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 they 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 *pro-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.[1] 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-

ond field arrange along the social dimensions of understanding. Unlike the first set of meanings, which is provided with its own concept, namely "comprehension," the second group crystallizes comparably in a term covering the range of social meanings of understanding. This asymmetry, again, may indicate a lack of attention paid to the social dimension as a necessary complement. Instead, the social dimension is subsumed under the cognitive as a special kind of process or operation, namely the supposition, imagination or mental simulation of being in the place of the other, the role-taking (as the interactionists put it), the change of perspectives or the kind of mental immersion into the person of the other (Sich-Hineinversetzen in *den anderen*). This is exactly the methodological credo of W. Dilthey's hermeneutics. He proposed differentiating the humanities from the sciences, because nature other than human action, literature and art, history and politics, etc. does not follow human intelligence and affection.

The double faces of understanding are no new achievement. They can already be found in history. Etymologically, the Grimm Dictionary for older German proves the concept of understanding ("verstehen") to have meant both, "perceive, recognize" and, most interestingly here, "take somebody else's place, substitute somebody else" (Grimm & Grimm 1956, Sp. 1660–1701). The Oxford English Dictionary, too, points to some German roots of the English "understân" and presents evidence for the meaning of "taking a risk." Since the 15th century the common meaning of "comprehend," "to be familiar with," "to apprehend the character or nature of a person" is accompanied by a social reading, handed down by a text from the 18th century: "1745 J. Mason *Self-Knowledge* I.iii. (1758), 32 Nothing is more common than to say, when a Person does not behave with due Decency towards his Superiors, such a one does not understand himself" (Oxford English Dictionary, p. 984). "Understanding" is used here in the sense of "to know one's place, or how to conduct oneself properly" (Oxford English Dictionary, p. 984). The social reading is also supported by "to give heed, attend to" from 10th to 14th century, and "to stand under," "to support or assist; to prop up" from the 12th up to the 17th century (Oxford English Dictionary, p. 985). Most instructive, however, with regard to the sociogenetic function of

understanding is a meaning from the 16th century: "to receive intelligence," and an example from the 12/13th century: "to be subject *to* one" (op.cit., 986).

Summing this up we come to conclude that the term understanding covers a seemingly inconsistent semantic field including such different, not to say: contradictory items as "risk," "familiarity," "subordination," "apprehension," "comprehension," "knowledge," "support," "intelligence" or "attention."

A spotlight at the history of hermeneutics will show that most of that theorizing contributed to this confusion instead of offering substantial clarification.

A short history of hermeneutics as theory of understanding

Hermeneutics as the theory of understanding or – in other words – as the *art of interpretation* (ars interpretandi) initially originates from the problem of how to handle written texts adequately. While in the oral culture the speaker was the authority who decided on understanding, the initial source of words and phrases was no longer present in the case of writing. The literal culture misses the reference to some evidence for the assigned meanings usually present in face-to-face communication in the person of a speaker or author.

Therefore, the ancient ars interpretandi can be regarded as an immediate reaction to the rise and distribution of writing, especially with respect to the asymmetry of the distribution of literacy among the people: the social (i.e., religious, political, aesthetical) elites for centuries kept and cultivated the secret of writing almost exclusively; they learned to use writing and scripture to stabilize their power and govern the illiterate mass of people by telling and teaching them what was encoded in the scripture.

The principles of interpretation had been a matter of debate from the beginning: (i) the Alexandrine School (e.g., Eratosthenes, Aristarchos from Samothrake) preferred a grammatical, rhetorical and etymological interpretation aiming at the intention of the author. On the other hand, (ii) the Pergamon School (e.g., Krates from Mallos) taught an allegorical interpretation, transferring the literal sense of a text into other contexts (i.e., figurative sense).

These two positions were the very first which – in principle – marked the two possible poles of the interpretation-debate: (i) The *intentionalist* position, which may be characterized as conservative because it sticks to the principles of oral communication, and (ii) the *allegorist*, or "modern" position, taking the openness or under-determination of the meaning of written text as a legitimation for a more creative reading. Both positions, however, share the view, that writing cannot and will never be able to stand for itself, but is in need of interpretation, comment or explanation.

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[2] 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 Diltheys 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.[3] 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, Jacque 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 understanding-possibility scale running from impossible (e.g., post-modern positions) along several degrees of probability (e.g., hermeneutics, interactionism, cognitive science) towards the mostly unreflected evidence of true understanding (e.g., in naive everyday hermeneutics).

