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64

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On the Semantics and Pragmatics of Linguistic Feedback

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Abstract

This paper is an exploration in the semantics and pragmatics of *linguistic feedback*, i.e., linguistic mechanisms which enable the participants in spoken interaction to exchange information about *basic communicative functions*, such as contact, perception, understanding, and attitudinal reactions to the communicated content. Special attention is given to the type *of reaction* conveyed by feedback utterances, the *communicative status* of the information conveyed (i. e., the level of awareness and intentionality of the communicating sender), and the *context sensitivity* of feedback expressions. With regard to context sensitivity, which is one of the most characteristic features of feedback expressions, the discussion focuses on the way in which the *type of speech act* (mood), the *factual polarity* and the *information status* of the preceding utterance influence the interpretation of feedback utterances. The different content dimensions are exemplified by data from recorded dialogues and by data given through linguistic intuition. Finally, two different ways of formalizing the analysis are examined, one using attribute-value matrices and one based on the theory of situation semantics.

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1. Purpose

The purpose of this paper is to present a sketch of a semantic/pragmatic account of linguistic feedback mechanisms in spoken interaction. After an initial account and exemplification of the relevant semantic/pragmatic features has been made, two attempts at formalizing these are presented and discussed.

2. Background

2. 1. Analytic components of communication

Direct human face-to-face communication can be seen as the product of analytically separable, interdependent functional subsystems.

In Allwood, Nivre and Ahlsén (1990), it was suggested that, at least for some purposes, the following three overriding functions might be fruitful to consider for speech production and speech perception.

(i) *Speech management functions*, i.e., the linguistic processes and mechanisms whereby a speaker manages his or her own linguistic contributions to a communicative interaction, involving phenomena that have sometimes been described as "planning", "editing", "(self)repair" etc.

(ii) *Interactive functions*, i.e., linguistic processes and mechanisms whereby the speakers manage the flow of interaction. (Feedback mechanisms, the topic of this paper, is an example of an interactive subsystem.)

(iii) *Focussed or main message functions*, i.e., linguistic processes and mechanisms whereby speakers manage to communicate information which is not immediately connected with management of their own speech or the interaction at hand. Focussed or main message functions, thus, include most of what is commonly described in grammatical theory and can be operationally defined as that which is contained in an utterance when those parts that are devoted to speech management or interactive functions have been substracted.

Speech management, interactive functions and focussed/main message functions can further be analytically subdivided into subsystems and subsystems of subsystems,

characterized by different functions. Interaction functions can, for example, be subdivided into mechanisms for:

(i) *sequencing* (of activities and subactivities, communicative acts and/or topics)

(ii) *turntaking*

(iii) *giving and eliciting feedback.*

The literature on conversation analysis and discourse analysis (see e.g. Levinson 1985 or Brown and Yule 1983) contains much discussion of the former two types of mechanisms, whereas there has been less discussion of feedback (cf. Allwood 1988a, 1988b). This paper is intended as a contribution to the further exploration of linguistic feedback mechanisms, especially with regard to the semantic/pragmatic functions of such mechanisms.[1]

2.2. Linguistic feedback: basic functions

The *term feedback originates* in cybernetics (Wiener 1948), where it is used to denote processes by which a control unit gets information about the effects and consequences of its actions.

Here we are concerned with *linguistic (interindividual) feedback* (Allwood 1979, 1988a, 1988b, 1988c), i.e., linguistic mechanisms which enable the participants of a conversation to exchange information about four basic communicative functions, which are essential in human direct face-to-face communication. These functions are:

(i) *contact* (i.e., whether the interlocutor is willing and able to continue the interaction)

(ii) *perception* (i.e., whether the interlocutor is willing and able to perceive the message)

(iii) *understanding* (i.e., whether the interlocutor is willing and able to understand the message)

[1] As can he seen. we are here making no attempt to distinguish semantics from pragmatics. This is so because we believe that such a distinction runs into serious practical and theoretical difficulties (cf. Allwood 1981).

(iv) *attitudinal reactions* (i.e. whether the interlocutor is willing and able to react and (adequately) respond to the message, specifically whether he/she accepts or rejects it).

These four basic functions of linguistic feedback arise from four basic requirements of human communication. First, communication requires that at least two agents are willing and able to communicate. Second, communication requires that the receiving agent is willing and able to perceive the behavioral or other means whereby the sending agent is displaying or signalling information. Third, communication requires that the receiving agent is willing and able to understand the content that the sender is displaying or signalling. It is also often helpful if the receiver can perceive and understand various types of indicated information.[2] Finally, communication requires that the receiving agent is willing and able to react attitudinally and behaviorally to various aspects of the content that the sender is displaying or signalling. Again, it is sometimes beneficial for communication, if the receiver also reacts to indicated information. Certain conventional features of the displayed or signalled content here seem particularly important for the interpretation of the content of feedback expressions. Among these are polarity (positive or negative) and mood (conventionally signalled evocative intention; cf. Allwood 1978).

Every language appears to have conventionalized means (verbal and prosodic means as well as body movements) for giving and eliciting information about the four basic communicative functions. Linguistic feedback mechanisms on a primary level usually involve very short morphemes (*yes, no, m*), or basic mechanisms such as repetition, simple body movements (head nods, head shakes) in combination, on a secondary level, with fairly simple phonological, morphological and syntactic operations for modifying and expanding the primary feedback expressions.

Earlier studies that have discussed feedback and related phenomena include Allwood (1976, 1979, 1988a, 1988b), Anward (1986), Clark & Schaefer (1989), Ehlich (1986), Fries (1952), Hellberg (1985), Heritage (1984), James (1972), Nivre (1991), Schegloff (1982), Severinson-Eklundh (1986), Sigurd (1984), Yngve (1970). Allwood (1988b) gives a taxonomy for the structure of linguistic feedback and, in particular, describes the Swedish system. In the present paper, we want to focus on the content features of linguistic feedback.

