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Hannele Dufva

Slipshod Utterances:
A Study of Mislanguange

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Hannele Dufva

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ABSTRACT

Dufva, Hannele

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Theory of speech production was studied through an analysis of a corpus of slips of the tongue collected from spontaneous Finnish conversations. The notion of error, and, specifically, the notion of 'speech errors' are discussed. Ideas in contemporary formalist (psycho)linguistics were shown to reflect an idealistic philosophy, and to be implicitly normative. In a functionalist approach, psycholinguistic processes of speech are approached through the study of spoken language, such as is employed in normal, spontaneous interactions. Thus the notion that slips of the tongue are 'errors' of speech, which are simultaneously malfunctions or breakdowns of an internal language production system, is rejected. It is argued that the internal processes employed in the production of speech are not to be seen in terms of a mental grammar, which employs static 'linguistic' representations and works with a set of internalized linguistic rules. Instead, a contextually based model of speech production is suggested. Thus, speech processing is seen as an interactive procedure in which the speaker works with several external (contextual) and internal (associative) cues that are used to produce speech. Slips of the tongue are explained as emergent phenomena, showing the misuse or neglect of these processing cues. They result from several underlying processes, that are basically both 'linguistic' and 'non-linguistic'.

language, psycholinguistics, slips of the tongue, speech errors,
speech production, spoken interaction, written language bias

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ABSTRACT

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ACKNOWLEDGEMENTS

Dialogue is a central theoretical concept in the present work, and the process of writing can also be best described as a dialogue. A thesis cannot be written in isolation, and ideas must be generated and modified in various dialogues, both in face-to-face conversations, and with authors present only through their texts. Thus, *meanings were negotiated* in interaction with several speakers and authors, but interpretations as well as misinterpretations are ultimately mine. The *voice* that speaks in this study belongs to an individual.

Discussions with my friend and colleague Maarit Valo have had a direct impact on the present work. Together, we have discussed our respective ideas on linguistics and speech communication, and worked our way through the jungle of everyday communication towards a more holistic and realistic analysis. The continuous dialogue with my colleagues, first in the Department of Communication, then in the Language Centre for Finnish Universities is a constant source of inspiration. My thanks are due especially to Tuija Nikko, Minna-Riitta Luukka, Pirkko Muikku-Werner, Tarja Valkonen and Minna Suni for many fruitful discussions over the years. It has also been a pleasure to work with Michael O'Dell and Pertti Hurme. Teaching the students of Applied Linguistics at the Department of Communication has given me a number of new insights.

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hope readers will enjoy them as illustrations of how people who study mistakes are not above making them themselves - quite the contrary.

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Living with my family, my husband Juha and my daughters Aura and Lotta, has been an education in the philosophy of everyday communication underlying the present work.

Jyväskylä
October, 1992

H.D.

1 INTRODUCTION

The present thesis is a psycholinguistic discussion on the ontology and pragmatics of speaking. The data used consists of a corpus of *slips of the tongue*. Slips of the tongue, or *speech errors*, have been widely used in linguistics as a means of providing external evidence to verify hypotheses of a particular linguistic theory. This procedure is in accordance with the deductive nature of the contemporary psycholinguistic paradigm. Here, however, an inductive method is chosen, in which the study proceeds from particular to general, or, from particular instances of speech (ie. slips of the tongue) towards a new kind of theory of speaking. The present thesis is aimed to be both a re-interpretation of slips of the tongue, and, at the same time, a critique of certain features of the mainstream psycholinguistics.

As a rule, slips of the tongue are employed as a source of evidence for the 'psychological reality' of a given linguistic theory and its constructs. The underlying linguistic theory has been, and still is, generative in vein and Chomskyan in philosophy. Within this theory, the speaker has been given a role of language user, or more crudely, a language machine operator that generates sentences with the help of his internal grammar. Here, it will be suggested instead that 'internal grammars', or the means which are employed by persons while speaking, are not identical with such external grammars as have been presented in linguistic theory.

Thus my emphasis in the analysis of slips and in my hypotheses about the quality of internal speech is not on the

(assumed) mental, but on the (observed) external. When spoken interaction is regarded in terms of its own, not in terms of 'language', the hypotheses about the internal processes acquire a more realistic and concrete tone. I will argue presently that psycholinguistic research has been under two influences: the influence of theoretical linguistics, which, respectively is dominated by a written language bias. Thus theoretical linguistics, along with psycholinguistics, is based on idealistic notions, one of which is a sharp distinction between the external speech and the internal linguistic reality that is supposed to underlie it. Spoken language phenomena, which are 'imperfect' and 'erroneous' by nature, are regarded through a linguistic and literary filter. Consequently, there is a marked tendency in psycholinguistics to attribute a mental psychological reality to such units and rules that are proposed in a particular linguistic theory, and, simultaneously, model the internal reality along the lines of written-like language. One of the aims of the present thesis is a *socially real* description of everyday speech and its lapses. The socially real description will, as will be argued, also lead us towards a new kind of psychological reality.

My work proceeds through a discussion of the data in a qualitative manner. Both the nature of lapses as such, but also their relevance for a theory of speech are discussed. First, I will discuss the notion of error, and the problems that are found in the definition of slips. Then I introduce three areas that are relevant in the discussion of speech production: (1) the (particular) language, which, in this case is Finnish, (2) the attentional ability and (3) the role of automatisms in speaking. The discussion is further developed in the latter part, in which I sketch the framework for a speech production theory. First, I discuss the role of social element in spoken interactions, then the internal ('psycholinguistic') processes, and finally, the articulation of speech. Examples sampled from the data are used as illustrations of the particular issues. The arguments suggest an interpretation in which speaking is decomposed into a network of different processes which function on parallel. Moreover, the role of linguistic processes, or language as a separate module, will be questioned.

My discussion is more eclectic and 'non-linguistic' than is usual in psycholinguistics. I have tried to consider the psycholinguistic relevance of research that is done within different fields, such as conversation analysis, social psychological research, speech communication, nonverbal research and phonetics. My discussion and references to these points and areas are -by

necessity- marked by a certain amount of simplification and superficiality. The theoretical influences have come from various linguistic sources. My orientation is closer to *cognitive linguistics*, which aims at an explanation of language in relation to its context, than to the theories of autonomous linguistics which rely on the explanation of language as an essentially innate system. In addition, I have been influenced by diverse *functionalist* frameworks, as opposed to formalist approaches. While the 'autonomist' and 'formalist' linguists tend to see language in terms of formal arbitrary structures, functionalists attempt at searching for the *motivation* behind language structures and specific utterances. Thus speech is regarded here in relation to its context, and as motivated, functional action.

One of the fundamentals of the thesis is the notion of *dialogue*, or, interaction. These views are expressed in various theoretical frameworks, such as symbolic interactionism or dialogism. The social and cultural context of the speech is not to be seen as a scene of the behaviour only, but as an integral part of spoken communication. To understand what the internal processes of speech are like, and how they developed, we must understand how the mind interacts with its environment. Speech is not a passive property of the speaker's mind. It is something that occurs in the interaction, and interaction is also to be found *within* the speech, not necessarily *outside* it.

As my arguments are directed against the present psycholinguistic paradigm rather than against any particular psycholinguistic theory or model, I have avoided criticism of any specific model, or any specific experiment. It is the linguistic and philosophical commitments that are typical for the period of post-Chomskyan psycholinguistics in general, that have been put under scrutiny here. As the explicit discussion about the fundamental theoretical principles and philosophical notions that underlie psycholinguistics has been scarce and assumptions often implicit, I have preferred references to psycholinguistic textbooks, which best seem to summarize the trends that are typical for a given period.

2 SLIPS OF THE TONGUE - ERRORS OF SPEECH?

"The cover is lifted from the clockwork, and we can look in on the cogs" (Rudolf Meringer)

2.1 Slips of the tongue : A historical survey

Background. Slips of the tongue are such errors that are recognized (or can be recognized, if needed) by the speakers themselves as accidental failures of their usual abilities or skills. They range from minor mishaps in pronunciation to serious blunders which are social faux pas. Some examples are given below:

(1) *miehet oli rauhaa* (pro *rautaa*)

'men were made of peace (pro iron)'

(2) *mikä on kateellisen ano...eiku synonyymi?*

'what's the ano...I mean synonym for jealous?'

(3) *meillä on tota mitä se nyt on kolestrolisoppaa* (pro *minestroneoppaa*)

'we had what-do-you-call-it cholesterol soup' (pro minestrone)

(4) *mä saan kohta ikäytyvää taka...eiku takautuvaa ikälisää*
 'I'll soon have my bonuses'

(5) *houkullisen näköisiä munkkeja (pro herkullisen/houkuttelevan)*
 'delicious looking buns'

The various slips and lapses are quite common in everyday speech, although estimates of their frequency vary slightly. Sturtevant (1947:38) claimed that "it may be doubted whether three consecutive sentences are spoken without one of them". Garrett (1982) gives an estimate of one in every thousand words spoken (the normal speech rate of English being c. 150 words/minute), while Stemberger (1982:25) gives an error rate of 20-30 per hour. Finally, Ferber (1991), in her study of radio speech, has ended up with a rate of approximately 50 slips of the tongue in 45 minutes.

Slips of the tongue in the present corpus (c. 1000) are collected from the spoken interaction of Finns in different situations. The data primarily consists of slips that have occurred in spontaneous speech. Some examples, however, are from reading aloud or prepared speech situations. Most examples have been observed and recorded by myself, but I have also included some examples recorded by friends and colleagues. Another corpus (c. 500) that consists of self-reported 'interaction slips' of subjects was collected by Maarit Valo (see Heikkinen and Valo 1985). These interaction slips are mistakes and misinterpretations, which are recognized as social failures by the speakers themselves. Here, examples from this corpus are implied with ISD (=Interaction Slip Data). Occasional examples from printed sources and other works are used for illustration. Reference to all other sources than my own corpus is given. All un-annotated examples are from my own data, and speakers are adults, if not otherwise indicated. Personal names have been changed when necessary. Translations into English have been aimed at making the point, rather than being idiomatic English. In addition, some excerpts from tape-recorded conversations have been used as illustration of the qualities of spoken interaction.

Early history. Slips of the tongue have long been noted down as curiosities. Authors have used them in fiction quoting genuine puns, or by inventing new ones themselves. Mrs. Malaprop, for example, a famous character in R.B. Sheridan's play 'The Rivals', first produced in 1774, has even provided a name for a category of slips of the tongue: the malapropisms. She had a habit of using words in a peculiar way:

(6) "I am sure I have done everything in my power since I exploded the affair"

(7) "But the point we would request of you is that you will promise to forget this fellow - to illiterate him, I say, quite from your memory"

Also later on, slips of the tongue have been a trade mark for many a fictitious character: in novels, cartoons and comedies both on stage and in television.

The first scientific paper that dealt with a related subject appeared as early as 1820 by J.W. von Goethe. He then published a short paper "Hör-Schreib- und Drückfehler", ie. hearing, writing and printing errors. Hermann Paul (1886) appears to have been the first linguist to pay attention to slips of the tongue. He assumed that as there seemed to be similarities between certain historical changes and synchronic slips of the tongue, the latter could be used as evidence for the study of the former. Delbrück (1887) who was his contemporary was the first linguist who discussed the connection between the slips of the normal speaker and aphasic errors.

Holism vs. linguisticism - Freud vs. Meringer. The breakthrough of research into human (verbal) errors came with the first large corpus collected by the speech error pioneer Rudolf Meringer (see Meringer and Mayer 1895; Meringer 1908). Meringer was the first to discover the regularities of speech errors or, to use his much quoted phrase, "man sich nicht regellos verspricht" (Meringer and Mayer 1895; 1978:9). He also devised a taxonomy for the description of speech errors, and thus started the 'linguistic' tradition in this area. Many fundamental concepts and taxonomies of contemporary research derive from his work.

The data Meringer collected consisted of nearly 9000 slips. Most examples are drawn from the speech of either his family or his group of colleagues who regularly met for lunch, and which included, by the way, Ferdinand de Saussure. At the beginning of his study, he envisaged that slips would become an important source of evidence for historical change, but later on, he refuted the idea himself. His large corpus has also been used by later researchers (see eg. Mackay 1970a;1970b; Celce-Murcia 1973;1980) and he is still honoured as a founder of the linguistic tradition.

When Sigmund Freud published his *Psychopathology of Everyday Life* in 1901 he knew Meringer's work and discussed several examples that were derived from his corpus. Freud himself argued - in the psychoanalytic vein - that a seemingly innocent

verbal mistake could be read as an indicator of a repressed idea about sexuality or death. Although he acknowledged Meringer's linguistic explanations, he did not regard them sufficient. It followed that Meringer sharply attacked him in *Aus dem Leben der Sprache* (1908). Their mutual hostilities went on until the final paper of Meringer on the subject in 1923, to which Freud did not reply (see also Cutler and Fay 1978).

Freud's (1901) explanations may seem overly psychoanalytic today. What is relevant in Freud's work, however, is that he shows a *holistic* view of errors, as opposed to the narrow linguistic view of Meringer and also, as opposed to the views of contemporary psycholinguistics. Freud was fully aware of the fact that human interactions have a larger context than that of the verbal utterances spoken:

I almost invariably discover a disturbing influence in addition which comes from something outside the intended utterance; and the disturbing element is either a single thought that has remained unconscious, which manifests itself in slips of the tongue and which can often be brought to consciousness only by means of searching analysis, or it is a more general psychical motive which is directed against the entire utterance.

(Freud 1901, from the English translation, reprinted in Fromkin ed. 1973:52)

Freud was not concerned, as both Meringer and the present-day psycholinguists, with the intended verbal utterance only. In that he recognized how non-linguistic matters actually affect the process of verbal and vocal interaction as well. That is, Freud - as a non-linguist - clearly saw that the human communicative process is more than the transmission of the verbal message.

Furthermore, Freud also saw that errors could not be attributed to one cause only, and that they were, as a rule, generated by *multiple causes*. This had been observed also by Wundt (1900) in his *Völkerpsychologie*. Although Freud readily recognized the linguistic factors, such as the influence of the sound environment, he argued for language-external associations as well, and essentially, Freud's ideas are fairly close to the view of the present thesis. Let us take one example of a verbal slip and its holistic, multiple cause explanation.

(8) ...*tuli heti sellanen kevyt olut..olo..*

"I had immediately a light lager...feeling"

The context is a pub. The speaker has just arrived and ordered a light lager (*kevytolut*). She sits down and chats with her friends. The above utterance occurs after a few opening remarks. How is the slip explained? If we approach it from the point of view of verbal utterance only, we can see the slip either as a lexical substitution, in which a word is substituted with a phonologically related one: *olut* 'lager' (pro *olo* 'feeling'). As malapropisms (see chapter 8.3. for a detailed discussion) are not, however, very common in frequent words, the slip could perhaps be explained as a perseveration? The preceding word *kevyt* 'light' influences the articulation of the following word, so that the syllabic structures of the adjacent words are conformed. Considering the context, however, we can offer further explanations. The pub context itself may activate certain type of vocabulary - such as 'beer' or 'lager'. In addition, the actual word was uttered aloud by the same speaker before - a mere lexical echo perhaps? Finally, we can venture onto Freudian ground and add two alternative explanations. The speaker is waiting for her light lager to appear: she is thirsty and a nice cold beer is an occupying idea. Is the utterance an example of wishful thinking? Furthermore, this utterance is a response to a compliment that the speaker has lost some weight. Perhaps the speaker feels smug because she ordered a light low-calorie lager? Which of the above causes is the correct one? The only sensible answer can be: none in particular - all in general. All above factors increase the probability of this particular error. Obviously, manifest slips of the tongue frequently, if not habitually, result from several parallel internal processes that form a conspiracy to produce a particular kind of slip. It is thus unwise to give slips a causal explanation in terms of one linguistic factor, or one grammatical process only.

The argument between Freud and Meringer resulted in a considerable amount of interest in speech errors in general, and some articles and papers on the subject were published at the time (see eg. Wells 1906; Jastrow 1906; Bawden 1900). It is evident, however, that most modern (psycho)linguists are emphatically Meringerian. The relevance of Freud's work is not properly recognized, and at times, his ideas are almost ridiculed. The most eminent of the present slips of the tongue researchers, Victoria Fromkin (1980:2), for example, dismisses Freud in saying that the "disagreement between Meringer and Freud has become a non-issue today".

A Freudian line of research is represented in few psychoanalytically oriented papers (see eg. Timpanaro 1976). Freud is discussed, from a linguistic point of view, in Ellis (1980), and from semiotic point of view, in Harris (1986). Freudian (or what linguists call Freudian, which means primarily taboo) effects on the speech errors have also been studied in elicitation experiments (see eg. Motley 1980; Motley 1985). Some psychologists, however, working with the cognitive failures seem to acknowledge Freud's point to a certain extent. Reason and Mycielska (1982:172-184), for example, discuss Freudian slips in the framework of the Pandemonium theory of cognitive psychology.

Slips of the tongue - the mentalist revival. After the beginning of this century, a lengthy pause followed in research activities in this area. Slips of the tongue were not studied much during the antimentalist era in psychological and linguistic research (ie. psychological behaviorism and linguistic structuralism). Research was not properly revived until after Fromkin's (1971) influential paper and her first collection of papers (Fromkin ed. 1973) on the subject. From then on, psycholinguists of the transformational-generativist persuasion began an attempt of proving the constructs of TG grammar as psychologically real (as in eg. Fromkin 1971; Fay 1980). Thus slips of the tongue were one source of so-called external evidence, which was supposed to "provide us with a 'window' into linguistic mental processes" (Fromkin 1973:44).

A major exception in the Generativist Era analysis of the slips of the tongue is Charles Hockett's paper that first appeared in 1967 (printed also in Fromkin ed. 1973). Hockett (1973) criticises the fundamental assumptions that are present in generative psycholinguistics, one of them being the sharp distinction between competence and performance. Hockett's (1973) criticism, which was well ahead of its time is to a great extent compatible with the ideas that will be discussed in the present thesis.

1973 and after. The present research is rather active and divided into various slightly different approaches. Research that has been done by British scholars, such as Laver (1973; 1980a; 1980b) or Boomer and Laver 1973), clearly relies more on phonetic and neurolinguistic theories, for example, than the US tradition which has clearer connections to theoretical linguistics.

Experimental research that leans towards motor processes on speech production is also represented by such scholars as Mackay (1969; 1970a; 1970b; 1972; 1978), Motley (1973; 1980) or Baars

(1980a; 1980b; see also Baars and Motley 1978; Motley and Baars 1976a; 1976b). A more theoretical line, connected with phonology, is represented by Stemberger (1982a; 1982b; 1983a; 1983b; see also Stemberger and MacWhinney 1986) and also by Dell (see eg. 1984; 1986; 1990; see also Dell and Reich 1980; 1981) who attempt to relate speech errors to the recent theoretical discussion within linguistics and developments of psycholinguistic theory.

Speakers' reactions and possible repairs of their slips of the tongue have been studied in Nooteboom (1980), Cohen (1980) and Lackner (1980). On a related area, studies on slips of the ear, and/or hearing errors have been made by Brownman (1980), Goldstein (1980) and Garnes and Bond (1980).

Slips of the tongue have also been studied in connection with aphasic errors (Söderpalm 1979; Söderpalm Talo 1980; Buckingham 1980), and in connection with schizophrenic speech (Chaika 1977). Slips of the hand, or sign language errors have been studied by eg. Newkirk et al (1980). Slips of the pen, or writing errors have been collected and analyzed by Naucmér (1978) and Ellis (1979). Slips of the tongue and foreign language errors have been compared by Heikkinen (1981; 1983).

Various languages have also been studied: English and German with in particular detail. Dutch has been studied by Cohen (1973) and Nooteboom (1967; 1973), Norwegian by Foldvik (1979), Welsh by Meara (1981); Meara and Ellis (1981), Swedish by Söderpalm Talo (1980), Hindi by Ohala and Ohala (1988), Italian by Miranda (1988), Japanese by Kubozono (1989) and Arabian (Abd-El Jawad and Abu-Salim 1987). Cutler (1982), in her bibliograhpy, lists a number of languages still, including French, Polish, Portuguese, Italian, Rumanian, Thai and ASL (=American Sign Language).

Finnish research. There are occasional papers and studies in Finnish (or about Finnish data) that either refer to slips of the tongue or which handle them in more detail. Ahlman (1928) introduced Freud's ideas about 'Fehlleistungen' (performance errors) in a short paper. Lahti discussed the psychology of errors (Lahti 1929; 1949b) and published a doctoral thesis (Lahti 1949a), which dealt primarily with errors made in school tasks, such as in arithmetics, but slips of the tongue were also discussed. Airila (1945) pointed out the relevance of what he called 'word stumbles' for the study of linguistic change, and discussed a couple of examples.

Kytömäki (1986) has analyzed (mostly written) misuses of language using data from a magazine column *Jyviä ja akanoita*

('Wheats and chaffs') published weekly in *Suomen Kuvalehti*. A collection of items from this column has been published by Virkkunen and Virkkunen (eds. 1988). A collection of amusing language usage is also published by Bergholm (1976). Spoonerism as conscious word play has been discussed by Anttila (1989).

Slips of the tongue have been dealt with in Heikkinen (1980; 1984), Heikkinen and Valo (1985); Dufva (1989); Dufva (1991); Dufva and Valo (1990), Ahti-Virtanen (1990); Niemi and Laine (1992). The aphasic errors, with an occasional reference to slips of the tongue, have been discussed by eg. Niemi, Koivuselkä-Sallinen and Hänninen (1985), Niemi (1990).

2.2 Research: Methodology and scope

The approach I have used in the analysis of my corpus is decidedly qualitative. Strong apriori judgements and classifications were avoided, all the more so, since both the 'autonomous' idea of language itself and its psycholinguistic descendants were put at stake. The previous research on slips of the tongue has been decidedly formalist in vein. Slips have been primarily studied in terms of their structure and its deviations from a presumed 'target', and their occurrence has been assumed to illuminate both the organization of human linguistic memory and the linearization of linguistic entities. As this approach was not seen as a satisfactory means of analysis, new aspects and viewpoints were examined and developed.

Thus a preliminary attempt to analyze the data according to the now traditional categories brought about discontent not only with the categories but with the assumptions that are implicit in the theoretical background of contemporary psycholinguistics. In order to scrutinize these assumptions, it was also necessary to decide the scope of data to be included. As I chose to approach my subject from the point of view of *speech*, and not from the point of view of *language*, it seemed wise to limit the data to naturally occurring slips, and restrain from the use of *a priori* linguistic notions. Experimentation, such as elicitation or detection experiments typical for deductive argumentation, was dismissed. Thus the

present thesis is aimed to explore the field of human speaking and its errors, rather than to test a linguistic hypothesis, or a set of hypotheses. In consequence, the analysis of the data was heuristic: the analysis lived according to the new patterns and hypotheses that were surfacing during the work (for discussions of qualitative methodology, see eg. Seliger and Shohamy 1989; Mäkelä 1990; Ehrnrooth 1990). In the following I discuss the main points and problems involved in the analysis.

Most recent studies on slips of the tongue rely on the rationale of 'speech errors as evidence for a linguistic theory'. This view is also forcibly defended by Cutler (1988:219), who is one of the eminent figures in the field:

Errors in linguistic performance do not constitute a form of behaviour which is of intrinsic interest either to linguistics or to cognitive psychology. A model of speech errors does not advance science very far.

Little research has been done that is focussed on the nature and quality of slips of the tongue as such. What is a slip of the tongue? How is it different from a language error or from a child's mistake? Are the categories and classifications in their description adequate? What are the categories based on? These questions seem to have been regarded as naive or irrelevant this far, and one consequence is that we lack a holistic description both on the slips of the tongue and on the nature of erring, as these ontological questions usually are set aside. As the theoretical assumptions of psycholinguistic research are habitually implicit, and therefore, difficult to expose for criticism, one of the aims of the present study has been to explicate these issues and relate the discussion to the inherent nature and qualities of the slips of the tongue.

Drawing the lines: linguistics and non-linguistics. One of the implicit assumptions of psycholinguistics is that we know exactly what belongs to both linguistic and non-linguistic behaviour. 'Linguistic' is defined by the background theory, which is still generative and Chomskyan in vein, and slips of the tongue are studied almost exclusively from the point of view of a linguistic theory. The (hypothetico)-deductive paradigm of linguistic science - as established by Fromkin (1973) in her seminal writings, and supported by eg. Cutler (1988) - has been taken as granted.

Thus the mainstream research, as apparent in Cutler (1988), subscribes to a theory that presupposes an (innate? autonomous?) linguistic component. Cutler's (1988) strongly *a priori* views of

what is linguistic (and therefore: what is linguistic science) are a good example of the myopic view that formalist psycholinguists have taken. Ambiguous errors, for example

can simply be dropped from the corpus. Errors are, after all, plentiful - like London buses, there'll be another one along in a minute. (Cutler 1988:219)

The errors that do not simply seem right (the 'non-linguistic' ones, for example) or that are not "perfect illustrations of the operation of a particular mechanism in production" (Cutler 1988:219) are openly dismissed. This is one manifestation of the spirit of Chomskyan (psycho)linguistics: it is impossible to introduce counter-examples if these can always simply be dismissed as ones 'which do not count' or 'are not perfect' (for similar criticism against TG theory, see eg. Botha 1987). The result has been the unquestioning acceptance of categories, definitions and assumptions, and the fact that only prototypical slips of the tongue are studied in an apriori linguistic framework. As even Cutler (1988:219) admits, the recent work on slips of the tongue "has shown some symptoms of paradigm imprisonment".

The linguistic emphasis, however, ignores one central fact about spoken language. This is the complexity of the system that is involved in the production of spoken utterances. The internal complexity involves parallel and intertwining processes, which are both perceptual and motor by nature, which can be run in both an automatic and non-automatic manner and which involve both external social and internal cognitive processes. All these (non-linguistic) factors contribute whenever people slip in their speech, and there is no reason for their exclusion. Slips of the tongue are not purely 'linguistic': they are best seen and analyzed in terms of 'multiple causation', and as a result of several coinciding factors. A surface level phenomenon of speech (such as a slip of the tongue) should not be interpreted in terms of simple linguistic causation, as is the case when we analyze it in terms of a breakdown or malfunction of one particular linguistic process.

As obvious, my discussion will be close to an approach that Cutler (1988) finds non-profitable for science, as error phenomena seemed to offer a meaningful object of analysis as such. Thus it followed that both ambiguous and non-linguistic cases were considered. The result can indeed be characterized as a 'theory of speech errors'. The research procedure involved feedback that was given by the actual data, and which could not be easily dismissed.

The data which refused to fit into neat linguistic categories insistently pointed towards the need of a new theoretical framework. Thus a certain degree of hermeneutics was present in the analysis, and one of the things that constantly seemed to demand a revision of thought, was the dubious borderline between linguistic and non-linguistic. This issue is discussed throughout the thesis.

Field-work or laboratory. The objectivity of the speech error data has been a problem which has been given a considerable amount of attention. In a time which sees the experimental-quantitative approach as the sole valid and reliable means to study human behaviour (see eg. Olson and Clark 1976; Gough and Diehl 1979; Hatch and Farhady 1982; Prideaux 1984), the naturalist methods of collection may cause considerable unease. The unreliability and bias of data in naturalist collections of spontaneous speech have been seen as its inherent drawback. This means that ultimately validity and reliability have been connected with quantitative and experimental research only. There have been few attempts only to discuss validity in terms of a qualitative type of linguistic analysis (see, however, eg. Baddeley and Wilkins 1984). It can easily be shown, however, that both laboratory and field research involve problems.

The naturalistic methods of collecting *spontaneous data*, such as slips of the tongue, are supposed to be "notoriously unreliable" (Norman 1981:13), for various reasons. It is, in many cases, impossible to make on-line notes. One of the reasons for this is that slips and errors (of other people) are "customarily ignored in polite society" (cf. Sturtevant 1947:38). That is why one usually has to wait for an opportunity to make notes, which makes accurate and literal transcripts of any longer sequence practically impossible.

The unreliability is shown quite well in those cases in which a particular slip of the tongue has been noted down by several people. It is very typical that their notes are different. The collectors themselves are not above suspicion. A good example is the use of idiom in the following case (9):

(9a) *makkarallahan on aina kaksi päätä*
'there are two ends in a sausage'

(9b) *makkarallahan on aina kaksi puolta*
'there are two sides in a sausage'

The target (9a) is an idiom which means that 'you can look anything from both sides' (literally: 'there are two ends in every sausage'). In this case a dispute about which of the above utterances was actually said arose between the speaker (viz. the present author) and her two colleagues. Thus, there is always the possibility of something being either a slip of the tongue, a misperception or a misinterpretation.

It is also possible, and even probable, that certain slips of the tongue are more difficult to detect than others. For example, slips of the tongue on the phonetic or phonotactic level may be hard to detect. Wells (1951/ 1973:86) declared in his first 'First Law of Slips of the Tongue' that a slip is "practically always a phonetically possible noise", by which he meant that slips of the tongue never introduce non-native sounds or sound combinations. One explanation for this phenomenon is to assume that speakers so carefully monitor their productions on a phonological level in order that no such errors can slip through (Cutler 1982:11). The other possibility is that it is the hearer who is not able to hear expressions that deviate from his/her phonological system, as has been suggested by Hockett (1973:98). One possible example of this in the corpus is the very small number of vowel harmony errors. On one hand, this might be due to the fact that they do not often occur, but it is also possible that they are not detected in normal rapid and fluent spontaneous speech.

Hence, the accuracy and reliability of the data also depends on the hearer/observer. The inability to hear 'phonologically deviant' utterances, for example, can be related to the results gained in psycholinguistic experiments: both misprints in texts and deliberate mistakes in test material of a perceptual experiment (eg. 'shadwoing') are often 'edited' by the subjects, so that the subjects tend to see and hear the correct forms, not the erroneous ones (for a summary in eg. Clark and Clark 1977:210-220).

One additional problem that is present in the collection of spontaneous data has not been discussed much. Slips of the tongue are usually collected by linguists and psychologists. Thus the informants are, by a good chance, either (psycho)linguists or his/her family members or colleagues. This is for the reasons discussed above: the collector can discuss and jot down the slips more openly with family and friends. It is, however, an additional bias. Generally, the informants are by no means what we might regard as linguistically naive. In fact, it could be claimed that they are quite

the contrary, in other words, a relatively sophisticated group of speakers.

One way to increase the reliability of the transcriptions is to use *tape-recording*. But although the accuracy of the data may be increased, the spontaneity and situational representativity is lost. Tape-recorded corpuses have, by necessity, a situation-bias, and, often the speech register used is rather formal. Some researchers, however, argue strongly for the use of tape-recording. Ferber (1991), for example, claims that "the only way of collecting spontaneous slips would seem to be by means of tape recordings, which should be listened to repeatedly, preferably by more than one person". Although it would appear absurd to establish recordings as the only way, it is to be admitted that they are particularly suitable for analysis of some types of slips, such as 'phonetic' slips, which occur in rapid speech and have a short duration. Tape-recorded corpuses have been used by eg. Ferber (1991), Garnham et al (1982), Boomer and Laver (1968).

Laboratory experiments belong to the established paradigm of present psycholinguistics (see eg. Gough and Diehl 1979; Prideaux 1984) and also to the study of slips of the tongue (see eg. Carter and Bradshaw 1984). In many recent textbooks of psycholinguistics, it is implicitly assumed that the primary source for the scientific knowledge about human speech is the experimental (plus quantitative) study (see eg. Prideaux 1984:34). These authors also often seem to identify 'experimental' with 'empirical', ignoring the tradition of non-experimental empiricist research. Empirical study, however, can also be effectively done out of laboratories and by employing qualitative methods.

The experimental psycholinguistic paradigm itself has, however, many intrinsic problems. The first is, that - by their very nature - the experiments tend to be paradigm-driven, and the paradigm of present psycholinguistics is formalist in vein. The results are fundamentally conditioned by the design of the particular experiment, and thus it is not expected that one might collect non-paradigm results.

Another problem is that a psycholinguistic experiment is essentially an artificial linguistic task. The non-spontaneity of the situation is not to be dismissed as a minor problem. Baddeley and Wilkins (1984:2) discuss a similar problem in a critique of psychological experimentation as follows:

One could not avoid suspicion that the psychologist was merely devising games which his subjects were clever enough to play according to his rules.

Similarly, it can be argued that various psycholinguistic experiments might tell us more about how subjects solve certain explicit verbal and/or linguistic tasks than about the spontaneous processes involved in the production and perception of speech. Therefore, although experiments can be repeated, modified and replicated to increase their validity and reliability, their results still cannot be generalized to apply in other situations and tasks. This fact seems to be grossly misunderstood in recent studies. Thus, for example, experiments which deal with visual recognition of isolated printed words in laboratory conditions are claimed to be experiments on human speech processing. One of my arguments here is that what is true for one linguistic skill or task, is not necessarily true for another. The assumption that there is a common underlying linguistic core for all external verbal tasks is a theoretical notion that is to be questioned.

To sum up, it is true that the naturalist methods of data collection have often been judged as inherently problematic (Cutler 1982:24) and prone to bias, but precisely the same can also be claimed in regard of laboratory experiments. The advantage of using naturally occurring errors is that they are "not constrained by the limitations and artificiality of the experimental laboratory" (Norman 1981:13), and the analysis of spontaneous data relies more on the ecological validity (see eg. Neisser 1980) in its argumentation. My decision was to try to aim at a corpus which would be *situationally representative*.

The corpus thus might be biased as far as the observer and informants are concerned, as seems unavoidable when dealing with spontaneous slips of the tongue. In contrast, the paradigm bias and the laboratory situation bias were avoided. As a consequence of these decisions, a rigorous categorization of the data seemed to become more and more impossible. When the original linguistic point of view was rejected, the categorization also fell apart, and the borderline between linguistic and non-linguistic became vague. One slip seemed to be an example of several underlying processes and thus, a member of various surface categories. Alternatively, two slips that seemed externally similar ultimately seemed to have been caused by two qualitatively different processes. The distinction between an 'error' and a 'slip' seemed also increasingly problematic.

A tentative conclusion is that scientific categories, such as those of psycholinguistics, are similar than the perceptual ones in general: they are attempts to analyze phenomena that are continuous by nature (see Taylor 1989). Consequently, one category involves more typical and less typical members. Some slips of the tongue, for example, may be clear examples of one particular process and one process only (ie. 'focal' or 'prototypal' slips; cf. eg. Rosch 1973; 1975). Some slips of the tongue, on the other hand, are less good examples, and seem to be caused by either one or another process. But, the marginal and less good examples also have to be explained by a theory, and a category thus cannot be considered in terms of a rigid taxonomy.

Thus, slips of the tongue are not regarded through categorization and quantification in the present thesis. Rather, particular slips of the tongue are used as *perspectives* on the processes that underlie external speech. It is certainly not impossible to classify slips of the tongue, and some (fuzzy and overlapping) classes will indeed be suggested in the present thesis. The emphasis is, however, on a discussion about qualities. This also means that a quantitative and statistic analysis lacks in the present thesis, although some areas for further - also quantitative - study on new grounds can be suggested. In the present thesis, I will argue against both the mainstream (formalist) psycholinguistic analysis, and in support of the *functionalist* and *dialogic* analysis using the perspective of slips of the tongue. The analysis is certainly empiricist in the sense that it reflects a strong commitment to the very empirical world of everyday speech phenomena. It is qualitative in the sense, that I have relied on observation, introspection and verbal reports given by the persons, who, sometimes unknowingly, have acted as my informants.

My aim is thus to run a parallel discussion both on the nature of slips of the tongue, and the nature of speech, and spoken interactions, as mental facts. The result is thus 'a theory of speech errors', but also, I hope, a theory of speech, such as it can be seen from a point of view of everyday discourse.

3 THE ONTOLOGY OF ERROR

A slip of the tongue is usually defined as a *deviation*, and when there is a deviation, there must be a *norm* (or a *target*) from which it deviates. The central question is where the the norm lies: is it a certain linguistic representation or a rule internalized by the speaker? This is what is basically argued in present-day psycholinguistics. My argument is that what psycholinguistics discusses as internal rules and entities are based on external descriptions of language structures and on social norms about correctness. It will be suggested that actual speakers go by 'rules' (or processes) that are quite different from those proposed by linguists. In the following I discuss how social linguistic norms developed, how they were turned into scientific norms of linguistics and finally, into alleged mental facts.

