable a more complex view integrating both the faces of understanding? Turning to the writings of the most prominent proponents of the constructivist paradigm, Ernst von Glasersfeld and Heinz von Foerster, we learn some elementary lessons. Ernst von Glasersfeld’s concept of understanding may be characterized as the construction of viable interpretations. Heinz von Foerster’s position seems a bit more systemic and intrinsic in putting forward a concept of understanding as the creation of eigen-values of cognitive systems.

“To put it as simply as possible. To ‘understand’ what someone has said or written implies no less but also no more than to have built up a conceptual structure from an exchange of language, and, in the given context, this structure is deemed to be compatible with what the speaker appears to have had in mind. This compatibility, however, cannot be tested by a direct comparison -- it manifests itself in no other way than that the speaker subsequently says and does nothing that contradicts the expectations the listener derives from his or her interpretation.” (Glasersfeld 1995, p. 143)

This quote from the chapter “To understand understanding” already shows the main traits of a constructivist approach. First, understanding is taken as a cognitive operation, namely: “building a conceptual structure.” Second, understanding is taken as an operation performed by a listener, reader or observer. Third, the constructed “conceptual structure” has to meet certain requirements. It has to correspond with future experiences and with expectations the listener has established with respect to the speaker.

Heinz von Foerster explicated cognition within the frame of a biological and systemic approach. He proposed the idea of modelling the functioning of cognitive systems along some mathematical metaphors as a complex process of calculation – if not to say: computing. The cognitive construction of a reality (Wirklichkeit) thus becomes a process of calculations within a self-referential, operationally closed and self-organising neuronal system. The self-referential mode of operating, furthermore, implies a self-referential kind of calculation. This, however, is best represented by so called eigen-value functions.

“This finding (or solution) helps us to understand the organism which in a recursive way continually prepares its behaviour (acting on its own motor activity), namely, in accordance with restricting conditions and as long as a stable behaviour is achieved.” (Foerster 1993, p. 279, my translation)

This approach, then, allowed for a new explication of the concept of objects in terms of cognitive calculation.

“An observer watching the whole process and having no access to the sensations of the organism as they are restricting its movements will recognize that the organism has learned to cope successfully with a certain ‘resistance’, a certain object. The organism itself may believe that it now understands that object (or has learned how to handle it). Because, though, the organism can only know its own behavior due to the nervous activity these ‘objects’ strictly speaking are signs for the various ‘eigen-behavior’ of the organism.” (Foerster 1993, p. 279, my translation)

Here, Heinz von Foerster offers a kind of definition for understanding as construction of eigen-values or eigen-behavior respectively. For the organism this means to understand in the sense of knowing how to behave or operate. At first sight, this explication clearly favours the cognitive process view of understanding. And like Glasersfeld, Foerster emphasises the aspect of – at least a limited – stability or invariance of the objects or interpretations constructed.

Apparently, this approach so far does not differ significantly from hermeneutic or cognitivist conceptions in both (i) postulating a kind of cognitive operation as a basic process of comprehension or information processing and (ii) demanding certain qualities for that process or its results respectively. It differs, though, in the kind of quality demanded of the conceptual structure. It is not a formal condition like the coherence of the listener’s interpretation or the correspondence of the multiple senses of the speaker’s words. Instead, the conceptual structure has to meet some pragmatic or operational requirements like the correspondence with future observations or the coherence of the interpretation of the speaker’s utterances and the expectations derived from that. Here, the social and interactional dimension of understanding appears to be a necessary complement of the cognitive functioning.