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[2] For the distinction between *indicated, displayed* and *signalled* information, see section 3.3 below.

3. Content features of feedback

3.1. Introduction

Although simple feedback words, like *yes*, *no* and *m*, are among the most frequent in spoken language, a proper analysis of their semantic/pragmatic content seems to be fairly complex and involve several different dimensions. One striking feature is, for example, that these words involve a high degree of context dependence.

Below, we will first discuss four of these dimensions and exemplify them by data from recorded dialogues and by data given through linguistic intuition. The examples from recorded dialogues are all in Swedish (with English translations). In addition to this, Swedish is used to exemplify distinctions which can not be found in English. The four dimensions we will discuss are:

(i) Type of reaction to preceding communicative act

(ii) Communicative status

(iii) Context sensitivity to preceding communicative act, with regard to:
A. Type of speech act (mood)
B. Factual polarity
C. Information status

(iv) Evocative function.

3.2. Type of reaction to the preceding communicative act

The raison d'être of linguistic feedback mechanisms is the need to elicit and give information about the basic communicative functions, i.e., continued contact, perception, understanding and emotional/attitudinal reaction, in a sufficiently unobtrusive way to allow communication to serve as an instrument for pursuing various human activities. The linguistic feedback system is, in this way, an essential instrument for successful communication of any type. Especially, it is an essential instrument for the incrementality of communication, i.e., the step by step build up of consensual joint understanding and attitudes. Feedback mechanisms are, thus, a means for communication which in its turn is a means for pursuing a variety of other human activities.

In our analysis of the content of feedback we are assuming that what we have called the basic functions also define four basic dimensions in the reactions that interlocutors have to each other's contributions in conversation. Feedback utterances, thus, give information about one or several of the following types of reaction:

(i) contact	-	willingness and ability to continue interaction
(ii) perception	-	willingness and ability to perceive expression and message
(iii) understanding	-	willingness and ability to understand expression and message
(iv) (other) attitudinal reactions	-	willingness and ability to give other attitudinal reactions to expression, message,or interlocutor.

Category (iv) has the word *other* in brackets, since contact, perception, and understanding also involve attitudes, albeit of a very fundamental cognitive and volitional sort. Category (iv), which we will mostly just refer to as *attitudinal reactions* without *other, is* supposed to cover other attitudes such as acceptance, non-acceptance, belief, disbelief, surprise, boredom, disappointment, enthusiasm, etc. When it comes to the words *yes* and *no* and their synonyms, we believe that the attitudes acceptance and nonacceptance are in focus and form a basis which can be modified by added attitudinal reactions. We can, thus, accept with regret or with enthusiasm by uttering the word *yes* with different types of prosody. In general, we can say that feedback words differ from each other mainly with regard to what attitude they signal, e.g., *yes* - acceptance, *no* - non-acceptance, *great* - appreciation/ enthusiasm, etc.

In example (1) below, *ja* (yes) has the functions of conveying *continued contact, perception* and *understanding* as well as the attitudinal reaction *acceptance.*

(1) A: men efter tre år va de ju[3] en härlig mylla
(but after three years you-know it was a lovely mould)

B: ja
(yes)

We can compare this to example (2), where B's weaker feedback utterance *mm* has the same content with respect to contact, perception and understanding, but does not necessarily convey the attitudinal reaction of acceptance of the veridicality of A's statement.

[3] The Swedish word *ju* appears in some of the examples in this paper. *Ju* has no exact translation into English. It has the function of making what is stated appear as mutually known information. This might depending on context variously he rendered as "you know" or "we know". For reasons of idiomaticity. we have chosen to use the hyphenated expression *you-know.* in our translations although this is not always a good equivalent. It should also he observed that *ju* is less salient and weaker than *you-know.*

(2) A: ...ja kan få såna // kontakter …kontakter mä universum jaa
(yes I can get such // contacts … contacts with the universe yes)

B: MM
(mm)

One might, however, claim that *mm* still signals acceptance in the weaker sense of accepting to continue, accepting the information in the preceding utterance as perceived and understood and possibly also of accepting to take a stand on this information.

3.3. Commununicative status

Like any other information communicated, feedback information concerning the basic communicative functions can be given on many levels of awareness and intentionality. This is so, whether the information is communicated by verbal or bodily means. Although levels of awareness and intentionality almost certainly are a matter of degree, we, in order to simplify matters somewhat, here distinguish three levels from the point of view of the communicating sender (cf. Allwood 1976):

(i) *Indicated* information is information that the sender is not aware of, or intending to convey. This information is mostly communicated by virtue of the receiver's seeing it as an indexical (i.e., causal) sign.

(ii) *Displayed* information is information that the sender is intending to "show" the receiver. The receiver does not, however, have to recognize this intention. Display of information can be achieved through any of the three main semiotic types of signs (indices, icons and symbols, cf. Peirce 1955).

(iii) *Signalled* information is information that the sender is "showing" the receiver that he is displaying and, thus, intends the receiver to recognize as displayed. Signalling can also be achieved through any of the three main semiotic types of signs. In particular, however, we will regard ordinary linguistic expressions (verbal symbols) as being signals by convention. Thus, a linguistic expression like *It's raining*, when used conventionally, is intended to evoke the receiver's recognition not merely that "it's raining" but that he/she is "being shown that it's raining".

The fact that linguistic expressions by convention are taken to be signals, does not, however, imply that they are always actually used as signals. A symbol can also be used to indicate and/or display its conventionally signalled content or some other content. Compare the example discussed by Searle (1969), where an American

soldier, captured by the Italians in World War II, by quoting “kennst Du das Land, wo die Zitronen blühen” (do you know the land where the lemons bloom) intends to display to the Italians that he is German.

