

Rethinking the Sign

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Abstract

This text wants to attack and overcome what in my opinion are central flaws in reasoning about language: the notions of ambiguity and contextuality. In my view, the general idea of language and in particular the linguistic sign rests on erroneous assumptions with their regard, assumptions taken over from common-sense, never questioned in their essence, and quite unjustifiedly awarded the reputation of common-places.

I show, how both ambiguity and contextuality are contradictory and in conflict with causality and logic, I explain, how these contradictions are rooted in a deep misunderstanding of the linguistic sign, I move on to revise the sign, include context and give evidence for the materiality of "nothing else", and arrive at a revised notion of the sign as a complete perceptual state.

The sign so determined is free of ambiguity and contextuality, and above all semantically non-compositional. I also give some explanations why the errors are typically made and finally challenge the proposed sign conception from the viewpoint of generativity.

1 The curse of linguistics: ambiguity and contextuality

It is odd that the concepts of ambiguity and contextuality should be generally taken for granted. I will prove how completely nonsensical

they are and postulate a theory of language free of them

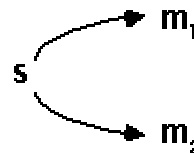
1.1 Ambiguity

First of all, it is important to see that language is a *causal* issue:

Looking at language as a process, we observe causes (signs) producing effects (meanings). Looking at language as a *competence* or faculty, we can call it a device implementing causal relations, since it maps causes to effects, inputs to outputs, signs to meanings.

Given this, the concept of ambiguity is contrary to reason, as it implies *causal branching*:

A single cause (or sign) s is said to bring about more than one effect (or meaning) m , like



and it is said that these effects do not occur at the same time, but alternate,

they do not come about by chance, but that each one of them occur deterministically for a reason, and

this occurrence can be reproduced.

For several reasons, this ought to puzzle:

1. If a sign has a *particular* meaning rather than another of several possible, then we must ask: what is responsible for the particular *choice*? If there is no particular reason having picked out the particular effect, the effect appears to have popped out from nothing!

2. Also, to say that there are *alternative* effects implies that any given effect does at times *not occur* although its cause is present. But how can something qualify *as an effect* if it does *not deterministically appear* given its assumed cause? Every single effect is contradicted by all the other possible effects.
3. And *vice versa*: If something which is postulated to be a cause is there without producing (one of) its supposed effect(s), it obviously *is not the cause* it was thought to be.

Therefore, when thought to the end, the idea of ambiguity denies cause-effect-relations, or sign-meaning-relations, altogether. And there is more to worry about:

4. Seen in the realm of semantic description, ambiguity implies a *logical contradiction*. Every semantic description pairs two signs and claims they share the same meaning. Obviously in the case of ambiguity some sign *s* is paired with semantically distinct descriptions d_1 and d_2 , which amounts to saying that

s equals d_1 and
 s equals d_2 and
 d_1 differs from d_2

And this is clearly a contradiction against the law of transitivity of equivalence, which requires d_1 to equal d_2 if both equal some third object s :

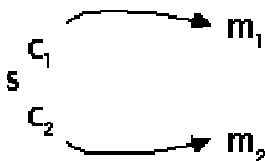
IF $s = d_1$ AND $s = d_2$ THEN $d_1 = d_2$

1.2 Context dependence

is meant as good company of ambiguity and as a relief from its problematic sides.

Context appears to be the hidden agent choosing the particular meanings and thus to avoid the assumption of uncaused effects.

The idea is that sign s in combination with context c_1 leads to meaning m_1 , and in combination with context c_2 to meaning m_2 :



This appears to avoid the impression of causal branching and of meaning as something popping out of a trap. But the appearance deceives:

1. The role of s as the cause for the several meanings is not questioned at all: While context c_1 is said to pick out meaning m_1 , and context c_2 is said to pick out meaning m_2 , these meanings are still maintained to be meanings *of s*!

Accordingly, ambiguity (a sign may have several meanings, each picked out by some context) isn't questioned but lent support, and ambiguity's problems are not in the least overcome!

In addition, contextuality introduces errors of its own:

2. For one, the notion of *relevant context* is a contradiction in itself since material held to be context is both

acknowledged as being *necessary to bring about an effect*, and at the same time

excluded from the cause.

Which amounts to saying: "context causes without being part of the cause"!