Because there is no direct transfer of meaning from one head into another (cf. Glasersfeld 1996, p. 230), because of the cognitive autonomy of the individual, the construction of subjective readings, meanings or interpretations is the only and unavoidable way to act. Moreover, the interpretations and expectations of the listener – as conceptual structures – do share the destiny of and underlie the same constraints as any other cognitive construction (process pattern or structure). They may survive, as long as they fit into the overall conceptual framework, the
situation. To put it more precisely: 'sic uncertainty' of interaction and communication within an ever changing conceptual environment, and as long as and in the way they prove as viable constructions, meanings and derived constructions fit or survive beyond all the well known lexical and contextual ambiguities. In addition, we have to account for the pragmatics of everyday interaction and communication. While in science, falsification (sensu Popper) may be or has been a guiding methodological principle, the ordinary practice in everyday interaction and communication is not after awkward and long-winded testing of reliability, trustworthiness or truth. Instead, a kind of hermeneutic goodwill-principle (Prinzip des hermeneutischen Wohlwollens) usually governs communication. It leads people – by and large – to insinuate or assume that the other is not wilfully lying or cheating, is in good order cognitively and physically, etc. Those insinuations on the one hand and a lack of opportunity, time and interest to intensively check for possible future incompatibility of interpretations on the other hand make possible that (i) many alternative interpretations may co-exist, and (ii) a majority of cases of potential misunderstandings will never be recognized. But, all those undetected misunderstandings simply do not make any difference to anybody. Understanding may later turn out to be an illusion. But until then and as long as the interpretations fit into the syntheses of action and communication, as long as they show this operational validity and prove to be viable they meet all the pragmatic and operational requirements. There is nothing more to understand, at that very moment. Understanding – we come to conclude – not only depends on the subjective personal conceptual inventories of interpreters, on contexts and the proper perceived messages, but also on time, namely: the future.

So far, following the major constructivist authorities, we have taken the perspective of the recipient as is usually the case in hermeneutics. But what about the speaker and her/his view at the communication process?

There is a piece from Ernst von Glasersfeld on this topic in one of his writings about teaching and learning:

"Ein Trainer braucht nur das Verhalten seiner Schüler zu beobachten, um festzustellen, ob sie das gelernt haben, wofür sie abgerichtet werden sollten. Ein Lehrer hingegen kann nur erschließen, ob sie verstanden haben, was sie verstehen lernen sollten. Die Schlußfolgerungen des Lehrers sind darum nicht nur in der Praxis unsicher, sie sind prinziell unsicher, denn die Gedanken und Ideen eines Menschen können nie unmittelbar mit denen eines anderen verglichen werden. […] Lehrer können daher annehmen, dass ihre Schüler verstanden haben, wenn die Weise, in der sie handeln und reagieren mit dem Verständnis des Lehrers vereinbar erscheint." (Glasersfeld 1997, pp. 204f: A trainer just has to observe the behaviour of his subjects to decide whether they have learned what they were trained to do. A teacher, however, can only derive, whether the students have understood or not, what they should learn to understand. Therefore, the teacher’s conclusions are uncertain not only in practice but also in principle because the thoughts and ideas a person holds can never be compared directly with those of any other person. […] Therefore teachers may suppose that their students have understood when the way they act and react seems compatible with their own understanding. My translation)
interest in the other and cooperate. It is not by
not be rejected, to be a good sport, to show
affective disposition to keep social contact and
actively reinforced by the listener through his
ationally desired behaviour is also usually
tuning of the listener to perform the inten-
tor’s work on the gradual adjustment or
bating, modulating or changing the self-refer-
the speaker’s interventions in terms of pertur-
rowing, therefore, is nothing else than the
communication as a model for
communication of cognitive, namely, non-
trivial systems. Functional dependency and
non-triviality of systems clearly contradict
each other.

Recalling the question put forward at the
beginning of this paragraph now – after hav-
examined the positions of the two most
influential constructivists to some extent –
also open a perspective on the interactional
and communicative dimension of under-
standing. They assume a functional role either
as a kind of referential instance or as an ele-
ment in the value range of eigen-value func-
tions as represented by the cognitive operation of
each of the participants. Nevertheless, the
constructivist approach to understanding as
explicitly so far still seems to be kind of stuck
in hermeneutic coining. The last chapter,
therefore, tries to further think in the direction
as indicated by von Glasersfeld and von Foer-
ster, but at same time unchain constructivist
thinking from hermeneutic predispositions.
Let’s see what happens.