Summing up this brief overview we come to assume that Schleiermacher was one of the first who realized the full complexity of the communicative problem hermeneutics was once invented to solve. Since then hermeneutics has developed in different directions, mainly philosophical, psychological and historiographical approaches to understanding. This also secretly transformed hermeneutics into a philosophy of ordinary language, psychology of reading and a history of text-production and –reception. These frames of thinking paved the way for a more and more independent develop-

ment of the branches in the study of understanding, the psychological and linguistic on the one hand and the philosophical and literary-historical branch on the other hand. While the former slowly mutated to cognition theory and artificial intelligence research (i.e., the information-processing paradigm), it not only generated a large number of models and theories of text production, perception and reception but also produced some new disciplines such as psycholinguistics and cognitive sciences. This could hardly be explained without the fundamental idea of understanding as a mental, intellectual operation. At the same time, the divergence of the two worlds of research in understanding seems to reach its peak at this stage of development. It must be an irony of fate that it was Wilhelm Dilthey himself who promoted this development with his separation of the humanities and the sciences.

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.

(i) 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, philologists 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.

(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" (Schemate) 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-grammars, 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, synthetical (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 reinvented 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 situation-models. 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 cognitivistic, 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 und Heinz von Forster, 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 contravenes 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 organ-

ism 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.[4] 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

situational, discursive and operational context of an individual's acting and communicating (cf. op.cit., 232). It needs no further explanation here, that *fit* does imply neither identity or equality nor any similarity of the conceptual structures held by speaker and listener. It does not imply any accordance of content of what the speaker has said and meant and what the listener has heard and realised as her/his interpretation. *Fit* does only mean compatible, reconcilable, co-existential without conflict. Accordingly, as long as and in the way interpretations, ascriptions of meanings and derived constructions fit or survive within an ever changing conceptual environment, and as long as and in the way they prove as viable constructions, understanding is possible despite the "intrinsic uncertainty" of interaction and communication. To put it more precisely: *understanding is the only possible way to cope with this intrinsic uncertainty*. Understanding is possible because it does not and cannot depend on the equality or accordance of the content as expressed by the speaker's words and as ascribed to the words perceived by the listener. Instead, it is grounded upon first the instantaneous and then the later experiences of successful and fluent continuation of interaction, cooperation or communication which – if it comes to reasons – itself rests upon working (sic) hypotheses about the orientations, attitudes, knowledge or intentions of the respective other.

We may now question the consequences Friedrich Schleiermacher drew from his insights. The unavoidability of guessing (erraten) what a speaker means, does not in principle exclude understanding. Misunderstanding, by far, is not the regular case. We must, however, realise – and this is implied by the viability-principle – that the number of alternative compatible interpretations may be large. Many variants of understanding of a speaker's words may be possible even far

PERFECT FIT

© Mihaly Lenart
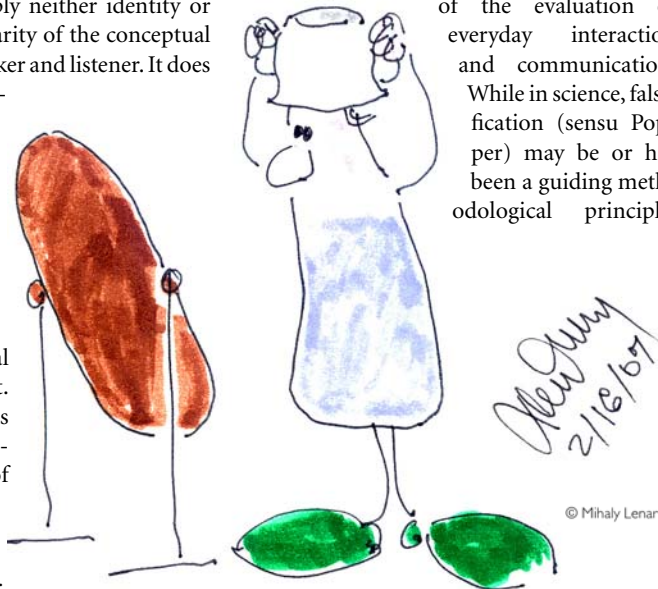
beyond all the well known lexical and contextual ambiguities. In addition, we have to account for the pragmatics of the evaluation of everyday interaction and communication. While in science, falsification (sensu Popper) may be or has been a guiding methodological principle, the ordinary practice in everyday interaction and communication is not after awkward and long-winded testing of reliability, trustworthiness or truth. Instead, a kind of hermeneutic good-will-principle (Prinzip des hermeneutischen Wohlwollens[5]) 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 concep-

tual inventories of interpreters, on contexts and the proper perceived messages, but also on time, namely: the future.[6]

