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## REMARKS ON ACTION-THEORETIC SEMANTICS

Action-theoretic semantics is here conceived of as a semantics based on an analysis of speechacts in terms of concepts of a general theory of actions. The meaning theories closest to this conception are those by H. P. Grice and D. Lewis in "Convention". It is argued that for a further development of these approaches stricter definitions of the basic terms (for instance Grice's *non-natural meaning* and Lewis' *common knowledge*) are indispensable since they involve iterated applications of the terms "behave", "intend" etc., which cannot be handled responsibly by intuition alone. Such definitions are then proposed and it is shown how the two approaches by Grice and Lewis can be fitted into a coherent account of linguistic meaning.

### I. Semantic paradigms

By far the oldest and today still the best developed and most efficient semantic theory is realistic semantics. It isn't really one uniform theory but rather a group of theories, a semantic paradigm, conceiving of the relation between linguistic expressions and their meanings as constituted by conventional coordination. The most prominent examples are the semantics for languages of symbolic logic and the logical semantics developed for fragments of natural languages.

In Ch. Morris' distinction of syntax, semantics and pragmatics realism is a purely semantic theory. Pragmatic aspects of the use of language, speechacts and utterances have been no topic for this theory till the end of the sixties.<sup>1</sup> A semantic for utterances was developed when index-expressions

<sup>1</sup> I shall make two distinctions here: first between *types* and *tokens* of speechacts, and secondly between the *acts* and their *products*: products of speechacts (as tokens) I call *utterances* (whether they be graphic or phonetic), products of speechact-types *expressions*. This two-fold distinction can be represented thus:

	act	product
type	speechact-type	expression
token	speechact	utterance

<sup>1</sup> TL X

like "I", "you", "here", "now", etc. were studied systematically. Such expressions make the truth-value of sentences in which they occur dependent upon the occasion on which they are uttered: on who speaks, who is spoken to, where and when the sentence is uttered. Utterances are constructed as ordered pairs consisting of a sentence and a point of reference – a sequence of parameters characterizing speaker, audience, time, place and the situation. The semantics for utterances differs from that for eternal sentences only in that they are assigned a truthvalue depending not only on worlds but also on points of reference.

Realistic semantics for a long time was also a semantics only for declarative sentences. Only they are true or false, but not questions, wishes, recommendations, warnings, and the like. The basic idea for an analysis of such other types of sentences was stated by D. Lewis in (70): A command like

a) "Close the door"

can be described by the declarative sentence

a') "S (the speaker) asks H (the audience) to close the door".

And a declarative like

b) "The door is closed"

can be described by

b') "S informs H, that the door is closed".

The descriptions (a') and (b') have different meanings from the sentences they describe: (a) is a command, but not (a'). (b) and (b') are both declaratives, but with different meanings, since they may have different truth-values. Now the meanings assigned by realistic semantics to the descriptions (a') and (b') – let us call them *descriptive meanings* – can serve as a realistic construct for the *performative meanings* of the sentences described by them.

These two remarks may suffice to show that pragmatic phenomena are not generally beyond the reach of realistic semantics. But there are pragmatic questions for which it has no answers to offer, for instance: "How does linguistic communication work?" and: "How did the first linguistic conventions come about? What means of communication did the first authors of linguistic conventions use?"<sup>2</sup>

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<sup>2</sup> Cf. Quine's foreword in Lewis (69).

The first move towards a new semantic paradigm was made by the theory of *meaning as use*, according to which the meaning of linguistic expressions can be constructed or analysed in terms of rules for their use. This theory, or more modestly: this approach – I just want to mention names as Peirce, Morris, Wittgenstein, Quine – discovered the various uses of language anew, the variety of “language games”, and emphasized the pragmatic aspects of language by insisting that language is primarily an *activity* and that therefore the study of meaning has its place within pragmatics as the basic linguistic discipline.

In their theories of speech acts J. L. Austin and J. R. Searle<sup>3</sup> have extended these ideas towards a theory of linguistic activity. The first really action-theoretic analyses of linguistic phenomena – in my understanding of this term – were however given by H. P. Grice and D. Lewis.<sup>4</sup>

## II. What is an action-theoretic semantics?

Action-theoretic semantics can be roughly characterized by the following fundamental ideas:

It starts with an analysis of speechacts as a special sort of acts. There is a notion of meaning defined for all types of acts. We *understand* an action, if we recognize what the agent intends to achieve by it. What we understand in this sense may be termed the *meaning* of the act. The meaning of an act, therefore, is the intention the agent has in doing it.<sup>5</sup> The meaning of speech acts in an action-theoretic approach is defined according to this general scheme.