3. And there is another substantial trouble: To say that some cause produces a certain effect *provided this cause exists in a certain context*, concedes that the assumed cause *is not the cause* after all but at best a *part* of it!

If something does not *by itself* produce what is thought to be its effect, it can't be called this effect's cause.

And it does not make a difference if this something is indeed a *part* of the cause; otherwise, arbitrary tiny fractions of a cause would be held equal to the cause as a whole.

To put it in terms of semantics: to claim that a sign has some meaning *in a certain context*, is to admit that the thing thought to be a sign *is no sign at all*!

Thus, contextuality is in no way a solution of the problems but at best a half-hearted attempt at an escape, along the way producing the pernicious

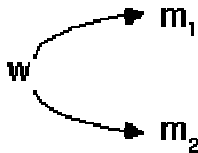
effect of all half truths:
it diverts attention from the problem and generates a false sense of security, thereby allowing the sin unhindered growth.

1.3 Homonymy

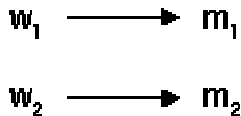
is another attempt to escape from the troubles of ambiguity, this time on the word-level.

In order to avoid the branching from a single word to several meanings, the word is conceived to virtually being *several words* which only *accidentally* happen to share the same "surface form".

Rather than having one word w with two meanings m_1 and m_2 , like

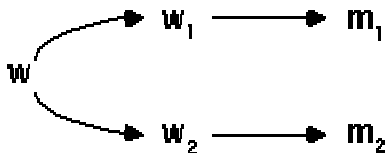


a representation in terms of homonymy applies differentiating indices to yield two separate words with only one meaning each, like



But as beautiful as this may look, and as widespread as this "technique" is and as well-known from dictionaries, it is only a bad *trick*:

Since the real world contains the *un-indexed* word only, some *way* is required to go from this word to the indexed variants or "virtual words", and this brings in, only shifted by a step, exactly the same branching which homonymy was meant to overcome:



In other words, the original ambiguity of w 's having two meanings m_1 and m_2 , pops up again as the ambiguity of w 's mapping to two homonyms w_1 and w_2 !

And, of course, nothing is gained.

2 Rethinking the sign

Having looked at what is wrong, how can the problems be solved?

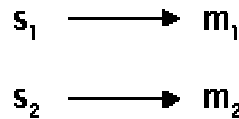
The above discussion suggests: As ambiguity and contextuality imply causal and logical errors and as these come as consequences of what is assumed to be a sign, this assumption of *what a sign is* must be *false* and the conception of a sign must be in need of a *revision*.

2.1 Abandoning the concept of context

The analysis of contextuality above points to the necessity to acknowledge everything as being part of the related cause which is relevant for an effect.

Linguistically speaking: What helps produce the meaning, must be part of the sign.

Accordingly, the combinations of s with contexts c_1 and c_2 , respectively, are taken to be two separate signs s_1 and s_2 , each having a single meaning:



This cleans the picture:

- What formerly had the dubious status of context, i.e. of something effective but at the same time outside of the cause, is now accepted as a genuine part of the sign.
- And ambiguity goes away, too, since the included contexts, each of them necessary to arrive at precisely one of several meanings, make for specific and semantically distinct signs.

At first sight, it may seem obvious what the inclusion of everything means, but

2.2 What is: everything?

How large is a linguistic sign?

Is it simply *all the given text*? Yes, maybe. But then: what *is* text?

Let me point out a phenomenon (using examples from German, with English translations) which shows that the matter is not as trivial as it may seem:

Take

(1) "Hör auf" -- 'Stop'

If certain context is added, the meaning changes radically:

(2) "Hör auf mich" --
'Follow my advice'

Adding more text can make the meaning twist again:

(3) "Hör auf mich zu ärgern"
-- 'Stop bothering me'

And this can even go on for another, albeit somewhat contrived, step:

(4) "Hör auf mich zu ärgern
Dich gibt's keinen Grund" --
'Follow my advice, no need
to worry'

How is this to be interpreted with regard to sign constitution?

Rather than set up

"Hör auf"

as an ambiguous expression with several meanings in different contexts, which has been shown to lead to nonsense, one would include the contexts and call (1) to (4) separate signs, with

"Hör auf"

a mere part common to them.