In order to illustrate the application of the dimension of communicative status to linguistic feedback utterances we will consider the communicative status of some examples from the recorded dialogues.

In examples (1) and (3) below, the communicative status of the feedback utterances produced by B is not quite the same. In both cases the preceding utterance (produced by A) is a declarative statement with positive polarity (i.e., it is not negated) and in both cases the feedback utterance *signals* the acceptance function by use of *ja* (yes), while it *indicates* continued contact as well as perception and understanding of the preceding utterance. In example (1), however, the simple *ja* (yes) can merely be said to *indicate* the attitude of belief, while in example (3), the more elaborated feedback utterance rather *signals* belief, expressed through the indicative mood of the sentence *de e de ju* (it is you know).

(1) A: men efter tre år va de ju en härlig mylla
(but after three years you-know it was a lovely mould)

B: ja
(yes)

(3) A: de e ju väldit faalit me kärnkraft
(it is very dangerous you-know with nuclear power)

B: ja // de e de ju
(yes // it is you-know)

3.4. Context sensitivity with regard to the preceding communicative act

3.4.1. Introduction

One way of analyzing the meaning of linguistic feedback expressions and mechanisms is to say that they are characterized by a very abstract conventional type content in combination with high degree of context sensitivity. For example, the conventional type content of the three expressions *yes, no, m,* and *ok* can perhaps be characterized in the following way:

yes - acceptance
no - rejection
n - confirmation
ok - agreement

The conventional occurrence content of the three expressions is, however, always also a function of prosody and context. The function of prosody is mainly to modulate attitudinal information. In some cases (cf. example 5 below), this can affect the presupposed truth of the preceding utterance. Prosody will, however, not be treated in any detail in this paper. As for context, table 1 below demonstrates the influence of mood and polarity of the preceding utterance.

Table 1. Functions of *yes, no, m,* and *ok* in relation to the mood and polarity of the preceding utterance.

Preceding utterance	**Listener's response**			
	yes	*no*	*m*	*ok*
Pos statement *It's raining*	Acceptance of statement (Indicated belief)	Rejection of statement	Confirmation of understanding (Indicated acceptance of statement)	Agreement (Acceptance of what has been said as a point of departure, more or less stipulatively)
Neg statement: *It isn't raining*	Ambiguous between rejection of statement (*yes it is*) and acceptance of statement *(yes you are right)*	Acceptance of statement (Indicated belief)	Confirmation of understanding	Agreement (Acceptance of what has been aid as a point of departure …)
Pos yes-no question: *Is it raining?*	Commitment to positive fact	Commitment to negative fact	Confirmation of understanding (Indicated commitment to positive fact)	Agreement (Acceptance of implicit suggestion)
Neg yes-no question: *Isn't it raining?*	Commitment to positive fact	Commitment to negative fact	Confirmation of understanding (Indicated commitment to positive fact))	Agreement (Acceptance of implicit suggestion)
Pos request: *Open the door!*	Acceptance of request	Refusal of request	Confirmation of understanding (Indicated acceptance of request)	Agreement
Neg request: *Don't open the door!*	Unclear	Acceptance of request	Confirmation of understanding (Indicated acceptance of request)	Agreement
Pos offer: *Would you like some tea?*	Acceptance of offer	Rejection of offer	Confirmation of understanding (Indicated acceptance of offer)	Agreement (Indicated acceptance on the grounds of what has been said)
Neg offer *Wouldn't you like some tea?*	Acceptance of offer	Rejection of offer	Confirmation of understanding (Indicated acceptance of offer)	Agreement (Indicated acceptance on the grounds of what has been said)

We can see how context can change the occurrence content both with regard to attitudinal reaction (from acceptance to non-acceptance) and with regard to attitudinal object (e. g., from statement to offer). The table is somewhat unnatural in that simple feedback expressions without pronominal indications of the objects of acceptance and nonacceptance *(yes it is, no it isn't)* have been used. In the case of *yes,* this leads to ambiguity after a negative statement (ambiguous between acceptance of a negative statement and acceptance of the positive counterpart of the negative statement = rejection) and unclarity after a negative request *(yes I will(?), yes I won't*(?)*).*

We seem to have a sort of semantic field constituted by terms like *yes, no, m,* and *ok* supported by attitudinal dimensions of meaning like agreement, confirmation, acceptance and commitment. Each term is primarily focussed towards one or several of these dimensions, but can, depending on context, simultaneously indicate or display other compatible dimensions or even, with a change of focus, signal other dimensions.

The latter might happen, for example, in language acquisition, when a language learner who is yet not very proficient in the language he/she is learning uses the vagueness of the notion of acceptance connected with the word *yes* in order to signal acceptance of continued communication rather than acceptance of perceived and understood content. What is really being signalled (displayed or indicated, as the case may be) is willingness or agreement to continue communication rather than the more stereotypical fullbodied notion of accepting the evocative intention of the preceding utterance (communicative act). If the receiver of the *yes is* not fully informed about the learner's nonproficiency, there is a clear risk that what the learner is signalling (displaying, indicating) will be misunderstood.

Just like deictic expressions *(I, you, here, there, now, then,* etc.), feedback expressions are, thus, highly dependent on context for a precise determination of their meaning. However, just as is the case with deictic terms, this dependence is not random, but in fact triggered by specific contextual parameters. As can be seen from the discussion and examples above and further from the examples to be discussed below, among the most important of these parameters are various features of the immediately preceding communicative act:

(i) Type of speech act (mood)
(ii) Factual polarity
(hi) Information status.

3.4.2. Type of speech act (mood)

Table 2, which is extracted from table 1, illustrates the status of *yes* in different contexts. More precisely, we can see that the object of acceptance is determined by mood and speech act status. In the examples, we are making the assumption that mood and speech act status are in harmony. When mood and speech act status differ, increased degrees of freedom as to object of acceptance are introduced and context seems to determine which is chosen.