Understanding as
cultivation: Cognitive
operation under
social control

Following the path shown by von Glaserfeld
and von Foerster we may now put the pieces
together.

(i) A communicator (speaker, writer, etc.)

tries to attain her/his goals by performing ver-
bal and non-verbal behaviour respectively.

“Translating” this into the semantics of
understanding we may say that the communi-
cator means something with his utterances
only with regard to the related expectations,
wishes or intentions.

The meaning of the
utterances, therefore, is nothing else than the
communicative expectations held by the
communicator himself. Only if these expecta-
tions match with the observed effects of
action, the actor/communicator may state
that the recipient or addressee did under-
stand. “Understanding,” we may conclude
from this, means “to meet the expectations of a
communicator.”

(ii) It is most important to realize that the
communicator is the only instance or author-
ity to decide whether the communicative
expectations are met or not. The communi-
cator, however, is not alone able to
decide about the understanding of the partner.
Moreover, he cannot even avoid showing some evalua-
tive reaction (e.g., confirmation, disappoint-
ment, paraphrasing, commenting, explicat-
ing, etc.) in view of the recipient’s behaviour
because this is part of his current action
scheme of orientation. Finally, such feedback
even becomes a kind of social obligation.
And this is the case because the recipient on
the other hand does not have any access to the
communicator’s intentions or expectations.
The recipient learns about the operational
value and the social adequacy or appropriate-
ness of his responses only by observing and
experiencing the action of the speaker. If the
speaker finds his intentions realized through
the responses of the listener this usually in one
way or another is emphasized and confirmed
by either explicitly stating that the other has
understood or by rewarding the communicative
success with all kinds reinforcing positive

behaviour or intellectual point) makes all the
difference. As already pointed out by Hum-
berto Maturana in his Biology of Cognition
communicating is essentially the orientation
of others. The speaker, because of his inten-
tion, knows – or at least, to be taken seriously,
should know – what he is after: he expects cer-
tain behaviour of the listener when uttering
something.

Consequently, the request to
open a window is accompanied by the expec-
tation to see the addressee go and open a
window. And this expectation or wish, the idea of
the expected or desired re-action then serves
as a kind of functional value within the
speaker’s current action and orientation
scheme. The speaker – so to speak – makes best
use of his having moved first, i.e., with his ini-
tial communicative approach he sets the con-
ditions and defines the overall criteria for suc-
cess or failure within that communicative
episodic eigen-value.

Heinz von Foerster himself suggested the
application of the mathematical model of
bistable functions to the process of interaction
or communication.

“… zwei Subjekte, die miteinander rekur-
siv interagieren, nolens volens stabile Eigen-
verhaltensweisen ausbilden” (Foerster
1993, p. 279; Two subjects interacting
recursively nolens volens each produce sta-
bile eigen-behaviour. My translation).

In this case a bistable function converges
towards two stable eigen-values each generat-
ing the other as output. This kind of correla-
tion, though, seems to come close to pure
functional dependency. Therefore, we have to
question bistable functions as a model for
communication of cognitive, namely, non-
trivial systems. Functional dependency and
non-triviality of systems clearly contradict
each other.

Picking up Heinz von Foerster’s eigen-
value metaphor, the speaker – with his inten-
tion and as first mover – defines the eigen-
value of the whole communication episode.
He first brings in his communicative aims as a
kind of interactional value or attractor leading
his own action towards the listener. Then, the
listener unavoidably gets involved in that pro-
cess as the addressee or “victim” of external
demands. The more aesthetically seducing,
the more impressive, persuasive, forceful or
losing the approach towards the recipient, the
less ignorable it is. Less ignorable, however,
are the speaker’s interventions in terms of pertur-
bating, modulating or changing the self-refer-
ential and cognitively autonomous operation
of the listener as a cognitive system, the stron-
ger the impact on his cognition. Moreover, the
speaker’s work on the gradual adjustment or
tuning of the listener to perform the inten-
tionally desired behaviour is also usually
actively reinforced by the listener through his
affective disposition to keep social contact and
not be rejected, to be a good sport, to show
interest in the other and cooperate. It is not by
chance that this reminds us of the hermeneu-
tic principle of good will. Usually such a com-
municative episode ends when the speaker has
either succeeded in orienting the other the way
he intended or when he has given up because
of too much negative feedback e.g., no
observed reaction, permanent errors finally
causing aggression or resignation, etc.