The distinctive character of speech acts (more generally: of acts of signifying something) is that the speaker or communicator wants to signify, to indicate something to the audience or addressee. So the act is successful only if the latter understands the significance, the meaning of the act. Following Grice this can be stated thus: In communicative acts the speaker wants to elicit some reaction or response in the audience – he wants him to do something or

<sup>3</sup> Cf. Austin (62) and Searle (69).

<sup>4</sup> Cf. Grice (57), (68), (68a), (69) and Lewis (69).

<sup>5</sup> This holds only for (rational) actions proceeding from choices under certainty. To understand an action proceeding from a choice under risk means to recognize it as optimal given the agent's preferences and probability-assignments. In such cases we cannot normally speak of “intentions”. The following discussions refer only to choices under certainty, however.

believe something, for instance; that is the speaker's primary intention. But he also intends, that his intention should be understood by the addressee, because this recognition is, in the speaker's opinion, a prerequisite for the addressee's desired reaction.

Our behavior may be a symptom or a *natural sign* for others, as for instance speaking very quickly may be a sign that we are excited. We can also produce such symptoms voluntarily; wrinkling one's brow, for instance, indicates to another that we disagree with what he says or have doubts about it. In signifying acts by which we indicate something, as Grice says, *non-naturally*, our behavior is not a natural sign for what we wish to indicate. Such acts have to be understood as voluntary, as intentional by the audience in order to elicit the intended response.

Actions like mowing one's lawn which, though perfectly understandable for everyone, are not signifying acts since the recognition of their intention is not a prerequisite for them being successful. For others to recognize the communicative intention of an act it is necessary that without this intention it would be meaningless. Acts which are "in themselves" meaningless will, as a rule, only be understood as signifying something, if acts of the same type are generally done with the same purpose, and if this is common knowledge between speaker and audience. Only then has the speaker reason to believe that the addressee will understand his intention, and only then has the addressee reason to interpret the act in this way. Grice mainly discusses exceptions to this rule, and in special cases things may indeed be successfully signified without relying on a general practice. But general practices are quite indispensable if we look not at isolated communicative acts but at *types* of such acts. If for employing them there were no convention, their function would not be understandable and it could not be explained, why they are (as a rule) successful ways of communicating. What a convention is, and how on the basis of conventions attempts of non-natural communication are rational, D. Lewis has stated in (69). His theory of signaling-conventions, therefore, is an indispensable complement of Grice's approach. It closes a gap in Grice's theory by answering the question, why and when attempts of communication with certain acts and interpretations of such acts make sense.

We can say, then, in a first rough approximation, that holds especially for speech acts: An action-theoretic semantics is a theory of the meaning (in the pre-linguistic sense) of conventionalized signifying acts. To prevent misunderstandings: I think it a merit of Grice's approach that he doesn't restrict his analysis of communication to conventionalized forms. There are important forms of non-conventional communication, and therefore a

theory only of conventional communication would not be the whole story. But on the other hand I think that conventional communication is not just a special case, but that the notion of meaning of types of communicative acts, especially of linguistic communications can only be understood by reference to conventions.

The attraction of such an action-theoretic semantics is that it can do things that realistic semantics cannot do: analyses of phenomena of language use and of the processes of communicating with language. We shall have to inquire, however, if such a theory can *replace* realistic semantics, i. e. if it is an *alternative* to it, or if it is only an important addition. Before we come to that, however, something has to be said about the state of the theory.

### III. The indispensability of action-theoretic explications

An action-theoretic semantics should, of course, be based on a theory of actions, or better: on a *logic* of actions, in which the fundamental concepts that have to do with actions are explained and analysed. Such a concept is, first of all, the notion of an action itself. Since our (rational) actions depend on what we want and what we believe, the following three groups of concepts are to be assigned to a logic of actions:

1. *Praxiological concepts*: The basic ones are those of *acting* and *causing*.<sup>6</sup> The most fruitful approach towards a logic of these concepts seems to me that made by L. Aqvist in (74).<sup>7</sup> With these notions further praxiological concepts may be defined like *omitting* to do something, to *prevent* and to *permit* something to happen, to be *able to do* something, etc.<sup>8</sup>

2. *Doxastic concepts*: The fundamental notion here is that of subjective *probability*. The logic of this concept was developed foremost by B. de Finetti. Other doxastic concepts like *conviction*, *belief*, etc. can be defined with it.<sup>9</sup>

3. *Voluntative and valuative concepts*: Here the concept of (subjective) *preference*, as used in decision theory is fundamental.<sup>10</sup> The basic voluntative

<sup>6</sup> With a view to the distinction of Z. Vendler in (67), chap. 4, there will in fact be various action concepts.