Table 2. Effects of speech act status (mood) on feedback.

Preceding utterance	**Listener's reply**	**Function**
It's raining	yes	Acceptance of statement
It's raining	yes	Commitment to positive fact
Open the door!	yes	Acceptance of request
Would you like some coffee?	yes	Acceptance of offer

We also see that the speech act status of the preceding communicative act can trigger a change in the attitude signalled. A yes-no question can, at least in some cases, be analyzed as a request for a commitment on the part of an interlocutor as to the veridicality of some statement. A reply using *yes* or *no* will therefore indicate a positive or negative *commitment* to an indicated fact and not merely acceptance of this fact.

If we contrast examples (1) and (4), we see the partially different functions of *ja/jaa* (yes) after a statement (example 1), where it conveys acceptance of the statement and after a question (example 4), where it conveys commitment to a positive fact.

(1) A: men efter tre år va de ju en härlig mylla
(but after three years you-know it was a lovely mould)

B: ja
(yes)

(4) A: e ni klara då
(are you finished then)

B: jaa
(yes)

The vowel reduplication in *jaa is* one of the means whereby a speaker can show increased commitment.

Further, if we take the meaning of *yes* and *no* to be acceptance and non-acceptance (rejection), it might be tempting to assume that they, when following a statement, like in the case above, always directly indicate acceptance or non-acceptance of this statement. This is, however, an oversimplification as is shown by the example below.

(5) A: it's raining
B: oh no

Here, *oh no,* if pronounced in a short, matter of fact way, can indicate denial of the statement. But consider instead the possibilities of pronouncing *oh no* with a disappointed or surprised intonation. In such cases, B would presuppose the truth of A's statement in order to signal his emotional non-acceptance of something he, all the same, believes to be true.

The object of acceptance or non-acceptance contextually signalled by *yes* and *no,* thus, does not merely depend on the status of the preceding communicative act but also on what type of attitudinal reaction the feedback utterance signals. Attitudes such as disappointment or surprise are factive and presuppose some fact towards which they are directed. This presupposition seems to be upheld in the case above and the nonacceptance instead to be used as an underpinning of the unpleasantness or unexpectedness signalled by the word *oh* in conjunction with the prosodic expression of disappointment or surprise.

3.4.3. Factual polarity

If we look at examples (6) and (7) below, we can see how the factual polarity of the preceding communicative act affects the function of the feedback utterance Consider the use of *nä/nej* (no) in examples (6) and (7) below.

(6) A: de kan ju inte va för fiskarnas skull va
(it couldn't be for the sake of the fish you-know)

B: nä
(no)

In example (6) the preceding statement has *negative polarity* and the function of the negative feedback utterance is *acceptance.* In example (7), on the other hand, the preceding statement has *positive polarity* and the function of the negative feedback is *nonacceptance.*

(7) A: så går naturen under me tekniken
(like that nature perishes with technology)

B: NEJ // de växer upp annat då vet du
(no // other things grow up you know)

Table 3, which is also extracted from table 1, illustrates the role of the factual polarity of the preceding utterance. As we can see, the polarity of the preceding utterance affects the attitude expressed by a *yes* or a *no.* If a statement preceding a *yes* is positive, the *yes* signals acceptance of the statement. If the statement, however, is negative, the *yes* can signal objection and rejection of the proposed negative statement. Normally, however, this function has to be supported by the positive pronominal reformulation *it is.* Likewise a *no* following *a* positive statement signals rejection of the statement, but following a negative statement it signals acceptance. The polarity of the preceding utterance, thus, seems to have a particularly drastic effect on the attitude signalled by a *yes* or a *no.*

Table 3. Effects of the factual polarity of the preceding utterance on feedback.

Preceding utterance	**Listener's response**	
	yes (it is)	*no (it isn't)*
Pos statement *It's raining*	Acceptance of statement (Indicated belief)	Rejection of statement
Neg statement: *It isn't raining*	Rejection of statement	Acceptance of statement (Indicated belief)
Pos yes-no question: *Is it raining?*	Commitment to positive fact	Commitment to negative fact
Neg yes-no question: *Isn't it raining?*	Commitment to positive fact	Commitment to negative fact
	yes (I will)	*no (I won't)*
Pos request: *Open the door!*	Acceptance of request	Refusal of request
Neg request: *Don't open the door!*	Rejection of request (Defiance)	Acceptance of request
	yes (I would)	*no (I wouldn't)*
Pos offer: *Would you like some tea?*	Acceptance of offer	Rejection of offer (Declination)
Neg offer *Wouldn't you like some tea?*	Acceptance of offer	Rejection of offer (Declination)

If we look somewhat more closely at table 3, we see that statements and requests seem to pattern one way and yes-no questions and offers a slightly different way with regard to the effect of their polarity on the content of *yes* and *no.* In the case of statements and requests, positive polarity results in acceptance *(yes)* and rejection *(no),* while negative polarity results in the converse rejection *(yes)* and acceptance *(no).* What seems to be accepted or rejected in the case of requests is the task of carrying out the request, while following statements, acceptance *(yes* and *no)* ambiguously can concern what might be termed provisional acceptance or it might concern a more fullbodied acceptance and integration into one's own system of beliefs. Rejection following statements seems in the case of both *yes* and *no* to signal commitment to fact with a polarity opposite the one indicated by the statement.

In the case of preceding yes-no questions and offers (which in the examples given here also have the form of yes-no questions), change of polarity does not seem to have the same effect, so that *yes* signals commitment to positive fact and *no* signals commitment to negative fact, regardless of the polarity of the preceding utterance.

In order to maintain the same analysis for all four contexts we could say that the *yes,* where it follows a negative yes-no question or offer (since negation to be relevant seems to presuppose a positive expected state of affairs which is denied) signals acceptance of this expected positive state of affairs. A *no* would signal rejection of this expected positive state of affairs.