The examples show, however, that the inclusion of text is only a first step in the right direction, since *each of the stages (2), (3), and (4) contradicts its respective predecessor!*

Each of (1) to (3) states a certain sign-meaning-relation and maintains to have represented what is responsible for the particular meaning. And every subsequent stage proves this statement wrong:

If the assumed sign in (1) really *had* the supposed meaning, it would *carry this meaning along with it*, into arbitrary environments. However, (2), of which (1) is an obvious part, shows that it does not. And the same goes for the assumed sign in (2) with respect to (3) and the assumed sign in (3) with respect to (4). So in each case a statement about the meaning of a certain piece of text is made and subsequently falsified.

This shows that one does not arrive at a sign by merely including all the given text. There must be something else which so far has been overlooked.

To solve the mystery, let us consider (intensely) the cases of (1) and (2):

If

"Hör auf"

were the sign responsible for the meaning illustrated by 'Stop', this meaning would accompany it always and without fail.

As occurrences like

(2) "Hör auf mich" --
'Follow my advice'

show, however, it does *not*.

Then what, if not

"Hör auf",

led us to make the statement

(1) "Hör auf" -- 'Stop' ?

2.3 The sign: all and nothing else

The answer may seem fantastic: What you are processing when reading

"Hör auf"

and "experiencing" the meaning 'stop', is not only these *words* but also *the fact that there is nothing else!*

You do not process only the *words* but *only the words*, with the *only-ness* or "nothing else" a valid and genuine part of the linguistic sign.

This "nothing else" is what you see when looking at words which stand alone on an otherwise blank sheet of paper, surrounded by whitespace. It is certainly also *something*: sections, albeit unstructured, in your field of vision, surrounding something that you focus on.

Consequently, the *revised sign* looks like this: It is the complete state of affairs in a given field of vision or perceptual horizon.

2.4 All signs of equal size.

To represent the sign succinctly, one will abbreviate the whitespace, using e.g. "#", thus

"# Hör auf #"

could be stipulated as a representation of these two words in sufficient whitespace as to fill up the horizon, with nothing else in sight to draw attention to.

Brief as this representation is, it should be kept in mind that all signs are of the same size, determined by the capacity of perception. Using the previous examples, four signs could look like this

" Hör auf " " "
" Hör auf mich " "
" Hör auf mich zu ärgern " "
" Hör auf mich zu ärgern..." "

with variations only in *content*, not *size*.

It should be noted that the sign's size depends on the size of the perceptual field of the individual. There may be considerable variation in this respect, both between individuals as between conditions of an individual over time. The important point made here is that the sign's size does not vary with *what is perceived*.

The world writes on the perceptual horizon, modifying the state but not the size (dimension, resolution) of the state space.

3 The sign: a closer look

The sign, as it could be determined, is free from the old curses, and accordingly semantics is no longer in conflict with the laws of causality and logic.

3.1 Unambiguousness

The sign is connected with exactly one meaning. Both by definition and practically it includes all that is necessary to account for a certain meaning.

If there appear to be several meanings to a single sign, in reality there are several signs and each one is responsible for only one of the meanings.

3.2 What is disambiguation?

As disambiguation requires that there be ambiguity, from the non-existence of ambiguity deduces that disambiguation is another phantom. But what, if disambiguation *appears* to take place, does go on in reality? What is behind the illusion?

Disambiguation is defined as the selection of the one meaning (out of several possible) which is appropriate in a given context. Since it could be shown that context as an external force is a non-entity, and what appears to be in this role is actually a genuine part of the sign, whenever disambiguation *appears* to go on, we have a case of *sign-change*: the "context" didn't pick a meaning of the sign but it modified the previous sign into another one with another meaning.

Because what is assumed to be the "current meaning of a word" originates in something larger than this word, what we are doing when we *assume* a case of disambiguation is that we attribute elements of the meaning of a whole to one of its mere parts. This is exactly what has been criticized above under the topic of context dependence: Some entity is actually processed but when it comes to theoretical description, relevant parts of this entity (called "context") are overlooked.

The technical process of *semantic tagging* shows the error explicitly: there, insights are gathered by exploring *complete sentences and even texts* but then the results are *distinctively tagged* to words and phrases.