3.1 Norms of language: The social history

Linguistics has a long, if somewhat implicit tradition of normativity (for the concept of norm, see eg. Bartsch 1987) . Both the purity of language and the correct way of speaking and writing have been a centre of interest in both Greco-Roman and Islamic traditions.

Grammars were originally devised in order to teach and correct the language usage, and rhetorics was cultivated in order to teach people to speak well and correctly. The grammatical and rhetorical traditions are based on ethical and aesthetic notions about language: what is good and beautiful is to be cultivated, while bad and incorrect usages are to be dismissed from language usage. This practice which sets explicit norms for good language has been pervasive in the Western tradition. Although actual norms for a good, correct and beautiful language may have varied in different times and cultures, the essentially normative approach has remained.

The linguistic norms of a particular society are closely related to its values in general. Religion, for example, has been an important influence in the emergence and preservation of the norms in both written and spoken language. This is seen both in Christian and Islamic traditions, in which the norms of the religious texts dictated the future language usage for decades and decennia to come. Furthermore, the notion of social class and social power has been just as important an influence as religion on language. The language of the ruling class has always been regarded as *the* language. Thus Roman culture was a powerful influence on Latin language usage, and on temporary linguistics. The Roman notion was not a value-free concept of language. Harris (1980:124) writes about the texts of Cicero and Quintilian:

The concept of a language implicit in their writings is part of a very Roman theory of what life is about: it is about leadership.

In medieval Europe, and also later, Latin was regarded as the ideal language. Consequently, Latin structure was forced into the descriptions of the new national languages that started to develop with the Renaissance era. This also happened with the earliest Finnish grammarians who - frustratingly - attempted to discuss the complexities of Finnish case system, for example, in terms of Latin grammar (see eg. Vihonen 1978; Wiik 1989). The idealizing and evaluative norm can be clearly recognized in the admiration of Latin as a model language.

But the Renaissance period also marked a change in linguistic notions. The development of national states in Europe attached new importance to those forms of speech which had been regarded as inferior to Latin before. What used to be called dialects, vernaculars, or vulgar speech started - slowly - to assume new prestige and develop into codified national languages. Those with

political and social power also held the linguistic power, and it was the dialect of the administrative centres and new regional capitals that became 'the' language.

The norms for the 'good' language were not forgotten. On the contrary, new national languages went through a strict codification process, in which the 'proper' linguistic means for the particular language were defined. The national codes (ie. standard languages) were developed to diminish the variation of syntactic, morphological, lexical and pronunciation norms and to establish one ideal variant, which also emphasized the national identity - the uniformity between the citizens and the opposition against outsiders.

The invention of the printing press (see eg. Friedell 1989; McLuhan 1964) was a further development that served the normative attitude. The printing press set different requirements for the language, and the emerging new literary languages were narrow and modified representations of the spoken variants. The spoken language is always intrinsically variable, and it is the printed word that sets the emphasis on the invariable and the uniform. From this time on, the printed word, which was a graphic representation of the standard language served as a model for language use, and came to be regarded as identical with the notions of correct and good.

Thus the printing press furthered the development of a single invariant language standard. At the same time, however, it made linguistic norms available and desirable for a larger audience, and increasing numbers of people had the opportunity to achieve literacy. The embedded norms of good language, however, were tacitly assumed in the very process of learning to read. Consequently, wide-spread literacy is a sign of democratization, but at the same time, a process of linguistic subordination.

The linguistic norms of printed/printable standard language, as seen in early European lexicography and grammar, were selective. The speech of the 'common people' - outside the prestige areas - was not accepted into the literary form, and literary language was cleaned of both 'provincialisms' and 'vulgarisms'. A codification of linguistic norms runs parallel to upward social movement (see eg. Aitchison 1981).

Thus it is evident that sometimes during the last five or six centuries many European languages developed a clear division between written (ie. *standard, codified, national*) and spoken (ie. *non-standard, substandard, dialectal, vernacular, patois, vulgar*)

language. What was written was language, and what was not written was often regarded as somewhat less than language. The natural plurality and diversity of spoken language was diminished. Written language also started to have a backwash effect on spoken, on the grammatical, lexical and even articulatory levels, so that it became desirable to use bookish expressions and pronunciation influenced by orthography. Written usage often became synonymous for 'correct' usage.

Thus the norms of language for non-linguists were and to some extent may still be, the norms of written language. The normative, or prescriptive, approach is common also in pre-Saussurean linguistics. This normativity, however, came to an abrupt end with the publication of *Cours de linguistique générale*, the groundwork of modern linguistics by Ferdinand de Saussure. This work marked the arrival of the descriptive approach into linguistics, and linguistic prescriptivity was demolished. But, to what extent?

3.2 Norms of language: Linguistics

It is easy to see how the explicit linguistic norms of the society (as expressed in grammars and textbooks) are connected to its social and cultural history. It is much more difficult to see that these very norms might be implicit in the domain of linguistic inquiry, as linguistic science explicitly denies normativity. It will be argued in this study, however, that modern theoretical (autonomous) linguistics was, and still is, normative, and that these norms are based on written language (cf. Harris 1980; Linell 1982; 1988).

Modern linguistics purports to be a descriptive science. This means, among other things, that all forms of language, such as majority languages, minority languages, dialects, pidgins, creoles, children's language, women's language, learners' language and sign languages are equal. This recognition of the equality of linguistic forms is quite recent, and it was not long ago, when a sign language or a pidgin was widely thought to be more primitive than the 'languages proper'. Thus the linguists' definition of what is

supposed to be a language has become considerably wider and more liberal in the past few decades.

One may be tempted to argue, however, that the gradual declaration of independence for the different forms of language and their slow acceptance into the fields of linguistic study ignored one form of language. One primitive language was left: namely, spoken language, which is still spoken of in terms of *deterioration, corruption, violation and anomaly*. It is usually the spoken forms that are referred to by names that imply that spoken language is either incomplete (as eg. in 'ellipsis' or 'omission') or that the norm is not otherwise achieved (as in eg. 'assimilation' or 'deviation'). The idea one gets is that there must be a form of language that spoken language is derived from. This pure, correct, complete, and canonical form is the 'language proper'. Thus the supposedly descriptive linguistic science employs blatantly normative terms in the description of spoken language. Furthermore, a close observance of these descriptions leads us towards the idea that the implicit norm of what 'the language' is like actually resembles written language in many respects.

The acceptance of the written language norm in linguistics is motivated by the high cultural prestige given to literacy. Literacy has been always been hailed as a socially, culturally and educationally progressive vehicle. For example, Goody and Watt (1963/1972) argue that the expansion of written (alphabetic) culture in Greece also brought about a qualitative change in human thought. They argued that writing not only actualized logical thought but also introduced a distinction between myth and history, fact and fiction. Because of the permanent nature of writing it was possible to acquire knowledge in a new and determined manner: to criticise and develop the points that were produced by earlier generations. From then on, it was possible to accumulate knowledge. In addition, the notions of subjective and objective knowledge emerged. The whole Western epistemology which relies on the notion of objective knowledge is in favour of written modality, and it is natural to assume that this idea is also reflected in the linguistic sciences. In early linguistics, it was the written texts and written language that came to be regarded as 'objective'. The variability of spoken language was seen as an inherent fault in it, and thus, spoken language became to be regarded as inferior. Permanence, invariability and uniformity were chosen to be the true face of language.

Related value judgments about the influence of literacy on the human mind were also developed within psychology: the illiterate mind was supposed to be primitive, while the literate mind was seen as modern, thus more logical and more developed. This is implied by the research made of Luria (see Luria 1976) on the acquisition of literacy in the Central Asian Soviet states some time after the Russian revolution. His experiments showed that the illiterate subjects were significantly poorer in syllogism tasks than the literate ones, and thus it was concluded that literacy developed human cognitive skills. Later on, however, Michael Cole and his associates in particular (see eg. Cole and Scribner 1974; Scribner and Cole 1981; Cole 1987) have convincingly argued that any culture will develop its own particular cognitive skills. Although the skills differ in cultures, their level of abstraction is roughly similar. A researcher who poses his questions according to the norms of his own tradition, gets corresponding answers: those familiar with Western types of schools and a Western type of literacy are, in consequence, more skilled in resolving the tasks presented by Western literate researchers.

Thus the basic idea that it is the written-like linguistic forms that linguistics should be based on is not surprising, as the cultural notions so unanimously rely on its being more developed, or simply 'better'. Still, this is not a belief that has been shared by all linguists, for there are several authors who have forcibly criticized the hidden influence of written language in linguistics. Bakhtin (see eg. Volosinov 1930/1973) is one of the first (and still most unknown) critics of the written language influence on language study. As early as the 1920's, he argued that the current study of linguistics was fundamentally based on the study of written language. Language as an object of research was frozen in the form of a written product: it had no context, and no real meaning for the analyst. The whole 19th century development of comparative linguistics was basically a study of the written documents of dead languages, alien to those who studied them. What the linguist studied was "the cadavers of written languages" (see Volosinov 1930/1973:71). However, for Bakhtin, the disembodiment of the language from its actual contexts was unacceptable.

More recently, Linell (1982) has been proposed that there is a written language bias in linguistic study, and similar ideas have been voiced by Harris (1980), Street (1984;1988) and Mey (1985). Linell (1982) argues that linguistic analysis is fundamentally based on the norms and conventions of written modality, so that the

linguistic concepts and categories in present use, for example, are actually based on written language representation. Linell (1982) gives special attention to the notion of sentence, which, as he shows, is directly derived from written texts. Linell's (1982) arguments are extremely relevant from the psycholinguistic point: is it sensible, or even possible, for a psycholinguist to work with theoretical notions that are generated in the analysis of written texts? Is the speaker's experiential language, which manifests itself in spoken utterances, really similar to the structural analysis of language?

My argument here is that linguistics still is fundamentally prescriptive and that its norms were established under the influence of written modality. Possible counter-arguments for this view can be presented. First, it is possible to deny the accusations of prescriptivity. However, it is not quite enough to rely on the grounds that linguistics is descriptive, because this is argued by linguists themselves. Even if the linguists do not give directions, recommendations and instructions about correct language usage, they, however, work with such idea of language that is normative in itself. I argue that this idea of language is 'written-like', and that it is reflected both in the theoretical arguments of linguistics, and in the data that is used for linguistic research. An overwhelming majority of linguistic studies to date have focussed on such language which is either written or written-like.

The possible influence of literacy and written modality on linguistics is often categorically denied, and/or its role belittled by the argument that as speech and writing share the underlying structure, it does not really matter which is studied. This is what Itkonen (1989) argues when he claims that grammars which depict spoken language are similar to those that depict written language. He argues that the Sanskrit grammar devised by Panini (c. 350 BC) which is based on oral language is fundamentally similar to the theory of grammar proposed by generative linguists in the 1960s. Both Panini and the generativists are supposed to study the 'language', which underlies spoken or written forms.

This argument, however, implicitly relies on the notion that there is a common core for all external verbal manifestations, whether written or spoken. This need not be the case, as will be argued in the following chapters. Furthermore, the argument ignores the specific nature of the oral language that Panini based his grammar on. The oral language that the Panini grammar was a description of was basically a highly stylized oral variant, which

appeared primarily in the oral recitation of the Vedic hymns, but probably also in some upper class language use. And, as Itkonen (1988:189) himself notes in another article, Panini does not study *real* language usage, but a *possible* and *correct* language usage. In that the priorities of Panini are similar to those of Western linguists. The study of what is possible and correct still overrules the study of what is actual. Moreover, the work of Panini does not refute the fact that the later linguistic research could have been - and, as I argue, has been - influenced by literary and written mode.

Itkonen (1989:475) further argues that it is a mistake to draw a sharp distinction between spoken and written. This is something to be agreed upon. It is extremely relevant to pin down what the 'oral' and 'literary' or 'spoken' and 'written' actually refer to. The Indian orality, for example, as described by the grammar of Panini, was highly sophisticated, and prestigious upper-class linguistic behaviour, which embedded the social norm of correctness in itself. Thus 'spoken language' there refers to a form of spoken language which is grammatically 'sophisticated', psycholinguistically 'learned-by-heart' and articulatorily 'recited'. These spoken patterns could well be called oral texts. The conversations between lower class Indians would probably have produced a grammar drastically different. Thus 'oral' and 'literate' cultures and patterns consist of partly different and partly similar vehicles and means. As Street (1984) points out, literacy is not a neutral technology: particular cultures produce a particular kind of literacy, and the same goes for orality. Spoken language may resemble written texts (as in eg. speeches or lectures), while written texts may approach or imitate spoken interactions (as in eg. dialogue in novels or drama).

Literacy, and the written language bias, as discussed in the present thesis refers to our particular literacy: the Western (alphabetic) tradition of writing and texts, which is influenced by Greco-Roman thought and rhetorics. This particular literacy is an extensively normative vehicle, which has generated a particular kind of civilization with particular products. The present linguistic notions should not be treated as given facts, but as consciously developed scientific notions that have been generated within this tradition, and which, consequently, show its values.

To sum up, I argue that the influence of written language prestige is clearly visible in norms of theoretical linguistics. However, the issue of how written and spoken language are related is of particular interest for psycholinguistics. If theoretical linguistics is influenced by written language and, respectively,

psycholinguistics works with the notions of theoretical linguistics, we arrive at the idea that speaking is conventionally studied in the conceptual framework of written modality. However, it can be argued that there are considerable, perhaps irreconcilable differences in written and spoken modalities that have to be accounted for.

3.3 External or internal norms?: The idealistic and dualistic tradition

Above I first discussed the explicit social norms that are related to language, and argued that these social norms are also implicitly present in linguistic thought. The idea of the core language gives emphasis to the correct and complete norm. One obvious fact about observable spoken behaviour, however, is that it is usually far from perfect. People hesitate, restart, abandon their utterances, make mistakes, slips, errors, blunders, faux pas and misinterpretations constantly. The outward behaviour is never perfect, and it is never quite correct. What we observe is always imperfect. At this point, however, the linguist is accustomed to refer to a Platonistic notion: although the observable reality is imperfect, there must be a level in which a perfect language can be found. This means that although ordinary speakers produce incorrect and imperfect utterances, they are still equipped with an internal component which is the master of the regular and correct language. This chapter deals with the echoes of this idea in linguistics.

Language and speech. One of the most fundamental dualistic notions in linguistics is the distinction between language and speech. The mainstream linguistics of the twentieth century has accepted and embellished the idea of language as de Saussure (1966) presented it. The 'langue' as a social system is different from the the individual and heterogeneous acts of speaking, or 'parole'. As language gives "natural order into a mass of speech" (de Saussure 1966:9), it is the only natural, and indeed possible, branch of linguistic study. Thus, as it is impossible to study the seemingly overwhelming variation, *the chaos*, the linguist must turn to the invariable, *the order*.

The distinction between language and speech was fortified, but also modified within the American structuralism and generative grammar tradition. It was generative grammar that mentalized the notion of language. Language was posited into the human mind as a 'mental organ'. The subject matter of 'serious' linguistics, according to Chomsky's (1965:3-4) classic definition, is to study the underlying reality, the competence, which, however, in practice was defined as the ability to produce correct sentences:

Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech community, who knows his language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention in interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance.

The position in which speech was left, is a corrupted derivative of the (ideal) internal language structure. In a sense, actual speech utterances always fail the internal component: they never reach the level which Chomsky's ideal speaker-listener would be theoretically able to produce (if s/he existed), but fall short of the completion of perfect and well-formed sentences, not to speak of the various misarticulations. Thus the external speech is regularly marred by both major and minor imperfections, which, fortunately, can be employed in the analysis of the immaculate internal. Speech errors, such as slips of the tongue, serve this function. As Cutler (1988:210) puts it:

The linguist wants to understand the structure of language, and is interested in performance errors for the light they may shed on the rules and representations which constitute the best model of the grammar

The internal rules and representations are seen as ideal and invariant. The Saussurian idea of language as a social construct has been ultimately turned into an idea of language as a mental organ. But Chomsky's mentalism also embodies idealism, as is obvious from the citation above. What Chomsky actually does, is to dismiss external speech as a primary source of linguistic information, and give that position over to intuition. In this, the shift from what is actual (utterances in speech) into what is possible (intuitively correct sentences) can clearly be seen. Ultimately, the Chomskyan mentalist stand gives us a theory about language that,

in practice, is based primarily on the intuition of (primarily English speaking) professional linguists, not on the actual language usage of ordinary speakers. It is a theory of language as it could be, it is not a theory of language as it is.

Speech in post-Chomskyan psycholinguistics is only "a window through which we can peep into the workings of the mind" (the original statement is by the 19th century neurophysiologist Fournié). This approach has unfortunately been marred by a notable reluctance to see speech as it is. Almost without exception, speech is regarded through language, or through linguistics.

Thus the 'unmarked' idea of language is clearly more 'written-like' than 'spoken-like'. Linguists readily acknowledge the primary position of spoken language, and the fact that its grammar is different, not worse (see eg. Karlsson 1983b:205). The 'grammar', however, which is discussed in linguistic theories and textbooks, is invariably that of written language. Karlsson's (1983b) textbook, for example, which is aimed for language learners, dedicates its first 204 pages to the presentation of 'Finnish grammar', and uses the remaining five pages to explain 'the grammar of spoken language'.

It is the written language grammar that is the norm, and spoken language grammar that is either an exception or an appendix. This is also reflected in linguistic conceptualization and terminology: there are grammars and spoken language grammars. Language, as studied in linguistics, is based on such notion of language which is closely connected with literary thought and written culture. The explicit norms of good language are intimately woven into the linguistic notions.

Competence, performance and articulation. One extension of the dichotomy between language and speech was the (psycho)linguistic dichotomy between competence and performance. Most (if not all) of the speech production models developed within psycholinguistics, accepted in some form the fundamental division between competence and performance (see eg. Fromkin 1973), or in other words, between what the speakers *know* and what they actually do.

...competence and performance, the deep-seated difference between a speaker's underlying abilities and knowledge of the language and his use of that ability. The two are very different indeed, and they must be kept separate in an analysis of natural language. (Kess 1976:6)

Linguistic performance was seen to be equal to the encoding and decoding processes of linguistic competence, but not, however, equal to the articulation ('phonetics', or motor behaviour). In that, performance was regarded as underlying behaviour as well. Competence, however, was even more underlying. This conceptualization leaves us with a three-level description with, of course, various sublevels and intertwining hierarchies. Incidentally, this conceptualization is also integral to the disciplines of linguistics, psycholinguistics and phonetics.

Can such division be supported by fact, or is it just an illusion created by the theory? Are there, in the human mind, (or perhaps, in the human brain) such structures, properties or processes that correspond to a) the knowledge of language ('competence', or 'grammar' and 'lexicon'), b) the application of this knowledge ('performance' or 'speech planning' and 'speech decoding') and c) the execution of the applied knowledge ('phonetics')? These questions have hardly been asked. Both the external articulatory processes and internal psycholinguistic processes have been regarded through linguistics, yet theoretical linguistics was never much concerned with actual speech.

Thus speech production models primarily work with theoretical concepts of a particular linguistic theory. This has been especially evident in the case of psycholinguistic applications of the transformational/generative grammar. 'Syntactic structures were generated' and 'morphophonemic rules applied' (see eg. Fromkin 1973:240) in theoretical grammars, but also - allegedly - in human minds. Mainstream psycholinguistics is still (see eg. Levelt 1989; Kess 1991) heavily influenced by the same fundamental rationale, although the models seem to rely less on theoretical linguistics and more on cognitive psychology. In addition, recent models flourish with new details and facts from the current research done on, for instance, cognitive linguistics, artificial intelligence, and conversation analysis. Now speakers retrieve 'lemma information' or consult 'skeletal tiers' to be able to 'phonologically encode' their utterances, as apparent in eg. Levelt (1989).

Linguistic theories are structural (and, as we have argued, idealized) descriptions of linguistic products. A structural analysis of spoken or written language is by no means a futile procedure. In this analysis, patterns and rules emerge, which are typical for the language as a system. A description of these patterns and rules is not, however, a model of how this structure was produced. This fact, however, is not generally acknowledged in linguistic

argumentation. The indirect relations between the entities of internal processing and the entities of linguistic analysis have been clearly pointed out, however, by eg. Vygotsky (1931/1982).

The projection of hypothetical linguistic constructs back onto the speaker's mind - as has been done in contemporary psycholinguistics - may be justified as an intellectual enterprise. The evidence for the potential psychological reality of linguistic entities, however, should be regarded with utmost care. It could be argued that a theory of speech may be so fundamentally different from the theory of language that it necessarily needs concepts of its own.

The present-like distinction between linguistic competence and its psycholinguistic performance is a result of the philosophical tradition, which is deeply dualistic and idealistic. The relation of external speech to internal language is seen as a relation of failure to ideal. This conceptualization is truly Platonistic: the internal linguistic perfection is veiled from the mortals, who can only have a look in through the unclear window of speech. But it is also Cartesian: it ultimately stresses the distinction between the speaking subservient body and the thinking mind which is in control. Present-day psycholinguistics, along with (theoretical and autonomous) linguistics, still subscribes to this philosophy, which has not, however, been without its critics. Hockett (1973:117) for example, has remarked that the division between internal sentence-generating competence, and production-component performance is "unmitigated nonsense, unsupported by any empirical evidence of any sort".

To sum up, the combined efforts of competence, performance and articulation are supposed to produce everyday speech, which is seen as contaminated with diverse impurities and errors. In the following I discuss the social history, and ontology, of errors, and propose that most of what are called speech errors, at present, are natural and intrinsic properties of speech.

3.4 Norms violated

Language errors. Language errors are usually defined as *errors of competence*, as distinct from slips which are *errors in performance*.

Children and language learners are supposed to make language errors because of their insufficient or defective competence. What is relevant to note, however, is that as a rule a language error is defined by the audience, usually an adult or a teacher who 'knows better'. For speakers, language errors are essentially normal productions. When children and learners speak, they always face tasks, which they aim at solving in their own -inexperienced- way. Their own solutions in regard of a particular verbal construction or a particular word may differ from those which are accepted by the native and adult society. It is evident, however, that learners produce potential solutions and possible rules. As these solutions are not the conventional ones, adults and teachers correct them, and guide them towards the accepted norm of the linguistic community. Thus, normally, when a child says something like follows, it is defined as an error, or mistake:

(10) *mä laitan sen uusen mekon (pro uuden)*
 'I will put my new (ACC.) dress on'

What the child does, is that she offers a perfectly regular accusative form for the adjective *uusi* 'new'. The child does not 'know' that the adults, and the surrounding linguistic community, are accustomed to use an irregular form *uuden* 'new' (ACC.). When the child's suggestion and the adult community norms are compared, it is the child who is regarded as having made a 'mistake'.

Where do the judgements of correct and incorrect come from? McLuhan (1964) remarked that a grammatical mistake is impossible in a non-literate society. Strictly speaking, he may be wrong, but there is an interesting point in this remark. The influence of written language on explicit norms has been great, as argued above. But there are also various other factors that determine what kind of external social norms are accepted. The notion of language error develops within a linguistic community, and it is not independent of social and political factors.

The explicit norms of Finnish language usage, for example, have been influenced both by Greek philosophy and Roman thought along with the ideas of logic and education they represented. Moreover, both German protestantism and the Swedish and Russian government have influenced the conventions and structures of Finnish language through biblical and official texts. When the Finnish language was standardized during the 19th and early 20th centuries one important factor was nationalism.

Nationalist ideas also resulted in pressures for linguistic purism, and foreign linguistic influences were opposed in order to emphasize national identity and independence. Lexical borrowings from other languages were rejected, Finnish bases were used to invent new lexical items, and archaic Finnish words were applied to new concepts. Words and structures borrowed from Swedish, for instance, were seen as language errors. But even the nationalist movement could not oppose what it saw as cultural development and progress. That is why puristic tendencies were sometimes overruled by the pragmatic demands. Foreign borrowings were readily accepted in 'learned words', which were hailed as signs of Western civilization (see Dufva 1992).

But language errors were also defined using language-internal criteria, one of which is regularity. A good example is the first person plural form of Finnish verbs, which is still different in everyday spoken language and normative grammars. The majority of people obviously learn the spoken (eg. *me luetaan*, 'we read') first, and the the written (eg. *me luemme*, 'we read') only after that. The spoken form, however, was defined as a language error until very recently, and perhaps still is in some cases. The persistence of the official (written) norm obviously derives from the need of regularity, which is not purely linguistic, but also social.

Speech errors. The language guardians, such as the Finnish scholars and teachers from the 19th until mid 20th century, carried out a conscious mission: they worked towards what they considered as good standard language, and they openly admitted it. The definition of language errors was closely related to the need of one national standard, which also would enhance the national unity. Linguists, on the other hand, usually claim that their work is 'descriptive'. Now we may ask what the linguistics is actually descriptive of? I will argue that contemporary linguistics is descriptive of such language, which does not actually exist, and the notion of language is idealistic, since various elements of spoken language are simply dismissed from linguistic analysis.

One dismissed area is that of so-called speech errors (see eg. Clark & Clark 1977:263; Goldman-Eisler 1968). Slips of the tongue constitute one subcategory of speech errors (see eg. Fromkin ed. 1973). Other subcategories include silent pauses, filled pauses (eg. 'uh'), repeats, false starts, corrections, interjections (eg. 'oh') and stutters. This whole implausible category acts as an argument for the view that I have presented above: the elements of spoken language, which will not fit into the description of 'language' are

simply weeded out as 'speech errors'. Pauses, for example, when they at 'wrong' places or 'too long', are seen as speech errors, despite the fact they are an essential characteristic of speech. Silent pauses are necessary for purely physiological reasons, but they also allow for the processing time both for the speaker to think and the hearer to understand (see eg. Beattie 1983). Thus they are motivated both from the point of view of cognition and interaction. Filled pauses and interjections often have a similar function, and they can, in addition, also be used as explicit social feedback signals. These elements, however, are usually regarded as linguistically 'irrelevant' (see, however, eg. Lehtonen 1979; or Dechert and Raupach (eds. 1980).

It was argued above that the idea of 'language' is an idealist one. A similar idealist tendency is seen in psycholinguistic descriptions of the production of speech. The concept of 'ideal delivery', for example, that is present in the textbook of Clark and Clark (1977:261) is such a case. Their argument is that the existence of speech errors is proof for the view that there "must be a 'correct' way of producing a sentence".

Ideal delivery of speech is achieved "when people know what they want to say and say it fluently" (Clark and Clark 1977:261). Actors, experienced readers and orators are taken as examples of speakers who approach the level of ideal delivery. It should be obvious, however, that these are exceptional speakers: the voice is theirs but the content is either prepared before or even authored by another person altogether. In a sense these speakers are only 'mouthpieces' (cf. Thomas 1991). The relevance of the notion of ideal delivery will be questioned in the present thesis.

It is easy to detect, however, where the norms for ideal speech delivery have come from. Harris (1980:125) argues that they were carried along with the Western tradition of education and rhetorics: "to speak Latin with the skill of a consummate Roman orator is the summit of human ambition". Practised, well-rehearsed, convincing and smooth performance came to be regarded as an ideal way to speak. These values, which are basically political and cultural, were later adopted in a model of how a human being functions.

In fact, it would seem obvious that a psycholinguistic theory of speech should not refer to an exceptionally talented or skilled person as its point of reference, or to reading and acting as a model of how speech is produced. A genuinely descriptive model would allow room for not only a real, but also an *ordinary* speaker, who

speaks in his own words. What has actually happened is that psycholinguistic research has not questioned the values that were smuggled into it in the framework of theoretical linguistics. Idealistic, dualistic and normative values were accepted as a basis of the approved paradigm, and the elements which did not fit into the theory, were distilled by the linguistic filters. Throughout my thesis I will argue for the view that what have been referred to as speech errors belong intrinsically to the processes of speech production.

Slips and errors. One theoretically relevant point is the distinction between an error and a slip. Slips of the tongue are usually defined as *unintentional, involuntary or non-deliberate* errors made by competent (adult) speakers, whose competence is intact. Therefore, they are taken to be cases of a linguistic malfunction: internal rules are misapplied or linguistic items misplaced. It is usually argued that slips of the tongue are conclusive evidence for the internal (intact, non-erroneous) linguistic competence, since even the speaker him/herself is able to judge them as incorrect.

To begin with, we can compare slips of the tongue with language errors. As stated above, language errors produce utterances that are "breaches of the code" (see also Corder 1973:256-261). According to this definition it is the language errors that produce ungrammatical sentences, non-existing words, or non-existing phonology. Thus one criterion for the distinction between a slip and an error is the grammaticality/correctness of the resulting utterance. However, various cases in my corpus are also violations of linguistic rules, and thus, 'language errors'. The first example is an ungrammatical sentence, and an apparent violation of a case agreement rule, actually a blend of two possible expressions.

(11) *mä meen hiljaa näi+ssä portai+lla*
 (pro *näi+llä portai+lla* ADESS. / *näi+ssä portai+ssa* INESS.)
 'I step carefully on these stairs'

The speaker should have chosen either an adessive case or an inessive case for her utterance, but used - inconsistently - a mixture of inessive for the demonstrative and adessive for its head.

Non-words are frequently created in slips both by blends (12) and by sound-level slips (13).

(12) *straktiikka* (pro *strategia/taktiikka*)
'stractics' ('strategy'/'tactics')

(13) *perustana oli kulttuurinedon idea* (pro *kulttuurineron*)
'and its basis was the idea of a cultural genius'

Occasional examples of sounds and sound combinations that do not occur (or marginally occur) in the phonology of the particular language, here Finnish, are also produced, as in the following example of a palatoalveolar sibilant /sh/.

(14) *ja sitten tulee Hoffmanin sheikkailut* (pro *seikkailut*)
'and they also show "The adventures of Hoffmann"'

It is thus possible that slips of the tongue produce non-language, or, "spontaneously incorrect sentences" (Bierwisch 1981). But the fact that some slips produce ungrammatical results, however, is perhaps rather more interesting that may seem to be the case on first impression. Competent skilled adult native language speakers also produce (accidental) language errors that are similar to children's or learners' productions. The line between an error and a slip is not clear on the basis of the product only, and some other factor at least was used in the classification of eg. the above instances as slips and not errors.

A large number of slips of the tongue, however, result in linguistically correct and acceptable utterances.

(15) *ja mulle makuupussi* (pro *meikkipussi*)
'give the sleeping bag to me' (pro 'cosmetics bag')

These linguistically correct utterances have to be unsuccessful in some other sense, since they have been listed as slips of the tongue. It may be suggested that these utterances are not interpreted as relevant or adequate. Whenever we hear an utterance, we probably judge it in pragmatic and situational terms also, not only in linguistic terms. Does it make sense? Is it suitable in this situation? For example, in (15) the speaker is reaching out for her make-up bag, and the concept of 'sleeping bag' is in obvious contradiction with the physical and cognitive environment. Also, the example (16), involves an obvious contradiction with the fundamental knowledge of the world. For any Finnish speaker, the combination of a female first name (*Tuula*) and the male concept 'brother' is semantically and pragmatically inadequate.

(16) *onks toi Tuula Pekan pikkuveli?* (pro *sisko, sisar*)
 'is Tuula Pekka's brother?' (pro sister)

Thus it is obvious that potential slips and errors in the speech flow are detected by the hearer (who may well be the speaker him/herself), and that here we deal with *aposteriori* knowledge. Sometimes the detection of faults is unambiguous and easy, while in some cases more information is needed in order to ensure what the speaker really attempted to communicate.

(17) *mä luin tota Mika Waltaria* (*Mark Twainia*)
 'as I was reading that Mika Waltari novel' (pro Mark Twain)

In example (17), the speaker refers to an (incorrect) novelist. The hearer, in order to know whether this is a slip, must share a certain amount of background knowledge. An utterance like this is grammatically correct and seems pragmatically appropriate, but it still is a slip. The hearer, however, may not identify such utterances as slips. The recognition of faults (whether errors, mistakes or slips) depends not only on the utterance itself, but also on various other factors, such as the amount of background they share. Furthermore, hearers do not judge utterances in terms of linguistic correctness only, but also in terms of adequacy, appropriacy, or relevance.

In addition, hearers also make hypotheses about the reasons for the detected faults. Further criteria in the distinction between an error and a slip are thus the hearer's estimation on the *competence* of the speaker, and on the *permanence* of the error in case. Malapropisms (see also chapter 8.3.) are a good example of the problems that are present in this estimation. Malapropisms which are confusions between two words that sound similar can be typical for the speaker's idiosyncratic vocabulary, but they can also be passing lapses. When a particular malapropism is observed, however, it is obvious that its categorization as a slip vs. error, depends on the relations between the speaker and the hearer. Children's word choices are more readily classified into the permanent error category, while adult misuses may be counted as temporary slips. Thus the following examples of children's speech (18,19) would be classified as language errors:

(18) *laitetaan ne donitsit* (pro *damaskit*)
 'let's put the doughnuts on' (pro 'tights')

(19) *mä haluun tota aprillia* (pro *makrillia*)
 'give me some April' (pro 'mackerel')

Similarly, inadequate words of foreign language speakers are usually characterized as errors. The first example (20) was spoken by a Finnish speaker of English, and the second one (21) by an English speaker of Finnish.

(20) *in my instruction* (pro *introduction*)

(21) *kielellinen* (pro *kirjallinen*)
 'verbal' (pro 'literary')

In contrast, fundamentally similar examples of adult and native speech tend to be classified as slips of the tongue.

(22) *onks meillä salmonellaa* (pro *mortadellaa*)
 'have we got any salmonella left?' (pro 'mortadella')

(23) *kronikka* (pro *karonkka*)
 'chronicle' (pro 'celebration')

These dichotomous categorizations result from inferences that are made by the judge (adult, native speaker, teacher, linguist) about the competence of the speaker. Children and foreigners are supposed to lack competence. Ergo: they make errors. Adults are supposed to know what they are speaking about. Ergo: they make slips of the tongue. The problems involved in the classification of malapropisms as slips vs. errors show how externally similar behaviour may be attributed to different causes, depending on social relations.

It is thus ultimately the hearer who makes the decision. When a scholar talks about scientific discoveries and illustrates his talk taking 'Darwin's apple' as an example, I 'know' that he has committed a slip of the tongue, since 'I know that he knows' that the apple belongs to Newton, and that he would probably not repeat this particular slip. But if a school-pupil makes a similar mistake, I probably would consider that as an error, and perhaps offer a correction.

In the majority of the cases, speakers themselves can obviously draw a line between what they 'know' and what they 'do not know'. This is not a strict dichotomy, however, and there seems to exist a fair amount of cases involving uncertain knowledge. This means even the speakers themselves are not always able to judge

their own competence or correctness of their lexical choice. The following example (24), which is a blend of two words *irrallaan* and *valtoimenaan*, pragmatic synonyms for 'dishevelled', produced a considerable amount of afterthought and consultation of a dictionary, before the speaker could decide, whether this was a real word.

(24) *irtoimenaan* (pro *irrallaan/valtoimenaan*)
'dishevelled'

It may be especially typical for lexical blends that they 'seem probable', and that speaker's intuition is not reliable in their judgement. Similarly, speakers often hesitate in a judgement of a phrasal or idiomatic blend, as the speaker in the following example (25). The target expression is *sokerina pohjalla* 'last but not least' (literally: 'as the sugar at the bottom'), but the idea of 'cream' intrudes in his utterance, probably as an influence from such phrases as 'crème de la crème' or as an association between cream and sugar (in the coffee).

(25) *kerma pohjalla* (pause) *-eikös sitä niin sanota?* (in hesitant voice)
'And then there's the cream at the bottom. Isn't that the expression?'

Frequently, one cannot know what speakers know, and whether some expression is a permanent or passing feature in his/her repertoire. Thus it is difficult to decide whether *harmaa ankanpoikainen* 'a grey duckling' (from 'an ugly duckling' and 'a little grey sparrow') is the speaker's permanent or temporary idiom.