<sup>7</sup> I have proposed some modifications and generalisations of this approach in (80).

<sup>8</sup> Cf. Kutschera (80).

<sup>9</sup> I have discussed this in (76), chap. 4. For a more detailed exposition cf. W. Lenzen (80).

<sup>10</sup> Cf. e. g. R. Jeffrey (69).

concept of *wanting* something to be the case is closely connected with it.<sup>11</sup> Further important voluntative notions are *intention* and *aim*. We can say:

D1: A person *a* *intends* to bring about the state of affairs *p* by doing *f* iff *a* does *f*, wants *p* to come about, and is convinced that *p* will come about if and only if *a* does *f*.<sup>12</sup>

An *aim* of an action is the state of affairs the agent intends to bring about by that action.

Although an intuitively as well as formally well established logic of actions does not yet exist, there are already important ingredients and elements of such a logic, so that a demand for action-logical explications of semantic concepts is not illusory.

The indispensability of such explications can, I think, be clearly seen, if we take a closer look at some of the basic notions of action-theoretic semantics:

### 1. Grice's concept of non-natural meaning

The fundamental notion of Grice's theory of meaning is – in a loose paraphrase – 'S (the speaker), in doing *f*, tries to indicate (in a non-natural way) to H (the audience), that he should do *r*' – we symbolize this by KV(S, H, f, r). In (69) Grice explains this as follows:

D2: KV(S, H, f, r) holds iff S, in doing *f*, intends to bring it about that  
 a) H does *r*,  
 b) H recognizes, that S intends, that (a),  
 c) (a) comes about by (b).

Now it doesn't make much sense to say that S *intends* that (a) should come about by (b), since the way (a) comes about cannot normally be influenced by S. One can only say that S *believes* that (a) will come about if and only if (b). If we write

"T(S, f)" for "S does *f*"

"G(S, p)" for "S believes (in the strong sense of being convinced) that *p*",

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<sup>11</sup> I have made a tentative proposal for an explication of this concept in (80), sect. 8.

<sup>12</sup> We again refer only to actions proceeding from decisions under certainty.

" $I(S, f, p)$ " for "S, in doing f, intends to bring it about that p" (cf. D1)<sup>13</sup>,

we can write D2 as

$$\begin{aligned} D2^+: KV(S, H, f, r) := & I(S, f, T''(H, r)) \\ & \wedge I(S, f, G''(H, I)) \\ & \wedge G'(S, T''(H, r) \equiv G''(H, I)). \end{aligned}$$

Here  $t'$  is to be a time before  $t$  (the time in which S does f) and  $t''$  a time after  $t$  in which H recognizes what S did in  $t'$  and reacts correspondingly. The indices ' and '' are to indicate that the propositions refer to  $t'$ , or  $t''$  respectively. I is to be an abbreviation of  $I(S, f, T''(H, r))$ .<sup>14</sup>

Now, even definition  $D2^+$  yields a concept that cannot be handled responsibly by mere intuition. The definiens speaks of intending that somebody believes that someone else intends something and this is already more complex than what occurs in normal discourse. The demand after logical crutches for intuition becomes, however, still more pressing if we realize that the defining conditions of  $D2^+$  are necessary but not sufficient for non-natural meaning in the sense outlined above. According to this idea the audience must not only recognize the primary intention  $I(S, f, T''(H, r))$ , but *all* communicative intentions of the speaker, including the secondary intention  $I(S, f, G''(H, I))$ , and then also  $I(S, f, G''(H, I(S, f, G''(H, I))))$ , etc. This has come out clearly in the discussions of Grice's definition, especially in P. F. Strawson (64) and S. Schiffer (72). This leads to the following condition of adequacy for the notion KV:

$$\begin{aligned} P1: KV(S, H, f, r) \equiv & I(S, f, T''(H, r)) \\ & \wedge I(S, f, G''(H, KV)) \\ & \wedge G'(S, T''(H, r) \equiv G''(H, KV)). \end{aligned}$$

As a definition this would clearly be circular. But we can set

<sup>13</sup> D1 then becomes

$$D1^+: I(S, f, p) \wedge T(S, f), G'(S, T(S, f), p)$$

According to the definition of "wanting that something be the case" given in Kutschera (80), it follows from the definiens that S wants (in  $t'$ ), that p comes about – otherwise S would not do f, since S is convinced that p will happen iff S does f.