Success of communication, though, always
means that the speaker realises his intentions
– at least to some acceptable degree. And it is
in this sense that the speaker’s intention gov-
erns the whole communication as a kind of
episodic eigen-value.

Heinz von Foerster’s own research into
the application of the mathematical model of
bistable functions to the process of interaction
or communication.
feedback like praise, attention, little gifts, pleasant affections, etc. In many cases the recipient – especially as a child – may even be surprised by experiencing such positive feedback and by learning that it was understanding what she/he did. Such positive experiences will easily be connected to the performed behaviour which in turn, thus, becomes reinforced and kept in memory ready to be reproduced in similar situations. Apparently, and here we think of the god Janus again, this is at the very beginning of the cognitive construction of expectations and expectations of expectations, a process which basically enables social coordination and cooperation through the interlocking of actions and expectations. This, exactly, is what David Lewis (1975) called convention.9

Understanding, then, turns out to be something like a state or, better, a quality in a social relation based upon the ascription or attribution of understanding to a recipient (a listener, reader or viewer). Eventually, this is what Kenneth J. Gergen had in mind when he wrote:

"Understanding is not contained within me or within you, but is that which we generate together in our form of relatedness. … understanding … is a social achievement." (Gergen 1988, pp. 46f).

At this point we also have to recall the quote from Ludwig Wittgenstein (1963) which serves as the motto for this article:

"§154. But wait – if 'Now I understand the principle' does not mean the same as the 'formula … occurs to me' (or 'I say the formula,' 'I write it down, etc.) - does it follow from this that I employ the sentence 'Now I understand …' or 'Now I can go on' as a description of a process occurring behind or side by side with that of saying the formula?

If there has to be anything 'behind the utterance of the formula' it is particular circumstances, which justify me in saying I can go on – when the formula occurs to me. Try not to think of understanding as a 'mental process' at all. – For that is the expression which confuses you. But ask yourself: in what short case, in what kind of circumstances, do we say. 'Now I know how to go on,' when, what it is, the formula has occurred to me?

In the sense in which there are processes (including mental processes) which are characteristic of understanding, understanding is not a mental process.

(A pain's growing more or less; the hearing of a tune or a sentence: these are mental processes.) 10

Here, we do not think of understanding as a mental but as a cognitive-social process. And from that we learn about the transcategorial logic of understanding. This is a logic of cognitively autonomous systems interacting and mutually orientating each other. The "mechanism" of understanding underlies all interaction and linguistic exchange from two sides at the same time: cognition and social structuring, speaker and listener. At the level of this cognitive-social interplay we may really learn what it means to speak and understand a language. A similar insight might already have driven John Austin (1962) to come up with his theory of speech acts. Speaking, for Austin, is action. And this includes constative as well as performative utterances. Considering, thus, Austin's illocutionary forces, again we meet the speaker's intentions as governing and defining the whole communicative episode, especially, the relation to the addressee (e.g., criteria for success and failure, the actual illocutionary role of an utterance, and, therefore, the selection of locutionary acts). At this point, finally, we should also call another prominent witness and pioneer of radical constructivism, Paul Watzlawick, to emphasise the determining role of the relation aspect. In the famous "Pragmatics of Human Communication" the second of the "tentative axioms" says: "Every communication has a content and relationship aspect such that the latter classifies the former and is therefore a metacommunication" (Watzlawick, Beavin, Jackson 1967, p. 54; my italics). However, from the point of view of the attribution theory of understanding, communication has more than a "relationship aspect." Much more, and essentially, it is or makes up a social relation which is established in the initial phase through the approaches of a communicator who, thereby, relates her/himself to an addressee.