But the permanence vs. transience of a particular error is also a problematic issue. Slips are sometimes defined as transient errors (see eg. Mackay 1970; Laver 1973:132), while 'language errors' are seen as permanent. Knowing what particular cases are transient, and what are permanent is a complex issue. Many incorrect utterances of children, for example, usually classified as errors, may in fact be unique cases. When a correction is offered by an adult, the child may never use the form again. Finally, particular slips may obviously become permanent and habitual for a given speaker. Several informants of the present corpus reported a tendency to repeat a particular mistake. The following are examples of slips that had become habitual:

- | | |
|-----------------------------------|---|
| (26) <i>Helsinki - Englanti</i> | (Helsinki - England) |
| (27) <i>hotelli - museo</i> | ('hotel' - 'museum') |
| (28) <i>albumi - kalenteri</i> | ('album' - 'calendar') |
| (29) <i>Pariisi - Kajaani</i> | (Paris, France - Kajaani, a small Finnish town) |
| (30) <i>jauheliha - lihaliemi</i> | ('minced meat' - 'stock') |
| (31) <i>pesukone - pölynimuri</i> | ('clotheswasher' - 'vacuum cleaner') |

On the whole, the distinction between an error and a slip seems to be rather elusive. It is fairly easy - but not unambiguous - to detect a fault in an utterance, either at a linguistic or pragmatic level. This is the first phase in the process of analysis: the detection. The second phase is that of attribution, in which the hearer makes hypotheses about the competence of the speaker and permanence of the mistake.

Thus the distinction between a slip and an error is not arrived at by any one criterion alone. Both naive hearers and linguists work as analysts in phases: detection of a fault, its evaluation and inferences about its causes. No clear line of demarcation between a slip and an error can be established, and the judgement depends on various linguistic and interactive factors. It should be recognized, however, that although we may not be able to give an exhaustive definition for a slip of a tongue, it may be fairly easy to list features that are typical for it, such as self-recognition of a fault and its attribution to other factors than ignorance.

3.5 Imperfect norms for imperfect speakers

One central point of the slips of the tongue is that they are supposed to be, as Cutler (1988:209) argues, "imperfections" by definition. The perfection to which this external imperfection is compared is to be found within the mind, at the level of mental grammar. The internal grammar is seen as a perfect machinery, and the problems occur because the performance system malfunctions.

Idealist and dualist philosophy has been such an influence on psycholinguistics, that it almost seems impossible to think of the other alternative: namely, that people might simply be equipped for the production of speech, not for the production of perfect speech.

Laver (1973:120-121) expressed a similar view in claiming that we must never equate normal with perfect, and that we, always, have to acknowledge the "imperfect" nature of everyday speech.

Thus a theory of an imperfect processor could be suggested instead. This suggestion is well justified in regard of the output of the processor: everyday speech is - inherently - imperfect, and slips of the tongue are exceedingly common. If the idea of an imperfect processor is accepted, however, the position of slips of the tongue as 'exceptional' has to be rejected and the idea of them as 'disturbances' (Freud 1901/1973), or 'system malfunctions' (Cutler 1988:210) has to be modified. Slips of the tongue do not seem to be exceptional, they rarely disturb the flow of interaction, and it can be questioned whether they really are malfunctions at all.

Furthermore, this approach also means that the strength of being a human does not lie in being perfect, and that human internal grammars never were meant to be 'immaculate calculators'. This notion seems to be supported by assumptions that are characteristic for the present study of human and animal cognition and intelligence, and their evolution. The property of adapting to rapidly changing circumstances seems to have been more essential for human development than the property of functioning perfectly. Thus the real forte of the human mind might be in its ability to accommodate to the demands of novel situations and new environments, and to alter its behaviour according to the feedback it gets from other minds and the environment. The biological explanations for knowledge and knowing (or, evolutionary epistemology), for example, rely on similar notions (see eg. Honkala 1989). In addition, it would be more appropriate for the internal grammar as well to cope with interactive situations, than to be able to produce correct sentences.

The role of 'error' in human learning has also been emphasized by Popper (1972): humans have always learned and still learn through trial and error. Organisms continually face problem-solving situations which demand decisions, and the ability to learn from the following successes and failures is all-important, where social behaviours are concerned. Lagerspetz (1989:217) argues, echoing the idea of 'Errare humanum est' that erring is not only human, but that it is the other side of the learning ability in all organisms. Only those with the ability to learn, can err. Thus 'errors' - also linguistically speaking - are basically attempts to solve a problem, or to accomplish a task.

A theory for an imperfect speech processor is developed in the present thesis. The data for such theory lies in real external speech. Speaker's utterances, such as they are, have to be accommodated in the theoretical framework; they can not be filtered out. If speakers hum and haw, they obviously have a reason for it. If they pause, it means something. If they speak incoherently and correct themselves, that is probably the way their mind works - and not the way an out-of-order processor works. If they slip, they have a reason for doing so, and it is for the psycholinguist to try to offer an explanation. This fuzzy, erratic, and illogical external reality of speech is usually dismissed and replaced by the notions of the rational and logic internal reality. But in fact, we do not seem to have any proof of the fact that our brains would be specially equipped to work in a logical mode. As Boomer (quoted in Laver 1970:75) says:

Man's brain is an evolutionary outcome, and there is no reason to believe that the evolutionary process is subject to the logical canons of parsimony and elegance. On the contrary in fact.

Thus at present psycholinguistics is in possession of an innumerable set of very elegant models of speech: on speech perception, on speech production, on neurolinguistic programming, on speech timing, on speech recognition by machines, and on artificial intelligence. The problem is that the majority of these rely on present linguistic theories (and duly on the theoretical entities proposed). The data of ordinary speech is conventionally either ignored or belittled. The models are sophisticated, but what about their ecological validity? Baddeley and Wilkins (1984:2) pose a similar question in regard to everyday data in psychology, and complain that psychologists:

prefer to cling to elegant models of ever-increasing complexity rather than be concerned with the mundane question of validating such models against the inelegant and intractable problems of real world.

Norman (1980:383) has raised similar criticism with regard to speech processing models, which, according to him, may be surprisingly weak in their explanatory power in spite of all their theoretical sophistication. Do the theories simply have "an inappropriate framing of the questions at the outset" as Kolers and Roediger (1984:443), in a critique of mainstream psychology state?

If elements of everyday speech continue to be explained away as 'irrelevant', 'unpropositional' or simply 'incorrect', psycholinguistics will be far from a description of speech production. Thus it is worth attempting to check the assumptions and pose some new questions. Idealistic and dualistic notions about the relation between language and speech do not necessarily hold. A realistic basis for the psycholinguistics of speech is the observed reality of external speech. This realistic view has been suggested by Hockett (1973:117-118) who argues that the internal mechanisms of speech production are not 'weirdly different' from external speech, but - instead - are the same mechanisms. He offers a simple speech production mechanism comprising of three essential functions: analogy, blending, and editing. The process that employs these three mechanisms is roughly as follows:

(This inner flow) is carried along in trial-and-error fashion in response to changing external circumstances, the heard speech of others, and its own past history (especially its immediate past): it can be both blunderful as well as smooth.
(Hockett 1973:118)

This simple and realistic approach is of considerable importance in the present work. The cognitive and sensory-motor functions involved in the production of speech are not faultless and ideal to any degree. Instead, they are adaptable, flexible, parallel and creative, but therefore also sketchy, hazy, and erroneous. Speaking, moreover, is not only an individual enterprise. It is always a process which has a social incentive, and it always occurs in interaction.

The interaction, however, does not involve only social contact, or interaction with other people. In addition, the internal process itself can be described in terms of interaction, rather than in terms of a serial process of several components. The speaking mind 'works with itself' to produce utterances. A recent popular metaphor for conversation has been that of 'negotiation of meanings'. This metaphor emphasizes the variable and flexible nature of interaction. Similarly, the workings of the individual mind can be seen as 'self-negotiations'.

The production of the utterances does not mean to trigger off the linguistic component and let it go. On the contrary, any utterance production has many possible paths to follow. Some of the paths are highly predictable and in very active use, while others are seldom used and still others may not yet exist and have to be

made. We may choose a wrong path and then back-track in order to find the correct one. We may stop altogether when we are not sure which way to go. We may forget where we are going. An outsider may stop us. There may be other interests beside the path that attract our attention. We may go to a wrong direction or we may stumble and fall. Finally, when we reach our assumed goal we may find we are in a completely inappropriate place.

When regarded on a less metaphorical level, spoken interaction can be seen as a complex network of social, cognitive and sensory-motor processes - and the word 'linguistic' is deliberately omitted. This network of various parallel processes is very intricate, and it sometimes happens that processes may turn out to have unpredictable results, such as slips of the tongue. The output of the processor is variable and it has a whole range of shades of acceptability, relevance and correctness. What we call slips of the tongue can also be referred to by different terms: an inattentive step and stumble, a novel approach to the linguistic task, a trap present in the language, or the darker side of the learning process. In what follows I will discuss the various routes that lead speakers towards these unpredictable or unconventional outcomes. I first discuss the paths that are offered to the speaker by a particular language.

4 LANGUAGE IN SPEECH: THE FINNISH SLIPS OF THE TONGUE

Slips of the tongue are usually discussed in terms of universal processes. *Universalist* view that is habitually present in contemporary psycholinguistics assumes that the underlying processes of speaking are similar in different languages. This may not be the case. On the contrary, it can be argued that the structure of a particular language influences the ways in which speech production and perception are processed. This is in accordance with Lehtonen (1981) who argues that marked differences in language structures might evoke different processing strategies, and suggests that differences that can be found between the structures of Finnish on one hand, and Germanic languages on the other hand, may result in different kinds of cues for perception.

This view supports the notion that particular languages use universally available strategies in a way that is partly determined by the structure of this language. This view is also supported by research results, which indicate that the tip-of-the-tongue strategies of Finnish speakers are different from those used by English speakers, so that, for example, the word-final cues seem to be more prominent for Finnish speakers (see Dufva 1985). Thus, it may be that all languages are not spoken and heard by similar means and processes, and further research on the area of contrastive psycholinguistics is to be strongly urged (cf. Dechert 1983; see also MacWhinney and Bates 1989).

It certainly appears that slips are universal in the sense, that they obviously occur in all cultures. It can be tentatively proposed, however, that there might be differences in both quality and quantity of slips in different cultures. Ohala and Ohala (1988), for example, argue that Hindi lacks such slips of the tongue that can be called segmental (ie. segmental transpositions, substitutions or omissions) and also point out various possible explanations for this.

The question about the language-specific and universal processes in language production is far from clear. My suggestion is that a particular language structure favours employment of particular strategies. Consequently, some of the slips may be *language-motivated*, and others motivated by the universal factors involved in the speech processing.

It can be suggested that certain peculiarities of Finnish are one factor that underlies the slips of the tongue. To take one example, Finnish, as a morphologically rich language, has to have a complex and fast processing system for the morphology. Thus, also probably a variety of slips involved in morphology would be expected. In the following I first discuss the slips of the tongue of my corpus in the light of Finnish grammar. I discuss the points of grammar which either seem to *attract* the slips of the tongue, and also those points in which slips of the tongue only rarely occur. The point of my discussion is thus both to raise the issue of language-specific processes in general and look for those points which might be relevant in the discussion of Finnish language and linguistics. My linguistic framework below is a non-committal one: the analysis is carried out in the frame of descriptive framework (as apparent in eg. Karlsson 1982; 1983a; 1983b; Sulkala and Karjalainen 1992).

Phonology. It has been repeatedly argued that slips of the tongue never produce phonologically or phonotactically impossible utterances. This has been quoted as a fact since Wells' 1951/1973:86) description of slips of the tongue as 'possible noises' (see also Fromkin 1968:64; Fromkin 1973: 230; Davidson-Nielson 1975; Garrett 1980; Crompton 1982; Stemberger 1983a; Stemberger and Treiman 1986). As argued above, however, the reason for this may be attributed either to the speaker, or to the hearer.

It is of particular interest to see how speakers deal with sounds that are not fully established members of the sound system. In my data, for example, there are errors that involve the non-native /b/, /g/, /sh/ and possibly, /f/ and /d/.

Finnish has an original native stop consonant system of only voiceless stops /ptk/. /d/ is an innovation introduced into the spoken language by the written language grapheme <d> during the 19th century. Nowadays /d/ is established for most speakers. The position of /b/ and /g/, however, is radically different from /d/ (see eg. Suomi 1978). The new loan words are regularly spelt with original and <g>, but their pronunciation varies considerably, fluctuating between a voiceless, half-voiced and fully voiced variant. This variation is due to the speaker, lexical item and the situation (see eg. Heikkinen 1982). Thus younger, educated and southern Finnish speakers tend to use a voiced stop fairly regularly in words of a formal register (eg. *byrokratia*), but these speakers may also use a voiceless stop in everyday words (eg. *bussi* -> *pussi*). Voicing of the stops /b/ and /g/ is heavily prestigious and strongly associated with correct language usage.

This situation is interesting in the sense that it offers a view of a linguistic change in progress, and is relevant for the discussion of the notion of the error vs. the slip. Duly, a present-day speaker's pronunciation of /b/ as /p/, as in (32), is hard to classify as a slip. It is a pronunciation variant (or, from the normative point of view, an error or 'sloppy usage'). A change from /p/ to /b/, on the other hand, may well be a slip, as in (33). The relation between the voiced and the voiceless stops is thus presently 'unbalanced'.

(32) **pojat pussissa* (pro *bussissa*)
'boys in the bus'

(33) *nyt se budottaa banaanin* (pro *pudottaa banaanin*)
'now she'll drop the banana'

For a Finnish speaker, /b/ and /g/ seem to be experientially different from other members of the Finnish consonantal paradigm, which are felt as native and unproblematic. It appears that there is an extra effort in the articulation of /b/ and /g/ as fully voiced stops. Traces of this experienced effort may be seen in slips of the tongue. Thus voicing of a stop consonant is a feature that might be mentally marked as 'difficult'. It is suggested that voicing of stops, for a Finnish speaker, is a lexical feature associated with words of foreign origin, and in addition, an exceedingly prestigious feature. Thus when a speaker is supposed to use a word marked for voicing, the voice feature requires an extra effort. Therefore, it may easily spread to the context in an anticipatory or a perseveratory manner

(cf. the problems of Finnish speakers in the pronunciation of English stops in Suomi 1980).

(34) *bussissa on nainen jolla on vielä lyhyempi boninhäntä* (pro *poninhäntä*)
'there's a lady at the bus with even shorter ponytail than..'

(35) *Järvenpään lukion abiturientit* (pro *lukion*)
'the last year students of the Järvenpää high school..'

Thus the voicing of stops seems to be a lexically determined device, which may be raised onto the level of conscious effort. The slips above (34, 35) are in a sense *hypercorrections*. The experiential complexity of the voicing and the tendency to produce hypercorrect forms is further attested by frequent spelling errors in loan words. Thus such spelling errors in foreign loans are common in which a voiceless stop is spelt as a <g> or , as in eg. <gaming> for <camping>.

Prosody. One of the most central features of Finnish prosody is *quantity opposition*. Quantity is a distinctive feature in both consonants and vowels. Slips of the tongue which distort the length pattern of the word seem to be fairly rare, and similarly, quantity errors are infrequent in the speech of Finnish Brocas's aphasics (see Niemi et al. 1985).

There is only one clear example of vowel length distortion (that from /i:/ to /i/) in my data, and it can be interpreted as a perseveration caused by the preceding word-shape:

(36) *sinisiä vinirypäleitä* (pro *viinirypäleitä*)
'blue grapes'

There is a single example of a consonant length distortion in the corpus. It is apparently a consonant length transposition (see, however, an alternative analysis for these slips in chapter 9.2.), which is probably due to the fact that the speaker reads aloud a list of names, in which the surname is given first, contrary to the usual fashion. Thus the habitual order and the present order of names interfere with each other, and contribute to the generation of this slip.

(37) *Sunni Mina* (pro *Suni Minna*)
(a personal name)

However, those slips which interfere with the duration pattern of the word are clearly rare. Thus it is easier to interfere with the 'segmental' articulatory gestures than with the quantity pattern of a word, which is obviously more resistant to distortions. For a speaker, quantity is thus an integral and fundamental property of the word pattern, similar, for example, to lexical stress for English words (cf. Fromkin 1973: 231-233). However, analysis of quantity errors is made difficult by the fact that they are not only phonological and prosodic but also related to morphophonology, as will be discussed in the next section.

Slips of the tongue do not occur in the placement of lexical stress. In Finnish, word stress is fixed and falls regularly on the first syllable. Thus it is obvious that the actualization of word stress for speakers is either so automatized that they never lapse. On the other hand, the hearers might be so conditioned hearing the stress on the first syllable, that they do not hear minor variations in the actual speech.

The prosody of the utterance level also appears to be little influenced by the slips. Here, a systematic analysis of sentence prosody is excluded, primarily for the reason that no tape-recordings were used (see however, eg. Cutler 1980a;1980b). Some examples, however, show that stress misplacement is possible. The following slip, for example, seems to result from the fact that there were two or three different possible expressions of different length, and thus, of different stress pattern. The potential expressions were: *mennään 'tästä kautta*, *mennään 'tästä* and *mennään tästä 'tien kautta*. The result is a blend of these expressions with an incorrect stress placement.

(38) *mennään tästä 'kautta* (pro eg. *mennään 'tästä kautta*)
'let's go this way'

Two morphophonological processes are of utmost relevance in Finnish: vowel harmony and consonant gradation, which both, in a way, determine the internal structure of words. When the number of slips is considered, however, these processes are widely different.

Vowel harmony. In Finnish, vowel harmony determines both word-internal sound combinations and also the combination of base forms with case endings. Basically, first syllable front vowels /ä ö y/ constrain the occurrence of vowels in other syllables so that only front vowels are possible in non-initial syllables and in case endings (as in eg. *ky+lä+ssä* "in the village"), while back

vowels /a o u/ imply back ones (as in eg. *la+ma+ssa* 'in the depression'). The phonetically front /e/ and /i/ go with both vowel types (as in eg. *sel+kä* 'back or *vel+ka* 'loan'). A detailed discussion of vowel harmony can be found in eg. Karlsson (1982:98-104) or Wiik (1975).

Morphophonemic constraints of a language are extremely seldom violated (see eg. Fromkin (1973:231). Thus the choices involved are supposed to be automatized. For example, a selection between two possibilities for the indefinite article (*a* vs. *an*) in English is supposed to be automatized, and cannot be questioned. Consequently, it could be predicted that vowel harmony rules would not be violated in slips of the tongue. This appears to be precisely the case. If, for example, a front vowel word and a back vowel word are blended into one, the vowel harmony is always adjusted, as seen in the following example.

(39) *ulospäin kääntäytynyt* (pro *suunt+autunut* BACK/*käänt+ynyt* FRONT)
'extravert'/'socially oriented'

There were no cases in my corpus, which would have involved a vowel harmony violation within a word stem (of the type **ta+lö* for *ta+lo* 'house', for example). The vowel of a case ending, on the other hand, may in some cases be disharmonious with the stem vowel. These slips, however, seem to be very infrequent. In the following example, a back vowel adessive ending *-lla* is attached into a front vowel stem, and the process results in disharmony.

(40) *ne asunnot joita Köhniö+lla* on... (pro *Köhniö+llä*)
'those flats that they sell at Köhniö.'

The few case ending slips show that it is not impossible to violate vowel harmony rules. It has to be emphasized, however, that these slips seem to be extremely rare. In addition, there were some slips in the corpus that seemed to be examples of a contrary trend: a tendency to apply vowel harmony over its usual boundaries, as the examples below (41, 42, 43) show.

(41) *uu+koon suurlähettiläs* (pro *yy+koon suurlähettiläs*)
'the UN ambassador'

(42) *erä+mää* (pro *erä+maa*)
'desert'

(43) *yöllä ön* (pro *yöllä on*)
 'tonight there is'

In (41) and (42) the vowel harmony rule is applied over the boundary between the components of a compound, and in (43) the copula is made to harmonize with the preceding word.

Similarly, some mistakes seem to be due to the optionality of the vowel choices in the neutral vowel (/i/ and /e/) stems. Both front and back vowels following /i/ and /e/ are phonologically possible, and the actual choice is lexically determined. The speaker who used the following form selected a potential (-*kkö*) but not the actual (-*kko*) phonological form for the derivative suffix.

(44) *tällaiset leksikön lisäykset* (pro *leksikon*)
 'additions like that to the lexicon'

The Finnish vowel harmony rule seems to be both productive and effective as a constraint. Disharmonious sequences do not occur in slips, and they are also experientially awkward for Finnish speakers. This is attested by the fact that speakers frequently accommodate disharmonious loan words back into harmony. Thus *olympia* tends to be pronounced either as /olumpia/ or /ölympiä/. Similar tendency can be found in slips: although speakers seem to 'harmonize' unnecessarily, they seldom or never 'disharmonize'. This constraint is seldom violated, but often overgeneralized.

Consonant gradation. In comparison with vowel harmony, slips in the process of consonant gradation are quite common. Consonantal gradation is a phenomenon typical for the inflection of both verbs and nouns in Finnish. It involves consonantal changes that depend on the syllabic structure of the word. The gradation is usually divided into two subprocesses that are termed qualitative and quantitative gradation. Qualitative gradation denotes an alternation of two different consonants, such as eg. /p/ - /v/ in *repo* - *revon* 'fox' (nom./gen.), whilst in quantitative gradation a single and a double consonant alternate, such as eg. /pp/ - /p/ in *kauppa* - *kaupan* 'shop' (nom./gen.). Thus either the quality or the quantity of the stem consonant varies depending on the suffixation chosen, and the process is related to the rules that determine the syllabic structure of a word (a thorough discussion on this subject in English is found in eg. Karlsson 1983:30-39). The alternating forms (eg. /pp/ vs. /p/ or /p/ vs. /v/) are usually called 'strong' and 'weak'.

It has been argued that qualitative gradation is less productive and thus 'more difficult', so that children, for example,

are expected to learn it later than that of quantitative (Laaksonen and Lieko 1988:46). The new loan words do not conform to the rules of the qualitative gradation and thus the process applies only to older native words (see Yli-Vakkuri 1976). Slips that involve qualitative gradation, as in the examples (45,46,47) are not uncommon in my corpus.

(45) *aikaisemmat tiedonsa* WEAK (pro *tietonsa*) STRONG
'his earlier information'

(46) *räkät nenästä* STRONG (pro *rääät*) WEAK
'the snot out of your nose'

(47) *se on mun pöydällä lepänny* STRONG (pro *levänny*) WEAK
'it's been lying on my table'

No consistent tendency towards either the 'strong' or the 'weak' choice was apparent in the corpus. In addition, no tendency was observed for the older native words to adapt to the rule that inhibits qualitative gradation. It is possible that these slips are caused by the presence of two frequent potential actualizations of one word form and thus could be classified as 'morphophonological blends'. The rich system of Finnish derivation and inflection involves a frequent and habitual variation between the 'strong' and 'weak' forms. Thus a Finnish speaker habitually uses in his/her speech a multitude of morphological variations that are derived from the same stem. One particular verb, or one particular noun always involves several inflected and/or derivative forms which employ either the strong or the weak form. It might be simply the existence of this net of variation that may cause the speakers to slip.

Often, however, these slips seem to involve also a pragmatic choice between two possible expressions, in which two alternative forms (strong or weak) would be possible. The following example, for instance, is motivated by the existence of two morphological forms in the language system, but also by the fact that the speaker has a pragmatic choice between a conditional (*hiipisin*) and an indicative (*hiivin*) mood of the verb *hiipiä* 'to creep'.

(48) *mä hiivisin* WEAK (pro *hiipisin*) STRONG
'I would creep'

The quantitative gradation, on the other hand, produces remarkably fewer slips, which, in addition tend to occur in personal names, as in (49). One possible explanation for the rarity of

quantitative gradation slips is that here 'morphological' and 'phonological' processes coincide. As argued above, it is possible that the quantity pattern is so resistant to distortions, that it affects also the morphological gradation process.

(49) *Lotta+n* STRONG (pro *Lota+n* WEAK)
'Lotta's'

One more factor to be considered here is dialectal variation. In many areas, speakers habitually use a geminate consonant where you would expect, in standard Finnish, a single one, and in addition, the gradation rules as such differ somewhat in dialects. This makes the interpretation of the quantitative gradation slips more still difficult. Clearly, however, it would be an interesting area of research to study the interrelations of phonology, morphology and dialectal variation in closer detail.

There might be found, however, a slight tendency to favour the strong form instead of the expected weak one in inflections, and here, we might deal with a possible linguistic change. People habitually inflect some names with the strong form, such as *Stockalle* /stokkalle/ 'to Stockmann' (a department store), which is pronounced with a geminate instead of a single consonant (cf. Laaksonen and Lieko 1988:46). This tendency might be applied to the inflection of names in general (as in 49), and, perhaps, also to other words.

Furthermore, there were some interesting morpho-phonological errors in the corpus, which seemed to indicate false analogy. Speakers sometimes 'double the gradation', as in (50). The actual paradigm for the verb does not involve /t/ -/d/ variation, but a variation between /tt/ and /t/.

(50) *ei sadu* (pro *ei satu*)
'it does not hurt'

Above, the speaker obviously makes a false analogy, and compares the present production to verbs that do involve /t/-/d/ variation (eg. *puutuu: ei puudu* 'gets numb' 'does not get numb'). Thus the speaker only moves one step forward, so to say, in 'weakening' the consonant (see also Niemi and Laine 1992 for a similar explanation). The same underlying process seems to underlie the slip that was committed by a child (5yrs) in the example (51):

(51) *ei se sitä rio..eiku riko*
 'she won't break it'

In the example above, the child 'weakens' the consonant to zero in analogy of /k/ - /zero/ paradigm. This child, along with other speakers of Finnish, knows that the scale of 'weakness' for consonants is the following: /kk/ - /k/ - /zero/. But why do speakers slip into another paradigm? One functional explanation is that these mistakes are caused by a false alarm in the monitoring system. The speaker attends to a *correct* word form as if it would be an error, and makes a rapid adjustment in order to correct, which may result, as in the above examples, in an 'overweakening' of the consonantal element.

Nominal inflection. The inflection of nouns in Finnish is complex. There are many types of paradigms for nouns which depend, for example, on the syllable number of the noun or on its stem-final vowel. Moreover, there are various exceptions for the basic rules (for a discussion, see eg. Karlsson 1983:44-52). Children make common 'errors' in inflection, as shown in examples (52, 53, 54).

(52) *apin+ia* (pro *apin+oita*)
 'monkeys' pl. part.

(53) *leijon+oita* (pro *leijon+ia*)
 'lions' pl. part.

(54) *porsa+kset* (pro *porsa+at*)
 'pigs' pl. nom.

But slips in noun inflection are by no means uncommon for adult, well-educated speakers either. Speakers often produce forms which are *possible*, but not *actual*. Two inflection types especially seem to generate slips: these are the inflection of words with the stem final *-a/-ä*, (55,56,57) and the inflection of stems ending with *-i*. (58, 59).

(55) *koulukunt+oja* (pro *koulukunt+ia*)
 'schools' pl. part.

(56) *ruok+oja* (pro *ruok+ia*)
 'food', 'dish' pl. part.

(57) *kaupp+ien aukioloajat* (pro *kaupp+ojen*)
 'the opening hours of the shops' pl. gen.

The existence of several parallel inflections is clearly one motivating force behind the slips. Thus (55) and (56) have an analogous inflection in eg. *kana - kanoja* 'hen' (nom./part.pl.) Furthermore, the slips often seem to produce actual words, as apparent in the examples (55) and (56), viz. *kunto - kuntoja* 'condition' and *ruoko - ruokoja* 'reed'). Errors are also made in words that end with an *-i*, as in (58) and (59).

(58) *istun tuole+lla* (pro *tuoli+lla*)
'I sit on the chair'

(59) *Hopeatuole+n seitsemäs jakso* (pro *Hopeatuoli+n*)
'the seventh part of the Silver Chair'

The word-final *-i* changes into *-e* in the inflection of some old native words, which, however, are very frequent, as eg. *kivi - kiven* ('stone' nom./gen.). The rule which turns *-i* into *-e* is unproductive, and all new lexical acquisitions into Finnish retain *-i* in their inflection, as in eg. *koodi - koodin* ('code' nom./gen.). The slips typically seem to occur in older (native) words, and they might reflect the presence of a choice, and the speakers (unconscious) hesitation between two possible inflections.

Moreover, the inflectional errors can be further motivated by the verbal context. Consider the following slip (60):

(60) *anopin ja ap+in* (pro *ap+en*)
'of my mother-in-law and father-in-law'

This slip is obviously influenced by the inflection of previous word and could also be described as 'morphological perseveration'.

But are these cases slips or errors? They are slips in the sense that speakers in all these cases were able to correct themselves and they 'knew' the correct inflection. However, they are not random or arbitrary changes. They are caused by the presence of various factors, one of which is the *language system* itself. Thus a complex system leads its speakers to make also nonconventional productions. The existence of many parallel and analogous possibilities naturally makes it easy for the speaker to slip into a wrong choice. One conclusion about this is that speakers simply arrive at possible solutions of how a morphology can be arranged: these slips are *potential* language, but not actual one.

Morphosyntax. One of the common morphosyntactic processes of Finnish is the relation between verb and case systems.

Slips and errors occur also in this respect, and children, for example, may make mistakes in selecting an appropriate case for the verb.

(61) *minä tykkään sinu+a* (PART.) ...*minä rakastan su+sta* (ELAT.)
 (pro *tykkään su+sta* (ELAT.)/*rakastan sinu+a* (PART.)
 'I love you - I like you'

The above child speaker 'transposed' the proper cases for the two verbs, which are nearly synonymous, and which were uttered in adjacent phrases. Also adult speakers choose cases incorrectly. The reasons for incorrect selections are various.

Some cases seem to have been caused by the fact that a rule that determines the case allows variation. The wrong case in the following example, for instance, is evidently chosen because of the fact that the rule determining the correct local case for place names allows for two different possibilities. The choice is lexically determined, and some place names choose external cases, while others employ internal ones. Thus there is a choice between an 'external' local case as in eg. *Tamperee+lta* 'from Tampere' (ablative/external local case), and an 'internal' one, as in eg. *Jyväskylä+stä* 'from Jyväskylä' (elative/ internal local case). The speaker of the following example chooses an external case (ablative) for the corresponding internal one (elative).

(62) *tulin Jyväskylä+lta* ABL. (pro *Jyväskylä+stä* ELAT.)
 'from Jyväskylä'

An interesting slip is also the following incorrect case selection (63).

(63) *kun te meette sen kanssa kalja+an* ILL. (pro *kalja+lle* ALL.)
 'when you go for a beer with him'

This slip might be due to the fact that several cases may be chosen in connection with the verb *mennä* 'to go'. This verb can take, for example, the 'external' allative *-lle* and 'internal' illative *-Vn* local cases, which are used for slightly different meanings and in different idiomatic expressions: eg. *mennä metsä+än* 'to go to a forest' and *mennä metsä+lle* 'to go to hunt'. Thus the incorrect choice in (63) above is motivated simply by the possible options for the verb.

Incorrect case selection can also be caused directly by the immediate verbal context.

(64) *mä olin kesä+ssä (INESS.)....kesä+llä (ADESS.) töi+ssä yhe+ssä.*
 'I was working last summer at a...'

The above slip is, in all probability, an anticipatory process, in which the speaker anticipates a forthcoming group of words that are all inflected in the inessive, and uses an incorrect inessive form for the correct adessive.

Syntax. When we consider the vulnerability of the syntax to slips, the issue is complicated. It is simply difficult to know which spoken utterances are supposed to be 'correct' and which not, as the linguistic syntax has traditionally been defined in terms of complete (written-like) sentences. Sometimes it is claimed that speakers never violate syntactic rules, but when one looks at stretches of spoken language, it is clear that these utterances are 'chaotic' and 'untidy' when compared to the 'syntax proper' and that it is problematic as such to judge their 'correctness'. Evident lapses, however, seem to occur in syntactic constructions, and *blending*, for example, seems to be a feature of spoken language syntax, as seen in (65).

(65) *siinä on se...rivat (pro ne rivat/se ripa)*
 'and there's this... handles'

In this example, the speaker hesitates between a singular (*se ripa* 'this handle') and plural (*ne rivat* 'those handles') expression, and ends up with their combination. The outward manifestation is a violation of an agreement rule. The following example, on the other hand, is a syntactic blend of two 'synonymous' constructions, or two different syntactic means to express the same idea.

(66) *siitä + täytyy ottaa puheeksi*
 (pro se + täytyy ottaa puheeksi/ siitä + täytyy puhua)
 'we must talk about it'

The following, more complicated, error can also be read as a blend. The speaker starts with one construction but shifts to another in the middle.

(67) *mä+ tekisin mieli (pro mun + tekis mieli/ mä + haluaisin)*
 'I would like to...'

Sometimes speakers 'transpose' their grammar, as can be seen in the following plural 'transposition'.

(68) *näiden* (pl.) *pitäis mahtua tähän* (sg.) (pro *tän* (sg.) *pitäis mahtua näihin* (pl.))
 'these should go well into this' (pro 'this should go well into these')

The following example (69) is an 'overapplication' of the agreement rule. The speaker produces an extra plural, where singular would have been the correct choice.

(69) *nuo lihapullathan oli hyviä ideoita* (pl.) (pro *nuo lihapullathan oli hyvä idea* (sg.))
 'to make those meatballs were good ideas' (pro 'to make those meatballs was a good idea')

The following slip (70) is probably due to the fact that there are two different optional, and familiar, constructions to start to tell this story. The result is that the attribute (*pieni*, 'small') is left uninflected, when it should have made to agree with the case of its head.

(70) *olipa kerran...Hamelnin pieni* (NOM.) *kylässä..* (pro *pien+essä* INESS.)
 'once upon a time there was, in the small town of Hameln..'

Certain constructions may be inherently problematic for speakers, as that of (71) which involves a double negative structure. The speaker uses an infinitive form of the verb *kommentoida*, which expresses positive, whilst the utterance-initial negative form *en malta* requires the 3rd infinitive abessive to express the negation the speaker intended.

(71) *en malta kommentoida* (INF.) (pro *en malta olla kommentoimatta* (3RD INF. ABESS.))
 'I can resist commenting' (pro 'I can't resist commenting')

Thus syntactic slips occur, and they may be motivated by an inherent complexity of a certain syntactic construction, but also, for example, by a presence of two optional choices for expression.

Word formation. Some slips of the tongue are obviously 'misderived' words. Nevertheless, free derivation is so typical for Finnish, that it even seems difficult to decide whether a particular word actually is an incorrect one. Many temporary word formations sound acceptable, even if slightly odd, as in (72), in which the speaker attempts at two potential derivatives to express his idea.

(72) *hän oli voitto+inen..voitto+isana..* (pro *voitokas*)
 'he was victorious'

Children also often make these neologistic derivations, and often when they learn a new suffix, they seem to generalize it to make words that are not in adult use, as in the following words (73,74) that were produced by a child.

(73) *mulla on semmonen aja+te..* (pro *aja+tus*)
 'I had this thought that...'

(74) *tässä on ilmo+te* (pro *ilmo+tus*)
 'here's a note...'

Enclitic particles. Finnish also has so-called enclitic particles, which are in frequent use as syntactic and emphatic devices. Sometimes the clitics are misplaced in slips of the tongue. The following example (75) is a case in which the particle is attached to the negative auxiliary instead of the (correct) main verb.

(75) *...sen sormet eivät+kään ole pelissä..* (pro *eivät ole+kaan*)
 'he has not put his fingers in this pie after all'

The misplacement may be further influenced by the discourse environment. The following slip occurred in an argument between a father and a daughter. The child uses the emphatic particle *-pa* as a suffix for the main verb, while here the correct location would be with the negative auxiliary. The slip is clearly echoic, and influenced by the adult's previous line.

(76)
 Adult: *olen+pa* I am!
 Child: *et ole+pa!* (pro *et+pä ole!*) 'You're not!'