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 *prinzipiell* 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)

Looking at communication from the point of view of the communicator, i.e., the speaker, writer or performer, it is obvious that – in principle – the speaker has to "understand" the listener's reactions in a way analogous to the listener's interpretation of the speaker's words. Naturally, the speaker, like any other person, has no privileged access to the listener's mind. However, and at this point we lightly touch the field of human semiosis, the speaker's *intention* to work on the recipient in order to bring about a certain re-action (overt

behaviour or intellectual move) makes all the difference. As already pointed out by Humberto Maturana in his *Biology of Cognition* communicating is essentially the *orientation* of others. The speaker, because of his intention, knows – or at least, to be taken seriously, should know – what he is after: he expects certain behaviour of the listener when uttering a certain phrase. Accordingly, the request to open a window is accompanied by the expectation to see the addressee go and open a window. And this expectation[7] 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 initial communicative approach he sets the conditions and defines the overall criteria for success or failure within that communicative episode. Therefore, a teacher cannot but evaluate his observations of the students' behaviour – as re-action to his own communicative approaches towards them – in the light of his own expectations and understanding. Like a teacher, the speaker has to decide and, moreover, is in the only position to decide whether the observed re-action matches his intentions and expectations.

Picking up Heinz von Foerster's eigenvalue metaphor, the speaker – with his intention and as first mover – defines the eigenvalue 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 process as the addressee or "victim" of external demands. The more aesthetically seducing, the more impressive, persuasive, forceful or lasting the approach towards the recipient, the less ignorable it is. Less ignorable, however, are the speaker's interventions in terms of perturbating, modulating or changing the self-referential and cognitively autonomous operation of the listener as a cognitive system, the stronger the impact on his cognition. Moreover, the speaker's work on the gradual adjustment or tuning of the listener to perform the intentionally 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 communicative 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 governs the whole communication as a kind of 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 rekursiv interagieren, *nolens volens* stabile Eigenverhaltensweisen ausbilden" (Foerster 1993, p. 279; Two subjects interacting recursively *nolens volens* each produce stable eigen-behaviour. My translation).

In this case a bistable function converges towards two stable eigen-values each generating the other as output. This kind of correlation, though, seems to come close to pure functional dependency. Therefore, we have to question bistable functions as a model for communication of cognitive, namely, nontrivial 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 having examined the positions of the two most influential constructivists to some extent – allows for a first positive but careful answer: besides the dominant view of understanding as a cognitive process, constructivist authors also open a perspective on the interactional and communicative dimension of understanding. They assume a functional role either as a kind of referential instance or as an element in the value range of eigen-value functions as represented by the cognitive operation of each of the participants. Nevertheless, the constructivist approach to understanding as explicated 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 Foerster, but at same time unchain constructivist thinking from hermeneutic predispositions. Let's see what happens.

Understanding as cultivation: Cognitive operation under social control[8]

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

(i) A communicator (speaker, writer, etc.) tries to attain her/his goals by performing verbal and non-verbal behaviour respectively. Vocal or verbal action is successful when the actor observes the desired or intended effects. "Translating" this into the semantics of understanding we may say that the communicator *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 expectations match with the observed effects of action, the actor/communicator may state that the recipient or addressee did understand. "*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 authority to decide whether the communicative expectations are met or not. The communicator, however, is not alone able to *decide about the understanding* of the partner. Moreover, he cannot even avoid showing some evaluative reaction (e.g., confirmation, disappointment, paraphrasing, commenting, explicating, 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 appropriateness 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 emphasised and confirmed by either explicitly stating that the other has understood or by rewarding the communicative success with all kinds reinforcing positive

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, commu-

nication 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.

Notes

1. "Janus is the Roman god known as the custodian of the universe. He is the god of beginnings and the guardian of gates and doors … Two heads back to back represent Janus, each looking in opposite directions … Janus also represents the *transition between primitive life and civilization*, between rural and urban existence. He also maintains the balance between peace and war and youth and old age … He introduced 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 Dannhauer and his *Idea Boni Interpretis* (1630) and Hermeneutica Sacra (1654), Johann Clauberg and *Logica Vetus et Nova* (1654), Johann Martin Chladenius with his *Einleitung zur richtigen Auslegung vernünfftiger Reden und Schriften* (1742), Georg Friedrich Meier and his *Versuch einer Allgemeinen Auslegungskunst* (1757), Alexander Gottlieb Baumgarten and his *Acroasis Logica* (1761) as well as Johann August Ernesti and his *Institutio Interpretis Novi Testamenti* (1761).