Another alternative to maintain the same analysis for all four contexts would be to claim that *yes* always involves commitment to positive fact and *no* commitment to negative fact. This analysis would, in fact, also work for *yes* and *no* following statements and requests, where, for example, a *yes* signalling commitment to positive fact following a negative statement would indicate objection or rejection of the claim made and when following a positive statement would indicate acceptance or agreement. Even if the analysis of yes and *no* as signalling commitment to positive and negative facts, respectively, perhaps seems somewhat simpler than the acceptance/non-acceptance analysis, it runs into problems with the case discussed in example (5), i. e. where *no* is preceded by *oh* and pronounced with an intonation conveying disappointment. Such a response seems to presuppose the correctness of the speaker's claim, but signal the listener's emotive, conative non-acceptance.

Whichever analysis is chosen, it is, however, clear, that the attitude expressed by a *yes* or a *no* requires consideration of the polarity of the immediately preceding utterance in order to be determined.

In some languages, such as Swedish and German, the analysis just proposed for *yes* and *no* in English would have to be made somewhat more complicated in order to accommodate the fact that these languages have a special morpheme *jo* (Swedish) and *doch* (German) which is used instead of *yes* in all the cases following an utterance with negative polarity. So for Swedish and German one could therefore suggest that the meaning of *ja* (the same word in both languages) is to accept to carry out what the evocative function of a preceding positive utterance signals. In the case of statements, yes-no questions, and yes-no offers, the *ja* furthermore often "delivers the goods", i.e., provides a commitment to one of the indicated alternatives. In the case of requests, this is usually not possible since mostly nonverbal action going beyond a simple *yes* is required to "deliver the goods".

The function of *jo* and *doch* would, when following an utterance with negative polarity, instead be to assert commitment to a positive corresponding state of affairs opposite to that indicated by the preceding utterance. The Swedish and German distinction between *ja - jo* and *ja - doch* would thus separate acceptance of a positive state of affairs from commitment to a positive state of affairs as a reaction to an utterance where this state of affairs has been given negative polarity. In English, *yes* is instead polysemic with regard to these functions. Other languages, such as Russian, offer a further modification of the analysis. The acceptance function of *da* (yes) has been extended so that not only positive facts can be accepted, but also negative facts. Consider the following example.

(8) A: nie idjot dozhd
B: da

B's utterance in the Russian example (8) signals acceptance of the fact that it is not raining. Negative questions, requests and offers seem to function similarly, so that *da* can be used to signal acceptance of a negative state of affairs. In English, the word *mm* can be used in a similar way, the difference being that *mm* indicates rather than signals acceptance.

3.4.4. Information status

A third feature of an utterance preceding a *yes* or a *no* that seems important both for the actual morphological and phonological realization of *yes* or *no* and for their interpretation is the information status that the utterance has for the listener, i.e., for the person giving the feedback. Compare examples (9), (10), and (11).

(9) A: det regnar
(it's raining)

B: ja det gör det ja
(yes it does it yes)

(10) A: det regnar inte
(it's not raining)

B: nä det gör det inte nä
(no it does it not no)

A: det regnar
(it's raining)

B: *nä det gör det inte nä
(no it does it not no)

In example (9), the “sandwich” positioning of the *ja* before and after the pronominal reassertion of the preceding statement serves to signal that the listener has been reminded of something he/she already knew. The corresponding “sandwich” construction with *no* can therefore be used after a negated statement, as in example (10), only when it signals that B is reminded of a negative fact that he accepts as true. It cannot be used in order to object to a positive statement, as in example (11).

If, in example (9), B had responded by *ja ja,* which could be regarded as an abbreviated version of *ja det gör det ja,* the signalled meaning would have been something like *yes, I know,* without the indication of having been reminded. If B had responded by *jaså* (oh (really)), this would instead have signalled that the fact mentioned by A was new to B, thus not something he was reminded of or already knew. In fact, this feature of *jaså* (oh) can be ironically exploited in Swedish by speakers who say *jaså* in order to indicate to their interlocutor that what they are hearing is perhaps not so new and interesting as their interlocutor would like to imagine.

Another operation on information status can be achieved by the use of *jaha* (oh) which in example (9) could have been used to signal that B accepts that A says *det regnar* as a fact, which is ambiguous between taking A's uttering something as a fact and taking the state of affairs indicated by A as a fact. This ambiguity is brought out in examples such as *jaha, det är vad du säger* (oh, that's what you say), *jaha det är vad du tror* (oh, that's what you think) or *jaha, då får vi ta med oss paraply* (oh, then we have to take an umbrella).

As we have seen, there are various means for making a feedback utterance indicate, display or signal the information status of the preceding utterance in relation to the

person who gives feedback. In example (12) below, the use of the negative morpheme *nä* (no), as a reaction to a preceding positive statement, as well as the lengthening of the morpheme *nä* (no) by the added vowel *-e*, makes the utterance display an attitude of surprise and thereby indicate that the information status of the preceding utterance is *new* rather than given or known. In particular, as already discussed in section 3.4.2., B is not denying the veridicality of A's statement.

(12) A: så ja har tomatlådor där å ja brukar få ett par hundra tomater
(so 1 have tomato boxes there and I usually get hundreds of tomatoes)
B: näe
(no)

Another example, where the information of the preceding communicative act is perceived as new, by virtue of the feedback utterance is example (13) below.

3.5. Evocative function

Feedback utterances conveying that the listener (B in our examples) is surprised and that the information in the preceding utterance is new to him/her, often also have an evocative function, i.e., they place an obligation on the current speaker (A) to react, in his turn, and give feedback to B's feedback. Thus, B's *jasså*, in example (13), displays surprise which leads A to reaffirm.