The particle *-kin* in the following example (77) is located between the plural ending and the stem, not in its 'correct' location after the inflected verb.

(77) *..ne pani+ki+vat sen* .(pro *ne pani+vat+kin sen*)
 'and they did put it on..'

One factor that perhaps influenced this slip is the fact that the 3rd person plural ending *-vat* is not common in spoken language. The speaker perhaps hesitated between the standard

pani+vat+kin and the colloquial *pani+kin* and had already used the clitic before choosing to add the more formal plural ending.

In the following example (78) the speaker added a particle *-s* into a stem, which it can not be attached to. It is used, for example, with imperative verbs with a slightly hedging effect, as in eg. *menkää+s nyt!* ('why don't you go now?'). Here, the speaker is telling her children to be quiet. When she decides to employ less authoritative tone, she adds a hedging clitic which, however, cannot be used in this context. The stem *hiljaa!* 'Quiet!' really is an adverb in spite of its appearance of being an imperative. Here, it can be argued that it is the appearance of a word form that lead the speaker astray.

(78) *Hiljaa+s tytöt!*
'Be quiet girls!'

Ultimately, it appears that the enclitic particles are indeed processed as distinct elements. As they are often elements with which speakers emphasize and stress certain points, it is not surprising that they, in a manner of speaking, can be 'last minute decisions', which are located in inappropriate contexts.

Grammar for Finnish speakers. One suggestion that is supported by the above discussion is that the boundary between a language error and a slip of the tongue cannot be a clear-cut one. The cases discussed above are such mistakes that could also be defined as language errors. Nearly all examples, however, were committed as occasional mistakes by competent adult speakers. This would seem to mean that one of the factors that provoke slips and/or errors is the language system itself. All languages involve options in regard of various syntactic, lexical and morphological choices, but these options are not similar. A rich morphology, as in Finnish, also brings about a rich variety of errors, because there are so many options involved, and many analogous routes that may lead the speakers astray.

Another relevant point is that all underlying 'linguistic' processes do not seem to be 'equal' from the point of view of speakers. For example, a heavy morphological machinery *may* indicate increased cognitive complexity in this respect. Thus morphological complexity, combined with irregularity, for example, may result in more slips. This seems obvious when one considers the numerous mistakes that Finnish speakers make in certain particular irregular verbs, such as *tehdä* 'do'. The following mistakes (79, 80, 81) are samples of adult speech:

(79) *tekiessään* (pro *tehdessään*)
'when he made'

(80) *teketään* (pro *tehdään*)
'we make'

(81) *minä tehdin* (pro *tein*)
'I made'

These partly reasonable, partly odd productions are thus predictable. Words that are lengthy concatenations of suffixes also seem to be experientially awkward, and the complexity of their production may be signalled by external hesitation, or within-word pauses. The following remark (82) was made by a child after a slow production of a remarkable sequence of suffixes, but adults may stumble in their production as well.

(82) *kene+lle+kö+hän+kä... olipa vaikee sanoo!* STEM+ALL+QUESTION
PART.+CLITIC+CLITIC
'I wonder who is it to... boy, that was difficult!'

Contrary to usual arguments, it can be suggested that internal processes involved in the production of utterances may require different kinds and degrees of potential. All processes are thus not carried out with equal capacity and fluency: some might be fast and automatic, while others demand more processing capacity and possibly even conscious consideration. The morphosyntactic system of Finnish, as such, may be an example of an experientially complex system, and it is not surprising that the complexity may occasionally manifest as mislanguage. In addition, the voicing of plosives, as an unestablished feature, might serve as an example of a phonological process that requires an increased amount of processing capacity.

Thus it is evident that the role of a particular language in the occurrence of slips, and also in the production of speech in general deserves a closer scrutiny. The amount of regularity, the degree of complexity, and the consequences of these for an individual speaker have hardly been considered. Emphasis on the universal has neglected those issues that are crucial for the study of experiential language.

The final point that arises from the above discussion is that external slips, mistakes and errors can only be partly attributed to the properties of a particular language. As argued above, one external slip is - almost without an exception - motivated by

several factors. The structure of a particular language system and the processes its speakers employ are one factor, but slips may be further motivated by diverse contextual factors, and factors involved in cognitive processes in general. In the following, I will discuss the role of the psychological forces in the generation of slips of the tongue.

5 PSYCHOLOGY: UNIVERSALS OF SPEECH

Above, slips of the tongue were discussed from the point of view of a particular language, and it was suggested that the psycholinguistic processes involved in speaking might differ in languages. It is obvious, however, that speaking necessarily involves much that is universal in vein. The following chapter is a discussion of these universal elements that can be found in the psychology of speaking.

5.1 Attention

One of the most central concepts in the description of speaking is attention. In order to speak, one has to attend to what one's doing, and it can be reasonably argued that slips of the tongue obviously have much to do with resources of attentiveness. However, it is far from being evident what attention actually is. William James (1890:403-404) describes it as follows:

...it is the taking possession by the mind, in clear and vivid form, of one out of what seem several possible objects or trains of thought.

Focalization, concentration, and consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others.

Several theories have been presented as to how attention works (see eg. Bourne et al 1986: 58ff). Despite these attempts its nature still is far from clear. Is attention a process or a component? What kind of relation does it have to the memory systems? Are such matters that are attended to also conscious ones? The questions are many, and the answers that have been made are contradictory.

For the present purpose it will be assumed that attention, from the point of view of spoken interactions, *is a means with which speakers observe the various aspects of social situations, their own mental world, and their past, present and future speech.* Attention is needed both to plan future acts, and keep track of what has been done. In this, attention is like a searchlight with the help of which we scan our experiences of both past and present and pin down certain points for a closer scrutiny. Thus, attention is both a flexible and a selective means.

If we think how attention is used in everyday conversation, it is obvious that speakers have to attend to certain things in order to behave in an interactionally relevant manner. The speakers observe the social qualities that are relevant for the situation, and modify their behaviour accordingly with, for example, suitable registers and topics. They also listen to what the other speaker is saying, attend to its meaning and determine their own reaction and response to it. Moreover, they attend to their own articulated speech: what they will actually say, and what they have actually said. Thus there are diverse things to attend to in every situation that range from social relevance to fluency of articulation, from verbal to nonverbal, and from dramatical to trivial. This is obviously a demanding task, and lapses in it are common.

Attention can be (and is) applied selectively in the process of speaking. Attention can be either *diffuse* (so that the cognitive and physical environments are attended to as a whole), or then *focussed* on some specific area(s). Speakers, can for example, focus their attention on internal processes as in eg. absent-minded behaviour (see Reason and Mycielska 1982; Reason 1984; Baddeley and Wilkins 1984), or observe the social interaction in a diffuse non-committal manner.

The average level of attention in normal spontaneous conversations is probably rather low as such, due to the fact that basic processes are run on a habitual and automatized manner.

Thus speakers obviously are able to produce short stretches of speech without conscious attention. They can manage several remarks in a nonsignificant conversation without any recollection of what they have said, and they can manage to give fairly relevant answers to questions, while they are more intensively listening to a parallel conversation. Stories can be read aloud for children, and yet the reader may have a poor recollection of the story itself. Speech can be produced- for a while at least - with a very low level of attention.

What this seems to indicate is that in these cases persons do not pay attention to the speech task they actually are carrying out at present, but focus on their own thoughts, or on some other task instead. There is a fairly convincing literature on 'absent-minded' errors in various everyday tasks, which shows that "they are most likely to occur in highly familiar surroundings during the performance of frequently and recently executed tasks in which a considerable degree of automaticity has been achieved" (Reason 1984:114). Absent-minded slips can thus involve misnaming of familiar objects and persons. Articulation of speech can be done even when attention is directed to other tasks, and also conversational routines can be carried out without really attending.

Thus it is obvious that speakers can afford to be absent-minded in respect of those behaviours that are habitual for language, or habitual for the social situation, or habitual for the speaker him/herself. There are always processes that tend to become automatized, so that they require less attention. William James (1890: 114) commented on the relations of habits and attention as follows: "Habit diminishes the conscious attention with which our acts are performed". This issue is further discussed in chapter 5.3.

On the other hand, the speaker may be over-observant. If, for example a person observes the external environment too keenly, it may interfere with articulation, as in the example (83) below, which was a response to the question of where a pair of scissors were located. The speaker looked intensively around and found that the scissors were hanging on a nail, while there was also some audio-tape hanging on the same nail. Although the slip is influenced by the sound similarity between the words *naula* 'nail' and *nauha* 'tape', it is obvious that the slip would not have been as probable if there had not been any tape at the location.

(83) *ne on tossa nauhassa (pro naulassa)*
 'they hang at that tape' (pro at that nail)

One relevant point for speech production is the direction of attention in regard of the speaker's own speech behaviour: whether the attention is attached to past or future actions. This applies especially to articulation of speech, which needs a constant, even if small amount of attention. Speakers know exactly what they will articulate in a moment, and they also pay attention to exactly what they have just articulated. Thus one aspect of attentiveness must deal with the planning and monitoring of one's articulations. Both these processes are dealt in more detail in later chapters (see 5.2 and 9.1).

Thus it is obvious that attention can be shifted freely from one process to another, or from one environment to another, and that it is typical that slips occur at a shift in attention. Speaker's attention may be shifted from one focus to another, from diffuse to focussed, or from less attentive to highly attentive. In the following example, the speaker's attention rapidly shifts from one task and modality to another, and a perseveration results.

(84) *A person is typing down the list of names (the results of an exam) when a telephone rings. She takes up the receiver and answers the telephone by the name she has just typed: "Riihimäki (=a surname) speaking".*

Both typing and answering the telephone answers are routine tasks that usually can be managed with a low level of attention, but in this case, the amount of attention was clearly insufficient.

Shifts in attention can also involve a shift in intensity. Slips in interaction often seem to be caused by a sudden increase of intensity (see also chapter 6.2.3). Situations that take persons by surprise are an example of a possible rapid shift in intensity, and speakers may become acutely 'embarrassed', 'frustrated' or 'anxious'.

(85) *A person notices someone who he thinks is his cousin, goes to him and taps him on the shoulder. When the other person turns around, the former immediately recognizes he has made a mistake. After a moment of embarrassed silence, he says: Sorry, wrong number.*
(ISD)

Embarrassing situations demand a rapid reorganization of the situational interpretations, and these reinterpretations require much attentional capacity. It is also evident that speakers in surprise situations are intensely aware of the fact that they should

say something. Thus, the re-interpretation and recognition of the need to say something may consume the attentional capacity so that there is little left for the actual choice of words. Clumsy, inadequate and strange lines can follow, when 'words are blurted out'.

It can not be claimed, however, that all attentional shifts are rapid and dramatic. As a matter of fact, it can be argued that speaking, as such, is essentially a situation in which attention is normally given to several processes: such as sensory input, internal cognitive processes, and own motor behaviour. The attention has to take care of all that, but it cannot obviously afford to focus on one point only. Thus slips may follow from the mere existence of all these parallel processes running in conjunction with each other.

Attention shifts may also explain many articulatory or phonetic slips (for a detailed discussion, see chapter 9.2). The frequency of the 'phonetic' slips could possibly be accounted for by the fact that articulation is frequently interfered with some other factor demanding attention. This interference can be caused either by (a) the articulatory process itself or by (b) other processes that are involved in speech production. It seems usual, for example, that speakers attention is momentarily attached to his/her own forthcoming articulation, and articulatory anticipations follow, when a future articulatory gesture interferes with the present one.

(86) *nimenopaaan opettaja* (pro *nimenomaan*)
'particularly a teacher'

It also seems to follow from what is argued above that attention is not necessarily seen as a conscious phenomenon. Attention in spoken interactions can vary from fully conscious to only slightly conscious. A decision to choose a certain topic might be fully conscious, while nonverbal signals might be sent and received on much less conscious level. It could be argued that normally all processes are attended to with an amount of consciousness that is optimal for the given speaker or in a given situation.

Attention is not an on/off procedure, and it can appear in varying degrees of intensity. The amount of attention employed seems to be in relation to its focus, so that if a point is focussed on, the attention on it correspondingly increases. If the situation is attended to as a whole, on the other hand, a less intensive attention may be in use. This means that in order to manage some aspects of conversation, speakers are also obliged to neglect or decrease attention to others. Attention is both participation in some things

and withdrawal from others, as James (1890) has argued. This is an important factor for slips of the tongue. As the attentional capacity cannot be infinite, attention given to one aspect will automatically reduce the amount of attention given to others. To focus on a specific area, will make other regions less clear. This may result in cases where the speaker appears to ignore a relevant and central feature. One such case is the example below, in which the speaker fails to listen, or to take in, the meaning of an answer, and attends to her familiar routine only.

(87) *A woman gets a telephone call. The caller asks politely whether the woman has time to talk about religious matters, and whether she is interested in hearing about the work done within the local parish. The woman answers rather abruptly that she is busy, and that, she is not interested in discussing the topic. The caller happily goes on: Well, I'm so glad to hear that!*

High overall level of attention can also be result in anxiety and fear, which may, respectively, have an influence on speech production. To focus on a thing does not necessarily mean that it can be managed well, and sometimes people may end up doing precisely the thing they try to avoid. Slips that involve taboo words may serve as an example. Taboo words are generally avoided in public and official speech situations. Nevertheless, it seems that the number of slips that involved taboo words, and that are produced in formal occasions in quite high. The Freudian explanation of the repressive tendency that works in a paradoxical manner may be relevant here. When a person who tries to avoid 'bad language' happens to think of a taboo word, this passing association obviously increases its activation level, and simultaneously, makes it more possible to occur. A news anchor in Finnish television once produced a slip which involved not only a taboo word, but, unfortunately, also the President of Finland. The slip as such is a perfectly motivated phonological confusion between two words that are similar in sound, but the channel in which the slip occurred was so public and the context so compromising, that these basically repressive factors may actually have acted as catalysts for this particular slip.

(88) *presidentti K. perseineen* (pro *perheineen*)
'president K. with his arse' (pro 'family')

To sum up, we can conclude that the following aspects of attention must be taken into account in the analysis of slips of the tongue.

1. Degrees of attention. It can be argued that both a highly attentive, and inattentive poise of the speaker will lead to a tendency to produce slips, as both may result in the neglect of some factor or particular process. There obviously is an *optimal* amount of attention that best guarantees an optimal level of adequacy and fluency for speech. It will also be argued that the overall level of attention may influence the quality of slips. Low level of attention and involvement with familiar tasks may result in frequent slips in familiar vocabulary and expressions, whilst a high overall level of attention might be related social anxiety and result in disfluent speech and articulation slips.

2. Nature of attention. Direction can be *holistic* (diffuse) or *focal* (focussed, pinpointed). As argued above, to focus one's attention on a particular point results in lack of attention towards others. Thus some of the slips that result are cases in which the speaker ignores or neglects something relevant.

3. Focus of attention. There are a number of possible focusses in human interaction, three of which seem to be primary. One is the *external social situation and environment*, the other is the *internal mental world* of the speaker, and the third is the *actual spoken utterances* that are being produced in the conversation. Moreover, these focusses can be tuned, according to the speaker and situation to either *perceptual* or *productive* strategies. Last, but not least, speakers can be tuned according to both *form* and *function*: they can deal with the form and structure of the stimuli present, but also work with the meanings and functions underneath.

4. Number of tasks. Finally, the number of tasks that is attended to is relevant. Speech is intrinsically a *multi-task* procedure, and it can be argued that every spoken utterance operates on several parallel levels. Thus attention is needed for social observations, cognitive functions, and articulation, among other things. In other words, any speaker of utterances faces parallel tasks, and also often, optional tasks. The presence of these multiple tasks thus also influences the generation of slips of the tongue.

5.2 Monitoring

Attention as discussed above, was related primarily to the internal planning processes that precede articulated speech. One process that is extremely relevant in discussion of the slips of the tongue is how speakers attend to their own speech and especially, to its faults and inadequacies.

By necessity, all slips of the tongue that are commented on or corrected have to have been attended to at some level at least. As slips of the tongue are habitually noted, and frequently repaired, it is one argument in support of the fact that some amount of attention at least is given to the speech output as a rule. It has sometimes been argued that one can be conscious only about the results of cognitive operations, not of the operations themselves. This fits quite well into the present view of slips. In attending to their own speech and its slips, the speakers make judgements about the result of a cognitive operation (or series of operations), not about the cognitive operation itself.

The ability of persons to follow their own speech and check that it is both meaningful and correct is referred to here as 'monitoring'. 'Scanning', 'screening' and 'editing' are among terms that are used in approximately same sense. Laver (1973: 137), for example, defines monitoring as a function that detects and corrects errors in the neurolinguistic programming. This function is supposed to consist of feedback loops that bring the speaker information about his/her own utterance and of the systems which check the form and relevance and to help in making decisions about what to do in a possible problem situation. Laver's (1973) ideas appear intuitively acceptable, and they are, moreover, supported by the existing data of the feedback processes.

There does not seem to be any doubt about the fact that such a system exists. The explicit corrections and specifications that occur regularly in everyday speech may be seen as proof. Speakers both correct their 'pronunciation' and their social blunders, and constantly reformulate and modify their spoken utterances all the time. In terms of Hockett (1973), they edit their speech 'overtly'. The process, however, works also in regard to 'internal speech'. This means, among other things, that speakers are able to correct a slip of the tongue that is not yet uttered. This is what Hockett (1973) has called 'covert editing'.

The exact nature and ontology of 'monitoring' is more problematic. Is it conscious, for example? Conscious awareness, according to Laver (1973) is not necessary for the monitoring process, and this would also seem to be the case when we look at some of the corrections present in the speech. The speakers correct their 'false starts', for example, without any apparent thought given for the correction. As a matter of fact, the repairs of these 'disfluencies' seem rather 'fluent', to use a paradoxical expression. In some cases even a correction of a word choice at least appears to be unconscious. It could be suggested that monitoring is a process that is not normally conscious, but which can, when needed, be easily lifted into a person's consciousness. This would also be in accordance with the notion of attention as developed above.

Another question is, what the relation of monitoring is to other mental processes that are going on when we speak. Is it an independent system for troubleshooting only, or is it identical with a more general major planning or managing function that is concerned with behaviour in general or the spoken interaction in particular, as Laver (1973:141) suggests. Or, is monitoring connected to attention or possibly identical with it? Monitoring certainly bears marks of the use of a supervisor type of knowledge, since it is able to check the correctness or inadequacy of speech in a fairly fast and reliable manner, and it could also be claimed that it is also a potentially conscious device. Although it is certain that speakers do not 'consciously' look for errors in their own speech, that is what they ('unconsciously') do. Again, they can easily become aware of their slips even if they normally would not notice them. Thus it could be suggested that monitoring actually is an attentive device that watches the spoken interaction in case of the appearance of diverse faults, and thus it necessarily also connects to the explicit knowledge about the norms of language and interaction.

If we consider how monitoring is done practically, we deal with a much clearer issue. Speakers have several feedback systems functioning whenever they speak (see eg. Hardcastle 1976), and thus feedback of the possible successes and failures is given through several channels. For example, speakers have fast central feedback channels available: they know what they are going to do, before these things have changed into actions. Moreover, they have the kinaesthetic feedback, and tactile feedback channels that give them information about the movements they are making. They are also able to hear what they say through acoustic feedback. The

production and articulation of normal speech as such relies much on the feedback systems, and the performance of speakers usually deteriorates if the feedback systems are missing. Finally, speakers get external feedback also from their interlocutors in the form of verbal language (eg. a request to specify) and nonverbal gestures (eg. a look that signals lack of comprehension).

Thus the whole feedback system is of utmost importance for the speaker: it is important from the point of view of social interaction and from the point of view of articulation. In the following I discuss how slips of the tongue are detected and corrected.

The reaction to slips is evidence of the fact that speech is monitored. It is true, however, that not all slips of the tongue are noticed or brought into the consciousness of the speaker, as was noted by Hill (1973:205). Cohen notes (1973:92) that slips are often undetected except when the meaning is obviously deviant. The fact that some slips are not perceived at all may be due to the strong corrective tendency that actively edits the input message. Primarily we seem to hear the meanings and functions behind the utterances, not the way utterances are structured. That is why some slips do not appear to count either. Phonetic slips, for example, may not be noticed, since "we are not concerned with phonological representations, but with message" (Tent and Clark 1977:23).

Thus it can be predicted that speakers will tend to notice those slips only which result in socially undesirable, pragmatically inadequate or linguistically 'incorrect' expressions. The behaviour of people noticing their own slips is that of being "frequently surprised, occasionally embarrassed" (Baars and Motley 1976:471). One outward sign of the fact that a speaker notices his/her slip, is the fact that s/he makes or attempts to make a repair. Often, however, even the corrections seem to be on a very low level of awareness. The following kinds of corrections could be distinguished among the present corpus.

Unnoticed/uncorrected slips. Various slips of the tongue go unnoticed and are never corrected. A speaker can leave the slip alone, either for the reason that it is not noticed, or for the reason that it seems uncomfortable to comment on it.

(89) *pyytäisin nyt käyttämään keskusteluja*

(*pro käymään keskustelua/käyttämään puheenvuoroja*)

'and now I ask you to present discussions' (pro to discuss/to present arguments)

Covert self-repairs. Covert corrections are discussed by Hockett (1973). He argues that as the editing system constantly watches what and how the speaker wants to express, some slips can be noticed and repaired in the covert phase already before the actual production has taken place.

Usually, the process of covert correction is invisible and inaudible. Thus examples are to be derived from the rare instances in which the speaker chooses to externalize an internal process. The slip below is a case where the speaker 'quotes' his intended slip aloud. He stops his original utterance to comment (to the present writer) on an inappropriate word choice he was just going to make.

(90) "*hallusinogeeni*"... *tässä on nyt sulle...mä meinasin sanoo hallusinogeeni kun mä tarkotin halogeeni*
'hallucinogen...here's now one for you...I was going to say hallucinogen when I meant halogen'

Self-repairs. In most cases (perhaps) speakers stop their speech and start again, or if they have uttered an incorrect word, they will just casually give the correct one.

(91) *onhan niitä luket...luettu*
'one has read them...'

(92) *mä en villään...millään viittis*
'I just would not like to...'

(93) *ne on siinä nauhassa...naulassa*
'they hang on the tape...nail'

Marked self-repairs. There are also several 'discourse particles' that can be employed for signalling a slip and a repair, and by which the speakers make their mistake explicit. Finnish ones include *eiku*, *eiku toi*, *eiku tota*, *(eiku) siis*, *anteeks(i)*, *mä tarkotin*, *mitä mä sanoin*... and some English equivalents are *I mean*, *what did I say*, *that's not what I meant*, *sorry*... Some examples of marked repairs are given below.

(94) *no kun se on vielä pahempaa Tallinnassa...eiku Virossa...eiku Leningradissa*
'well it's much worse in Tallinn..no... in Estonia..no... in Leningrad...'

(95) *pääsihteeri anteeksi pääministeri Thatcher*
'secretary general...excuse me...prime minister Thatcher...'

(96) *niillä on ollut kirje...mitä mä sanoin... kiire ton kirjottamisessa*
 'they have been in a letter ...what did I say...in a hurry to write that letter'

(97) *(se) katsoi näitä avaimia...miksmä mä sanoin avaimia?*
 'she was looking at these keys...why did I say 'keys?'

It is also interesting that there actually seems to exist a category of such 'discourse particles' that are obviously employed for the sole purpose of making repairs for 'unsuccessful' speech - this is one sign of the central position that 'failures' have in language production.

Mock repairs. One way of doing an overt correction is to quote the mistaken form in an emphatic manner so as to make it very explicit for the others. To this speakers use both stress, paralinguistic features and nonverbal signs. These explicit quotation forms of actual or intended slips operate in parallel as a social acknowledgement of failure.

(98) *kun on tilissä...öö..."tilissä pankki"*
 'when you have a bank..mm..'a bank at an account'...

These utterances are often accompanied by paralinguistic vocalizations and gestures that imply self-disapproval, and self-recognition of 'stupidity'.

Repairs via hearers reactions. Sometimes speakers do not notice their slips of the tongue before they see it from the reaction of their hearers. The hearer's reaction can be a nonverbal sign of disbelief or puzzlement, a questioning repetition of the speakers remark, or a direct question.

(99)

A: *ootko sä hiihtäny ollenkaan tänä kesänä?*

B: -

A: *eiku talvena. Oliko tää nyt sellanen lipsahus?*

A: Have you been skiing much this summer?

B: (Looks at the speaker in silence)

A: No I mean winter. Was this now a slip of the tongue?

(100)

A: *(sillä) pitää olla aina lehti eessä kun se lukkee*

B: *lukee?*

A: *eiku syö*

A: He always wants to have a newspaper in front of him when he reads.

B: Reads?

A: I mean eats.

Hearers' corrections. Finally, hearers can correct or challenge the slip. It is apparently not very usual for the audience to make direct corrections, since correction is an act that also signals social power. Mothers and fathers certainly correct their children, and teachers correct their pupils, but direct corrections in adult conversations depend on the relations of the speakers. It is easier for the hearer to correct, if they both are uncertain of the correct expression, or if the matter is trivial.

(101)

A: *Taitaa tehdä koiranpalveluksen...*

B: *Koiranpalveluksen? Mitä sä sanoit? Eiks se oo karhunpalvelus?*

A: *Jaa. Eikö silleen sanotakaan?*

A: It might turn out to be a dog's service.

B: A dog's service? What did you say? Is it not a bear's service?

B: Is that so? Isn't that the expression?

False repairs. Some of the repairs are false. One reason may be that the speakers first reaction is simply too fast. They act on an impulse to correct, but they do not yet have the proper means available. In the first example, the speaker makes a false correction applying a subtly associated and/or a blended word, and finally finds the target one.

(102) *pitää lähteä luistelemaan...voimistelemaan...voitelemaan sukset*

'I must go and skate...exercise...wax my skis'

In the following example, the speaker uses an idiom wrongly. She intends to say: *mä olin ruskee kun papu* 'I was brown as a bean' implying that she was very tanned.

(103) *mä olin ruskee kun papukaija...tai paremminki vihree kun papukaija*

'I was brown as a parrot... I mean green as a parrot of course'

After the speaker had slipped into *papukaija* 'parrot' instead of *papu* 'bean', she notices there is something wrong in her utterance: parrots are not brown. So she rapidly corrects into 'I mean green as a parrot of course'.

Subtle repairs. The subtlest kind of corrections are those, in which the slip is incorporated into the utterance, so that the speaker not only corrects the slip but also makes a sophisticated face-saving operation in modifying the utterance so that the slip does not signify. Goffman (1981) has a similar notion that he calls the counterdisplay. These repairs are often made by experienced speakers. The following slip was made and repaired by an entertainer in a television interview, talking about the pros and cons ('plusses and minuses') of war-time tours.

(104) *ainoa hyvin suuri plussa....taikka vedetään pois plussa ja pannaan tilalle miinus...*

'the only big plus.. or let's take off the plus and put a minus instead...'

Thus speakers sometimes unhesitatingly incorporate the slips into their talk, and make adequate rearrangements. The following example shows how the slip can be both repaired and also used as an emphatic device to drive home the speaker's point.

(105) *kun täällä aina auskultantteja arvostetaan... 'arvostellaan eikä suinkaan 'arvosteta niin..*

'you guys here always seem to value... no, what you seem to do is to 'criticize 'not value the teacher trainees at all...'

The speaker first uses a malapropistically incorrect word which, however, has a pragmatically opposite meaning to that intended. When the speaker finds she has a good opportunity to stress her point, she triumphantly corrects herself making the emphatic contrast evident both with prosodic and gestural means. Thus the slip actually serves as a good rhetorical device.

Corrections of the correct. Speakers obviously make also unnecessary corrections. An example is an utterance of a speaker who said:

(106) *mä mietin...eiku siis mietin..*

'I was thinking...no I mean I was thinking'

The slip is caused by the fact that *mietin* happens to be both a past and a present tense form of the verb 'mieltä' 'think about'. The speaker is a fluent non-native speaker of Finnish, who thinks he has detected an error and that he has used a present tense instead of the past, and makes a correction. As the forms are identical, the repair is unnecessary.

Thus it is evident that speakers both react to their own slips and correct them, either in an automatic fashion or according to careful design. It shows that people attend to their own speech, and it also gives us clues about how they attend. It is evident, for example, that speakers are generally more worried about the sense than the sounds. Phonetic errors are seldom given any marked repairs, and speakers correct their phonetic mistakes in a routine manner. It is only if the mistakes produce pragmatic oddities or socially dangerous expressions that speakers will make a lengthier explanation.

Interpretation. This section is concluded with a short discussion on the analysis and interpretation that the speakers themselves offer for their slips. In experimental elicitation situations, it has been shown that subjects usually know that they make mistakes, but they do not know what kinds of mistakes they make, and they do not know why they make them (Motley and Baars 1976:185).

In non-experimental circumstances, however, speakers often actually offer an explanation for their own slips, although it is clear that the depth and accuracy of these explanations varies. On the most superficial level speakers may only recognize a distortion but not its exact quality. The reasons that are offered as explanations are fairly 'superficial' and 'general', such as fatigue, stress, and pressure of time. Fairly often, however, speakers also give 'linguistic' and 'psycholinguistic' explanations.

In particular, it seems that speakers are ready to recognize when their slip is caused by interference of the external environment: for example the fact that they see or hear something that effects the utterance.

(107) *mä yritän hoidella joitain niistä lääkkeis..öö..mä sanoin lääkkeistä kun tossa luki.. siis joitain niistä laskuista*

'I will pay those medicins... I said medicins 'cause I was looking at that...(gestures at a building) what I meant was those bills'

Here the speaker explains why he says *lääke* 'medicin' instead of *lasku* 'bill': the reason is he is looking at the building in which there is a sign for both a pharmacy and a medical clinic *Lääkärikeskus*.

Adult speakers also seem to be aware (at least to some extent) of the reasons why they confuse two similar-sounding words, for example, or two personal names. It appears, however, that speakers are much less aware of the things that occur in

articulation, and usually no explanations are offered for 'phonetic' anticipations and perseverations, for example, which is probably also because the speakers do not pay much attention to these slips. Blends, in certain cases at least, are very deceptive: speakers may not realize that they have committed a blend at all, and if they try to analyze it, they do not see where it came from. Thus somehow the word or expression may be so 'probable' that the speakers are reluctant to admit it is incorrect.

The ability to analyze one's own productions is not present only in the behaviour of adults, however. The explanation for the following slip was offered by a child (six years old).

(108) *ja sitten meillä ei oo tommosta vessaa...* (pro *koiraa*)
'and then we do not have such a toilet... (pro dog)

The girl is explaining to her mother that she does not have a particular kind of toy dog. They are sitting in an ice cream parlour where a customer is asking for the location of the ladies room. The customer's question blends with the child's own utterance, and the child laughs a little embarrassed at what she has said. A little later, however, the child explains to her mother: *-Hey do you remember when I said 'toilet' by accident - when I meant really a dog? It was when somebody asked where the toilet was!*

It can also be argued that the awareness of speakers for both the occurrence and explanations of slips can be easily heightened. This experience has been repeatedly reported after a lecture on the subject, and people are usually both eager and delighted to provide new data and discuss their motives. Are the naive explanations sound? It may be that speakers offer a partial explanation, but usually they are fairly sound. Also, naive speakers, linguistically naive as they are, seem to favour functional explanations, not formal ones. This is one sign of the central position of function in the internal language. Language, for speakers, is essentially a functional and not a formal enterprise.

5.3 Automaton or controllers?

Conventionalization and automatization. I discussed above the notion of attention as a sort of primary force with the help of which we sort out the relevant from the irrelevant from a mass of events. It can also be hypothesized that it is the attention that monitors the different processes and strategies employed in the spoken interactions. In this chapter I discuss the role that the concepts of skill, routine, habit and automatization have in the spoken interactions, and ultimately, how they relate to attention.

It was Shiffrin and Schneider (1977) who introduced the concepts of controlled and automatic processes into the psychological research. They argued that at the beginning any processing demands effort and attention to be paid to even the smallest movements and minor decisions. This initial controlled processing also tends to be serial in nature. Therefore, this mode is necessarily slow and error-prone, and it is the practice and increase in skills that make the controlled processes more rapid and accurate. Then it becomes possible to produce longer sequences of movements and make faster decisions. The tasks have become automatized and then several tasks can be easily run on parallel.

Thus Shiffrin and Schneider (1977) see the change from the controlled mode to the automated one as a qualitative change, which takes place during the learning process. When the skills increase, the demands from system capacity diminish. Nevertheless, it is evident that although skills can be practised, there are always certain limits that cannot be over-reached, or removed by practice, such as the speed of neural inductance or the rate of the cognitive comparison process (see eg. Shiffrin and Schneider 1977; Schneider and Shiffrin 1977).

Ultimately any actual complex tasks of everyday life, such as speaking, are mixtures of automatic and controlled processes. What precisely is automatized, or can be automatized in language, has not been discussed much in linguistics (see, however, eg. Givon 1989), although it has been approached from the point of view of second language learning (see eg. Bialystok 1991; Lehtonen 1990).

Conventionalization in language. Both theoretical linguists and psycholinguists seem to rely on the notion that speakers generate their expressions via the rules of their internal linguistic grammar. Speaker's creativity, that is one of the attractions of the

generative theory, refers thus primarily to the ability to produce novel sentences that were not generated before by anybody. This is clearly a half-truth. The casual utterances of speakers in everyday interactions are a mixture of novel and routine. The following utterance, for example, which is a turn in a research seminar, is clearly novel as such.

EXCERPT 1.

no täähän se onkin just se että kun m voi olla hyvinkin myös tässä mielessä niin eh ki- kirjotettu kieli sidonnaisia nää nää ajattelumallit että että aina on ajateltu vaan valmiita prode- tuotteja joist joihin on tehty oletuksia siitä minkälaisia ne prosessit on ja eikä ole ajateltu siis sitä prosessia tämmösenä niinku mitenk- mikä se nyt olis asteittaisena niin niinku

'well that's just the point that m... they can be also in this respect these well eh wr- written language biased these these models of thought so that they have always kept only the prode- the products in mind and they have made hypotheses in on the basis of those about the quality of processes and they have not thought about the process as of a what how shall put it gradual well yes'

The generation of this utterance, however, combines the novel with the routine. The utterance is novel as an expression of an idea, but formally (linguistically) it is not novel. For example, the 'filled pauses' (eg. *öm, m, nii, niinku*) and stock phrases like *täähän se onkin just se* 'that's just the point' or *mikä se nyt olis* 'how shall I put it' are used throughout the utterance. The chosen routine elements both help the speaker to go on with his idea and also determine some of the further choices, which are not novel at all, but very tightly determined by the language system.

In addition, there are a fair number of expressions in any language that are not novel in any sense of the word. These conversational routines occur with high frequency, and either do not vary at all, or vary only a little. These expressions range from feedback signals to greetings and to different kind of phrases used in discourse both as responses and parts of larger sequences. Ready utterances are extremely handy in everyday talk, and one can, in certain circumstances, manage a whole conversation with them. They are examples of a conventionalized procedure in regard of the discourse. It is habitual to respond in a certain manner in a certain social situation. Thus cultures develop their own conventionalized discourse usages.

But it is also possible to see the whole language system as a network of conventionalized elements and constructions. Thus conventionalization would be typical for all levels of language, from phonetic to social spheres. Conventionalization develops in co-operation with the external social and perceptual circumstances and the internal relations of the system itself.

Thus languages will develop their own conventional articulatory patterns, which result in choices for certain articulatory positions and means (ie. the phonetics and phonology of the language). These choices develop according to the possibilities and constraints of the articulatory mechanism, in relation to perceptual factors of speech, and in relation to the articulatory system as a whole.

It could also be suggested that the morphological and syntactic patterns observed in a language are conventionalized solutions that are motivated both by conceptual and discourse factors. Conceptually motivated syntactic solutions tend to be rather universal in vein, since they are related to perception. For example, it might be conceptually motivated that languages distinguish between 'actions' and 'objects' or that they need expressive means for 'location'. However, perceptual and conceptual factors also tend to produce grammatical means. Thus distinct word categories correspond to actions (verbs) and objects (nouns), and means are developed, such as prepositions or cases, that express 'location'.