3. See also Abel (1948/1949) for a similar but earlier critical approach to hermeneutics.

4. We may also call these readings, interpretations and constructions of meaning "radical" in the sense of Donald Davidson's (1984) concept of *radical interpretation*. 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 Auslegers, diejenigen Bedeutungen für hermeneutisch wahr zu halten, welche mit den Vollkommenheiten (Verständlichkeit, Wahrheit, Klugheit; G.R.) des Urhebers der Zeichen am besten übereinstimmen, bis das Gegenteil erwiesen wird." (Meier 1757, § 39).

6. As pointed out in Rusch (2003) the episodic structure of communication clearly separates four different phases: initialization, performance, controlling and evaluation. These phases follow an underlying basic operational principle of sensory-motor coordination and learning, namely, the coupling of (self-) observation and motor activity which – together with the development of a concept of causality – results in action schemata (i.e., knowledge and ability to do or bring about s.th. intentionally. (cf. Piaget 1937). As we may learn from Jung (1995) who takes communication *as* (social) control of the ability to act – through internalization (self-control) and institutionalization (conventions) – it even paves the way for the conceptualization of the communicator as a self (personally and socially).

7. Expectations work like the *phantasma* in Karl Bühler's *Theorie of Language* or as a kind of *mental model* (Kenneth Craik; Phil Johnson-Laird) kept ready for comparisons and inferences related to ongoing perception.

8. Basic ideas of the following have been presented in a number of German-language publications; cf. Rusch (1986, 1987, 1990, 1992, 2000, 2003).

9. Clearly, this also allows for institualization and social structuring, e.g., in the sense of A. Giddens (1984).

10. Cf. also Wittgenstein (1963), §§ 153, 155, 182.

References

Abel, T. (1948/1949) The operation called Verstehen. The American Journal of Sociology LIV: 211–218.

Albert, H. (1994) Kritik der reinen Hermeneutik. Mohr: Tübingen.

Apel, K. O. (1973) Transformation der Philosophie. 2.Bde. Suhrkamp: Frankfurt/M.

Austin, J. L. (1962) How to do things with words. Clarendon Press: Oxford.

Baumgarten, A. G. (1761) Acroasis Logica. Halle.

Betti, E. (1962) Die Hermeneutik als allgemeine Methodik der Geisteswissenschaften. Mohr: Tübingen.

Brinker, W. (2004) Janus. God of beginnings. Retrieved from http://www.meridiangraphics.net/janus.htm on 12 September 2006.

Chladenius, J. M. (1741) Dissertatio de sententiis et libris sententiosis. Leipzig.

Dannhauer, J. C. (1630) Idea bonis interpretis et Malitiosi Calumniatoris Quae Oscuritate Dispulsa, Verum Sensum a falso deicernere in omnibus auctorum scriptis ac orationibus docet, & plene respondet ad quaestionem Unde scis hunc esse sensum, non alium? Strassburg.

Davidson, D. (1984) Inquiries into truth and interpretation. Clarendon Press: Oxford

Davidson, D. (1986) A nice derangement of epitaphs. In: Lepore, E. (ed.) Truth and interpretation. Perpsectives on the philosophy of Donald Davidson. Clarendon Press: Oxford, pp. 433–446.

Dijk, T. A. van (1980) Macrostructures. Erlbaum: Hillsdale, N.J.

Dilthey, W. (1966) Das hermeneutische System Schleiermachers in der Auseinandersetzung mit der älteren protestantischen Hermeneutik. In: Dilthey, W., Gesammelte Schriften 14 (2). Leben Schleiermachers. Schleiermachers System als Philosophie und Theologie. Teubner: Stuttgart, pp. 595–787.

Dilthey, W. (1981) Der Aufbau der geschichtlichen Welt in den Geisteswissenschaften. Suhrkamp: Frankfurt/M.

Foerster, H. von (1985) Sicht und Einsicht. Vieweg: Braunschweig, Wiesbaden.

Foerster, H. von (1993) Wissen und Gewissen. Versuch einer Brücke. Suhrkamp: Frankfurt/M.