(13) A: å karamellpapprena dom kommer i i // i den där papperskorgen sen
(and the candy papers they get into into // into that waste paper basket then)

B: jasså
(really)

A: jaa
(yes)

B: de va ovanlit
(that's unusual)

The word *jasså* (really) displays surprise and indicates that the preceding utterance contains new information. An additional rising intonation can make this function even stronger. As we can see, A responds with a feedback utterance *jaa* (yes), where the added *-a* gives the utterance emphasis, i.e., A reaffirms his own preceding

utterance. B then continues *de va ovanlit* (that's unusual), which displays her continued attitude of surprise.

In a somewhat wider sense of evocative, of course, every utterance containing only a single feedback word could be said to evoke the continuation of the conversation. Consideration of the evocative function of feedback, thus, connects it to the basic function we have above referred to as ability and willingness to continue a communicative interaction. By uttering a feedback word a speaker simultaneously indicates willingness and ability to continue and willingness and ability to let the other speaker continue.

4. Formalizing content features of feedback

4.1. Introduction

In this section, we want to explore the possibility of formalizing the analysis of content features presented in section 3. In doing this we will develop two different kinds of formalization, one using attribute-value matrices and the other based on the theory of situation semantics.

4.1.1. Attribute-value structures

The first kind of formalization simply consists in using attribute-value matrices to represent bundles of content features associated with linguistic expressions. Besides offering a compact and yet perspicuous notation, the use of attribute-value matrices (or feature structures, as they are sometimes called) potentially gives us a unification-based formalism,[4] which may be useful if you want to describe how the occurrence content of a particular feedback utterance is constructed by combining a type content with features of the context. (This is a problem that we will not really pursue in this paper, however.)

4.1.2. Situation semantics

The second attempt at formalization is couched in the framework of situation semantics (Barwise & Perry 1983, 1985; Barwise 1989). Within that theory, the occurrence content *P* of a linguistic utterance is regarded as a function of two parameters: the expression (type) *S* which is used, and the embedding circumstances

[4] For an introduction to unification-based formalisms and their use in syntax and semantics. see Shieber 1986, Pollard & Sag 1987, Johnson 1988.

(or context) *c* in which *S* occurs. This is expressed in the following semantical "equation" (cf. Barwise 1986b):

(14) C(S, c) = P

The occurrence content of an expression *S* in a context *c* (as well as the content of any other information-carrying event) is generally taken to be the information that there exists a (real) *situation* of a certain *type (i.* e. that a certain type of situation is realized). The content is therefore modelled in situation semantics with a *situation type* (cf. Barwise 1986a, Israel & Perry 1988). A situation type *T* is defined by a (possibly parametric) *infon* (or *state of affairs) i,* which is called the *conditioning infon* of *T.* A particular situation *s* is of type *T* if and only if it supports *i* (or an instance of *i,* if *i* is parametric), i.e. if and only if *i* is a fact in *s.* A situation-type *T* with conditioning infon *i* is represented as in (15), where *s* is a situation variable and the whole expression is read as "the type of situation *s* where *i* holds".

(15) [s | i]

For example, if an utterance of the sentence *It is raining* in a certain context c has the content "it is raining at a certain spatiotemporal location *l*" (say, the utterance location), then we may express this as follows:

(16) C*(It is raining,* c*)* = [*s*] <<at *l*; raining; l>>]

The picture sketched so far is oversimplified in (at least) one important respect. In reality, the content of a linguistic utterance is not a function of two but of three parameters. In addition to the expression used and the embedding circumstances, we have to consider the set of *constraints* (law-like regularities such as linguistic conventions) with respect to which the utterance interpreted, as the examples in (17) make clear:

(17) a. C(Swedish, /næ/, c) = "no"

b . C(Greek, /næ/, c) = "yes"

Since we will only be concerned with one language (Swedish) in the formalized examples below, we will generally suppress the constraint parameter in the representations and continue to represent the content of linguistic utterances as a function of only two parameters: expression and content. It is important to keep in mind, however, that the content we attribute to particular utterances is always dependent on a particular set of constraints (especially linguistic conventions).

4.2. Type of reaction to the preceding communicative act

Information about the basic communicative functions (contact, perception, understanding, attitudinal reactions) can be represented in attribute-value format using the four attributes CONTACT, PERCEPTION, UNDERSTANDING and ATTITUDE, where the attribute ATTITUDE, as noted above, can be read as short for OTHER ATTITUDE, since CONTACT, PERCEPTION and UNDERSTANDING also involve attitudes (cf. section 3.1).

The first three will be treated here as binary features (with possible values + and -), although this is an oversimplification. The ATTITUDE feature, by contrast, takes as its value a complex feature structure containing information about the attitudinal reactions which are present in different cases. This complex feature structure thus contains a selection from a set of binary features ACCEPT, REJECT, BELIEF, AGREEMENT, SURPRISE, etc.[5]

In sum, then, we need at least the following collection of features to represent type of reaction to preceding communicative act:

(18)

Feature	**Type of value**
CONTACT	BOOLEAN
PERCEPTION	BOOLEAN
UNDERSTANDING	BOOLEAN
ATTITUDE	COMPLEX
ACCEPT	BOOLEAN
REJECT	BOOLEAN
BELIEF	BOOLEAN
AGREEMENT	BOOLEAN
SURPRISE	BOOLEAN
…	

The content of the feedback utterances *ja* and *mm* in examples (1) and (2) (repeated below for convenience) can now be (partially) represented as in (19) and (20), respectively.

(1) A: men efter tre år va de ju en härlig mylla
(but after three years you-know it was a lovely mould)

[5] Here it is even more of an oversimplification to use simple binary features, and for two reasons. First, the object of the attitudes may be different from one case to another, although it will be assumed here that the object is always some feature of the content of the preceding utterance. Second, the strength of the attitudes may vary, surprise, for example, may be expressed in different degrees, although it will he treated here as a simple yes-no matter.