These conventionalized means, however, further develop into finer distinctions in relation to particular needs for expression. Thus possible means for location are the case system in Finnish, and the prepositional system in English. But as the language system also develops 'internally' as a system, such grammatical means that originally were related to external 'location', may also be used to refer to metaphoric locations, and further on, the 'locative' means may also be extended by purely grammatical analogies.

To sum up, we can regard the language system as a complex network of conventions which develops in relation to a) our perceptions and concepts, b) social and cultural sphere, c) function of discourse and interaction, and d) the system itself. This view seems to be harmonious with the de Saussurian cliché of language as a social agreement. This also means that neither the origin nor the present state of linguistic means is to be found in the innate rules of grammar. Rather, language systems are generated in the

continuous process of interaction in which the mind, the language and the reality all have a role to play (cf. Lakoff 1987).

Automatization in speech. However, the conventions that have developed into language through evolutionary and historical processes are not necessarily identical with what contemporary speakers do in actual speech processing. However, it is argued here that what is conventionalized in language, may be, or can become, automatized in speech. Therefore speech is better described in terms of a combination of automatized and novel elements than as a generation of sentence patterns. What can be argued is that the means are usually highly automatized, but they may be combined, as they often are, in novel manner. In addition, as situations can also be either automatized or novel, we obtain a diverse amount of possible combinations, in which there is interplay of the novel and routinized.

It can be hypothesized that in practice, the speaker proceeds according to different *cues*. Whatever we say, we seldom start from a zero situation. There is always something that is ready there for us to use, and always some cues present, which help us in the production of our utterances. Thus there are diverse cues that are embedded in the process of social interaction and the resulting discourse. For example, the situation itself can act as a cue, and greetings can be triggered off by the mere presence of a familiar person. A question also acts as an efficient cue, which, requires an answer. The contents of the previous utterances cue the speakers to move forward in topics development and choice. The structure of the previous utterance gives various cues to the speaker as to the structure of his/her own utterance. Thus it is obvious that an utterance is not really generated by an internal linguistic component, but by the efficient co-operation of situational and discursive factors that act as cues. There are always a network of factors present in every interaction that cue the speaker in his/her choices. Considering the rapidity of the process we can presume that speakers respond to these cues in a primarily automatic fashion.

To take one example, it could be suggested that such grammatical choices as morphology are usually available for the speakers usually in a direct and automatized manner. It could be argued, however, that we do not deal with an internal morphological component, but with different cues that evoke certain responses. Thus the morphology for a speaker is a distributed process. The actual shape of a particular morphological

from is conventional in the language, and thus also automatic for the speaker. Thus Finnish speakers know what the plural partitives are like, so that the plural partitive for *muna* 'egg' is *mun+ia* 'eggs', but that the plural partitive of *kana* 'hen' is *kan+oja* 'hens'. They know it in a manner that is direct and not to be questioned, similarly as French speakers know which article goes with which word. This morphological knowledge is similar to the knowledge that a certain canine animal is called a 'dog' or that you cannot call it 'dog the'. In consequence, this view would imply that a particular morphological form is not normally really 'produced' in an active sense, and that active psycholinguistic encoding operations involving inflection would just be used when speakers are faced with new words.

One part of morphology is thus to know what kind of structure is correct. But how do speakers then arrive at a production of, say, a partitive plural in practice? One suggestion is that the external manifestation of a partitive plural can be determined by various factors. For example, a partitive plural can appear in an utterance that is given as a response to some actual objects (eg. hens) that the speaker wants to talk about. The fact that there are many of these objects presupposes that a certain form (viz. plural) is used. The partitive form is chosen by the Finnish speakers when, for example, they have not discussed these objects within that discourse situation before: *muista ostaa munia* 'remember to buy some eggs!', *kato, kanoja!* 'hey look! hens!'. The plural partitive usage can also be conditioned by the functions and structures in the previous discourse. Questions, for example, often determine both structures and contents in an answer. Thus a plural partitive can be simply a response. Furthermore, the partitive plural may be triggered off by the presence of a particular verb, such as *inhota* 'detest' or *rakastaa* 'love'. Thus a morphological choice is a response to various factors that are present - they are not operations of the morphological linguistic component.

If automatization is considered from the point of view of articulation, one can assume that the articulatory speech is almost totally automatized. Thus once acquired, articulatory conventions are automatized as skills that are seldom undone, or that can seldom be replaced by a totally new set of conventions. For example, adult second language learners usually speak the target language with a foreign accent. It may well be that the articulatory skills, once learned, are turned over to highly automatized, perhaps cerebellar, procedures.

Automatisms: language and speech. Givon (1989:237) has argued that routinization (or automatization) is a relevant feature for both higher level cognitive functions and lower-level sensory-motor functions. Thus both articulatory skills and cognitive skills can be routinized so that they are available as immediate reactions. The higher cognitive skills work on the basis of the situation: we recognize, understand, classify, judge and make evaluations on the basis of what we see and what we hear. Some of these interpretations of the situation are habitual themselves and we find it easy to classify them and talk about them. Familiar topics with familiar persons are dealt with in a routine manner. Some, on the other hand, may take time to understand and judge: new ideas and surprising incidents take time to digest. Our own actions that result are thus always mixtures of automatic responses, routine procedures and voluntary decisions, the balance of which varies according to the speaker, situation and a task.

Thus some automatisms may be deeply-rooted as a part of permanent repertoire (such as 'language' or 'social and pragmatic rules') and others are situation and speaker-bound. It can be argued that when a speaker works with a language, much of it is available for him/her as a reaction which does not require linguistic programming that takes place in a linguistic component. Instead, it can be suggested that speakers' rules are in fact more like *cues*, and that these cues are distributed in the internal and external context in which the utterances are produced.

The above view, however, seems to leave us with a much narrower role of creativity than is generally accepted. Are we then, after all, automatons? The answer is clearly no, because, in addition to the predictable element in language and world, there is always also the unpredictable. Human decisions and selections are needed in order to deal with the unpredictable. Thus it is only the potential that is available for us in an automatic manner, and the task the speaker faces is to make selections and decisions according to that potential. Ultimately, this view also brings creativity into a new light: it stresses the role of the human as a decision-maker, not as a language production machine.

In conclusion, I discuss the relevance of the above notions for the analysis of slips of the tongue from two points of view, which will also be further developed in the following chapters. One is the issue of how the degree of automatization will effect the probability of lapses, and the other is the related issue of how the experience of the speaker will influence them.

Although it is often claimed that automatic processing is error-free (see eg. Shiffrin and Schneider 1977), this view does not hold when slips of the tongue are considered. Frequent slips also occur in the use of conversational routines and familiar words, and as was shown in chapter 4, speakers may lapse in elementary grammatical routines of their own language. Highly automatized and routine sequences are also highly susceptible for slips. Common words are substituted, greetings misapplied and even articulations interfered with.

Even the mostly highly automatized sequences, such as phrases, which are often suggested to be of a very permanent nature, are prone to occasional slips like the slip below shows:

(109) *niin tita* (pro *niin tota*)
'well yes...'

The routine slips also include blends. When two routine choices are equally available, they easily merge in one blend.

(110) *syvä!* (pro *selvä!//hyvä!*)
'right'/'OK'

One reason for these slips is the fact that routine actions are less attended to. They are monitored with only a diffuse awareness, as Reason (1984:123) argues, and their execution is less feedback-dependent. Confusions between common words and familiar names are explained by this as well. Practice does not, after all, seem to make us perfect, but on the contrary, paradoxically, more prone to stupid mistakes that are due to carelessness rather than ignorance. Thus it is a different kind of mistake that is made in automatized processes, although the amount of mistakes might be similar.

Another angle on the same issue is to consider the experience of the speaker. It is evident that there are differences between speakers: there are learners (or *novices*) who make different kinds of slips/mistakes to skilled persons (*experts*). Certain types of slip such as malapropisms, certain kinds of phonetic slips and also some social interaction slips, seem to be typical for novices, while experts make different mistakes that tend to be due to negligence.

Thus automatization in speech can be looked at from various angles that range from social interaction to articulation. In practice, nearly all situations involve a mixture of familiar and novel. The speakers deal with these elements by partly familiar and

routinized means and strategies, but it is obvious that they are not equally equipped for situations. Speakers differ in respect to how fast, accurate and skilled their dealings with the language and the social situation are, and their expertise also varies according to the task. All adults are experts of language in some sense, but is it easy to see that the actual skills vary with regard to vocabulary, conversational skills or fluency.

To sum up, it will be argued that although language was seen as a highly conventionalized system that is used according to automatized procedures, the speakers of language are by no means automatons. Although the choices may be automatically available, speech also requires decisions of precisely what, when and how. These decisions can never be fully automatized: that is why speakers are never automatons.

6 DIALOGUES

"Ask not what's inside your head, but rather what your head's inside of" (Mace 1977)

6.1 The impossibility of speaking alone

The fundamentals of any speech production model have to be socially-oriented. This far, psycholinguists have attempted a direct look inside the mind of the speaker, and thus have ignored the environment. Here, an opposite approach is assumed. The external environment is studied initially in order to make hypotheses about the nature of the internal. This approach has both ontological and practical relevance, and it has bearing both on how the 'psycholinguistic processes' are seen and to what an extent the social dimension is allowed into psycholinguistic argumentation. First, I discuss the epistemology of the contemporary psycholinguistics. Second, I discuss and analyze slips of the tongue (or, slips in interaction) on a social level. My arguments are strongly influenced by the idea of dialogue, as apparent in eg. Bakhtin's dialogism (see eg. Volosinov 1930/1973; Holquist 1990; Markova and Foppa ed. 1990; Wertsch 1991), and similar ideas

within symbolic interactionism (see eg. Mead 1934/1974) and the phenomenological approach to sociology (see eg. Schutz 1967).

I discuss the concepts of 'speech' or 'spoken interaction' here primarily in the sense of casual face-to-face interaction. Face-to-face conversation is the primary scene of speech, both from the point of view of an individual and from the point of view the species. The concept 'spoken interaction' thus denotes both the articulatory process of speaking and nonverbal (vocal and kinetic) signals that are used in communication. 'Spoken', in this wider sense, does not refer only to the oral/vocal communication, but to the communicative act as a whole. The nonverbal aspect is seen as inseparable from articulation: whenever one speaks, one also employs paralinguistic vocal means, and accompanying gestures. Also, 'spoken interaction' is used to denote the social interactional process as a whole, while 'speech' refers primarily to the actual physical articulation of the verbal messages.

The basic idea of the verbal code and vocal languages is that one can do something with it: to communicate. The physical and cultural environment was evolutionarily, and is presently, an integral part in the generation and development of the patterns of language. This view is belittled in the *formalist* argument, according to which the language ability is coded in a universal, innate and autonomous linguistic component in the human mind.

A *functionalist* argument, however, stresses the function of utterances, not their internal structure. Although functionalism is only a cover term for several (sometimes contradictory) approaches, a common emphasis on the meaningful can undoubtedly be found in various schools of linguistic functionalism. Thus function is an emphatic element in the writings of Halliday (see eg. Halliday 1973), in speech act theory (see eg. Austin (1955), Grice (1975) and Searle (1975) and in recent developments of functional grammar (see eg. Thompson 1991; Hopper 1988). The differences between the formalist and the functionalist approach are discussed in detail in the special issue of *Language and Communication* (1991, vol.11, No 1/2).

Thus, there seems to be a basic distinction between those who aim to describe utterances in formal terms as linguistic structures (such as sentences), and in functional terms (usually: as attempts to fulfil a function, to reach a goal, or to mean). If we consider actual spoken interactions, the choice between the two is obvious. Speakers obviously speak in order to achieve something, not in order to produce a sentence pattern.

Function is present in human communication from the very start. It is obvious that a child starts to learn how to interact with its world and species from birth: the initial interaction between an infant and its mother/caretaker is established by means of vocal signals and nonverbal elements like gaze, touch, expressions and gestures (see eg. Bullowa 1978). This early nonverbal interaction is reinforced by vocal dialogues (or proto-conversations; see eg. Halliday 1975). These are vocal exchanges between the mother and the child: they look at each other, and they take turns in dialogues that are carried out in Babble and Motherese. The fundamental rules of interaction are acquired very early, in a stage when the verbal code is still lacking, and they are learned through a dialogue.

Whilst being exposed to the primary elements of the human communicative system, the child also learns things about the world outside, and indeed, learns what 'inside' and 'outside' mean. The child starts to organize the universe s/he is living in. The child is able to "make distinctions about actions and agents and objects before he has the language for making those distinctions in speech" (Bruner 1978), thus classifying and categorizing her experience. This process of internalization does not occur in terms of a passive imprint, but through active interaction.

There are two things that the child acquires: the (internal) 'thought' and the (external) communicative system. Both these processes - learning about what it is to be in the world, and on the other hand, learning how to interact with one's species - are learned through a dialogue. These processes, however, may not be identical. This was pointed out by Vygotsky (1931/1982) who claimed that (verbal) language and (conceptual) thought have different roots in ontogeny, and also, at present, thought and language are closely connected, but not identical.

As Halliday (1975) argues, even small children know what they are aiming at, before they actually can use words for it. They learn to 'mean' before they learn the verbal code, which would also account for the primacy of the function over the form. Duly, a child's early vocal (non-word) expressions, accompanied with gestures, can be interpreted as *speech acts*: they are, for example, demands and questions without words. In these early speech acts the child learns to employ the power of spoken utterances: things may happen as a result of their vocalizations. Words, and the whole verbal code, are brought into an already powerful system: the existing nonverbal channel of communication, the internal

conceptualization of the objects and relations of the world, and the realization of the function of the communicative system.

The whole process, from the very beginning, and also when words are introduced, is a dialogue. The child and his/her caretaker share a *format* of doing things (Bruner 1985), and the child is only a part of a language acquisition system that consists of not only the learner, but also of his/her environment. Mothers and fathers carefully, although not necessarily consciously, guide the child so that s/he is able to move one step forward whenever she is ready. Thus, the process is also a functional dialogue of meanings, and functional dialogue of learning, not only, and not primarily a formal one of conversational turns in a proto-conversation.

What we arrive at is that a description of interaction has to be dialogical. The essence of dialogicality as a philosophical and practical approach can be summarized in the assumption that human interaction cannot be studied in vacuo (see eg. Markova and Foppa eds. 1990), which is precisely what has been done when the social element was excluded from psycholinguistics. On an ontological level, the spoken word has to exist in dialogue: there is simply no other reason for its existence. Speech is also a dialogue on a practical level: for any speaker, there is a hearer (even if s/he be an imaginary one). But dialogism involves also an epistemological point of view: knowledge is not an individual property, but something which develops as a product of several minds in interaction. The various indications of dialogism for the study of (psycho)linguistics are discussed below.

The talking heads: the conduit metaphor of communication. Contemporary psycholinguistics envisages the process of speaking as a speech chain. The idea of speech chain was first presented by de Saussure (1966:11), who discussed speaking as a circuit in which the mental facts are transmitted from the mind of one individual to that of another one. Most later models of speaking have also employed this basic idea (for a discussion of speech production models, see Dufva 1989). Speakers are supposed to generate propositions, which they intend to communicate to some other person. The propositions are turned into verbal language, or sentences, which are encoded into motor patterns that produce articulatory movements, which, again, generate certain kinds of sound waves. These sound waves are sent to the addressee - by the air- and his/her hearing mechanism receives the message, mediates it to the brain, which, respectively, decodes and interprets the proposition intended.

The models employ 'the conduit metaphor' of communication (Reddy 1979). In this metaphor, communication is seen as a process in which *messages* are objects that can be transferred from one location (the speaker's mind) into another (the hearer's mind). The speaker, the message, and the hearer are seen as independent and isolated components of the speech chain that can be studied irrespective of each other. Thus speaker and hearer are seen as two distinct language processors which transmit and receive independent monologues. Serious criticism can be presented to counter this view (see eg. Farr 1990:30), and there are those, who with Linell (1988:43) think that the conduit metaphor is "thoroughly misleading" in the description of face-to-face interaction. Some objections concerning this metaphor are discussed below.

When considering actual everyday conversations, it seems evident that speakers do not actually have pre-speech clear-cut propositions, such as those envisaged in the speech chain metaphor. As Linell (1988:46) remarks "speakers speak not only in order to be understood, but in order to understand what they themselves say and think". Ideas may be developed in parallel with the production of the utterance, and it is not uncommon that ideas will be modified and altered during a sequence of utterances. The speaker does not usually send something that is already complete and fulfilled.

Such development of an idea may also be carried out in close negotiation with the other interactant. Meanings, messages, and interpretations develop during the process of interaction in the co-operation between the persons involved (see eg. Rommetveit 1988). People who are involved in the same interaction 'negotiate meanings' (a concept first introduced by William James, nowadays in frequent use in conversation analysis; see eg. Hakulinen 1989). Thus the message is not sent but negotiated in co-operation between the speaker and the hearer. This means that meanings can not be detached from the person who made the utterance, from the current context, or indeed from a wider cultural context. Meanings, as Bakhtin emphasized (see eg. Volosinov 1930/1973:102-103), are always dialogic.

Secondly, the same external utterance may consist of several different messages, aimed at different persons, or layered on different levels. Thomas (1991) has discussed this inherent complexity of messages. To take an example, it is obvious that speakers can be intentionally ambivalent. Speakers may aim, in one speech act, at a different interpretation for different receivers, for example. When a dentist says: "We'll just pop a little filling in there"

it is both a reassurance for his patient, and a request for the dental assistant to make the necessary preparations (Thomas 1991).

Thirdly, thoughts, ideas or propositions cannot be cloned. What the hearer receives is not necessarily identical with what the speaker thinks s/he sent. This should be obvious when one regards the mishaps that feature in everyday communication (see eg. Coupland, Giles and Wiemann ed. 1991). It is usual that misunderstandings and misinterpretations occur, and it may even be justified to suggest that it is practically impossible to ever 'fully understand' what is transmitted. The hearer is an active participant in the interaction, not a vessel into which meanings are poured. Thus, the 'proposition' which is supposed to have been sent by the speaker can lie also partly or totally in the receiving mind.

Fourthly, communication is not based only on what is uttered (or spoken), but also on various factors that are not uttered - all messages are not packed into the verbal utterances themselves. Nonverbal messages and unspoken implications also carry meanings. Thus, it is obvious that not everything needs to be spoken. Speakers also can rely on the hearer's ability to infer (Sperber and Wilson 1986). In some cases, therefore, 'propositions' in reality exist somewhere in the cognitive environment - between the speaker and the hearer.

Fifthly, the message of the speech chain models has been primarily seen in terms of such information, in which facts are exchanged. The social element which involves emotional and relational messages between speakers is systematically neglected, or discussed as a fringe area. It is manifest, however, that the information that is exchanged in the interaction is also of social nature. People do not speak in order to inform each other only, but also in order to express their opinions and feelings.

In all, the contemporary psycholinguistics is still a psycholinguistics of the message, in which man is only a means to produce a sentence. The speaker is seen as an operator of the language machine, which is able to produce an infinite amount of sentences. This emphasis is a natural consequence of the 20th century linguistic thought that has focussed on the structural analysis of the language products, and ignored the functional element in speech.

The metaphors of speakers as language machine operators have their history. One of the sources of this technical imagery and vocabulary is undoubtedly the famous and influential Shannon-Weaver model of information (see Shannon and Weaver 1949:98).

When it was applied to explicate the processes of speaking, speakers were regarded as 'sending signals' to their receivers in the vein of radio transmitters. The present images and metaphors of psycholinguistics also lean heavily on the mechanical, technical and electric. Nowadays, speakers are often described as if they would be sophisticated speech synthesizers, as implied by the concepts employed: 'linguistic programming', 'central processing unit', 'lexical access', or 'files'. This resort to the external mechanical and technical devices as metaphors of human functions is not new, however, and it has probably been in use throughout history (see McLuhan 1964). What is problematic in the creation and use of metaphors is that they may have a powerful backwash effect on thought (see eg. Lakoff and Johnson 1980). It may be justified to claim that the technical and electronic metaphors used in linguistic sciences about the internal processes also have given strong feedback on theories about human speech.

From the point of view of spoken interaction, the language machinery metaphors seem to be misleading. If these metaphors are rejected, it is easier to introduce the speaker - as a person - back into the theory of speaking. Both structuralism and generative grammar have concentrated on the study of language products. In that, they have assumed that messages can be studied as linguistic structures without reference to the one who uttered them, which has made the study of the persons involved somehow scientifically irrelevant. But as Bakhtin (1986) claims, utterances can exist only through 'voice', which in this sense does not refer to vocal behaviour only. A voice can be written as well as spoken, and what this means is that there is always a speaking personality behind an utterance. The particular speaker is a particular consciousness, who speaks with his beliefs, knowledge, and perspectives. The utterances that result are thus not sentences that convey the colourless ideas of a universal speaker, but utterances that are coloured by the personality and the background of the one who speaks.

The *self*, the person, or consciousness behind the voice is not an isolated figure. The self develops through the social sphere. As the sociologist G.H. Mead (1934/1974) emphasizes, consciousness is ontologically a social construct. It emerges through social interaction. Thus most of what we are is developed through others: through other persons and through cultural patterns. This view is easily adaptable to the approach to interactions as discussed here, and it is also present in Bruner's (1981) and Halliday's (1975) ideas

on language learning as discussed above. Linguistic and cultural communities are not to be seen as sets of individuals, but rather sets of relations between individuals. Any actual interactive situation can also better be described in terms of a system or a process, rather than in terms of individual actors, and their products.

The dialogical (Bakhtin) or interactionist (Mead) approach can also be justified with regard to the evidence on the evolutionary process of humans. For example, it is obvious that the individual brain itself has not developed much during the last quarter of a million years. Our brains are rather similar to those of our predecessors, and the brain itself, from a structural or functional point of view, has not developed, but the surrounding culture has. There has been an enormous and rapid cultural evolution, which has taken place through the system of communication, which is essentially co-operation between brains, or minds. Knowledge is not individual - it is something that develops between minds (for a survey on the issues, see eg. Kamppinen, Laihonen and Vuorisalo 1989).

The figure of universal speaker, such as is often described in present-day psycholinguistics, is an artefact, which has followed on from the tendency of linguists to abstract, objectify, and idealize language and communication. A dialogical speaker, on the other hand, talks through his/her personality, affiliation, culture, and language, and directs his/her utterances to someone. This is not to deny the existence of universal processes in speaking. Human speakers clearly use similar channels of communication: primarily vocal (auditory) and gestural (visual) ones. We have a similar architecture of both the brain and the sensory and articulatory organs, no matter what language we speak. Furthermore, humans also tend to develop similar patterns of social behaviour and thus, similar social organizations. Consequently, we certainly share similarities in the way the world is perceived, and duly, in the way it is spoken of and how it is spoken of.

Beyond this universal layer, however, speakers have many cultural and linguistic layers. Universal mechanisms can be either enhanced or suppressed in a particular culture, and every culture and language creates its own conventions. Individual speakers act as vehicles carrying along certain cultural and linguistic traditions. As the emphasis of the current research has been so heavily on the universal, it is evident that more emphasis should be given in future to the aspects that are specific to different languages and cultures.

Actual speakers are also persons, and thus they will have different experiences, beliefs and attitudes. This affects what they say, and how they say it. Thus, speakers, as described in the present thesis, are not 'neutral' or 'universal' speakers that produce their linguistic utterances 'in vacuo'. They are persons who speak a particular language in a particular situation for a given purpose.

This view of the speaker also leads to the conclusion, that for any speaker there is also a hearer: in actual interactions as in a more abstract sense. For any speaker, there is also an addressee or an audience. The Self speaks to the Other, both in a philosophical sense, and in a physical sense in actual interactions. This means that the interaction between the speaker and the hearer cannot be interpreted in any other terms than those of a system, or relation, or process which takes place between them. Any communication is other-related (see eg. Graumann and Herrmann 1989; Krauss and Fussell 1989). And as Luckmann (1990:53) notes, the other (or the audience) "has systematic rather than...fortuitous consequences for the linguistic aspects of the dialogues". This effect is reflected in such obvious pragmatic choices as conversational topics and registers, or in the amount of verbal information required. Other-relatedness, which is usually also ignored in psycholinguistics, is discussed in eg. Graumann and Herrmann (eds. 1989).

What is argued above, also seems to have consequences for linguistic study as a whole. Language, says a modern linguist, echoing de Saussure, is a social phenomenon. After saying that, a theoretical linguist, but often also a psycholinguist, does not refer to the social and cultural environment at all. Language - in theoretical linguistics but also in psycholinguistics - is discussed as if it has little or no bearing on any actual individual, situation or even on any particular language. Those areas appear to be reserved for the research on, for example, sociolinguistics or second language research, where it is regarded as legitimate to study real languages and real speakers. It thus appears curious that the field of psycholinguistics has been so theoretical and myopic in orientation.

The avoidance of social realities must, at least to some extent, be attributed - perhaps paradoxically - to de Saussure. In drawing the distinction between synchronic and diachronic, and putting the emphasis on synchrony, de Saussure took the decisive step towards the abstraction of 'language', both from its roots and its environment. From then on, it was possible, and indeed necessary, to discuss 'language' "which did not correspond to any real moment in the historical process of becoming" as Volosinov

(1930/1973:66) states in his critique of de Saussure. Synchronic, certainly, came to mean also ahistoric and acontextual. Thus, also 'social' gradually assumed the character of an abstract system of social rules, not any actual culture, context or individuals.

De Saussure's ideas were applied and modified in the school of American structuralism, which was to become the major linguistic influence of the century. The linguistic approach was turned into a description of language products and their structural analysis. The American (Bloomfieldian) structuralism took a decidedly non-mentalist stand, fiercely denying the justification of the study of mental phenomena, and thus, psycholinguistics. Language productions were studied as structures that were independent of their producer and discussed regardless of the context in which they were produced. It did not matter what kind of social values the entities had, as long as they fulfilled their linguistic mission. The structuralists regarded linguistics as a study of the verbal code, and moreover, emphasized the study of its regularities, or its grammar.

However, it should be clear that particular linguistic utterances have their history in more than one sense. Languages and cultures have their histories; human language and speech have an evolutionary history, and speakers have their personal backgrounds. It is misleading to regard human language, particular languages and speech without their (both wide and narrow) background: they always come from somewhere, not *ex nihilo*.

Thus particular languages are social systems that have emerged in the course of history. The structures and rules present in them are results of that development: they are historical facts. A structural analysis of a language is an analysis of how the rules and entities that are relevant for that language were formed, and in this, contrary to common belief, it is hard to see 'language' in any other than fundamentally diachronic and collective terms. The aim of psycholinguistics, on the other hand, is to develop means to describe the internal processes of speech, and in that, theoretical linguistics has not been helpful. One suggestion that is made here is that the conduit metaphor of communication is fundamentally inapt. Speakers and hearers are not to be seen as two independent language processors, but as participants in a system that works on dialogical and interactive principles, negotiating their way through the conversation in a meaningful and functional manner.

Spoken interaction is thus an intrinsically dialogic process. As Farr (1990:28) argues, modern psycholinguistics, which describes

speech as an individual speech production/perception is "shot with Cartesian assumptions" and lacks a social and interactive approach. The goal of the present thesis is to sketch a socially real description of speech and spoken interactions: "The organizing center of any utterance, of any experience is not within but outside - in the social milieu surrounding the individual being" (Volosinov 1930/1973:93; cf. also Neisser 1980).

Normal everyday speech and behaviour is given considerable attention in conversation analysis, ethnomethodology, cultural anthropology, nonverbal communication research, social psychology, phonetics, speech communication, pragmatics, and sociolinguistics, to take some examples. It is to be suggested that this data in which everyday speech behaviour is observed, serves the theory of psycholinguistics rather well. We only need to reject the written language biased and dualistic linguistic views in favour of a more holistic analysis. I start my own discussion about the nature of speech processing in a psycholinguistically unconventional manner with a discussion of the social aspect of slips of the tongue (the ideas have been developed in Heikkinen and Valo 1985; Dufva and Valo 1990). I will argue that the social aspect cannot be distinguished from the linguistic, and thus slips in interaction serve to show that we deal with fundamentally similar things in both 'linguistic' and 'conversational' and 'social' choices.

6.2 The failures of a dialogue

6.2.1 Blunders and insults

When two or more people are engaged in a social interaction, their messages also involve the (personal and social) relations between them. The psycholinguistics of a given message therefore also involves this kind of communication which has been called 'relational': how speakers want to present themselves, how they perceive the other, and what kind of relationship they assume exists between them (see eg. Planalp 1989). Social relations are integral to verbal communication, as they are inherently present in the verbal

and nonverbal means of the interaction: in tone of voice, word choices, gaze contact, or the registers adopted. There are several possible frameworks for the analysis of social messages and their failures. One is the concept of face that was originally put forward by Goffman (1967), and that is much discussed in recent approaches to conversation and discourse (see eg. Brown and Levinson 1978; 1987). Slips of interaction frequently lead to the 'loss of face' of either of the participants.

Spoken interaction can be regarded as a display of *expressions* and *impressions* (ie. expressions such as received). This means that speakers either consciously or less consciously may aim at a certain kind of expression, but that this is not always the impression that is received. This is what Goffman (1956) argues for: impressions are both 'given off' and 'managed'. A speaker may consciously try to express assertiveness, for example. But, by unconscious or less conscious behaviour, or simply because of the differing standards of the audience, s/he might appear authoritarian or awkward instead. Thus, the impression also may 'live a life of its own', in relative independence to the intended expression (Farr 1990:40).

Although linguistic and psycholinguistic research usually omits the social dimension, it is easy to argue for its inclusion. It is reasonable to assume that the specific linguistic and nonverbal choices follow from the social positions taken. Thus the social element is not to be seen as a context, in the sense that it would only be an external scene for interaction. contextual in the sense that it is somehow external to language, and that the products of the language component might, in some indefinite manner, be embellished by the influences of the outward social sphere. Rather, these social elements are to be found *within* the language. Social respect, for example, is present in all 'linguistic choices' from the beginning of an interaction, because the linguistic choices are expressions for and of particular social situations. The social and personal stands that the speakers take are the incentive for the verbal and nonverbal behaviours used.

The social relations in actual speech situations can be *situation-specific* and/or *speaker-specific*. Thus there may be differences in speakers' permanent or semi-permanent styles (of speech and communication), and also differences in genre, register and the roles that are typical for a particular situation. People who are engaged in interactions also constantly express themselves as social agents and gain and give impressions that are social in

nature. Thus an interaction is always also a social network of expressions and impressions.

Social interactions may be smooth and successful, but also problems may occur to varying extents. In the following I discuss those failures in the expressions and impressions of social messages, which the speakers themselves have recognized as failures, and experienced as unintentional acts. The examples come primarily from the corpus of interaction slips (=ISD), collected by Maarit Valo and the present author (see also Heikkinen and Valo 1985; Dufva and Valo 1990). Normally, slips of the tongue have only a marginal meaning in social and relational communication between people. Commonly they may not be noticed at all, and if they are noticed, they may be politely ignored. Sometimes, for various reasons, the messages fail on a social level, and the persons involved may feel they either have insulted their interactant, or made a blunder themselves. These social failures range from serious faux pas to minor misdemeanours.

Face of the self. Goffman (1956) argues that any social interaction is a stage performance, in which people see themselves as actors on stage. While we are 'on stage', we take more pains to manage the impressions that we believe we create. Our behaviour is more relaxed when we are with no audience at all, or with a non-threatening audience. When on stage, we hope that the face we put on, is also accepted by our audience, and thus we aim at a certain *self-presentation*. Sometimes, however, something we (accidentally) do is in obvious contradiction with our conscious impression management. In the following I discuss some slips that result in the experience of losing one's face.

Sometimes speakers aim at more sophisticated a self-presentation than they are capable of managing. This might be the case if a novice tries to give an impression of being an expert on a given area. Children, adolescents and novices of a particular social sphere are often keen on showing their competence, even if, in reality, they lack the skill to do so. These attempts often seem to result in slips that are judged as more serious, offensive or amusing than those of an expert. The first example (111) is a slip in 'good manners'.

(111) *A young woman is attending a celebration dinner. She is eager to give a socially competent self-presentation. Before the dinner she talks with her friend on the importance of correct behaviour. At the dinner table, worried about her table manners, she finds herself drinking mineral water straight out from a bottle.*

(ISD)

This slip also reflects an oddity of human behaviour. People often fail in a particular task, if they give an undue amount of attention to carrying it out successfully. Whenever people aim at a social goal slightly above their competence, it seems that an unfair number of lapses may occur in that particular respect. The following example (112) is a slip that occurred when a speaker wanted to use a 'specialist voice' :

(112) *At school a history teacher asked her class the name of the composer of 'Ode to Joy'. A girl who has musical interests is eager to show her knowledge, signs enthusiastically, and is allowed to answer: Wolfgang Amadeus Beethoven.*

The slip, of course, is a linguistically innocent blend of two famous names. However, the obvious contradiction between her self-assured nonverbal behaviour, her making the point of giving the whole name, where surname would have sufficed, and the 'incorrectness' of the answer turns the intended self-presentation into its opposite. Psycholinguistically, these slips can also be related to attentional capacity: the social effect occupies the mind of the speaker to that extent that she fails to monitor and check the contents of her answer. The following example is a similar failure of self-presentation.

(113) *It is snowing. Some young children (Finns) are walking home and enjoying themselves. One of them is dancing and singing in English: "I'm singing in the rain". Another one cheerfully corrects her. 'No, no. You should sing: I'm snowing in the rain!'*

(ISD)

This is an example of a situation in which the speaker assumes (albeit jokingly) the role of corrector, which is socially a very delicate one. If and when one assumes the role and voice of a 'Besserwisser', one needs to be absolutely correct oneself. If the correction turns out to be incorrect, a complete loss of face for the speaker may follow.

The above examples are very harmless, of course. The essential thing, which may make these utterances amusing for hearers and awkward for speakers, is precisely the contradiction of the social and literal messages: the social message (which may be given primarily through nonverbal behaviour) tells about the confidence and capability, but the literal message somehow proves this to be false. Moreover, such slips might be much more embarrassing in a more formal or face-threatening context.

Malapropisms may also risk the speaker's face. All speakers may commit malapropisms at some points, but they may be especially typical for learners, and for such learners that apply risk strategies in using knowledge that they are not quite fluent in. If a speaker is particularly keen on using grand words, trying to sound competent and learned, s/he also risks more. The contradiction between the aim and a possibly resulting slip may easily lead the hearer to characterize the speaker with unpleasant attributes such as ignorant or vulgar.

When considering loss of face, it is clear that sometimes the speakers immediately recognize they have done something wrong, while sometimes it takes some time to recognize the error. Some of these losses of face are not recognized at all by the speakers themselves - as may be the case with some malapropisms. On the whole, it seems obvious that both the ability and tendency for self-analysis varies widely. Some people are simply social worriers who tend to monitor their behaviour for possible mistakes, while some never appear to notice. The loss of face is certainly a subjective and experiential thing, and one cannot always predict social reactions to similar external (social and verbal) behaviours.

The face of the other. As argued above, interactions are inherently other-related. This does not mean that the speakers are necessarily friendly and polite, or that they always wish to harmoniously co-operate. The other-relatedness, or the reciprocal character of interaction, means only that communication is essentially a social agreement which can be either friendly, neutral or hostile in tone. Thus social utterances can also be a slap in the face of another person. Insults and impoliteness can be intentional, but also accidental.

Mild face-threatening acts can, for example, be generated if the speaker chooses an inappropriate linguistic register. Finns who use two different pronouns for address, the so-called T pronoun (*sinä, sä*) for familiarity, and V pronoun (*te*) for formality and

politeness, sometimes accidentally slip in their use, and may sound disrespectful when they do not intend to.

(114) *In a public library, an elderly, dignified lady is looking for a book. The librarian is going to get it for her after finishing a task. The librarian informs the lady: Ootas vähän! (approximately: Wait a sec!). Having said that she immediately recognizes that the colloquial expression and the informal address were far more familiar than intended.*

(ISD)

There were two tasks that demanded the attention of the speaker in the above example, and her attention for the social adequacy suffered a momentary lapse. The speakers may also involuntarily insult others by an accommodation process that goes too far, as in the example below.