<sup>14</sup> We assume that S believes in  $t'$ , that H will recognize in  $t''$  whether S does f, i.e.

$$G'(S, (T(S, f) ? G''(H, T(S, f))), (\neg T(S, f) ? G''(H, \neg T(S, f))))$$

- D3 a)  $KV_1 := I(S, f, T''(H, r))$   
 b)  $KV_{n+1} := I(S, f, G''(H, KV_n))$   
 c)  $KV^* := \bigwedge_n KV_n$ .

$KV^*$  then satisfies condition P1.<sup>15</sup>

It is quite clear, that in dealing with notions like this one cannot do without logic. This also holds for the other central concepts employed in Grice's approach: *successful (non-natural) indications*, in which the audience recognizes the communicative intentions of the speaker, and *meaning*.

## 2. Grice's meaning concept

According to the general notion of the meaning of acts outlined above we can say: For the utterer (speaker) an attempted indication means that the audience should recognize its communicative intentions and react correspondingly. The attempt has the same meaning for listener and speaker if both understand it in the same way, i. e. if it is successful. A *type* of signifying act (a type of speech acts) has a common meaning in situations of a certain kind  $\mathfrak{S}$  for a group  $P$  of people only if they employ it in situations of this sort just in this communicative function, and if all the members of  $P$  know this and therefore always understand acts of this type in situations of kind  $\mathfrak{S}$  in this way. Moreover it must be *common knowledge* in  $P$  that this is so. This notion of common knowledge, which plays an important role also in D. Lewis' theory of conventions, again demands a logical explanation – here in terms of epistemic logic.

That it is common knowledge in  $P$ , that a state of affair  $p$  obtains, may be defined thus:

- D4 a)  $GG_1(P, p) := \bigwedge X(X \in P \supset G(X, p))$   
 b)  $GG_{n+1}(P, p) := GG_1(P, GG_n(P, p))$   
 c)  $GG(P, p) := \bigwedge_n GG_n(P, p)$  – it is *common belief* in  $P$  that  $p$ .  
 d)  $GW(P, p) := GG(P, p) \wedge p$  – it is *common knowledge* in  $P$  that  $p$ .

<sup>15</sup>

It has often been objected that the speaker could not possibly have all of the infinite number of intentions ascribed to him by D3. But this is off the mark: The speaker intends that his intention be fully understood by the audience. This implies that he has all the intentions listed in D3, but he need not have them explicitly in mind, of course, or think of them. There is an analogy in believing: If you believe, that  $p$ , you also believe, that you believe, that  $p$ , and so on, but that doesn't make simple beliefs impossible; you don't have to think of all these propositions in order to believe that  $p$ .

Here, too, we have interlocked occurrences of belief-predicates surpassing every finite border, so that it is quite impossible to work with this concept in a merely intuitive way.

Let me add two more definitions:

$$D5: B(P, \mathfrak{S}, f, r) := \bigwedge s XY (s \in \mathfrak{S} \wedge S(X, s) \wedge H(Y, s) \wedge T(X, f) \supset KV^*(X, Y, f, r)).$$

– in P doing f in situations of kind  $\mathfrak{S}$  is trying to indicate to the hearer that he (or they – I take the audience to consist just of one person for simplicity here) should do r iff for all situations s of kind  $\mathfrak{S}$  and all persons X and Y the following holds: if X in s is the speaker and Y the audience (this is to imply that X, or Y respectively, is a member of P) and X does f, then X attempts to indicate to Y in doing f that Y should do r.