3.3 Ambiguity of "ambiguity".

I concede that there *is* something which might be called "ambiguity" but this should preferably be called *interpretability* in order to mark the

difference. To interpret means to place something in another context, to view it from a different angle, to bring in background, in other words: to bring about a *modification of the sign*. And every such modification is of course a replacement.

Therefore, if differences in interpretation yield different meanings, this is because every interpretation makes for a distinct sign.

My attack at ambiguity is targeted at *proper ambiguity* alone, systematic ambiguity, which comes with causal branching and logical contradictions. Since this could be shown not to exist, what I called ambiguity of "ambiguity" is better named *multiway-interpretability of "ambiguity"*.

3.4 Context independence

As a sign includes all that is necessary to account for its meaning, there is no context as a semantic factor extraneous to the sign.

"Relevant context" is misleading if not an outright contradiction: if something is relevant for a meaning, it is not in the context of a sign but a proper part of it.

And, vice versa, if there is relevant context to something, this something is merely a meaningless fragment of the sign.

3.5 Functions of forms

Each time some piece of text is placed into another context or environment, a new sign is constructed. The use of a word, its embedding into linguistic context or extra-linguistic context, does not reveal the word's meaning. It merely shows just this: how the word is (and *a fortiori* can be) used. It reveals its distribution or its functions. A word's function is purely syntactic: it is its occurrence in certain environments, its being member of certain signs. Nothing in the signs' meanings can be traced back and found to originate in certain parts of the signs.

3.6 The same with syntax:

To call "break" a verb or a noun in the sentences

"He will break the rules."

and

"Let him take a break.",

respectively, is the same mistake as is made when "disambiguating": A quality coming from the whole is said to be a property of a part.

"break" is the same wherever it occurs. To attribute it a part-of-speech label like "V" or "N" suggests as a property of the word "break" what

actually is at best a property of the whole sentence.

It may be worth noting that the quality of atomicity, if applicable, does not only apply to the text to be described, but to the describing text as well...

3.7 Analysis through synthesis

is another label for the mistaken assumption that the function of something in some whole or *gestalt* reveals something about it. A synthesis shows what something can be part of, not more, not less.

3.8 'Nothing else' is something

I think this is the essential stumbling block, a postulate going maximally against the grain. Why should "only x" be more than only "x"?

The answer is: it is *informationally* more. To know that there is *only one* person in a room, is to know *more* than only to know that one person is in the room. The latter leaves the number of people open: there may be one or five or a hundred.

This answers to the question somebody might ask: if I want to represent a word in isolation, why is it not enough to write this word (and nothing else)? Well, because the isolation is not contained in the word, it is not a property of it. You have to explicitly represent this *nothing else*, in short:

If you want to write *only a word*, you must *do more* than only write a word!

In order to make out an object "as isolated", we look at its environment. To be alone is not a property of an object. It is the property of a space containing nothing apart from the object.

If asked to write only a word, the normal reaction would be to write a word and refrain from writing any more. This refraining isn't enough, however, there must be positive action to express the only-ness: you have to *make sure* that there is only the word visible to the recipient. The recipient's horizon must be larger than the single word and you must take care that nothing enters it apart from the one, particular word.

Imagine somebody asked you to paint a person as one of a group of five people. And then to paint an isolated person. How would you express the difference?

3.9 Foreground and background

also associate here. If you have a word like "book" written in black letters on white paper,

what exactly is the word? It is not simply what is black since otherwise the word would exist on a black sheet of paper, along with every other black word, sentence, and text of past and future. Rather, the black regions have to border on white regions, yielding a boundary of a certain form.

To perceive the word, a reader must perceive the form of this boundary and to do this he must see both the black and the white regions. Therefore, the "background" is no less important as the "foreground", and the misleading distinction should be given up. The black parts of a word may for secondary reasons seem in the foreground, e.g. because we know that in printing black ink is applied to white paper, but semantically (causally) the two colors (shades) are on the same level.

Accordingly, to point to a word in a black-on-white text you have to point to a rectangle or an oval which contains black forms and white forms. So, the two words "book" and "have", although differing internally in terms of the forms of their black and white regions, may well have the same outward shape!

Having made this step, take the next and allow the sign to stretch to the border of the perceptual horizon...