(115) *A Finnish student worked part-time for an older person who used a dialectal lower-prestige variant, in which [d] is substituted with [t]. One morning the student, quite unknowingly, greeted his employer giving an exact imitation of both his expression and accent.*

(ISD)

It is normal that the persons involved in the same interaction accommodate to the verbal and nonverbal behaviours of each other (see eg. Street and Giles 1982). It is considered rude, however, to accommodate such behaviour which is judged to be as low prestige or defective.

Many proverbial sayings also warn about badly chosen topics: "Do not talk about a rope in the house of the hanged man". Skilled conversationalists are aware of the topics to be avoided, and the beliefs and values to be subdued, so that they are able to avoid a face-threatening act in their current company. Topic taboo slips often occur when two people who do not know each other well are talking, but there are also topics and themes that should be avoided in more familiar company. The name of an ex-wife or ex-girl-friend as an address for the present wife/girl-friend may be a serious blunder. Thus speaking can be also a socially destructive act if one does not pay attention to what should *not* be said.

Unknowing violations of politeness rules may also result in face-threatening acts. For example, it is not consider polite to impose, since it will threaten the face of the other interactant (see eg. Brown and Levinson 1987; Piirainen-Marsh 1991). Sometimes speakers, however, make misinterpretations which make them sound too assuming, or imposing.

(116) *A young girl was saying goodbye to her older hostess after a visit. Her hostess was holding a large box of apples, and she asked: - Want some apples? The girl made a wordy and polite refusal: - "Oh no, I could not possibly manage to get it on my bike". Seeing the expression of her hostess she realized that it was not the whole box she had meant to offer, but only one or two.*

(ISD)

The above case is one possible interpretation of an ambiguous situation. However, it was an experiential slip for the girl, who considered that she really should have known what her hostess implied, and had she been more attentive or perceptive she would have been able to convey an unassuming and polite impression she intended.

Politeness rules also seem to require the maintenance of social balance between speakers. If speakers praise themselves, for example, they should check that a self-praise is not at the same time an expression of belittlement of the other.

(117) *A small group of people is discussing a vacant academic position. One of the persons is asked whether she is going to apply. She engages in a long monologue on the relative unimportance and unworthiness of the position, until it slowly dawns on her that one of the people present has been employed in this 'low-level post' for several years.*

(ISD)

The sequence of discourse in example (117) was plainly aimed at offering an appraisal of the speaker's own abilities, and it was carried out for the purpose of own face. However, it turned out to be a face-threatening act for another participant. It seemed to both diminish the other's achievements and position, and make the speaker herself sound condescending or arrogant. Consider also the following example:

(118) *A student nurse is examining a patient . - "Does this hurt?" - "Yes" - The nurse (emphatically): "Well that's good".*

(ISD)

This student nurse was judged to sound sadistic, but, again, it seems that it was the situation itself that was complex. When the nurse reacted to the patient's response, it is obvious that she wanted to imply her professional reaction (ie. 'it is good that there is sensation left in your leg') but also the fact that she - as a person - was sorry for the pain. An utterance that would have been adequate

according to her own standards would have implied both things. This is a simple example that serves to show how persons monitor their utterances according to very different standards. A less perceptive speaker would not have detected a fault in this utterance.

The interplay of impressions and expressions. A careful consideration of diverse *faux pas* shows that a loss of face or a face-threatening act is a relative thing. Thus any corpus of social blunders will ultimately consist only of such incidents that the subjects have both noted themselves and chosen to recount. In addition, the story is generally told by one of the participants only, and the interpretation of the second party involved might turn out to be different.

In many cases, it is also difficult to decide who will suffer more severely: the speaker, or the hearer. One speech act may be interpreted as an insult for the hearer, a blunder for the speaker, both, or neither. Some people may simply ignore similar incidents that others notice and analyze. In addition, the social relations between the present speakers are decisive in the evaluation of the results. This is seen in the following example (119).

(119) *When Finnish students finish their high school studies, it is common to hold formal graduation celebrations. Each new graduate is then given his or her graduation symbol, a hat, by the principal and then they shake hands. The students are supposed to say something fairly formal like 'Thank you!' at this point. One embarrassed young man said: Hei! 'Hi!', when shaking hands with his principal.*

(ISD)

The principal has basically two options for interpreting the social relevance of this remark. He may see the remark as a voluntary act and maybe regard it as insolent and arrogant behaviour. In this case it is also a face-threatening act towards the principal. But if he acknowledges it as an involuntary error, or a lapse, it will not threaten his face at all.

Thus, it seems obvious that the participants of any interaction seek some kind of balance on the social stage. Interactions are also social negotiations, in which face-work is important. As Goffman (1956) argues, persons differ much in their stage skills. Disciplined actors who have assumed their roles well do not slip out of their role, do not leak their inner feelings, and, in case of breakdown, may even attempt to camouflage the mishaps of others. Disorders can be explained, blunders may be made to look

small and insults can be turned into jokes. But as argued above, people also differ as observers: in regard of their social perceptiveness. Some people are particularly sensitive interpretators of various kinds of social signals, while others are not (see eg. Patterson 1983; Siegman and Feldstein ed. 1987). Thus there are both differences in perceptual skills (observer skills), and in the execution of social behaviours (acting skills).

The basic feature of a social failure is that either (or both) of the participants recognize a possibility of a social fault. This recognition itself, however, is influenced by a variety of factors. I argue that this is typical for all 'error': we deal with phenomena that are ambiguous by nature. The recognition and the classification of some social behaviour as an 'error', as a 'slip' or as, for example, an 'insult', 'blunder' or 'faux pas' depends on the interrelated factors present in the situation.

6.2.2 When meanings fail

Utterances can also be failures with regard to their meanings and functions. In the discussion below I discuss the failure of speech acts, using this term in a rather general sense to denote the function and meaning of an utterance. Utterances fail as speech acts when they do not fulfil their function in a manner intended, or when their meanings are in obvious contradiction with the intention of the speaker.

Persons in interactions are obviously engaged in a co-operative action, and the whole notion of communication is impossible without a sense of co-operation. Co-operation, in this basic sense, simply means the acknowledgement of the fact that persons who talk and gesture in a face-to-face interaction are doing it for a reason. The situation is thus ontologically meaningful, not arbitrary. When we are in the company of others, we necessarily communicate. As Watzlawick et al (1967) put it: "You cannot not communicate".

It can be argued that the implicit rules of conversation are based on the notion of the co-operation. This means that people who talk to each other do not say random and arbitrary things. Both the speaker and the hearer aim at certain standards in terms

of amount and quality of what they say. The general co-operative principle, as originally defined by Grice (1975:45) was as follows:

Make your conversational contribution such as required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged.

Grice's (1975) practical maxims are derived from the co-operative principle. They were originally classified into four categories: quantity, quality, relation and manner, and several subcategories. Although the universality and generalizability of the actual Gricean maxims can be questioned, the essence of the argument seems to lie in the fact that *verbal utterances mean in a non-direct way*. This 'implicature' means that literal forms of verbal utterances are not identical with speech act messages, and that different speech acts (or functions) can be conventionalized in several ways in a particular language.

This indirect relation between the functional meaning of an utterance and its literal verbal manifestation has not been sufficiently recognized in psycholinguistics. This discrepancy, however, seems to have weighty implications for both the perception and production theories. Thus the production and comprehension of meaningful utterances means more than encoding and decoding a verbal code. It seems obvious that speakers and hearers also accidentally fail on this functional level of messages. Either they do not make their own intentions evident and unambiguous enough, or they do not correctly perceive the intentions of others.

Grice's (1975) maxim of quantity is useful in describing some slips. He argues that people aim at making their contribution as informative but not more informative than required. Sometimes, however, speakers produce utterances that fail in the amount of information conveyed, and therefore, do not fulfil their intended function. The following example (120) shows how a speaker omits a crucial element because of his pre-occupation with another matter.

(120) *A young man intends to purchase a sausage snack. Contrary to his usual habit, he plans to consume it with mustard. Occupied with this extraneous decision, he places his order: Mustard, please!*
(ISD)

The function of the utterance above is a request. It fulfils its function only partially, since the speaker omits the informatively

thematic element. This is the element, which is crucial for the hearer (viz. 'hot dog'). The notion of 'mustard' on the other hand, may have been particularly thematic for him, subjectively. Thus, this slip seemed to follow from a misbalance between two thematic elements: what is central for the speaker, and what is relevant for the hearer. The utterance failed as a speech act. In the following example, the utterance is also uninformative, but the reason for this is different.

(121) *A man calls at the exchange of a large hospital and informs: No minä täällä hei! 'This is me speaking'*
(ISD)

In this case the failure is due to a mistakenly chosen routine: 'the family routine' is employed instead of 'the public routine'. But the particular utterance also serves to show that, generally, the speakers always calculate how much information their particular interactants need, and make adjustments accordingly. The second example is a case of a contrary miscalculation: the speaker gives information not required.

(122) *A student refers to her sister as 'My sister', not by her first name, when speaking to family members.*
(ISD)

Speakers thus seem to know intuitively how much information is relevant for a particular audience, and provide it accordingly. Consequently, it can be argued that the amount of information is related to the notion of *relevance*, and perhaps its subcategory. The notion of relevance is discussed in a seminal work by Sperber and Wilson (1986). Quite obviously, relevance is one of the key notions in understanding conversations and their procedure. Speakers usually only say what they consider relevant, and listeners aim at giving a meaningful interpretation of what they hear. Speaker aim at relevance and hearers seek for it.

Not all utterances, however, seem relevant. The following example was recounted by a young woman, who had just began dating her boy-friend.

(123) *The young woman and her new boy-friend pass a shop window, with a drill displayed. As a passing thought came to her, she heard herself saying aloud: "My father has a drill"!*
(ISD)

As the speaker was eager to make an intelligent impression on her boy-friend, she was worried about her remark and the obviously trivial nature of it. As such, the above utterance exemplifies the manner in which new topics and themes are introduced into conversation. It is only that the speaker herself did not consider her observation worthwhile mentioning.

Sometimes the relevance of the speaker's utterance is jeopardized because of ambiguity. Thus an utterance (or often, a written expression) can have two different readings, one of which is unintentional. Usually, the speakers and writers themselves do not seem to be aware of the ambiguity, although some may certainly also be intentional. Goffman (1981) discusses at length related examples in radio talk. These linguistic items frequently feature in collections of anecdotes and the like (see eg. Virkkunen and Virkkunen 1988; Bergholm 1976). The following examples are written examples (for an analysis, see also Kytömäki 1986).

Sometimes speakers and writers state the obvious. An utterance may, for example, give its audience such information that is easily inferred on the basis of the knowledge of the world. Or, an utterance may overstate information by giving it in duplicate.

(124) *Tampereella surmattu liikemies kuoli*
'Businessman murdered in Tampere dies'
Newspaper headline (Bergholm 1976)

Utterances can also state the impossible. Both speakers and writers make these dubious statements which are located on the borderline of relevance.

(125) *Hirvittävän liikennekuoleman seuraukset ovat usein elinikäisiä*
'A terrible traffic death may result in life-long suffering'
Radio broadcast (Bergholm 1976)

However, it is quite possible to interpret these utterances as the writers and/or speakers actually intended. The failure lies in the fact that the author has not checked all possible indications of the utterance. In addition, a speaker's utterance may be unsuccessful in the sense that it seems to involve an inherent contradiction.

(126) *Olemme joustavia, mutta emme tingi tuumaakaan.*
'We are flexible, but we do not give in an inch'
A trade union leader (Bergholm 1976)

Although some amount of ambiguity seems to be constantly present in everyday interactions, it becomes especially 'visible' when there are two clear interpretations, one of which happens to be somehow amusing, insulting or odd.

(127) *Miellyttävät päivät päättyneet. Tasavallan presidentti taas kotona.*
 'Pleasant days over. The president back home'.
 Newspaper headline (Bergholm 1976)

The ambiguity of the sequence is due to the fact, that readers can make two possible inferences on the basis of it: they can either infer that the pleasant days were experienced by the citizens when the President was away, or by the President himself when enjoying the holiday. Word choices may also produce overtones which were not intended.

(128) *A journalist makes a telephone call to an office after the office hours. The cleaning operative answers. The caller asks: Onks siellä ihmisiä paikalla? 'Are there any people around?'*
 (ISD)

In the above example, the word choice of the caller strongly suggests that the cleaning operative is not a person. Similar implication concerning children is given in the following.

(129)
 A: *-Onks se lastentauti?*
 B: *-Ei, tulee se ihmisiinkin.*

A: Is it a children's disease?
 B: No, people can also get it.

Thus utterances do not always fulfil the function the speaker intends, or do not fulfil it in the manner the speaker intended. The failure seems to occur in that phase of the mental process when the speaker interprets and weighs the elements that should be placed in the utterance. Thus the final utterances may lack information, give unnecessary information or contain additional information that was not intended to be there.

6.2.3 Failures in turns and roles

Social interactions are also temporal structures. In other words, they include turn-taking procedure, for which the speakers have to make decisions in order to ensure the correct choice and location of turns. Speakers also make slips with regard to two aspects of turn-taking: discourse roles and discourse routines.

Slips with discourse roles. Alternation between the discourse roles of speaker and hearer is usually very smooth, as the basics of turn-taking are learned early in infancy. The speaker and hearer roles alternate in a regular manner, either with a minimal pause between the turns, or with some amount of simultaneous talk (see eg. Beattie 1983). Some examples of a breakdown of this rhythm are found in slips of interaction. Speakers may, for example, 'steal the line' of the other participant.

(130) *A teen-ager happens to knock the handbag of an elderly lady so that the bag falls to the floor. The lady does not say a thing, but the girl hastens to say That's all right!*

(ISD)

The girl who is the speaker in the example (130) knows what should follow: an apology and its acceptance. The apology is her responsibility to produce, while an acceptance should be forthcoming by the elderly lady. What is the cause for this slip? Perhaps the girl does not know who should speak first? On one hand, it is plain that she should make an apology, but on the other hand, she is so young that she may expect the older person to take the initiative. When she decides to take the turn, she, at the same time, steals the contents of the other person's line. Consider also the following example (131).

(131) *A woman is having a reception celebrating her fiftieth birthday. She - naturally - hears congratulatory words throughout the day. Welcoming a late visitor in the evening, she says smilingly: And many happy returns to you!*

(ISD)

The aim of the exhausted hostess is simply to go through the required conversational routine, but the frequent repetition has activated the sequence of congratulation-and-answer to such an

extent that she confuses the roles of addressor and addressee. Routine is also present in the following example.

(132) *It is a busy Friday at the local liquor store (which are monopolized in Finland). During the day, the salesperson repeatedly heard a request for Koskenkorva, the most popular local alcoholic beverage. In the late hours of afternoon, he greets a customer with a friendly smile and says: Koskenkorva! The customer turns red, and whispers in a flustered manner: In fact I would like to have a bottle of Vodka...*
(ISD)

The examples above also support the notion that there is a fair amount of predictability present in certain interactions. Everyday greetings or sales encounters are examples of situations that involve various conventional and routinized sequences. In these cases, both participants are able to predict much of what will be actually said at any given point in the situation. Thus, it is the situation and its conventionalized conversational routines, interaction rituals, or word choices that determine what is actually said. A salesperson is expected to start the situation with an inquiry and persons that meet each other are expected to greet each other. The expectations are usually shared by the persons living within the same culture, which also makes the expected utterances available for both speaker and hearer. The spoken interaction may be a common enterprise also in this respect.

Slips in discourse routines. As argued above, conversation is also structured in the sense that there are habitual signals for its different phases and functions. Both the location and the contents of certain turns are fairly predictable. For a speaker this means that in certain parts of conversation, such as in the opening and closing phases, the choices that are available are fairly routinized and thus predictable.

Thus much of 'phatic speech' (see Malinowski 1923/1972) may be used in an automatized fashion, and these phrases may be triggered off by elements that are present in the social situation itself. Thus, meeting an acquaintance may involve use of a particular kind greeting. It is thus the situation itself that acts as a primary cue in the activation of verbal elements, and although the process is habitually routinized, slips may occur.

Speakers thus make frequent slips in the selection of the proper opening and closing signals. To take an example, there are two customary means in Finnish (with a semi-formal to formal register) that are used as an closing signal. '*Näkemiin!*' ('See you!')

is used at the end of a face-to-face interaction, and *'Kuulemiin!'* ('Hear from you!') is used to end a telephone call. Several examples of their misuse are found in the corpus of interaction slips. Thus the mere existence of two possible choices may motivate these substitutions.

(133) *A person is leaving a shop, saying: Kuulemiin! 'Hear from you!'*
(ISD)

The incorrect selections, however, are usually further motivated by some additional factor.

(134) *A schoolpupil meets his teacher on an afternoon, and says: Huomenta!*
Good morning!
(ISD)

In the above example, the speaker selects an expression which is incorrect considering the time of the day. This is not merely a formal confusion, however. The choice is triggered off by the presence of the addressee, whom the speaker usually meets in the morning. Therefore it is highly probable that the speaker acted on the basis of this habitual cue, and ignored the exceptional circumstances.

In addition, external factors such as high frequency and/or recent use of the phrase may increase the probability of misplacement. A frequently or recently repeated phrase may be introduced into a inappropriate situation, as in examples (135) and (136).

(135) *A person answers the telephone at home with a phrase she customarily uses at work: Peräseinäjoki communal office.*
(ISD)

(136) *A salesperson at a photographer's has repeatedly answered the telephone with the customary name of the shop. When a customer appears, she looks him straight in the eye and says: Ville's Photo Shop.*
(ISD)

These misplacements of phrases are very similar to the lexical slips discussed in chapter 8.3. The difference is that these are longer sequences: whole turns, lines or utterances that are triggered off by a misleading cue.

I started with the argument that a theory of speech will have to work with the reality in which the speech occurs. One recognition

of this reality is to regard speech as a meaningful interaction, which involves functional negotiation of meanings, and the taking of turns. Speech, primarily occurs in a conversation, and actually is conversation. Thus social and conversational interaction is an integral part of speech, not its separate external frame. It is obvious that slips occur also in this aspect of speech, and that they thus involve aspects other than verbal (or 'linguistic'). These elements should not be dismissed from a theory of slips, or from a theory of speech. The level of interaction which appears as discourse or conversation is the primary level of speech planning. This is to say that actual speakers start their speech plans within the situation, and with the help of the cues that the situation provides.

Speakers thus work with the situation which gives them *cues*, which, respectively, relate to past experiences with situations, speakers, genres, and languages. Thus the 'real' meaningful work occurs on this - basically social - level. Speakers see and hear things, which they interpret, understand, compare to earlier experiences, draw analogies and then decide what to do with them. The actual incentive for the process of speaking is the social situation that the speakers are engaged in.

The situations are not static structures, however, but changing processes. Along with the interaction that evolves, the speakers constantly make new decisions and recall new things. Speakers can certainly have predictions about how the situations might be, but seldom, if ever, will these predictions be explicit linguistic 'plans'. The nature of the linguistic processes, which follow, as hypothesized in the present thesis, is discussed in more detail in the following chapters.

7 UTTERANCES

7.1 Is speaking a linguistic process?

This section is a discussion of how the inherently social utterances are made into language; or how speakers turn the 'semantics' of their mind into spoken utterances. Thus, the issues that are dealt with here are psycholinguistic in the traditional sense. There are grounds, however, for challenging some of the views and assumptions of mainstream psycholinguistic study, which are discussed below.

Language and non-language. The dualistic assumptions that underlie the autonomous linguistic theory, include a sharp boundary between language and non-language. This assumption also has various implications for psycholinguistics. One of the hypotheses of generative grammar is that there is a special cognitive component called language, distinct from other cognitive abilities, such as problem-solving, or memorizing. Moreover, 'language', such as that described within this tradition, is usually seen in terms of 'autonomous syntax', ie. a primarily syntactic ability, which is also innate. The Chomskyan hypothesis is recently discussed and modified by Fodor (1983) in his theory of modularity. According to him, language is one of the modules of the human mind that are what he calls 'informationally encapsulated': they are

innate systems that are specialized in one input domain. Language is one of these modules, and vision, for example, is another.

My own arguments speak for a theory of speech in which the notion of autonomous language is rejected. Instead, a complex network of parallel cognitive, motor and sensory functions is offered. In that, the present approach is much closer to the views of cognitive linguistics than the autonomous linguistics approach. The study of the social and cultural contexts of language and the research on the relations between linguistic and other cognitive abilities is emphasized throughout the writings of George Lakoff (see eg. Lakoff 1987; 1991). The goal of the 'cognitive commitment', according to Lakoff (1991:54), is to "make one's account of human language accord with what is generally known about the mind and brain from disciplines other than linguistics".

The generative or formalist schools, which adhere to the notion of autonomous language, make a sharp distinction between linguistic and non-linguistic fields (as eg. psychology). When Cutler (1988:210), for example, discusses the slips of the tongue research, she argues that the study of the "operations involved in the production of utterances" is psychological, not linguistic, and that these operations are supposed to be of little interest for linguistics.

In opposition, it can be argued that it is essential for the theories about speech, but also, those about language, to discuss such factors which plainly contribute to the external speech. Thus what we can observe in external speech, or what can be subjected to introspection in mental speech are of interest for psycholinguistic theories as well. Only a holistic analysis of the phenomena of speech will tell us what is relevant for its theory. An analysis of spoken interaction as a whole serves to show how research done both on the cognitive, phonetic and social sphere should be seen as relevant for the study of 'language'. Only when we have a holistic picture of the whole scene, can we start looking at the laws of 'language'. Above, I have argued for the relevance of the social element in the production of utterances, and in what follows I will try to show that the internal 'linguistics' could be reduced into basically 'non-linguistic' processes.

Verbal and non-verbal. Another area which has often been dismissed from linguistic study is that of nonverbal behaviour. Again, we deal here with dualistic rationalist values. Descartes, and the tradition of Cartesian philosophy (Chomsky being one of most eminent Cartesians), emphasized the difference between man and animal, and saw verbal language as a species-specific

property. The emphasis of the verbal at the expense of the nonverbal has dominated ever since, to distinguish man from animal as a verbal communicator.

According to the Cartesian argument, one part of the human communication system (ie. verbal language) is fundamentally different from the other (ie. nonverbal) communication means. What is interesting is that the influence of written language can also be found in this idea: it seems that what is expressed by present (alphabetic) writing systems is called 'language', and what is not is referred to by such names as 'nonverbal', 'paralinguistic' or 'extralinguistic'. The notion of language which embeds only the code that can be written is attacked by eg. Sarles (1985).

Thus it can be argued that the Cartesian philosophy, combined with the written language bias, has also diminished the importance of nonverbal elements of discourse. The very term 'nonverbal' seems to indicate its subservient, and perhaps inferior position to language. But, to understand human communication, it is necessary to also regard behaviour that is called 'nonverbal': either paralinguistic (=vocal) or extralinguistic (=bodily communication). Any actual spoken interaction is always mediated through voice and through body.

Thus it is extremely difficult to distinguish between nonverbal and verbal on communicative, or functional grounds. A gesture can be 'verbal' in the sense that it communicates in a similar manner as a word (eg. a nod meaning 'yes'). A routine verbal phrase, on the other hand, may be 'nonverbal' in the sense that it serves a similar function as a pause or a vocalization (eg. *well*). In addition, one means of expression can serve both 'verbal' and 'nonverbal' functions. Intonation (ie. the changes in fundamental frequency during the utterance), for example, may serve both a 'verbal' and a 'linguistic' function (eg. question), and a 'nonverbal' one (eg. attitude). The line that is drawn between verbal and nonverbal is, if not arbitrary, at least fuzzy.

Therefore, if and when spoken interaction is discussed, it has to be noted that it always involves more than the verbal code. Humans communicate not only through the verbal code (ie. words), but also through nonverbal (ie. vocal and gestural) messages. Messages are also mediated by the shared knowledge and assumptions of the participants, so that some messages are actually unspoken. To model spoken interaction as if it would only involve the production and comprehension of the verbal code, is misleading.

Language in the head? I will argue for a theory of speech production that has to also account for such elements that have been excluded on the grounds of being 'non-linguistic' or 'nonverbal'. This view will also give a different position to 'language', 'linguistic entities' and 'linguistic rules'. It is reasonable to suggest that the grammar that speakers internalize is a user's grammar, widely different from those suggested by eg. generative theory. Thus it is argued here that children do not acquire an internal linguistic grammar, such as generally argued, and adults do not possess one.

Mental grammars of contemporary psycholinguistics have described the process of speaking in terms of linguistic entities and rules, which the speakers have internalized, and by which they encode and decode speech. Unless this view of mental grammar is taken as a very loose metaphor that has no real connection with actual events of speech, it has to be rejected. On the other hand, if it is only a loose metaphor, it does not have the explanatory power it is usually thought to have.

A realistic grammar for a speaker has to start from actual utterances and explain the observable phenomena. A psycholinguistic grammar, such as will be sketched here, relies on a theory of language as a network of various skills: such as speaking, listening, reading, writing, inferring, comparing, selecting, or judging. The code-centred (or formalist) view of psycholinguistic processes is rejected in favour of a process-centred (functionalist) one. This means that the key to the psycholinguistic processes is not in the verbal code (ie. language) and in its analysis. To analyze structures of language does not necessarily give us insights into how persons speak.

Language is something that individual people can use without the internalization of it as a complete system. The rules and entities that language consists of are not situated in the mind of an actual speaker. A structure of language is an evolutionary and cultural structure, not an individual possession. As such, any grammar is collective. It is simply misleading to assume that rules of language are applied in an individual act of speaking, or that word patterns of a language are generated sound by sound each time we speak. The conventionalized linguistic elements and rules are designed for speakers to use by earlier generations, and to use language in speech perception and production does not demand the decomposition and reconstruction of language system. That is the task for the conscious analysis of language, such as made by

linguists. It is to be argued that real speakers may work according to simple non-linguistic principles, using various means common for general mental functions such as imitation, analogy, and automatisms. In the following I discuss and argue against the 'linguistification' of speaking. Thus the following assumption about the events involved in speech processing, present in contemporary theories, is to be challenged:

While we have only an inkling of what these events might be, it seems clear that they will involve several levels of linguistic structure. (Cutler and Fay 1978:x)

7.2 Is speaking sentence production?

In previous chapters a functional and dialogical approach to spoken interactions was argued for. It was emphasized that utterances are made in order to achieve something. But is a spoken utterance only an external manifestation of an internal sentence? This is what is commonly argued. This assumption is discussed in what follows.

Sentences - written or spoken? Even recent psycholinguistic papers hold the view that speech perception and production are processes that deal with sentences. Dell (1990:317), in an article on slips of the tongue, writes about "a sentence to be spoken". Newmeyer (1991:102) discusses speech processing as "sentence production and comprehension". Claims like these actually imply that what people speak are sentences. Here, it is suggested, in opposition, that as the notion of sentence is derived from written language grammars, it cannot really be applied in psycholinguistic study.

One classic definition of sentence is that it is "the expression of an idea", and it can be argued, that it is basically a written expression of an idea. A written sentence with its elaborated syntax and its orthographic conventions, such as capitals, points, and commas that mark its boundaries and units, is a fairly clear-cut and easy-to-define thing. Sentence is a notion that developed within written modality. Linguistic and visual means that laid stress on its unity and conceptual clarity were also generated as a parallel development. Thus sentence is both historically and practically

written. It is simply not identical with thought (a notion of conceptual sphere) or with utterance (a notion of spoken language).

There are certainly similarities between thought, utterance and sentence. There are such qualitative differences in them, however, that it is simply not justified to consider them as different degrees of one underlying proposition only. Thus, utterances are spoken primarily for the ear, for a present listener, and for situational reference. Sentences, on the other hand, are written for the eye, for a non-present receiver and for a more generalized reference (see eg. Linell 1982). The structure of a sentence is therefore necessarily different from that of an utterance, and this should also be recognized in psycholinguistic research.

Nevertheless, sentence has been the centre for linguistic inquiry since the 'Chomskyan revolution', and since then, there have been few attempts to do without the notion of sentence in theoretical linguistics. Sentence was also triumphantly brought into psycholinguistics by the generative school. "What was missing was sentence" wrote Gough and Diehl (1978:247) about the pre-transformational studies that were focussed on semantic and lexical issues. From then on, psycholinguistic experiments were made in order to verify the linguistic hypotheses.

The experimental research concerned with speech processing was -and is - as a rule focussed on literary sentences. The following sentences, for example, are random samples picked from psycholinguistic experimentation:

*The butcher is smarter than the baker.
He caught the rabbit before he jumped the stream.
The ballerina captivated a musician during her performance.
The child gave the mother the cat.
Cynthia saw that Joe put the key under the doormat.*

It can be pointed out that these sentences are not likely to appear in spoken conversations. One might guess that these 'prototypical' and 'complete' sentences that illuminate a linguistically interesting point appear primarily in foreign language textbooks and linguistic tasks. From the point of view of interaction, they are poor. Real speakers work on the principle of co-operation and on the assumption that their hearers are able to interpret their environment and make inferences. From an interactional point of view, there is no need to speak in the informative and descriptive sentences that are grammatically 'complete', such as one so often sees in experiments, and

unfortunately also in language teaching. In real interaction, people complete each other's utterances in both a formal and functional manner.

Sentence production was given a psychological framework by the influential work of Miller, Galanter and Pribram (1960). Their discussion of plans in human behaviour clearly also affected the notion of linguistic plans. Linguistic plans came to be seen as hierarchical processes in which sequences of linguistic operations, which were to be performed, were subject to control. Speech production was seen as a serial process in which speakers turned their ideas (or, 'propositions') into deep structures of sentences, which were transformed into surface forms by the performance component. Garrett (1975), for example, and most others 1970s and 1980s models, invariably regard speaking as a matter of sentence production.

The idea of speech as sentence generation has certainly been modified since the 1960s. When new research areas, such as discourse analysis, were gaining ground, they were also brought into production theories. Clark and Clark (1977:224), for example, try to relate the notion of sentence to the frame of discourse analysis, and the hierarchical plans a speaker is supposed to have include both discourse plans and sentence plans. A recent textbook of Levelt (1989) avoids the use of the word 'sentence', using the notion of speech act instead, but reference is often made to very sentence-like speech acts.

The argument that sentences are psychologically real seems to go hand-in-hand with the approach that is represented by formalists (as opposed to functionalists or in some cases, cognitivists). The formalist approach involves, for example, the claim that "syntactic patterning is largely characterizable by a set of irreducible formal principles" (Newmeyer 1991:3). Thus the rules of syntax for a formalist are universal, and therefore innate. As such, a commitment to the notion of sentence usually also implies an underlying commitment to a theory of language, which emphasizes the autonomy of syntax, and its relative independence of the external factors.

It is obvious, however, that the utterances in spoken language are widely different from the sentences of linguistic theories and textbooks. This fact is usually dismissed on the grounds that spoken language forms do not really count in theoretical descriptions, since they are only derivations of the mental 'canonical' or 'ideal' sentences. The external observable

variation is described as 'mistaken', 'illogical', 'unfinished', 'elliptic', or 'deviant'.

This is the argument of Itkonen (1989) who advocates the notion of sentence in a critique of conversational analysis. He argues that such terms as ellipsis or deviation must imply the existence of the canonical form of the sentence. Deviation must be a deviation from something, and this something must be a 'correct', 'full' sentence. What Itkonen (1989) fails to see is that 'deviation' is a conventional name, given within a particular tradition of linguistics. When a linguistic tradition bases its concepts on the notion of a canonical sentence, there is hardly another alternative to name a variant that does not correspond to the ideal of complete and correct.

Nevertheless, also spoken utterance can be chosen as the reference point of analysis. If utterance is the 'unmarked' norm, then other types of expressions, which appear in genres and modalities like writing and drama, could be called, for example, 'elaborated utterances'. In doing this, we have made a simple trick of turning things the other way round. 'Sentences' are now removed from linguistic phraseology, and we can talk about 'utterances' and explain how these utterances can be developed and modified into 'elaborated utterances'. This view also places the sentences out of the human mind and puts them back into the realms of written language and social values which is where they belong.

It has to be noted that it is not impossible for speakers to speak in sentences. It is one of the effects that written language has on our spoken acts, and spoken utterances can certainly resemble written sentences. The feedback effect of writing into speech was noted also by McLuhan (1964:162) who wrote that literacy "has flattened out educated speech till it is a very reasonable acoustic facsimile of the uniform and continuous visual effects of typography".

Linguistics is done by people who are often highly educated, and equally often highly sophisticated language users and analyzers. All linguists are competent speakers and writers of what Jacob May (1985: 71 ff.) calls 'Academese'. Linguists, in spite of their claims of descriptivity, obviously tend to consider 'language' primarily in terms of Academese. Although it might be practically impossible to undo the influence of the literary tradition, and to imagine "what an essentially non-written form of language is like",

as Harris (1980:18) argues, some hints about the non-literary mode can be found in any spoken interaction, however literary it may be.

A grammar for utterances. Actual spoken conversations have been given considerable attention in research within the last few years. The philosophical grounds for a dialogical approach have been discussed in eg. Markova and Foppa (1990). Functionalists have emphasized the importance to study meaning and function (see eg. Halliday 1973). Much data and new insights have been produced by the work within *conversation analysis* (see eg. Hakulinen ed. 1989). New importance for spoken forms has also been provided in 'grammatical functionalism'. This endorses the argument that grammatical patterns and forms are *motivated* by various semantic and pragmatic functions that are related to the discourse. *Emergent grammar*, for example, emphasizes the role of discourse factors in the emergence of grammatical categories and relations (see eg. Hopper 1988). Thus a certain grammatical structure can be motivated by a certain pragmatic discourse function: a need to gain information may lead into the generation of grammatical structures that signal question. In all, the formalist view of autonomous and innate grammar, which views sentence-as-a-structure as its focal concept has become increasingly criticized (see also Joseph and Taylor eds. 1990). Functionalists see the grammatical system of a language as motivated, not arbitrary.

The utterances of spoken language vary. They range from very short and automatized responses to reflective and lengthy monologues. For the present purpose, no formal definition of an utterance is attempted. The utterances, as they are in spoken language, vary according to their length and nature, and thus, they are inherently fuzzy with regard to their boundary, but also, with regard to their function. Thus, a definition of an utterance, from the psycholinguistic view, would necessarily need to allow for this fuzziness. It is stressed, however, that external utterances are necessarily related to underlying *functions*, not to underlying *forms*.

Interjections, fillers, and vocalizations, which are usually dismissed by linguists, are also utterances to be accounted for. They clearly have a function in conversation, since they can be used as feedback signals (see Hakulinen ed. 1989: 98-113), turn-taking signals or 'processing pauses' (ie. time allowances both for the speaker to plan, and for the hearer to interpret). They are used for a purpose, and they fulfil that purpose.

Utterances are thus made to such a length as it takes to fulfil a function in a given situation. Thus shortish and 'nonverbal'

utterances may fulfil a similar function as a longer verbal ones. A vocal signal *Mmm!* can be developed into a longer verbal utterance, such as *That's nice!* or *How clever!* or *I thought your talk was simply marvellous!* Questions can be answered with a nod or a *Mm!* or a *Yes!* but answers can also be developed into long and complex utterances that explore the background and consequences. Thus there is a variety of different expressions for essentially the same function, but they differ as to their length and information according to the requirements of the situation.

Longish and complicated spoken utterances also step over the borderline of what is called a sentence. Consider, for example, the following excerpt of a spoken monologue (an unpublished experiment in which subjects were asked to describe a picture).