B: ja
(yes)

(19) [CONTACT +1
[PERCEPTION +]
[UNDERSTANDING +]
[ATTITUDE
[ACCEPT +]]

(2) A: ... ja kan få såna // ääh kontakter....kontakter mä universum jaa
(... yes I can get such // eeh contacts ... contacts with the universe yes)

B: mm
(mm)

(20) [CONTACT +]
[PERCEPTION +]
[UNDERSTANDING +]

If we turn to situation semantics, we must remember first that the content of a feedback utterance will be represented as a situation type (cf. section 4.1.2.). In most cases, the conditioning infon of this type will be a complex one, consisting of a conjunction of atomic infons (we will use the notation '& i_1, ... i_i' to denote the conjunction of the infons i_1, ... i_i). For example, the content of the feedback utterances in example (1) and (2) can be represented as in (21) and (22):

(21) C(*ja*, c_1) = [s | & <<at l_1; willing-to-continue, B_1; 1>>,
<<at l_1; perceive, B_1, u_1; 1 >>,
<<at l_1; understand, B_1, u_1, P_1; 1>>,
<<at l_1; accept, B_1, P_1; 1>>]

(22) C*(mm,* c_2) = [s | & <<at l_2; willing-to-continue, B_2; 1 >>,
<<at l_2; perceive, B_2, u_2; 1 >>,
<<at l_2; understand, B_2, u_2, P_2; 1 >>]

We see that the conditioning infons in both cases are conjunctions of (possible) facts about the speaker B_i and his willingness to continue, his perception of the preceding utterance u_i, his understanding of the content P_i of the preceding utterance u_i, and (in 21 but not in 22) his acceptance of the communicated content P_i.

So far, we have not made any attempt to capture the influence of context in the interpretation of feedback utterances. For example, in (21) there is no indication of how the location l_1, individual B_1 utterance u_l and content P_1, (which are constituents of the conditioning infon) are picked out from the context (and the context itself is only represented by the symbol cl). We will return to this problem in section 4.4. below.

4.3. Communicative status

Communicative status can be introduced into our attribute-value notation by means of three complex-valued attributes INDICATE, DISPLAY and SIGNAL, which take as their values feature structures representing the information which is indicated, displayed or signalled, respectively. Their use is illustrated in (23), which is a richer representation of the content of *ja* in example (1) than the one given in the preceding section, and (24), which represents the content of *ja de e de ju* in example (3), repeated below for convenience.

(23)
```
[INDICATE
        [CONTACT                +]
        [PERCEPTION             +]
        [UNDERSTANDING          +]
        [ATTITUDE
                [BELIEF         +]]]
[SIGNAL
        [ATTITUDE
                [ACCEPT         +]]]
```

(3) A: de e ju väldit faalit me kärnkraft
(it is very dangerous you-know with nuclear power)

B: ja // de e de ju
(yes // it is you-know)

(24)
```
[INDICATE
        [CONTACT                +]
        [PERCEPTION             +1
        [UNDERSTANDING          +]
[SIGNAL
        [ATTITUDE
                [ACCEPT         +]
                [BELIEF         +]]]
```

In situation semantics, the notion of communicative status can be captured in different ways. Here we approach the problem simply by dividing the content of an utterance into three parts, namely *indicated content, displayed content* and *signalled content*, which we will represent as $C_1(S, c)$, $C_D(S, c)$, *and* $C_s(S, c)$, respectively. Thus, we assume that the following equation holds (for arbitrary expressions*S* and contexts *c*):

(25) $C(S, c = C_1 (S, c + C_D(S, c + C_S(S, c)$

Given this assumption, we can characterize the contents of the feedback utterances in examples (1) and (3) as in (26) and (27):

(26) $C_1(ja, c_1)$ = [s | & <<at l_1; willing-to-continue, B_1; 1>>,
<<at l_1; perceive, B_1, u_1; 1>>,
<<at l_1; understand, B_1, u_1, P_1, 1>>,
<<at l_1; accept, B_1, P_1; 1>>]
$C_s(ja, c_1)$ = [s | & <<at l_1; accept, B_1; P1; 1>>]

(27) C_1 *(ja de e de ju,* , c_3) = [s | & <<at l_3; willing-to-continue, B_3; 1>>,
<<at l_3; perceive, B_3, u_2; 1>>,
<<at l_3; understand, B_3, U_3, P_3; 1>>]
C_s *(ja de e de ju,* , c_3) = [s | & <<at l_3; accept, a_3, P_3; 1>>,
<<at l_3; believe, a_3, P_3; 1>>]

4.4 Context sensitivity with regard to the preceding communicative act

In this section we will discuss one kind of context sensitivity in relation to the formalizations developed so far, namely sensitivity with respect *factual polarity* . In section 3.4.3, we discussed two different analyses of the way in which the factual polarity of the preceding utterance influences the content of words like *yes* and *no,* one based on the notions of acceptance and rejection, one based on the notion of commitment to facts. The formalizations suggested here are based on the first analysis throughout.

In attribute-value notation, the occurrence content of *nä/nej* in examples (6) and (7) can be represented as (28) and (29), respectively.