(iii) The instances of understanding in human interaction and communication are both cognitively and socially emphasised. This is because understanding means success for both the communicator and the recipient. The speaker realises her/his communicative goals while the recipient is rewarded with praise, attention or positive emotional feedback. The most important effect of this twofold and double emphasis is the reinforcement and social coding of the respective actions. Conventionalization, as a principle of social coding, self-regulation and self-organisation among cognitively autonomous subjects, is but one result of the intersection of cognitive and social processes. It brings about strong rational and emotional ties between the participants. And this, finally, means creating a community.

(iv) The interactional logic of understanding also demands that attention is paid to the role changes of communicator and recipient during their interaction. As already pointed out with regard to the interlocking of expectations and effects of communicative interventions the changing of roles reinforces the match of a communicator's intentions and a recipient's action. During e.g., language acquisition, the learner is pushed (if not urged) to autonomously create or find a way to perform the requested, desired, appropriate or adequate behaviour. Having learned to connect auditions with (socially) appropriate behaviour the student may himself push others by vocally reproducing such auditions. Remembering the third of Paul Watzlawick's axioms, this may also be, to some extent, a matter of punctuation. Anyway, at this point, the subject – so to speak – emancipates from "standing under" and (re-)gains its own social integrity or authority through the acquisition of linguistic competences. Experiences like these, then, help to establish and foster knowledge about linguistic action, about the meaning of (the use of) phrases and their illocutionary forces. This knowledge, however, is not only knowledge about how to push others but knowledge about own mental and overt operation. Pushes from others, thus, become pulls or requests. Own (re-)action becomes dispositional. This also brings about the competence to pull for communicative intervention, to put another person on the spot by addressing her or him communicatively, e.g., to begin a dialog and keep it running.

(v) The attribution of understanding brings about even more essential consequences. Most important is the fact, that the ascription of understanding means a social or cultural selection of cognitive operations. From the operational point of view of the recipient,
however, there is ex ante no internal criterion distinguishing cognitions followed by attributions of understanding and others. Impressed or disturbed by the approaches of a communicator the recipient goes on to generate behaviour autonomously following his own rationality and affections. His cognitions ex ante do not show any special internal difference in quality or function as to contribute to understanding or not. Cognition rather gains special quality only ex post when understanding has been attributed. The ascription itself together with the correlated feedback turns the attention of the recipient to the preceding mental and motor behaviour, and thereby accentuates and emphasises it.

As mentioned above the etymology of “understanding” shows a meaning from the 16th century which seems to grasp the point. Understanding as “reception of intelligence” comes quite close to understanding as social selection of cognition. There are two forces driving this selection: first the reinforcement of cognitions through understanding, and second the inhibition of those which are not followed by understanding attributions. This is how understanding selects socially and culturally compatible eigen-behaviour of cognitive systems. Incompatible behaviour is inhibited by negative sanctions. This social channelling of cognition, i.e., the “mechanism” of understanding, thus, turns out to be one of the basic principles of social and cultural reproduction.

(vi) The two dominant ordinary meanings of understanding as explicated in the first section of this article, namely, “Understanding” in the sense of “comprehend, access mentally, have the know how to do something, etc.” and “Understanding” in the sense of “correspond with someone, congenial thinking and acting, etc.” go together with the attribution approach pretty well. Usually, the attribution of understanding is associated with the ascription of intelligence, of intellectual performance and capacity. Someone who understands is considered to be at least as smart as the one who gave something to understand. At the same time, the close personal relation established through the performance of a desired response and the following positive feedback and confirmation does indeed promote the assumption of correspondence, accordance or even congeniality. It is not by chance that the border between civilization and barbarism, psychological health and deviance or illness runs along a line marked by success and failure of understanding. After all, the two faces of understanding turn out to be the two sides of the same coin: social interaction under the conditions of cognitive autonomy.