EXCERPT 1.

niin täson semmonen kuva mison tommonen ää urheilullinem mies / henkilö / pukeutuneena / amerikaj jalkapalloilijan / asuun / haavi kädessä / perhoshaaavi tuulessa / heiluen /siinä /yrittää / koomisesti / ottaa perhosta kiinni mikä on tommosen / lintuverkon päällä missä se lin- öö /verkossa on myös tommonen tai tossa häk- häkissä on /lintu / ja se on tämä henkilö on tämmösessä urheilukentällä / mison eioo yht- ket- ketääm muita tyyppjä ja tuola taustalla näkyy maalausteline

well here's a picture in which there is um a sporty fellow /person/ dressed / as an American football player/ with a butterfly net in his hand / a butterfly net / flying in the wind / trying to /in an amusing manner/ catch the butterfly that is on a / bird net in which the bir- um/ in the net there's a or in a cage there's a/ bird/ and this person he is on a sporting ground / on which there are non- no- nobody else to be seen and at the background you can see an easel

The speaker starts with a meta-discursive statement saying that he has got a picture which he has to describe. Then he looks at the picture and picks up the things he considers most central. He first describes the central (male) figure in the picture and his qualities. He, however, connects his bits of description in a manner, which is not typical for written language sentences. The grammatical connectors (eg. relative pronouns, *and*, *or*) are used in a non-literary manner throughout the whole sequence. It is difficult to find boundaries between grammatical structures: his flow of speech moves from one structure to another in a fashion which is problematic, if seen from the point of view of written syntax. Prosodically, the above sequence sounds like a unity. Both the

intonation, speech rhythm and very short pauses throughout this sequence imply this. Sequences like the one above do not correspond to any grammatical entities. The question is: are speakers supposed to generate sentences at all? If they are, why does their performance component invariably turn sentences into non-sentences?

A theory of speech, however, has to account for the above sequences as well. A theory which works with functional and situational tools explains these utterances more efficiently. Speakers simply do what is relevant in order to manage the situation and to complete a certain task. The above speaker produced this utterance, or a set of utterances, in accordance with the directions he received. The cues he needed for internal processing were present both in the picture, and in his own notions about this task: he described what he saw, in an order which seemed relevant.

The following excerpt is taken from a dialogue. It is an example of fairly formal spoken interaction, and speakers are educated speakers of 'Academese', a professor (M) and a graduate student (F):

EXCERPT (2a)

F: rajaamista siis nii/ joo/ siis tuntuuko teistä nyt hypältä idealta se siis että se automaattistuminen tai tää rutinoituminen tai tää ois sitte se -

M: noo kun minusta k- minusta kyllä tuntus se

F: nii joo mm

M: että sä niiku ottasit se siis siis öö s.. käsittelisit niiku siitä näkökulmasta yrittäsit niiku mieltä

F: joo joo joo

M: täm- just tämän sinun ongelmasi kannalta niin uudelleen sen aineiston just suhteessa tähän kontrolloitu automaattinen öö siis siihen problematiikkaan /mm/ i- il- ei tarte välttämättä siis mennä niin hirveesti sinne fonologiaan kuitenkaan

F: joo

F: to restrict yes I see /yes/ well do you think it is a good idea I mean that the automaticity or routinization or that would be the-

M: well you see what I think is that

F: right yes mm

M: that you should take well mm mm you should approach it you should try to think

F: right right right

M: from the point of view of th- from your point of view I mean that a reanalysis of the data with regard of the mm this is issue of control and automaticity mm witho- w- so that you would not necessarily go into phonology excessively however

F: yes

The excerpt is from an active discussion in a linguistic research seminar, where the participants are specialists in the area. The task is to clarify certain issues involved in a particular research project. The manifest utterances, however, are far from clear. In the first line the graduate female speaker starts with : *rajaamista joo nii* 'to restrict yes I see'. The utterance, which would be elliptical in the sense of written language norms, is perfectly functional from the point of view of the discourse situation. The speaker not only echoes the previous speaker, but summarizes the theme of the preceding sequence. Her external utterance also demonstrates an internal process: speakers observe the situation and its relevant points, and formulate their own reactions accordingly.

The speaker goes on to formulate an explicit question: is it a good choice to limit the discussion of her paper to the automatic processes in language? However, she never succeeds in formulating the question completely, if we consider her language on syntactic and grammatical terms. As a matter of fact, nobody finishes it. However, the participants all obviously know that this was a question. The chair of the seminar begins to answer before she has finished.

The chairman does not proceed in a linguistically immaculate manner either. First he does what can be seen in terms of 'taking the floor to himself': he starts with a *noo* 'well' and his following words imply various processes operating in parallel. First, he introduces the function of his following utterance: *minusta kyllä tuntus* which says that it is his opinion that is going to follow. At the beginning and also throughout his turn, he also gives 'hedges' that are functional from a social/interactional point of view. Thus the use of the conditional mood and certain modifiers imply that he does not give orders, but suggests certain procedures

in a polite manner (for the interactive elements of academic discourse, see eg. Luukka 1992).

His expression is naturally also an answer to the unfinished question of the graduate student. He is going to affirm the view that her thesis should be focussed on automatic aspects of speech processing, but he also wants to add an extra comment: that she should not discuss phonology too closely. His verbal progression, however, appears quite clumsy when analyzed out of context. He attempts several alternative expressions, repeats himself, and abandons some alternatives. While he is speaking, the female speaker gives frequent and enthusiastic feedback signals: the first *nii joo* probably signals that she is giving up her own turn: 'please go on'. The second series of *joo joo joo* with a level pitch are signs of receptive listening, and the final *joo* with a falling pitch is both a recognition of the chairman's comment, and a signal for her wish to have the next turn as a speaker. In written language the exchange above would be something like follows:

EXCERPT (2b)

F: Well, do you think it's a good idea to restrict my discussion to the automatic aspects of language processing?

M: Yes, but do not go into phonology in detail.

We should pose ourselves, as psycholinguists, a question. Why should it be assumed that the internal reality of speech production is more adequately described in terms of the latter (2b) than the former (2a)? The relations of (2a) and (2b) are usually seen in terms of (2a) (ie. the real utterances) being derived from an internal machinery that is able to produce sentences like (2b). The internal processor is seen as a sentence-production machine, not as an utterance-production machine. Is it not evident, however, that the sentences like (2b) are only elaborations of utterances like (2a), and that utterances of the (2a) type should be used as a norm of what speakers really produce?

It is obvious that the production of spoken utterances is not to be described in terms of formalist grammars (ie. autonomous, arbitrary and innate). The patterns that are present in spoken utterances result from various processes that are generated as highly situational responses. The individual speaker primarily works with the situation. S/he considers its social elements, the flow of the conversation and the information to be dealt with. These processes do not produce sentences, but utterances. One of

the things that makes utterances different from sentences is the on-line character of the processing.

Most everyday conversations are also rapid exchanges by nature, and it can be argued that time plays an important part in utterance planning. Speakers face a complex task in considering how and what they are going to say. The situation changes all the time, and a new task is faced in every couple of seconds, or even in a shorter time. In the written mode, on the other hand, writers usually have time to formulate and pre-edit their messages before they actually put their ideas into writing. Thus the written and spoken modalities differ also temporally: the time that is allowed for pre-planning is different.

Conventionalization within a language system, and automatization or routinization for an individual speaker thus seem to play a far more prominent role in speech processing than is usually assumed to be the case. There are systematic conventionalizations in a language system, and the cues for producing correct syntax and morphology for an utterance are not in the internal grammar, but in the actual situation.

Thus, for example, the actual morpho-syntactic patterns that are observed in spoken language are motivated by the functions to be expressed, and cued by the various factors that are present in the situation. The element of imitation, echo and conditioned behaviour is not to be excluded from these processes. If we think, for example, of the sequence of a question and its answer, it can be suggested that the question is one of the basic functions of conversation. Therefore, it is obvious that syntactic, morphological, and prosodic devices, along with more indirect means, were developed with the help of which questions could be presented. Finnish speakers, for example, can choose a construction of a verb plus a question particle and reversed word order (as in eg. *olet+ko sinä?* 'are you?') to express a question. The permanent linguistic structures (*forms*) that are conventionalized in a language are thus dictated by the underlying *functions*.

Once a question structure is actually manifest, however, in the form of an external utterance, it sets certain requirements for the next turn. According to the rules of co-operation, the flow of conversation presupposes that questions are answered. Thus, a question determines that its hearer should take the next turn. The content and structure of the answer are not random either. Responses echo the meanings that are present in questions but also their structures. A question that addresses the hearer in the second

person (*Oletko valmis?* 'Are you ready?') presupposes an answer, and the structures that are possible include eg. the use of the first person (*Olen.* 'I am'). Although these examples are extremely simplified, they hopefully serve to show that spoken interaction is not only a dialogue on the functional and meaningful level, but also on the 'grammatical' and structural level. Some of the cues used by speakers for the production of correct syntax and morphology are present in the previous turns and utterances.

Speakers are not involved in the production of linguistic monologues, but in the production of social dialogues. Halliday (1987) compares the structure of conversations to a *choreography*. Conversational talk is a like a choreography for two persons engaged in, for example, a waltz. The participants have to agree that they are doing a waltz (ie. the principle of co-operation), but they do not have to know the exact rules of how to do it. They do not have to be equal either: one can know the steps better, or be a more experienced dancer altogether. They may dance through the socially determined sequence either successfully or clumsily, but whatever one does, it has an effect on the other. The dancers have to be responsive: they cannot make it two individual performances.

I have argued this far that a theory of speech production cannot rely on those linguistic and grammatical concepts, which were created within a formal analysis. The sentence is a good example of such. Thus, if we accept the functional emphasis, the notion of a sentence as a psycholinguistically real entity seems to be false. The popular idea that speakers make sentence-sized linguistic plans, which the articulatory organs then execute, is to be rejected. Instead, it is suggested, that speakers 'plan' speech in an interactive manner, considering the requirements of the present situation, and choose such means that fulfil the required function. In the following chapter I deal with the issue of the internal plan of behaviour from an interactive and functional point of view.

7.3 Intentions and plans

People do not speak for the reason that they happen to own a linguistic processor, with which they can produce sentences. They

may speak because they have something significant to say. They may speak when it is customary to speak, or when it is socially desirable to speak. They may speak when they have to speak: when they are questioned, for example, or when it is their turn to say something. They may speak to argue, to express comfort, to show their competence, to explain, or to play.

What kind of intentions underlie the manifest utterances of speakers? Do speakers have a particular intention, and is this intention a linguistic plan? In this chapter the relations between external utterances and internal intentions and plans are investigated. Slips of the tongue are highly relevant in this discussion. It is usually argued that slips of the tongue are unintentional elements, and, in this, dysfunctions or deviations from the abstract mental speech plan. Thus Fromkin (1973:13), for example, maintains that slips of the tongue produce "utterances which in some way deviate from the intended or target utterance". This definition involves the popular idea that speakers have a fairly straight-forward speech intention, ie. a pre-planned mental abstract image of their future utterance.

7.3.1 Intentions: Plans or interpretations?

It is evident that intention has commonly been seen as identical with an abstract linguistic plan. Below I will discuss both the concepts of plan and intention. It will be shown that the verification of these hypothetical constructs, and their application in psycholinguistics, is inherently problematic.

Linguistic plans. The general idea of how a linguistic plan is like involves a series of abstract linguistic processes that are carried out before actual motor execution. This means that speech is planned beforehand in chunks before it is actually spoken. The size of the internal speech plan is usually regarded as equal to some outer sequence of speech, such as *tone group* (see eg. Halliday 1967) or with a linguistic concept, such as *sentence* (see eg. Garrett 1980). As a rule, slips of the tongue are seen as breakdowns which occur during the production of these internal plans.

It was argued above that sentence, as a production unit, is psychologically unreal. Furthermore, it was argued that to see what the internal processes of speech are like, we must turn to the

study of the actual observable utterances. Here, speech production is not seen as a process that transforms clear-cut mental propositions into clear-cut mental linguistic plans that are turned into manifest language which is regarded as messy, clumsy, hesitant, slurred, and slovenly. As the excerpt (2a) in the previous section demonstrated, speakers do not necessarily have a sentence form ready, and perhaps not even an idea ready when they start to speak. Speaking may also mean a formulation of an idea and an attempt to grasp a 'proposition'. Thus the 'internal grammar' for speaking do not resemble the generative machinery. As Thompson (1991:96) argues, the claim that grammar somehow mysteriously exists for speakers to be deployed can be questioned. If the idea of grammatical processing that is functionally motivated and cued by various situational and conversational factors is to be approved, it seems also relevant to question the idea of abstract internal linguistic plans.

It is evident that speakers do consider their future actions, even linguistic ones. It can be argued with reason that speakers have expectations, anticipations and plans about both their own actions and ensuing consequences. On social and functional levels of discourse, it is clear that speakers 'know what they are going to do'. These plans cannot, however, be envisaged as formal and structural blueprints for a future action. Although functional blueprints may be common, formal blueprints seem to be typical for certain situations, and for certain types of behaviour only. Thus it is possible for a speaker to devise a fairly accurate blueprint of what s/he is going to say - when there is time to do that, or when the situation demands it. These blueprints may also be voiced mentally in the form of vivid impressions in internal speech. These preplans cannot be common, however, in a rapid exchanges of everyday discourse in which the turns may change very rapidly.

On the whole, it is to be argued that ordinary language in ordinary conversation is essentially unplanned (see also eg. Ochs 1979). Similarly, Searle (1989:65) draws a distinction between premeditated actions (which result of some kind of planning in advance) and spontaneous actions (without any prior reflection): "For example, in normal conversation, one doesn't reflect on what one is going to say next, one just says it". The quality and amount of reflection varies according to the task and the speaker. To exchange greetings, for example, is an easy task, and the reactions and actions of the speakers are habitual and possibly echoic. To discuss one's own emotions, or to try to grasp a new idea might be a slow

and painful task, both as a matter of thought and as a matter of language. Pre-reflection, or preplans for speech are not necessary in these cases either, as it possible and probable that the speakers reflect whilst engaged in the talk, and this appears to be the case when we regard what spontaneous spoken utterances are like (cf. Excerpts 1 and 2 above). Thus speech is produced essentially through on-line processing, not as a procedure of executing mental blueprints.

Intention: linguistic or non-linguistic? William James (1890) observes that the intention of saying a thing

is an entirely definite intention, distinct from all other intentions, an absolutely distinct state of consciousness, therefore; and yet how much of it consists of definite sensorial images, either of words or of things? Hardly anything! Linger, and the words and things come into the mind; the anticipatory intention, the divination is there no more. But as the words that replace it arrive, it welcomes them successively and calls them right if they agree with it, it rejects them and calls them wrong if they do not. It has therefore a nature of its own of the most positive sort, and yet what can we say about it without using words that belong to the later mental facts that replace it? The intention TO SAY SO AND SO is the only name it can receive. One may admit that a good third of our psychic life consists in these rapid premonitory schemes of thought not yet articulate.

James (1890) deals here with some points that remain highly relevant. In his terms, intention is very elusive and difficult to pin down - when the words for it "have arrived", we find it difficult to discuss it in any other terms than with the words that replaced it! This seems to mean that although intention is essentially non-verbal, it has to be discussed in language. It is precisely at this point that linguists tend to make an error: because an intention is discussed with the same words that are used to make it explicit, linguists have tended to assume that intention is actually an internal image of the external verbal utterance. This notion of intention as a linguistic plan is implicit in several definitions. It can be found in eg. Boomer and Laver's (1973:123) definition of the slips of the tongue: "A slip of the tongue...is an involuntary deviation in performance from the speaker's current phonological, grammatical, or lexical intention".

But is it really possible to have such *linguistic* intentions as those to which Boomer and Laver (1973) refer? Objections to this notion can certainly be made. Searle (1989:16) advances a different view of intention and intentionality, according to which

intentionality is a means which "our mental states are directed at, or about, or refer to or are objects and states of affairs in the world other than themselves". Thus particular intentions belong to human intentionality but also "beliefs, desires, hopes, fears, love, hate, lust, disgust, shame, pride, irritation, amusement" (Searle 1989:16). Intentionality, in short, is aboutness: it is about the world that is apart from the mind. The aboutness is particularly relevant in the present discussion: the particular intentions that speakers may have in interactions, can be better described in terms of *standpoints in relation to circumstances* than in action plans for production of a given structure.

Thus intentions refer to the perceptual, interpretative and functional level: not to the formal linguistic level. Syntactic, morphological or phonological intentions do not exist; speakers cannot intend to produce a syntactic structure, since the structures are not actually *about* anything. Structures are only means, while what is intended must be something functional and meaningful.

Speakers interpret a situation in terms of the external behaviours they are exposed to, but also in terms of their own background, knowledge and state of mind, and, then, react accordingly. If I hear somebody saying *Hello!* to me, I see it as a friendly social gesture and I believe that it is polite to answer: so I may smile and/or say *Hello!* My 'intention' is there: in the interpretation of the situation and in my chosen reaction, which in this particular case, is a very rapid and automatized one.

It appears that underlying internal states are actually very different from the linguistic utterances in which they manifest themselves. Intention is thus only a term that can be used for the process (or various parallel processes) *in which the speaker receives external signals, gives them meaningful interpretation, defines her/his own relation to it, and decides to act in some way*. This internal state is essentially and intrinsically more complex than the utterance that will summarize it in actual speech.

Dialogical intention. It also seems that up until now intentions have been primarily regarded from the point of view of the speaker only. As Stamp and Knapp (1990) point out, it is also possible to examine intentions from the hearer's point of view, and also, from the point of view of the interaction as a whole. They refer to the different views as those of *message encoder, message decoder* and *interaction*. While psycholinguistics has focussed almost exclusively on the encoder view, the decoder view has been explored to some extent within social psychology and speech

communication, in which the listeners' attributions about the speakers' intentions, motives and reasons have been studied. Stamp and Knapp (1990) themselves argue for the interactive approach, in which the interaction is regarded as a whole.

In the above, intention was tentatively defined as a viewpoint that the speaker adopts in a particular situation. This idea embeds the notion that inherently perceptual by nature as they may be, intentions in spoken interactions are not generated in a random fashion, but as a response to something. This means that the concrete situation is somehow embedded, or summarized, in the intention. Thus the situation is not *outside* the intention, but *inside* it. One consequence of this view is that intentions are not individual only, but may be on common ground. In ordinary speech situations, for example, it is possible that *any* of the participants will express an obvious intention. Intentions 'float around'. The slips of the tongue that were discussed in chapter 6.2.3 above are excellent examples of this. The situation is there for any one of the participants to speak about, and sometimes the roles and turns become confused because of this: lines are stolen and misplaced just because they are common property, not individual possessions.

Thus it seems that some parts of the cognitive environment (and consequently, some intentions) are common, while some parts may be less shared and still others exclusively individual and guarded. It appears that certain things can be said aloud by anybody, while some would be likely for one speaker only, and thus unique. Some intentions do not have to be voiced at all: they can be mediated by nonverbal behaviours, or just by common understanding. Intentions are definitely not only the speakers' own possessions, while the quality and quantity of the shared intentions may vary according to the situation.

Social and functional intentions. If the intentions that underlie utterances of spoken interaction are not individual and linguistic, it is worthwhile to analyze them in a social and situational framework. It can be speculated that when a speaker enters any situation, s/he observes, in a routine manner, the socially relevant points, such as the features connected with his/her interactant, the location and perhaps, the genre. It can be hypothesized that the speaker then tunes the following sequence of interaction accordingly, and new adjustments are made only if there is some special reason for doing so, such as the appearance of new participants. This could be called a *situational standpoint*. When a certain situational standpoint is assumed, certain verbal

and nonverbal choices also follow. Sometimes these choices are quite unconscious and automatized, while at other times speakers might consciously try to modify their verbal and nonverbal behaviours according to the requirements of the situation. Thus speakers have social intentions, that are evoked according to the standpoint taken. Speakers may intend to be polite, assertive, aggressive, or submissive; they act according to what is regarded as suitable for the given occasion.

But as the situation proceeds, the speakers have to react to each and every turn, and continue the exchange of turns in relevant terms. What the speakers do is to that they constantly take new information in, and define their relation to it. They either understand, or do not, they agree or disagree, they want to ask more and specify, or perhaps challenge a view presented to them. Thus along with each new turn in a conversation, speakers have to assume *conversational and functional standpoints*. The conversation has to be kept going and speakers have to react to what has been said. An example of a functional intention is a question or an apology: a speaker *intends to ask*, or *to apologize*. Evidently, the social and functional intentions are layered: functional questions can range socially from tactful hints to severe interrogation.

When we arrive at the level of literal verbal expression, the issue of intention is more problematic. It is sensible to argue that a speaker may intend 'to ask', for example. But does s/he really *intend* to produce a certain kind of linguistic structure? I think this question can be answered with a hesitant 'yes'. In principle, 'linguistic' processing is carried out by activating conventionalized routines (such as conversational routines, phrases, idioms, vocalizations, gestures, or words). The character of this activation process, however, appears to be rather passive and involuntary. If the linguistic processing is ultimately passive in nature, and not an active search process, it is consequently problematic to claim that linguistic structures would be *intended*.

However, the presence of selection and decision in this process may make it justifiable to speak about intentional procedures. Almost any social and functional intentions can be manifested in more ways than one. Speakers can decide, to a certain amount, what kind of linguistic choices they make, and what kind of words they use. When there are options for the speaker, and when choosing between the options produces a meaningful effect,

the speakers do something intentional. What is relevant, is the claim that only meaningful things can be intended.

This view also seems to imply that only those processes are intentional that speakers are either conscious of, or which they can become aware of. Intentions would then refer to either conscious or potentially conscious decision-making that speakers are faced with when they enter a situation (*a situational standpoint*), when they are supposed to say something (*a functional standpoint*) and when they make decisions about their choice of words (*a meaning standpoint*). This view of different layers of intention also allows for the fact that any actual utterance may involve several levels and layers of meanings: social, functional and meaningful choices are collectively present in one external utterance.

7.3.2 Unintentional acts

In the following I discuss some of the problems that are present in the definition of slips of the tongue as unintentional acts. Searle (1989: 58) discusses unintentionality using an intention to take a walk in London's Hyde Park as an example. This intended action, however, necessarily involves also actions that are non-essential to the intention: the walker may be moving towards Patagonia, shaking his hair up and down, wearing his shoes, and moving a lot of air molecules. These non-essential things happen side by side with that which is intended, and they should not be regarded as meaningful.

It thus appears that only those slips may be thought of as unintentional which are against the social, functional and meaningful intentions of the speaker. This view would seem to be present in everyday language usage. People say things like: *I did not mean to sound arrogant*, *That's not what I meant*, or *I meant x, not y*. There are two things that are important here. One is that these judgements are made on the basis of meaning, and the other is that they are made as a posteriori judgements. Consequently, we can argue that intentions behind verbal utterances are not only meaningful, but also that they are available for the analysis only through the verbal utterance itself.

This view also seems to indicate that, for example, most slips that occur in respect of articulation (see chapter 9.2) are not really

unintentional. They are simply nonessential or irrelevant to intention, and thus, side-effects of speaking, similar to those things described as non-essential in the case of Searle's (1989) example of the Hyde Park walk. Although these things happen in the act of speaking, they are not significant for the speaker's intention, unless they happen to intrude on the area of meaning, as sometimes is the case when misarticulations produce real words. It is no more sensible to talk about a non-intentional phonetic slip than to argue that a walker in Hyde Park did not mean to stumble and fall.

Furthermore, the above definition of intention also suggests that we cannot draw a sharp distinction between intended and unintended things. This may be for two reasons. One is that the speaker works with various social and linguistic elements which occur on varying scales of consciousness, and even the speaker him/herself does not obviously always know what s/he did and did not intend. The other is the fact that intentions cannot be given a strictly individual interpretation: interaction is a process of expressions and impressions, and of messages and interpretations. It is self-evident that speech involves, and is accompanied with, such behaviours which are not meant to be meaningful by the sender but which may be interpreted as meaningful by the receiver. The habitually less conscious elements, such as nonverbal behaviours, are especially prone to differences of interpretation and understanding. Speakers may nonverbally signal their 'real' feelings although they do not necessarily intend to do that. On the other hand, the audience may read such meanings in nonverbal behaviour that are sincerely different from those intended by the speaker. Is only such behaviour intentional, which is consciously and deliberately intended? If something is neither particularly and deliberately avoided nor intended, can we still call it intentional?

Thus persons can 'leak' such messages or parts of the messages that they have not intended to make public. For instance, emotions, feelings and attitudes they do not intend to express can nevertheless become manifest in voice or in bodily communication.

(137) A young mother is pushing a pram upwards a slope. It's hot, she is in a hurry, and there is a car driving towards her down the narrow slope (on a pedestrianised area) which is blocking her way. The woman who drives the car, opens the window in a way and asks in a nasal drawl which way to go. Exasperated, the speaker hears herself answering with a perfect imitation of the woman's drawl.

(ISD)

In this case the speaker did not intend to show how annoyed she felt, but her anger leaked into the utterance. Possibly her reaction was simply too hurried: she did not have time to control herself. Thus she started to speak 'in the middle of' her reaction to what she considered annoying external circumstances. She considered the driver foolhardy - driving in a pedestrian area - and arrogant - not even offering an apology. According to her own rules of polite behaviour, however, she should not have made her annoyance visible. What she 'intended' to do was to give a polite answer informing the driver that she was in the wrong area. But although our speaker could manage a polite verbal utterance, the irritating vocal mannerism of the driver was transferred directly into her own speech.

Thus it would seem that hasty actions like the above are usually judged as 'unintentional' by the speakers. The speakers may be overwhelmed by some situational or emotional factor, so that they are not able to fully anticipate the outcome of their forthcoming utterance. Angry utterances, for example, may be intentional in the sense that the speaker intends to express his/her strongly negative feelings, but unintentional in the sense that s/he may not intend to hurt the feelings of the other. It is no wonder that angry responses are often described by speakers in terms of involuntary behaviour (just as slips of the tongue): 'it just slipped out of mouth', 'I did not think at all'.

This would indicate that speakers need some time at least to know themselves what their intention really is. Often, however, when the voice begins, the intention may not be ready, since long pauses in conversations are generally not allowed. Thus speakers often formulate their intention, while they are talking already. In moments of surprise, embarrassment, and haste, however, speakers are often compelled to react before they know what they really think about something. This fact also seems to be responsible for causing some slips of the tongue.

This further implies that we will have to consider not only the intention to express, but also the *intention not to express*. Some slips are made when a speaker says something s/he has been careful to avoid. It thus appears that speakers not only make decisions about what they want to say, but also about what they do not want to say. Often these decisions deal with cultural and conversational rules. Thus some of the rules concerning the social and conversational behaviour are given in the form of *directions and recommendations*, while others are *constraints or inhibitions*.

The above view makes it easier to explain certain slips. In the following example (138), we have a case in which there may be two mental processes that are basically contradictory. The speaker clearly has a personal interpretation of the particular situation, but the social rules of politeness inhibit her personal view. Thus, in a way, her own impression of the situation is in contrast with what is suitable and socially adequate to express.

(138) *A woman visits her friend in hospital. Her friend suffers from jaundice, and her skin is considerably yellow in colour. Although the speaker is actually worried about her friend, she decides to cheer her up with her observation that the whites of her eyes do not appear as yellow as earlier. She starts with: -Sun silmänkeltuaisethan on jo.... (pro valkuaiset) 'The yellows of your eyes are looking much better!'*

Similarly, it is easy to understand why the speaker in the example below makes a slip. He is addressing his elderly aunt at her 85th birthday reception. His mind may be occupied with impressions about old age and - perhaps - of the impending death, which, however, are clearly not to be expressed in this situation. He starts his speech addressing the old lady as

(139) *Rakas vainaja!* 'Our beloved (deceased) friend!'
(ISD)

These kind of slips appear to indicate that speakers themselves also seem to apply interactional and dialogical criteria for their intentions. Thus many speakers recognize that slips like these reflect ambiguous or controversial inner feelings. Speakers recognize that although the resulting utterances may be adequate in the sense that they partly correspond to their own mental viewpoint, it is just as obvious that they should not have been externalized. Thus a lapse is not only a lapse when it does not describe the speaker's mental state adequately, it is also a lapse when it does, but is unsuccessful in the social sense.

It can be argued that an intention to do an act is available to us primarily in the form of an analysis of that act. Thus a judgement of unintentionality is a value statement about a given act. Speech utterances are evaluated in respect to how well they summarize the speaker's internal viewpoint, but also in respect to how successful they are as utterances. Thus speech utterances are judged against various criteria: whether they are verbally correct, pragmatically meaningful, or socially appropriate, but also whether they seem

complete, partial or false descriptions about the internal standpoint of the speaker. It can be argued, however, that speech utterances are essentially partial descriptions, and that an utterance seldom, if ever, is the sum total of an internal state. One verbal utterance is one *possible* formulation for a particular mental standpoint. In addition, speakers are able to evaluate, if needed, both their *motives* (what they did 'because of') and *goals* (what they did 'in order to') that underlie a particular utterance. Thus speakers both evaluate their utterances and attribute them to certain factors. In that, they deal with scales and degrees rather than dichotomies. Thus utterances are seldom either correct or incorrect, but rather, located at some point on the scale of correctness that the speaker uses. Similarly, an attribution about a cause of a detected fault may be judged on scales of volition, deliberation, and intention. There is no sharp distinction between intentional, and unintentional: *an utterance is intentional to a degree.*

Thus it seems that the notion of unambiguous and individual (perhaps linguistic) intention that underlies an utterance does not offer an adequate ground for the definition of various slips in human interaction, and that it could be replaced by the idea of *evaluation-and-attribution*. This is what Goffman (1981) argues in his analysis of radio talk and its errors, where he makes a distinction between 'knows better' and 'does not know better' errors. By that he means that some utterances can be immediately judged as incorrect or inappropriate by the speakers themselves, and the speaker knows whether s/he made the error on purpose, by accident or because of, for example, negligence. These cases are usually referred to as slips, or lapses. On the other hand, there are mistakes and faults that are not detected by the speakers, and thus the attributions are generally made by the audience. These cases are, respectively, errors or mistakes. In this framework, the definition of a slip is brought from the hypothetical internal sphere of intention into the more accessible process of evaluation-and-attribution, which can also empirically studied. The issues of how speakers react to their errors, how they judge their gravity, and what factors they attribute them to, obviously deserve further research. To conclude, any slip, error, blunder, faux pas, mistake, failure or mismatch really exists only after somebody has detected it: either the speaker, the hearer or an outside observer, and it is named only after the underlying motives and abilities are estimated.

8 WORDS

"We never say or hear words ... but ...what is true or false, good or bad, important or unimportant, pleasant or unpleasant" (Volosinov 1973:70)

Above, it was argued that intentions are not linguistic in nature and that speakers are not in possession of linguistic preplans, such as a sentence plan. However, it is also necessary to explain how the internal thought process is turned into external conventional language, as seen in everyday utterances. The next issue is how this 'linguistics' is done.

Certain key issues about the character of linguistic processing have been given considerable attention in the areas of psycholinguistics, linguistics, cognitive science, or artificial intelligence research. One of these is a consideration of the serial vs. parallel nature of the processes involved in the production of utterances. The issue of how much automatism is involved in linguistic processes has also been discussed, and finally, the nature of the grammar itself has been one focus of interest, and hypotheses about its 'syntactic' vs. 'lexical' character have been proposed.

In the present thesis, a basically *parallel* view of processes is accepted. The idea of linguistic processes being parallel is by no means new. A strictly *serial* view of linguistic processes has been

widely criticized (see eg. Sajavaara and Lehtonen 1980). Strictly serial processes do not adequately describe either the production or perception of speech, for various reasons (see eg. Cole and Jakimik 1980). Consequently, nearly all present models are based on the idea of parallel processing. At present, the ideas related to the PDP (=Parallel Distributed Processing), or the Connectionist, framework are among the most influential (see eg. McClelland and Rumelhart (eds.) 1986a; 1986b). My arguments also strongly suggest a parallel approach. What I do not argue is that these parallel processes are run by different 'linguistic' components, or modules, but instead argue for a basically 'non-linguistic' parallel processing system.

The possibility that linguistic processes would vary during speech production, and that it would be possible to use situationally and individually different strategies, has been given surprisingly small attention. Although the issue of *automatic* vs. *controlled* processes has been studied to a considerable degree (since the appearance of Shiffrin and Schneider 1977), its applications to psycholinguistics are still on a minor level, and it has been studied primarily with regard to foreign language learning (see eg. Bialystok 1991). In the present thesis, I draw a distinction between what is automatized and non-automatized in speech production, and alongside, a distinction between skilled and unskilled speakers (or novices and experts).

Discussion on the nature of internal linguistic processes has moved increasingly towards *lexically-based* grammars. The role of the lexicon and words in speech processing has been emphasized in theories and models that may, as such, be quite diverse: both in theoretical linguistics, language learning, language teaching, and, in psycholinguistics. The lexical psycholinguistic models include Morton's Logogen Model (see eg. Morton 1970; 1979), Marslen-Wilson's Cohort Model of (see eg. Marslen-Wilson 1980) and also the ideas presented by eg. Sajavaara and Lehtonen (1980). The role of word level as an interface between thought and articulated speech is emphasized in the present thesis as well.

The mental, or pre-articulatory, processes of speech production can be described in terms of different approaches and responses of speakers to the situational factors, as argued above. These pre-speech processes can stay fully internal, or, they can be summarized in the form of external speech. Thus externalization is preceded by a decision to speak, gesture, or write. That decision is not necessarily, or even usually, preceded by a careful plan. On the

contrary, it was argued that speakers habitually speak without a prior 'linguistic' plan.

Any decision to speak, however, requires the use of 'language'. It will be suggested that the verbal means that are required for speech are already available, and that these available elements are the 'lexical' items of the particular language. These are made available and activated by situational and discursive factors. The external situation itself will evoke topics and subject matters activating related vocabulary. The activation is further continued by the flow of the discourse, which triggers off new vocabulary in an on-line fashion. Thus word activation is a process that never stops. To perceive something, to think about something, and to talk about something all mean that a certain kind of vocabulary is made active.

It is also suggested that the particular kind of word knowledge that is needed is available as an immediate reaction according to the particular modality required. A speech situation activates articulatory knowledge, and writing the written forms. The connection between our internal thought process and the various linguistic expressive skills is, as a rule, a direct and immediate one, although it is not certain whether this connection would better be referred to as an 'association' or 'automatized' connection. In the following chapter, however, I discuss the idea of word activation in more detail, and illustrate my arguments with examples of slips of the tongue.

8.1 The metaphor of mental lexicon

First, I discuss the notion of lexical processing as presented in contemporary psycholinguistics. Most psycholinguistic models hold the notion that word production involves a process in which words are 'searched' from the 'lexicon' that is situated in the long-term memory, and 'brought' into the short-term memory, or into the working memory. The imagery (ie. the metaphors that are used) gives an impression of the lexicon as a location, in which the lexical items (as objects) are preserved.

Furthermore, it is generally assumed that these word objects have different abstract properties. Thus words have been seen, since de Saussure, as essentially two-sided entities that consist of semantic and phonological information. Some theories also equip words with syntactic properties. The assumption of distinct semantic, phonological and syntactic qualities of the word objects has been interpreted to imply that there are either different storages for different kinds of information (eg. semantic vs. phonological), or that there are different 'access' or 'retrieval' systems for obtaining different kind of information. Thus, according to a popular metaphor, words are searched from the 'mental lexicon(s)' on the basis of semantic and/or phonological information.

Thus, separate storages for phonological data (eg. a mental 'alphabetical', or phonologically arranged, lexicon) and for semantic data (ie. semantic networks; conceptual networks) were hypothesized. Mental lexicons were thus regarded either as 'mental dictionaries' or 'mental thesauruses' (for a closer discussion, see Dufva 1989). Sometimes a notion of 'mental encyclopedia', a dictionary involving the encyclopedic knowledge of the world, was also assumed (see eg. Clark and Clark 1977:411), and syntactic divisions for the lexicon were also proposed (see eg. Fromkin 1973: 233 ff.). At present, semantico-syntactic aspect is accounted for by eg. an assumption of separate 'lemma' knowledge, as distinct from 'lexical' (or 'form') knowledge (see eg. Levelt 1989:187).