Then the relation ‘doing f in situations of kind  $\mathfrak{S}$  means in P to indicate to the audience that he should do r’ has to be defined by

$$D6: B^*(P, \mathfrak{S}, f, r) := GW(P, B(P, \mathfrak{S}, f, r)).$$

$B^*(P, \mathfrak{S}, f, r)$  implies that for all  $s \in \mathfrak{S}$  we have  $G'(S, T''(H, r) \equiv T(S, f))$ . If  $\mathfrak{S}$ -situations occur repeatedly these convictions are plausible only if they are correct in almost all such situations. The condition

$GW(P, \bigwedge s (s \in \mathfrak{S} \supset G'(S, T''(H, r) \equiv T(S, f)))$  contained in  $B^*(P, \mathfrak{S}, f, r)$  will be true therefore only if

$$P2: GW(P, \bigwedge s (s \in \mathfrak{S} \supset (T''(H, r) \equiv T(S, f)))),$$

where “ $\bigwedge$ ” means “almost all”. With a few other unproblematic assumptions it follows from  $B^*(P, \mathfrak{S}, f, r)$  and P2 that the strategy to indicate by doing f in situations of kind  $\mathfrak{S}$  that the audience should do r is a signal-convention in the sense of D. Lewis. On the other hand, as Lewis has shown, every use of a signal-convention by the speaker is an attempt to indicate something non-naturally. This explains the connection between the approaches of Grice and Lewis that was indicated above.<sup>16</sup>

#### IV. Signals and Languages

Grice’s theory of meaning has only been developed for isolated signs or signals, like flag-signals, for instance, but not for languages. A language,

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<sup>16</sup> A part of the detailed explications of the concepts of action-theoretic semantics was published in G. Meggle’s dissertation (80). The other part as well as the proofs of the two theorems mentioned will be contained in another book.

however, is not a set of isolated signals, but a system in which complex signs are built up from simple ones and in which there are rules specifying how the meanings of complex signs derive from those of the simple components. Only in this way a language with a finite vocabulary and finitely many rules can encompass infinitely many sentences.

Now the semantic rules for a language cannot be constructed as rules determining the meaning of complex (types of) speech acts from simple (types of) speech acts. Complex speech acts do not consist of simple ones. A speech act is always a (relatively) independent communication. In contrast to Searle I do not think that we can regard predicating, referring and perhaps even negating, conjuncting, quantifying etc. as types of speech acts. This would not be in accordance with the act-theoretic approach, since there are no intentions of the speaker that we could assign to such acts.

D. Lewis has taken the other extreme. He first defines a language L in the sense of realistic semantics, including performatory verbs and then assumes just one convention in the language community P, namely that all members of P endeavour to be truthful in L.<sup>17</sup> What this means is stated for the various performative modes: One is truthful in L, if one tries to utter a declarative sentence only if it is true in L, to obey a command, if one is obliged to do so, etc.

In this approach no attempt is made to reconstruct the concepts of realistic semantics, especially descriptive meanings in the framework of act-theoretic semantics. The whole apparatus of realistic semantics is introduced quite independently from this frame so that this semantics, when it comes to the analyses of languages, presupposes realistic semantics and cannot, therefore, be regarded as an alternative to it.

In (76), p. 174ff I have indicated how one might introduce – more in the spirit of the action-theoretic approach – descriptive meanings in the context of speech act conventions. I don't want to go into this here, however, since this proposal just gives a more detailed analysis of the conventional correlation of descriptive meanings to linguistic expressions, but nothing like a *reduction* of descriptive meanings, of objects, attributes, propositions and the like to act-theoretic distinctions. This, indeed, cannot be done, since the logic of actions itself employs such notions. It would also be imprudent to burden the logic of action and the action-theoretic approach to semantics with nominalistic idiosyncrasies and try to eliminate such, in this view, obnoxious entities as attributes and propositions.

<sup>17</sup>

Cf. Lewis (69), 192ff.

The machinery of realistic semantics, though it may be adapted to action-theoretic ideas, therefore seems indispensable. But since this machinery of attributes, propositions, functions etc. is not just employed in realistic semantics but in all kinds of theories this does not mean that action-theoretic semantics is no *alternative* to the realistic one and only an important *addition* to it. Since the two approaches define meanings in a fundamentally different way it is justified to speak of two distinct semantic paradigms.

The action-theoretic approach gives, I think, an interesting and fruitful analysis of the notion of meaning, but it, like any other approach, should not be overestimated. There isn't, and there cannot be, any one complete theory of language treating all linguistic phenomena and answering all questions about language. All theories about language can only analyse some of its aspects. Especially all attempts to "reduce" language to non-linguistic phenomena or to "explain" language are doomed to failure, simply because each theory presupposes a language in which it is formulated and it cannot then be a complete and consistent theory of this language.

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