Gadamer, H.-G. (1986) Wahrheit und Methode. Grundzüge einer philosophischen Hermeneutik. Mohr: Tübingen.

Gergen, K. J. (1982) Toward transformation of social knowledge. Springer: New York.

Gergen, K. J. (1988) If persons are texts. In: Messer, S. B., Sass, L. A. & Woolfolk, R. L. (eds.) Hermeneutics and psychological theory. Rutgers University Press: New Brunswick & London, pp. 28–51.

Giddens, A. (1984) The constitution of society. Outline of the theory of structuration. Polity Press: Cambridge.

Glasersfeld, E. von & Richards, J. (1984) Die Kontrolle von Wahrnehmung und die Konstruktion von Realität. DELFIN III 2: 4–25.

Glasersfeld, E. von (1987) Wissen, Sprache, Wirklichkeit. Vieweg: Braunschweig,

Wiesbaden.

Glasersfeld, E. von(1995) Radical constructivism. A way of knowing and learning. Routledge/Falmer: London, New York.

Glasersfeld, E. von (1996) Radikaler Konstruktivismus. Ideen, Ergebnisse, Probleme. Suhrkamp: Frankfurt/M.

Günther, Matthias (2002) Prinzipien der Interpretation. Mentis: Paderborn

Habermas, J. (1989) Theorie des kommunikativen Handelns. 2 Bde. Suhrkamp: Frankfurt/M.

Heidegger, M. (1993) Sein und Zeit. Niemeyer: Tübingen.

Herder, J. G. (1877–1913) Sämtliche Werke. Weidmann: Berlin.

Hörmann, H. (1978) Meinen und Verstehen. Grundzüge einer psychologischen Semantik. Suhrkamp: Frankfurt/M.

Jung, R. (1995) Communication and control in time. Journal of Communication and Cognition 28: 275–308

Kintsch, W. (1977) Memory and cognition. Wiley: New York

Lewis, D. (1975) Konventionen. Eine sprachphilosophische Abhandlung. De Gruyter: Berlin, New York.

Lindsay, P. H. & Norman, D. D. (1973) Human information processing. Academic Press: New York, London.

Maturana, H. R. (1977) Biologie der Kognition. FEoLL: Paderborn.

Ricoeur, P. (1986) Du texte á l'action. Essais d'herméneutique II. Seuil: Paris.

Rusch, G. (1986) Verstehen verstehen. In: Luhmann, N. & Schorr, K. E. (eds.) Zwischen Intransparenz und Verstehen. Fragen an die Pädagogik. Suhrkamp: Frankfurt/ M., pp. 40–71.

Rusch, G. (1987) Erkenntnis, Wissenschaft, Geschichte. Von einem konstruktivistischen Standpunkt. Suhrkamp: Frankfurt/M.

Rusch, G. (1990) Verstehen verstehen. Kognitive Autonomie und soziale Regulation. In: Deutsches Institut für Fernstudien an der Universität Tübingen (ed.) Funkkolleg Medien und Kommunikation. Studienbrief 4, Studieneinheit 8, Tübingen, pp. 11–44.

Rusch, G. (1992) Auffassen, Begreifen und Verstehen. Neue Überlegungen zu einer konstruktivistischen Theorie des Verstehens. In: Schmidt, S. J. (ed.), Kognition und Gesellschaft. Frankfurt: Suhrkamp, pp. 214–256.

Rusch, G. (2000) Verstehen: Zum Verhältnis von Konstruktivismus und Hermeneutik. In: Fischer, H. R. & Schmidt, S. J. (eds.) Wirklichkeit und Welterzeugung. In memoriam Nelson Goodman. Carl Auer: Heidelberg, pp. 350–363

Rusch, G. (2003) Die Entkopplung von Kommunikation und Rezeption. Verständigungsverhältnisse in der Mediengesellschaft. In: Richter, H. & Schmitz, H. W. (eds.) Kommunikation – ein Schlüsselbegriff in den Humanwissenschaften. Nodus: Münster, pp. 149–165.

Schleiermacher, F. (1977) Hermeneutik und Kritik (edited by M. Frank). Suhrkamp: Frankfurt/M.

Watzlawick, P., Beavin, J. & Jackson, D. D. (1967) Pragmatics of human communication. W. W. Norton: New York.

Winograd, T. (1980) What does it mean to understand language? Cognitive Science 4: 209–241.

Wittgenstein, L. (1963) Philosophical investigations. Basil Blackwell: Oxford.