(vii) The attribution approach to understanding also clarifies and reassigns the responsibilities for success or failure in understanding. It can no longer be only a defective, poor or stupid cognition of a recipient causing failure but also – and in many cases – it actually is the incompetence of the communicator in helping the addressee to find her/his eigen-way to understanding. Understanding is far from being a matter of course. The communicator must try hard to achieve it. Teachers do know about this. It is their profession to guide and moderate the students’ attempts to come up with an appropriate, and at best an excellent response.

(viii) Communicative experiences (active and passive) gathered over the years of ontogenetic cognitive development teach people to employ hypotheses about the communicators’ intentions. Such hypotheses, then, guide the syntheses of behaviour which may be – with a certain probability – expected, adequate, appropriate or right. But these hypotheses not only serve to accelerate and improve understanding. At the same time, they allow for a self-attribution of understanding. In the end, and if supported by specific political and legal conditions (e.g., democracy, powerful individualism, personal rights, distribution of power, free expression of opinion, etc.), this may give rise to immunisations from communicative demands (in conversation, education, interpretation) and, thereby, cause serious problems for social relations, teaching and learning. People who immunize themselves against communicative demands no longer feel obliged to listen or try to modify or extend their cognitive inventory by learning. The simple self-ascription of understanding independently of any feedback by a communicator is substantially supported by the development of a culture of media reception as is the case in our societies since the reading revolution of the 18th century. Here, communication and understanding suffer from the cognitive refinement of their own prerequisites.

Conclusion
Constructivist approaches bridge the gap between the cognitive and the social faces of understanding. They demonstrate how comprehension and cultivation, cognition and cultural reproduction are mutually linked to each other by the cognitive-social “mechanism” of understanding. With Schleiermacher, Heidegger and Gadamer, constructivist approaches share the view that understanding is a universal basis and tool of social and cultural being. Other than the authorities of hermeneutics, constructivist positions emphasise the social and cultural impregnation of cognition and – at the same time – the cognitive “nature” of culture and society.

Interpretation – to finally come to the end – in a constructivist hermeneutics cannot be taken as a kind of re-construction of an original or true meaning of a text. Instead, interpretation should be conceived of as a pro-construction, a hypothetical provisional reading made for the tough going of public or scholarly discourse. At best those constructions prove to be viable – at least for some short period of time.

ABOUT THE AUTHOR
Gebhard Rusch, born in 1954 in Magdeburg, Germany; studied linguistics, comparative literature, history and philosophy at the universities of Bielefeld and Siegen, Promotion in 1985, habilitation in media studies in 1998, since then guest professorship at the university of Innsbruck, Austria; since 2004 professor at the Institute of Media Research at Siegen University. Numerous publications, books and articles, on communication and media theory, systems analysis, organisational communication, epistemology, philosophy of science, theory of history and the dynamics of cultural systems. Co-editor of the constructivist journal DELFIN (1983–2001). Co-editor of the media studies journal SPIEL.
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duced money, cultivation of the fields and the law. He was considered the protector of Rome.” (Brinker 2004, my italics).

2. This period gave birth to the hermeneutics of e.g., Johann Conrad Dannhäuser and his Idea Boni Interprettis (1630) and Hermeneutica Sacra (1654), Johann Clauberg and Logica Vetus et Nova (1654), Johann Martin Chladenius with his Einleitung zur rich-
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3. See also Abel (1948/1949) for a similar but earlier critical approach to hermeneutics.

4. We may also call these readings, interpre-
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tion. As pointed out by Matthias Günther (2002, p. 195, with reference to Davidson 1986) the concept of radical interpretation generally holds for all cases of linguistic understanding.

5. “Die hermeneutische Billigkeit (aequitas hermeneutica) ist die Neigung eines Aus-
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6. As pointed out in Rusch (2003) the epi-

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