3.10 Numerals

are another example of the importance of so-called background. Take the two bytes "0000 1011" and "0001 0110". It would not make sense to focus on the "1"s and ignore the "0"s. To read the value of the number, every bit has to be read, be it a "1" or a "0". As the black regions in black-on-white text, the "1"s tend to stick out and look like foreground.

3.11 Atomicity

From what has been shown to be the quality of a sign, it follows that signs are non-compositional or *atomic*.

If a sign is the complete state of an input space, it stretches to the border of a field of vision, leaving no space uncovered. Every sign is as large as any sign can get. And this logically prevents the possibility to compose signs from signs and build larger signs from smaller signs.

Note that atomicity does not imply that signs as well as meanings could not be *analysed* as being composed of pieces. What it merely says, is that the *pieces of the two sides are not connected*: there is no path leading from a segment of the sign to some corresponding segment of the meaning.

So, there is compositionality, but it is not *semantic* compositionality.

3.12 Atomicity is not strange

in itself: Words like "bake" or the affix "s" (in "bakes") have traditionally been said to have meaning without being composed of smaller and again meaningful elements. It always seemed natural to assume that analyzability ends somewhere and even long before the single graphical dot in a letter or the single sound in a consonant.

Or, looking upward, it was seen that the property of meaningfulness sets in abruptly with forms of a certain size, way above the physical elements.

What is required now is to raise this level considerably. Admittedly, to its extreme, where the sign equals a complete perceptual state.

3.13 Words are meaningless

and so are sentences and are pieces of text in general. The sign covers all of the horizon and it is causally *flat*. A word is a noticeable *gestalt* within this horizon, an area showing particularly much structure, making the area stand out against its environment. But there is no contribution to the sign which could be expressed *in semantic terms*.

To put it in the form of a slogan: What looks like the *meaning of a part*, is in fact a *part of the meaning* of a non-compositional whole.

4 Reasons for the error

There are several "good" reasons for the misapprehension of the linguistic sign. I will give a short account of what the error consists in and then mention a few of its reasons.

4.1 To have taken a fragment for a whole

was the error, briefly put. In the abstract it looks like this:

There is some cause *c* for some effect *e*. *c* is extended in space and it has internal structure. If for some reason only a part *f* of *c* is (mis)taken to be the cause for *e*, and if secondly *f* is part of another cause with a totally different effect, then we end up with both ambiguity, since *f* is paired with different effects (meanings), and contextuality, since extraneous conditions are sought and required to explain *why* *f* goes with one rather than another effect.

Accordingly, the remedy is to become conscious of the state bringing about some effect,

to see the whole and turn away from its fragments. Linguistically speaking, to become conscious of the holistic nature of the sign.

4.2 Compositionality

Compositionality is not intrinsically nonsensical as ambiguity and contextuality are. There is nothing inherently wrong with it. It would even be a good thing if the meaning of a large sign could be assembled from the meanings of this sign's parts.

What is bad about compositionality, is that this assumed need for semantic analyticity and composition drives and lures us into false assumptions of the sign, introducing ambiguity and context dependence.

Desirous to find the source of an effect, we try to track down the parts of complex effects to parts of complex causes. It is counterintuitive at first to accept that the structure of a cause is unrelated to the structure of its effect.

4.3 Indistinction of ambiguity and interpretability

That ambiguity and interpretability are not differentiated, is another source of the problem: the results of an interpretation appear to show a variety of meanings and, if interpretation is not seen as a process of sign construction, this appears to lend support to the notion of ambiguity.

But whereas ambiguity makes a point of many effects of a single cause, interpretation is a process to modify the cause, turning it into many causes, each with a unique effect.

4.4 Parsimonious communication

There is a tendency to say just what is necessary to make us understood. The more we share of a situation with our conversational partners, the less we have to make explicit when we communicate.

If we are not aware of what the situation contributes, we tend to overestimate the amount of information that our words convey. I.e., we feel meaning in a word, whereas in reality the whole situation was necessary to bring this meaning about.

4.5 Attention to change

It is known that certain animals, e.g. rabbits and hares, perceive certain objects only as long as these *move*. Objects which are fixed relative to the background seem for these animals to

dissolve into the background and to be downright invisible.

Something like this exclusive sensitivity to motion appears to be at work in humans: if a sign is changing into another and if this change is accompanied by a change in the meaning, then we not only readily detect the correlation between these changes but we are prone to take *what differs in the texts* to be the cause for *what differs in the meanings*.