(6) A: de kan ju inte va för fiskarnas skull va
(it couldn't be for the sake of the fish you-know)

B: nä
(no)

(7) A så går naturen under me tekniken
(like that nature perishes with technology)
B: NEJ // de växer upp annat då vet du
(no // other things grow up you know)

(28)
[INDICATE
[CONTACT +]
[PERCEPTION +]
[UNDERSTANDING +]]
[SIGNAL
[ATITTUDE
[REJECT -]]]

(29)
[INDICATE
[CONTACT +]
[PERCEPTION +]
[UNDERSTANDING +]]
[SIGNAL
[ATTITUDE
[REJECT +]]]

(28) and (29) differ only in the value they assign to the PATH [SIGNAL [ATTITUDE [REJECT]]]. In both cases, the value is the same as the polarity of the preceding statement. We can capture this generalization in a set of constraints on the attribute-value structure *C* representing the content of an utterance of the type *nej* in the context of a preceding statement represented by the attribute-value structure *PS* (where the notation *f:path* designates "the value assigned to *path* in feature structure *f*"):

(30)
C[INDICATE [CONTACT]] = +
C[INDICATE [PERCEPTION]] = +
C[INDICATE [UNDERSTANDING]] = +
C[SIGNAL [ATTITUDE [REJECT]]] = PS[POLARITY]

Using situation semantics the contents of *nä/nej* in examples (6) and (7) can be represented as in (3 1) and (32), where, for the first time, we try to give a little structure to the contexts.

The context in example (6) is characterized as a situation c_6 where it is the case that a person A_6 addresses B_6 at a location $l_{6\text{-}1}$ (temporally preceding the location l_6 where the feedback utterance occurs), making an utterance 146 with content P_6, which has the polarity 0.

In a similar way, the context of example (7) is characterized as a situation c_7 where it is the case that a person A_7 addresses B_7 at a location $l_{7\text{-}1}$ (temporally preceding the location l_7 where the feedback utterance occurs), making an utterance u_7 with content P_7, which has the polarity 1.

(31) C_1 (nej, c_6) = [s | & <<at l_6; willing-to-continue, B_6; 1>>,
<<at l_6; perceive, B_6, u_6; 1>>,
<<at l_6; understand, B_6, u_6, P_6; 1>>]
C_s(*nej*, c_6) = [s | & <<at l_6; reject, B_6, P_6; 0>>]

where c_6 | = <<at $l_{6\text{-}1}$; address, A_6, B_6; 1>>
c_6 | = <<at $l_{6\text{-}1}$; utter, A_6; u_6; 1>>
c_6 | = <<at $l_{6\text{-}1}$; content, u_6; P_6; 1>>
c_6 | = <<at $l_{6\text{-}1}$; polarity-of, 0, P_6; 1>>

(32) C_1 (*nej*, c_7) [s | & <<at l_7; willing-to-continue, B_7; 1 >>,
<<at l_7; perceive, B_7; u_7; 1 >>,
<<at l_7; understand, B_7; u_7; P_7; 1 >>]
C_s (nej, c_7) [s | & <<at l_7; reject, B_7; P_7; l>>]

where c_7 | = <<at $l_{7\text{-}1}$; address, A_7, B_7; 1>>
c_7 | = <<at $l_{7\text{-}1}$; utter, A_7, u_7; 1 >>
c_7 | = <<at $l_{7\text{-}1}$; content, u_7; P_7; 1 >>
c_7 | = ~<at $l_{7\text{-}1}$; polarity-of, 1, P_7; 1 >>

We can generalize over (31) and (32) by means of *parameters* and obtain (33), which is a characterization of the content of *nej* in a context of type *c*. (We use boldface for parameters; note especially the polarity parameter **I**)

(33) C_1 (*nej*, c) =[*s* | & <<at $\boldsymbol{l_i}$; willing-to-continue, **B**; 1 >>,
<<at $\boldsymbol{l_i}$; perceive, **B, u**; 1 >>,
<<at $\boldsymbol{l_i}$; understand, **B, u, P**; l >>]
C_s(*nej*, c) =[*s* | & <<at $\boldsymbol{l_i}$; reject, **B, P; I**>>]

where c |= <<at $\boldsymbol{l_{i\text{-}1}}$; address, **A, B**; l>>
c |= ~<at $\boldsymbol{l_{i\text{-}1}}$; utter, **A, u**; l>>
c |= <<at $\boldsymbol{l_{i\text{-}1}}$; content, **u, P**; 1>>
c |= <<at $\boldsymbol{l_{i\text{-}1}}$; polarity-of, **I, P**; 1>>

Since we have not yet worked out a formalized way of capturing the systematic dependency of feedback content on the speech act (mood) and information status of the preceding utterance, we will not discuss formalization with regard to these features of context sensitivity here.

4.5. Evocative function

Adding evocative functions to the representations used so far requires nothing new in principle. For the attribute-value representations we simply add a complex-valued feature EVOCATIVE, which takes as its value feature structures representing different evocative functions. For the situation semantic approach we simply extend the situation-types representing the content of feedback utterances with more conditioning infons corresponding to the evocative aspects of the utterances. However, since we have not yet worked out a precise and detailed account of the evocative functions we also abstain from giving any formalized examples here.

5. Conclusions

In this paper, we have argued, discussed and at least partly demonstrated that what we have called "the linguistic feedback system" of a language should not be regarded as an area of hopeless complexity and confusion.

Rather, linguistic feedback systems seem to be describable subsystems of the interactive mechanisms available in the spoken form of any language. We have further argued, that such systems not only can be described phonologically, morphologically and syntactically, but also semantically and pragmatically. In order for such a description to be possible, feedback expressions and feedback mechanisms must, just like deictic expressions and deictic mechanisms, be regarded as highly context dependent. Specifically, we have argued that an account of the meaning of feedback utterances involves considering at least the following dimensions of content.

1 . Type of reaction to preceding communicative act.
2. Communicative status of various aspects of the content conveyed by the feedback utterance.
3. Context sensitivity with regard to the preceding utterance in at least the following respects:

    (i) Its evocative function (type of speech act)
    (ii) Its factual polarity
    (iii) Its information status.

4. Evocative status of the feedback utterance.

Our attempts at formalizing these features of the meaning of feedback utterances using attribute-value matrices and situation semantics are, naturally, only first attempts but, we hope, sufficiently precise as to convince other linguists that the area of feedback might be worthy of their attention.

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