As an example take the pair of sentences

"The sun smiles from the sky."

"The sun smiles from the blue sky."

The comparison of the two sentences makes "blue" stick out, and the comparison of the meanings makes the idea of a certain color stick out. And from this observation we jump to the "conclusion" that the word "blue" has this particular meaning.

It is true: by adding and removing something to/from a sign you can *switch* something in a meaning *on and off*.

But it is the *addition* and the *removal* which have these effects, not the *piece* which is added or removed! The addition of "blue" in the example substitutes a sign by another sign. And the difference between their meanings is just that and cannot be traced back to "blue".

The pair of sentences

"He wrote a song"

"He wrote a blue song"

shows how misleading the focus on correlated changes is: in this case it would lead to an assumption of the meaning of "blue" which would be in contradiction to those of the previous example.

Other striking evidence comes from minimal pairs like

"port"

"sport"

If from correlated changes in words and meanings one could deduce sign-meaning-relations, "s" would have to be postulated as having that as its meaning what separates the meaning of "#sport#" from the meaning of "#port#".

This reminds one of considerations known from chaos theory or of social phenomena discussed under the name of "tipping point". The beat of the butterfly's wing does not *cause* the hurricane, it only makes the difference, it *completes a conjunction*: the world *with* it leads to the storm, the world *without* it does not.

4.6 Correlations

are another seducer, closely related to the previous: If there are many sentences containing a certain part p_s with everything else completely different, and these sentences go with meanings containing a certain part p_m with everything else completely different, this makes the stable parts p_s and p_m stick out as correlated.

And accordingly, we tend to associate these parts and take p_s to be the cause for p_m .

4.7 Talk about language

can also foster the wrong view. Take a dialog like this, where the "meaning of a word" is discussed:

"Can you tell me, what 'blue' means in 'He wrote a blue song'?"

"It's like 'sad', 'melancholic', or 'low down'"

"Oh, I see. Thanks."

The point here is not that the dialog partners are obviously convinced of the meaningfulness of words and that in this exchange they tacitly strengthen this assumption. The point is that such a dialog *works*, and it works even if your views of language are like those as presented here!

So, why does it work? Because you can go from sign to sign without repeating all that stays in place. You can restrict yourself to uttering only the bits that are changing.

Hence, the above dialog is an abbreviated, partly obscured, version of

"I don't understand 'He wrote a blue song'. Seems, it has to do with 'blue'. Can you give me a paraphrase with 'blue' replaced by something I know?"

"It's like 'He wrote a sad song', 'He wrote a melancholic song', or 'He wrote a low down song'"

I know, this is only a first attempt at a convincing answer...

To repeat an observation I made above: The quality of atomicity, if applicable, does not only apply to the text to be described, but to the describing text as well. Whole is paired with whole.

4.8 Grammar and generativity

If signs are atomic, how is grammar to be thought? And, most importantly, how can generativity be explained? Doesn't generativity question the idea of an uncompositional sign?

Generativity in production requires that known elements can be composed into a new utterance. And vice versa, generativity in understanding requires that a new utterance can be analyzed into known elements. The sign which I postulate here, appears irreconcilable with this requirement.

4.9 Shallow compositionality

The notion that signs are atomic, i.e. that their parts do not have meaning, does not imply that these parts (letters, sounds, words, sentences...) do not have a specific *impact*.

Words would be indistinguishable, if they did not each have their individual effect. The distinctive impact is evident for the retina and the topmost level of the visual cortex to which input from the eyes is projected first.

From then onward superimposition and non-linearity set in, with the consequence that elements of the deepest states can not be related to elements of the input. There is no path leading from a segment of the input to a segment of the output and, vice versa, a part of the output can not be traced back to originate in a part of the input. The input-output-relation is not analytic, but atomic.

However: if input elements don't strike all the way through to the output, this does not mean to say that a segment of the input would not have its *individual contribution* to the overall process: it only means that this contribution *can not be expressed in terms of the process' result*

4.10 Hidden depths

So there *is* composition but it takes place in a medium different from what shows on the surface. To reveal what goes on in the deep, is future work.

References

The core of the views presented here go back to work I began as a student in the early 1980s and were published in:

Tillmann Wegst. 1988. *Die semantische Einheit*. Peter Lang Verlag, Frankfurt.