The notion that different qualities of word would signify different kinds of storage systems is wide-spread and there is a large amount of literature that deals with the possible number and properties of the alleged storages. It has been proposed, for example, that there is one single lexicon for all lexical items: a master file, which is divided into three access files for semantics, phonology and orthography (see eg. Forster 1976). Separate listings on the basis of word frequency have also been projected. Glanzer and Ehrenreich (1979), for example, suggest that speakers are equipped with a high-frequency word list in addition to their full unabridged lexicon. A still further question is, of course, the nature of foreign language mental lexicons (see eg. Palmberg 1988), their relation to the native lexicon(s) and their possible arrangement. Each property of the word would appear to require its own storage system. However, to multiply the number of mental storages *ad infinitum* seems neither psychologically real nor

theoretically economical. One possible solution is to reject the whole notion of a mental lexicon. The metaphor of word objects that are located in lexicons is not necessarily inadequate.

The majority of the scientific and experimental knowledge gathered about the internal lexical processes of speakers implicitly relies on the above notions that objectify mental words and lexicons. Furthermore, the theoretical hypotheses about lexical processes are tested on the basic assumption that different (linguistic) modalities (eg. speaking, hearing, writing and reading) can be derived from a common core of underlying 'linguistic' processes. Duly, many psycholinguistic experiments that make claims of dealing with lexical processing actually deal with one aspect of it only. Experiments in which subjects recognize visually presented decontextualized words or non-words may simply not have much to do with the lexical processes of actual speaking, and results should be generalized with care.

What this amounts to, is that we actually do not seem to have much information on the internal processes that people work with when they produce and understand speech in normal spontaneous interactions. My aim here is to discuss how slips of the tongue might help explain the nature of lexical processing, such as it appears to be in spontaneous spoken interactions. Thus, a theory of lexicon that is based on processes and functions, not on items and locations, is offered.

8.2 Lexical processing as a means-dependent procedure

The mainstream psycholinguistic research clearly draws a basic distinction between the contents of the mind and its processes. Words ('the contents') constitute a part of the declarative knowledge, or the 'what' knowledge, as distinct from the procedural or the 'how' knowledge. The mental representations of words are supposed to be static and invariant feature complexes, which are internalized during the process of language acquisition as abstract representations of semantic, syntactic and phonological linguistic properties. In the following I will discuss the nature of mental representations of words: whether the representation is

static and invariant, and ultimately, whether it is 'linguistic' and 'abstract'.

First, it can be argued that a dualistic division between declarative and procedural knowledge is not necessary. Kolers and Roediger (1984), for example, argue that the contrast is psychologically ill-founded. They attempt to analyze so-called declarative knowledge in terms of the acquisition and use of that particular knowledge. In this, their attempt is also to analyze human abilities in terms of skills or procedures. This would also mean acceptance of the view that human knowledge is essentially *means-dependent*.

In the following, I attempt to apply the arguments put forward by Kolers and Roediger (1984) in the analysis of how words are mentally represented. First, we will have to consider the means by which lexical knowledge is acquired, perceived and used. It is evident that words are learned and used in a dialogue. It is also evident that we perceive and use words through the sensory-motor mechanism, and with the help of higher-level cognitive processes. Thus a means-dependent description of word knowledge involves both the (universal) sensory, motor and cognitive means and the (specific) cultural and linguistic context that the speakers are exposed to. The word knowledge is dealt with in two primary channels: the auditory channel (ie. hearing) and the articulatory channel (ie. speaking). In addition, word knowledge can also be acquired through visual input channel (ie. by written words in reading or by gestures in sign language), and it can be turned into its own manual motor productions (ie. writing, typing, signing in sign language).

Finally, it has to be noted that the notion of word in psycholinguistics should be different, and perhaps wider, than in theoretical linguistics. One criterion for a 'speaker's word' would be that it has a function in discourse. Thus vocalizations, such as *eh orum*, are clearly words. Another characteristic of a psycholinguistic word might be that it is learned as a whole. Thus routinized, or automatized, articulatory sequences, such as compounds, idioms and even phrases would also be speaker's words. Wordness thus seems to be a property which also can be defined by degrees, not by any one criterion alone. The present definition for a psycholinguistic word lays emphasis on function, and a high degree of routine in its execution. It is obvious, however, that different criteria would apply in theoretical structural analysis.

Acoustic, articulatory and written words. My argument is that the discussion on the mental representations of words has been influenced by written language bias. Phonological representations of words are conventionally described as segmental matrices, in obvious parallel with the external written words of the alphabetic script. Thus the present idea echoes an age-old idea of human soul as a piece of wax, into which the memory traces are imprinted. A means-dependent view would argue for the primacy of spoken code in mental representation.

Some properties of spoken utterances at first look appear to be highly problematic for the notion of word. For example, it seems that words do not really acoustically 'exist' in normal spontaneous speech. Pollack and Pickett (1963), in an early experiment, showed that when words are cut out of their natural contexts, and subjects are asked to recognize these words, they succeed only in about half of the cases. Several other experiments have also shown that words do not have unambiguous boundary signals in spoken utterances (see eg. Cole and Jakimik 1978; 1980). This seems to substantiate the view that speech perception does not function on a word-by-word basis, ie. in that words might be produced and perceived as discrete entities. In addition, it is obvious that words have a large number of possible acoustic variants. The variation is related to speakers so that persons sound different according to sex, age, social status, physical and mental characteristics, and geographical location, and further variation is caused by various circumstantial factors.

Thus, spoken words are not unambiguous either with regard to their boundaries in spoken language, nor with regard to their internal acoustic pattern. Nevertheless, people seem to 'hear words', and in fact, it seems impossible not to hear words, as Marslen-Wilson and Tyler (1980) have pointed out. Even if people are asked to concentrate on acoustic and phonetic properties of the signal, they cannot help hearing it as words, or meanings. To sum up: although the acoustic code gives a rather poor representation of words, people still cannot help hearing them.

It appears that the relevance of the imperfect and variable nature of the acoustic signal has not been given proper recognition in psycholinguistic theories. Thus the discrepancy between the acoustically variable and non-discrete acoustic words, and the generally smooth process of understanding speech, mostly in terms of words, is not adequately explained. Explanation can be found, however, in the assumption that there is no need for the acoustic

code to be perfect, since understanding speech is not identical with decoding the acoustic signal.

This is actually suggested, either directly or indirectly, in several theories. One example is the Relevance Theory of Sperber and Wilson (1986), which suggests that people do not understand speech in terms of decoding the verbal code, but in terms of making assumptions and inferences on what is relevant for their communicative intents. Thus the acoustic signal is only one aspect in the process. This correspondingly appears to imply that the requirements that are set for the acoustic signal are different. The fact that acoustic signal is only one of the factors which is required in order to gain understanding is a solid justification for the 'sloppy' production and acoustic 'mess' of the messages. Acoustic signals should involve a *sufficient* amount of information, not 'full' information, since they are not 'decoded', but rather, used for inferences.

If and when people are able to understand 'incomplete', 'variable' and 'non-discrete' words, it is natural to assume that production is similarly 'imperfect' by nature. We know that speech is rich in phenomena that are described as 'coarticulations', 'reductions', or 'assimilations'. Now, we can pose one further question. What should we need an internal invariant representation for? Most present psycholinguistic theories seem to operate on the idea that abstract mental representations of words are complete and perfect in nature, and become corrupted by the process of actual articulation. Thus 'phonological' abstract knowledge is supposed to be invariant and complete, but it is - without exception - turned into the incomplete and variable words that appear in actual utterances. This process of transformation from abstract ideal to concrete imperfect could, however, be exchanged for notion of internal representations of words on an acoustic and articulatory basis.

It can be reasonably argued that invariant phonological representations are not required in order to understand or speak a language, and therefore, it is ill-founded to argue for their inclusion in a theory of psycholinguistics. Moreover, the whole notion of the abstract (segmental) representation is connected to alphabetic and printed external words. Printed words in alphabetic script are precisely those unambiguous entities that have distinct boundaries, and that consist of discrete smaller particles (ie. letters) than the phonological representations have been argued to be.

Written language certainly has to be accounted for in psycholinguistics. The 'lexical knowledge' that persons employ has to involve skills of reading and writing too. The skills typical for written modality, however, have to be widely different from those typical for spoken modality. An alphabetic word is a discrete entity that consists of smaller discrete entities, which are visually received, and manually produced, for the benefit of an audience which may not be physically present. Spoken words, however, are articulatory patterns, variant by nature, and produced for the benefit of another person in a face-to-face interaction. In perception, words are acoustic shapes which the hearer is attuned to detect in the acoustic signal in order to infer the meaning of the particular utterance.

Ultimately, it is proposed here that the internal knowledge of words is means-dependent. Thus the mental representation of words has to allow for concrete and variable features that are acoustic and articulatory in nature. The features are not invariant and abstract linguistic features. A realistic internal representation would be what we could call articulatory and acoustic, not 'phonological'. In this, a distinction between the declarative knowledge of the word and its procedural use need not be made. It can be argued, instead, that the internal representation of the word is the potentiality to articulate it (in speaking) and the potentiality to recognize it (in hearing).

Culture and concepts. But speaking also has to involve the skill to use the acoustic and articulatory words in a relevant manner. This is the knowledge which can be referred to as conceptual/semantic and pragmatic/functional. This involves both what the articulatory and acoustic knowledge refers to and how and when to apply this knowledge.

Thus, words of a language may refer to the external physical or social reality by, for example, naming objects and actions and their relations, or social institutions. In addition, words may also refer to the process of discourse itself, so that some words are grammatical (eg. connectors) and metadiscursive means (eg. hedges or modifiers), which are used to indicate relations within discourse. The individuals of a culture learn how to refer to reality in a way that the culture determines. This means that speakers of a language learn to categorize the reality with the help of their language by naming things, and they learn to use these names in a pragmatically appropriate manner. Thus speakers can recognize external objects as familiar and they are able to connect this

recognition in an immediate manner to the respective articulatory knowledge.

One further implication of the means-dependent view is that a specific language may play a more important role than is generally accepted. The universal perceptual and cognitive processes are, in practice, filtered through a particular language and culture, so that children do not acquire a language-independent view of the world, but a language-dependent one. The culture we live in, and the language that we listen to give us a map of reality. We both learn to categorize, and to behave according to the rules of our own culture. This view has been either implicitly ignored or explicitly denied in linguistics since the time of Sapir and Whorf (see eg. Whorf 1956).

It has to be noted, however, that to allow language-specificity does not mean the acceptance of linguistic determinism. Languages and cultures only give the point of reference, so to say, but the individual is free to expand and experiment with it, or to assume new systems, as happens in foreign language learning. Neither does this view involve a denial of the universal component, which is present both in particular languages, and the sensory, motor and cognitive capacities of human beings. Although people everywhere share certain perceptions, emotions and social behaviours, it is not to be assumed that everything that underlies language production is universal. On the contrary, I suggest that both universal, language-specific and culture-specific features are always present in an act of speaking.

A detailed discussion on the nature of conceptualization is beyond the scope of the present thesis. It is evident, however, that internal knowledge about reality (including the verbal languages) basically comes through two different sources. One source is auditory: the verbal language itself which gives us directions of how reality is spoken of. The other source is visual, which may also involve things that are not spoken of.

There is justification, however, in drawing a distinction between what we conventionally call 'thought' and what we call 'language'. Their different ontogeny was also suggested by Vygotsky (see eg. Vygotsky 1931/1982; Kozulin 1990). It could be argued that the capacity to internalize things and relations of the world (the thought) originally has visual roots. On the other hand, the human communication system was and basically still is acoustic, or what is heard. Thus it could be suggested that conceptual structures originally developed according to the laws of vision and

in terms of higher cortical processes, whereas the development of the verbal code first occurred in terms of the lower functions in cooperation with the areas controlling the ear and tongue. To put it very crudely, human languages came to be as they are, when the vocal communicative system was combined with the visual 'thought' system. Internal (visual) worlds, were thus combined with external acoustic signals.

From a contemporary view, it seems that thought and speech are two different qualities, which have, however, an intimate relation. Nevertheless, all thoughts are not easily turned into speech, and speech might well be considered thoughtless. This may sound like a quip, but there is an essential point embedded here. Thus the internal pre-speech process can be described both with linguistic and non-linguistic terms: it is both 'thought' and 'language'. Sometimes the language that is needed for speech is present in an immediate manner, which means that some verbal reactions might be so habitual that people do not have to think of them at all. To respond to a conversational routine, for example, is a fast and 'thoughtless' process, in which the verbal response is immediately ready to be articulated. To contrast with, some states of mind (eg. emotions) may not have direct and conventionalized expressions in language, and thus may require much 'thought' before they are expressed. Furthermore, some situations or tasks may be so novel for the speaker or so complex for him/her to operate with that they are hard to express in articulated speech. Thus in some cases the relation between the internal thought and external language is direct and automatized, while in some cases it is indirect and cumbersome.

Any actual speech situation will evoke and activate potential and possible words in a continuing fashion. Thus, words are not 'searched for', but rather, made available as a continuous and involuntary process. In spoken interactions, the availability primarily means the activity of an articulatory word pattern. Thus the process is associative and direct in nature, and the underlying force is to be found in the concrete circumstances, not in 'linguistic patterns'. The activation of words is done on the basis of the cues given by the environment, by the speaker's internal associations, and by past discourse. In the following I will discuss this process in the light of slips of the tongue.

8.3 Trouble with words

Individuals are able to process several thousands of words. It has been estimated that an adult educated speaker of English, for example, has an active vocabulary of about 30 000 words, but estimates range even to 150 000 words (Aitchison 1987). A frequency dictionary of Finnish, the material of which has been compiled from both written texts (fiction, non-fiction, magazines) and spoken discourse (radio broadcasts) offers a corpus of c. 44 000 items, out of which c. 13 000 are classified as core vocabulary words (see Saukkonen, Haipus, Niemikorpi and Sulkala 1979). Estimates about actual size of an individual vocabulary are difficult to give, but Aitchison (1987) remarks that individuals tend to estimate the number of words in their vocabulary much lower than actual. In any case, there are thousands of words that speakers use very actively, and still, thousands or tens of thousands of words that speakers are able to recognize.

The actual production rate of words in spoken interaction is fast. Speakers of English are able to produce words at approximately 2-3 words per second speaking in a normal speech rate (see eg. Levelt 1989:199). An average rate of reading aloud in Finnish is approximately 120 words/minute, and the speech rate of spontaneous speech is estimated to be remarkably slower (see eg. Lehtonen 1978; 1979). This makes a rate of approximately 1-2 words per second. The Finnish figure is thus slightly lower than the English one, primarily due to the different character (and length) of what are counted as words in Finnish and what in English.

The process of word activation and their application into utterances must therefore be quite rapid. The process which is normally rather smooth, is usually explained by the assumption that the mental lexicon is well organized according to phonological, semantic and/or syntactic principles. Thus word items are supposed to be ordered so efficiently that they are easily found, or accessed, from the lexicon. An alternative argument is that the rapidity and smoothness of the process is due to the involuntary and automatic nature of lexical activation.

It is not uncommon, however, that problem situations also occur in this respect. Thus, for example, the route between thought and expression may be blocked. A block might be momentary and appear only in the form of a short hesitation pause. Sometimes,

however, the block will remain, and a state may follow, during which a person is incapable of finding the correct expression, which, however, s/he 'knows that s/he knows'. This state is generally called the tip-of-the tongue (TOT) phenomenon (see eg. Brown and McNeill 1966; Dufva 1989).

The point which is most relevant for the present discussion, however, is the fact that speakers often choose an incorrect or inadequate word. These lexical slips of the tongue will be discussed in the following. Lexical slips of the tongue have been estimated to be fairly uncommon, as compared to other kinds of slips. According to the estimate of Fay and Cutler (1977), for example, they account for 20-25% of slips of the tongue in all. Ellis (1980) gives an estimate of one lexical error against three 'phonemic' ones. Nootboom (1973:152) claims that the number of these 'higher-level' errors - as compared to phonemic errors - is small.

Traditionally, lexical slips of the tongue have been classified into two main categories. Semantic slips (ie. selections of a semantically related word instead of the target one) form one category, while phonological slips or 'malapropisms' (ie. selections of a phonologically related word instead of the target one) form the other one.

Semantic slips of the tongue. A semantic substitution is supposed to occur when a speaker selects a nearby item in a semantically organized dictionary:

(140) *sul on aika notkee ranne ...eiku nilkka*
'your wrist is very nimble... I mean your ankle'

Semantic lexical errors have been discussed by eg. Hotopf (1980), Ellis (1980), Nootboom (1973), Fromkin (1971) and Tweney et al. (1975). Semantic slips have been used, for example, to attest to the psychological reality for semantic classes and semantic features (see eg. Fromkin (1973: 235 ff). Fromkin (1973: 237) suggests that the mental lexicon of a speaker involves a semantic section which is divided into 'semantic classes'. The semantic classes are represented as semantic features. These involve 'addresses' for the particular words that fit the features, and slips are supposed to occur when, for example, a semantic feature is accidentally changed to its opposite. Thus a change from eg. *brother* into *sister* is taken to be a semantic feature change. It will be suggested that such analysis is both clumsy and lacks explanatory power. The slips which result in a word of 'opposite' meaning can be explained in far

more adequate terms as situationally motivated errors. Consider the following slip of a female speaker.

(141) *ja minä oon ton sulhasen veli* (pro *sisko*)
'and I am the brother of the bridegroom' (pro 'sister')

This slip is supposed to involve one semantic feature change, in which the semantic feature of maleness has been changed into its opposite. However, to give an explanation in terms of a hypothetical internal structure, is to treat the substitution as an arbitrary change. As an alternative, it could be argued that this particular slip is pragmatically motivated and its causes can be found in concrete circumstances.

The situation in example (141) above is the wedding reception of the speaker's brother, so that the whole conceptual sphere and vocabulary of 'brothers', 'sisters' and other relatives is activated as such. Furthermore, the relation between the speaker and the bridegroom can be described in basically two ways: she is either 'the sister of the bridegroom' or alternatively, 'the bridegroom is her brother'. A hesitation between these pragmatic choices may be one of the factors that motivate this slip, and there is no reason to search for an explanation for the slip in hypothetical and arbitrary structural changes. Quite similarly, a 'semantic feature change' of the following example can be explained in terms of the discourse situation.

(142) *It is a 'parents' night' in a kindergarten. The majority of the parents who are present are mothers. In an introductory round of speech turns parents are supposed to introduce themselves and tell, whose mother or father they are. 'I am Mari's mother', 'I am Jani's mother', 'I am Janne's mother'. Then a father says: 'And I am Aura's mother...'*

We do not need a structural explanation for a slip that is so obviously echoic and situational. The semantics that the speakers are involved with here is not within the semantic component of the internal grammar. It is embedded in the situation itself, and slips of the tongue are given a better explanation, once we incorporate a functionalist basis.

Phonological slips. Another category of slips of the tongue is phonological. A phonological substitution occurs when a phonologically close item is used instead of the target one, as in the following example uttered by a child.

(143) *niin tai siihen tulee se hai* (pro *täi*)

'yes, otherwise it (ie. the hair) could become infested by sharks' (pro 'lice')

Phonological errors or malapropisms have been studied by eg. Aitchison (1972;1979), Fay and Cutler (1977), Hurford (1981), Zwicky (1979;1982) and Aitchison and Straf (1982). Malapropisms are supposed to be such incorrect selections from the mental lexicon, which indicate its phonological organization. Thus both semantic and phonological substitutions are given a similar, formalist explanation. In looking for a functionalist explanation, one possible means is to investigate whether a similar internal process really underlies both error types.

One argument against a formalist explanation is that it does not fully count for the fact that some substitutions are more probable than others. It is true that contextual influence is acknowledged and discussed in the formalist analysis. Nevertheless, context is invariably discussed in terms of being language-external, so that in certain circumstances also non-linguistic and non-structural influences may intrude into the verbal utterance. According to the arguments that have been presented above (see chapter 6.1) the context, however, affects the spoken utterances as a matter of course. The context is inherently tied with the production of an utterance. The following slip, for example, is motivated from several points of view.

(144) *karnevaalijuna* (pro *festivaalijuna*)

'carnival train' (pro 'festival train')

The two words, which are similar in sound, are also similar in meaning and in grammatical form (a common suffix *-aali*). Is this slip to be analyzed as a phonological, semantic or grammatical slip? For this, there is no unambiguous answer. Also, a consideration of words that might serve as phonological substitutes for the intended 'festival', such (word-initially similar) candidates as *feromoni*, *feministi*, *feminiini* and (word-finally similar) candidates as *filiaali*, *triviaali*, *bakkanaali*, *kannibaali* can be found. These candidates may not be impossible as a substitution for *festivaali*, but they do not seem as probable as the *karnevaali*, which was chosen. It is evident that semantic substitutions are not only semantic, just as phonological are not only phonological. A theory which builds its arguments only for the structural similarity, does little to explain the substitution process.

As well 'semantic' as 'phonological' knowledge have their own function in human speech processing. Thus, 'phonological' knowledge is essentially perceptual. Hearers are tuned to interpret, while speakers are tuned to mean. Duly, when people speak, they essentially activate words on the basis of their function and meaning, and thus use their 'semantic' knowledge. 'Phonological' knowledge, on the other hand, is primarily employed in speech perception. This view, however, seems to make it difficult to explain why phonological slips of the tongue, or malapropisms occur in speech. Why would sound-related words become activated, if the speakers only need semantic activation in order to speak? To find an answer to this, we should turn to look for evidence of any peculiarities of malapropisms.

An evident characteristic of malapropisms is that they seem to be typically connected either to *novel lexical knowledge* or *novice behaviour*. They seem to be typical for learners (eg. children, adolescents, foreign language learners, less educated speakers), and they typically occur in the use of passive vocabulary. Although it is not impossible for an adult speaker to commit a malapropism when using a frequent word, it seems to be much more probable that a child using an infrequent word, will make one. It seems, for example, that malapropisms, which have no semantic or pragmatic connection to the target word, are especially typical for children. Consider the following examples, spoken by children:

(145) *mä haluun tota aprillia* (pro *makrillia*)

'I want that April too' (pro 'mackerel')

(146) *se oli mitä se nyt oli kolestrolisoppaa* (pro *minestronesoppaa*)

'we had that what-do-you call-it cholesterol soup...' (pro 'minestrone')

(147) *laitetaan ne donitsit* (pro *damaskit*)

'let's put the doughnuts on!' (pro 'tights, leotards')

Foreign language learners also seem to make frequent errors that are based on the sound similarity between two words of the target language (see Dufva 1989). The following slips (or language errors?) were produced by non-native speakers of English.

(148) *I would appropriate* (pro *appreciate*)

(149) *in the personal council* (pro *permanent*)

Grönholm (1991), in her analysis of mistakes in Finnish essays written by the Finland Swedes, found that Swedes made lexical mistakes which were based on the formal similarity of words only. Some of her examples are given below (see Grönholm 1991:144):

(150) *on vain yksi pieni vaikutus se on* (pro *vaikeus*)
 'there is only one small effect' (pro 'difficulty')
 (Grönholm 1991)

(151) *viime syksynä tapahtunut maanjärjestys* (pro *järistys*)
 'the earth-ordering that happened last autumn' (pro 'earth-quake')
 (Grönholm 1991)

Adult native speakers also make slips like this when employing their passive vocabulary. The great majority of malapropisms occur in infrequent words. In Finnish data, this often seems to indicate a foreign loan, a member of a category called *sivistyssanat* ('culture words') in Finnish.

(152) *ja sitten tilanne kultivoitu siihen pisteeseen...* (pro *kulminoitu*)
 'and then the situation cultivated into the point...' (pro 'culminated')

However, we still have not answered the question of *why* novices and/or people using novel vocabulary tend to make more malapropisms. This might be explained by the assumption of a particular processing strategy that is typical for learners. Thus it could be suggested that learners tend to rely more than skilled persons on the *perceptual* strategies in their own production. Novices perhaps have to employ more intensive perceptual strategies to the observance of external circumstances, and also to the monitoring of their own behaviour than those who are skilled and have a number of automatized responses and routines to apply. This has been suggested with regard to children's speech behaviour, for example, so that children are supposed to rely more on the auditory feedback of their own speech than adults (see eg. Borden 1980; Kent 1981). If this claim could be generalized, it would imply that novices need to be more perceptually oriented than experts in order to ensure both the relevant interpretation of the incoming stimuli, and the appropriate execution of their own behaviour. Thus a malapropism might be a typical mistake for a novice speaker, because of his/her tendency to respond on the perceptual similarity only.

It might also be possible that malapropisms tend to be manifestations of an implicit problem situation. It was argued above that speakers usually have a number of possible words at hand, since word activation essentially is an associative process that connects pragmatic needs to potential responses. If the speaker, however, does not have the word immediately available, s/he will engage in a search. Since the speaker evidently knows the meaning and function s/he wants to convey, it is natural that the search process is phonological in nature. It is only the sound shape that is unavailable for him/her. Thus a search is always an exceptional procedure that is carried out only when there is a need for it, and this need is apparently, in general, for the sound shape of the word.

Thus a malapropism is seen here as a *covert tip-of-the-tongue case*, in which a speaker does not, momentarily, have access to the correct sound shape of the intended word. The difference between an acute tip-of-the-tongue state (TOT) and a malapropism is that in malapropism a (false) solution is found fairly rapidly and smoothly, while in TOT state a block is generated that prevents the access to the correct sound shape. The similarity between the mental states that underlie TOT states and malapropisms is obvious when one compares the slips to the sound associates of the target word that subjects are able to recall while in TOT state. Both malapropisms and TOT sound associates share certain salient (phonological) features with their target words, such as the initial and final segments of a word, its stress pattern and its syllabic structure (see eg. Brown and McNeill 1966; Dufva 1989).

The following examples are sound associates that were recalled by subjects in a TOT test (Dufva 1989).

TARGETS > SOUND ASSOCIATES

(153) *sekundantti* -> *debytantti, auskultantti*
'second' - 'debutante, teacher trainee'

(154) *pseudonyymi* -> *synonyymi, anonyymi*
'pseudonym' - 'synonym', 'anonym'

(155) *filatelia* -> *filantropia*
'philately' - 'philantropy'

(156) *symbioosi* -> *symposiumi*
'symbiosis' - 'symposium'

Adult malapropisms show a like pattern of similarity to their target words, as shown in the examples below.

TARGETS > SLIPS OF THE TONGUE

(157) *markiisi* - > *matriisi*

'marquise' - 'matrix'

(158) *improvisoida* - > *inspiroida*

'improvise' - 'inspire'

(159) *Spectrum* - > *Centrum*

'trade names'

(160) *mortadella* - > *salmonella*

'mortadella' - 'salmonella'

It is thus obvious that the words that are recalled by persons in TOT state are similarly *potential malapropisms* for that particular target word.

However, there is an alternative or perhaps a complementary suggestion for an interpretation of malapropisms as a covert TOT state. This is the assumption that that word activation process does not evoke only those which are topically or pragmatically appropriate, but also - as a routine - items that are sound-related. In these cases, the activation may also spread on the basis of sound features and not only on the basis of pragmatic and functional needs. Although this possibility is not denied, it could be argued that the central role of novelty and novice behaviour in these mistakes supports the plausibility of the covert TOT explanation, and that it could be argued that the spreading of activation to sound associates is a possible, but not a habitual procedure in the word activation.

To sum up, lexical slips of the tongue can, and should be explained as *motivated and functional*, not as formal and arbitrary errors. Semantic slips were explained by the fact that an overdue amount of semantically and pragmatically related words always are activated as a routine of any speaking process. Phonological slips of the tongue, on the other hand, were explained as covert word finding problems. Therefore, the difference that is observed in manifest slips (ie. semantic vs. phonological) reflects two different mental tasks, not two different organizations of the mental lexicon. The following discussion is on how the activation of words is done,

and how different activation cues are manifested in slips of the tongue.

8.4 Activation of words in interaction

Activation cues. When people talk to each other, they employ various cues that activate words. First, speakers have *expectations* of the social situations, and often particular areas of vocabulary may be activated pre-situationally already. The activation level of certain words, or groups of words, is increased whenever a certain situation is entered into. Activation may also be caused by the *external environment*. Thus speakers use their external environment to produce small talk utterances (*Lovely weather, isn't it?*), or to introduce new topics (*Look who's there!*). Speakers observe casually what goes on in their environment and turn their observations into speech, if relevant. The influence of the external situation is usually well under control, and irrelevant elements of the external situation are filtered from spoken utterances. Sometimes, however, lapses occur and the external situation may intrude into speech in an echoic manner. The following slip is an example of a simple transfer from an action the speaker was just doing.

(161) *A person is typing and is just about to type "%" when the phone rings. She answers it and says: Percent.*

Non-linguistic past or future actions may also be transferred into speech. The following utterance was produced by a speaker who had just finished placing wet clothes to dry on a clothes-line. When he remembered something he had to make a note of, he said:

(162) *mun täytyy laittaa se narulle (pro lapulle)*
'I must put it on the clothes-line' (pro 'I must put it down')

Thus here it was a preceding non-linguistic action that exerted an influence on the verbal expression in a new situation. Or, consider the following case of a double lexical slip, in which the

visual input of the speaker's environment, accompanied with the immediate discourse history, intruded into her utterance.

(163) *pistä se piirakka uuniin* (pro *puuro jääkaappiin*)
'put the pie in the oven' (pro 'put the porridge into the fridge')

The speaker first confused two different items of food ('pie'/'porridge') that were prepared that day, after which she confused two items of kitchenware ('fridge'/'oven') for the reason that these happened to be situated opposite to each other.

Thus, it is argued that the external physical situation is an influence on the word activation on a *direct* visual/auditory level but also on an *indirect* inferential level. Environment thus provides constant and normal cues for the activation of words. If the speakers do not monitor for the relevance and adequacy of these external elements, however, the environment may influence the verbal utterance in an irrelevant manner, and the outcome may be odd.

Topics are another means of word activation. In ordinary conversations, topics can be chosen on the basis of external circumstances, as described above, but also on the basis of the cognitive context with which the speakers are involved. The incoming stimuli of acoustic and visual nature may be directly turned into verbal observations, but they also may function as a reminder of other facts. A particular topic might be activated by the presence of a certain person, by a recent piece of news that is of common interest, or by a convention dictated by a genre. Thus various external and associative cues activate topics, which - parallelly - activate certain word areas.

The following examples of incorrect word selection show that topically related words are active and available for the speaker.

(164) *voiko se olla kraateri joka putosi* (pro *meteori*)
'could it be a crater that fell down' (pro 'meteor')

(165) *ranskan artikkelit* (pro *pronominit*)
'the articles of French' (pro 'pronouns')

(166) *ota suklaata* (pro *lakritsia*)
'take some chocolate' (pro 'licorice')

The above examples are one indication of the fact that the speakers do not 'access' one specific target word at a time from

their mental lexicons, but that they choose amongst those that are in a heightened state of activity.

Once a topic is started, word activation continues on its own terms, and topic shifts may turn the activation into further areas. While the conversation is going on, also the words that are uttered aloud may further activate other words. Thus it is not only the environment, and the topic, but also the *spoken discourse* itself that increases the activity of certain words and word areas.

It may be difficult to distinguish between which slips are caused by the external situation, and which by the topic or by the previous discourse, and this may not be theoretically necessary, as all these factors may be involved, or may overlap, in one external slip. This is normal when we assume that slips are caused by multiple factors, not by one factor only. Take the following slip for example:

(167) *millanen smetanan ohje siinä on?* (pro *stroganoffin*)
 'what kind of recipe do they have for smetana?' (pro 'beef Stroganoff')

The fact that the speaker used the word *smetana* was influenced by the facts that he discussed a recipe for the dish (external influence), that sour cream is used to prepare this particular food (experiential/pragmatic influence), and by the fact that the persons involved discussed food, and especially Russian food (topical influence). In addition, there is a - relatively slight - phonological resemblance between the words.

Consider also the following example that was spoken by a sports commentator reporting a bike race. Here we can find a similarly layered influence of topic, discourse history and formal similarity between two words.

(168) *ajokkijan painaa tytöillä n. 9-10 kilometriä* (pro *kiloa*)
 'the bike weighs about 9 or 10 kilometers' (pro 'kilo(gram)s')

A pragmatic functionalist explanation for the slip seems to lie in the fact that the commentator was also talking about the length of the bike race, and he had used the actual word *kilometers* before. Thus the word *kilometer* was in a very active state indeed, and was also picked for an unsuitable place, added by the factor of sound similarity. This also amounts to saying that certain slips are particularly motivated in a specific context, but not so motivated elsewhere. For example, if apples had been discussed, instead of a

bike, it seems that this particular substitution would not have been as probable.

(169) **omenat painavat 3 kilometriä*
 '*apples weigh 3 kilometers'

The following example is a case in which the target word and the slip are topically associated (*juoksu* 'run' - *hiihto* 'ski') but in which the immediate utterance context acts as an additional influence.

(170) *tossa Finlandia-hiihossa...mh...(laugh) tarkotin siis sanoo että juoksussa on monenlaista hiihtäjää*
 'in this Finlandia Ski Contest...(laugh) I mean in Running Contest there are all sorts of skiers around'

In the example *juoksu* 'run, running contest' is replaced with *hiihto* 'ski, skiing contest' because the speaker aims at using an expression that involves the idea of 'skiing': the expression is *monenlaista hiihtäjää* 'it takes all kinds to', which literally means 'all sorts of skiers'.

To conclude with, slips of the tongue are not seen as reflections of a process in which word items are searched for and brought from the lexicon to the working memory for the execution of speech. Instead, it is suggested that they become available for the speaker through the continuous flow of activation. The activation of words spreads on primarily pragmatic grounds, so that situation and topics evoke new areas and words. Also formal spreading, however, can occur so that a word may evoke its sound associates. Once an act of speaking is started, the activation is run on the basis of all contextual and internal factors that are present. The idea that words are accessed one at a time for a particular slot in an abstract linguistic plan appears to have no grounds.

The present notion involves the argument that in the first place the activation of words is triggered off by the particular situation and the particular task. After this, the activated elements may further activate other items that they are associated with. Normally and habitually many more words are in an active state than are actually selected in the spoken utterance. "A thought", said Vygotsky (1934/1962:150) "may be compared to a cloud shedding a shower of words". This abundance of material, and the presence of several possible options is one force behind the lexical slips of the

tongue. What have been described as semantic substitutions can be more usefully explained as intrusions of the active elements.

On the other hand, it was suggested that malapropisms can be derived from different background factors, and that they are manifestations of a case in which there is no available option for the expression of the impending utterance. Thus lexical slips are also produced for the reason that the route from thought to verbal expression is not automatic, and that the activation process has not resulted in proper means. Examples of similar problems can also be found in some other slips, which are termed non-ready utterances and discussed below.

Non-ready utterances. Some slips of the tongue suggest that the relation extending from the thought to a selection of a particular word is not always a direct one. Accordingly, it can be argued that lexical slips may also occur in the expression of an idea. Some occur, for instance, when speakers are either hurried or absent-minded and cannot find an adequate expression. Consequently, the resulting word or expression does not exactly cover the meaning to be expressed. Something about the quality of these slips speaks for the fact that a speaker *does not really select a wrong word* amongst the several options present. Rather, these slips seem to be examples of a difficulty to find an appropriate expression. Consider the following example (171):

(171) *kun me oltiin siellä kapakassa. .. (pro vierailulla, kylässä, juhlimassa, luona)*

'it was when we were in that pub' (pro 'at a party', 'visiting', 'out')

The utterance is used as a starter for a story. The speaker intends to tell something that happened at a party at someone's home, but uses a Finnish word that signifies a restaurant or a pub instead. The above slip indicates two interesting points. One is the fact that here the unspecific nature of an intention can be seen quite clearly. It can be imagined that the aim of the above speaker was to imply 'being out' and 'having a good time', and the location was only a minor point. Moreover, the subjective focus was on the story that was to follow. The other important point is that we have no reliable criteria for saying what the target word for that particular slip was, and in fact several expressions could be proposed which could have been 'correct'. Thus it can be argued that target words are also attributions: in some cases we have an obvious feeling of what we actually should have said, but in other cases the target, or

the correct expression is not so easy to define. Consider also the following example:

(172) *kato kun mä rikon tota* (pro *likaan*)
 'look at me! I'm breaking this' (pro 'I'm making this dirty')

This is an expression in which the speaker implies a general reference to 'causing a damage'. The speaker makes an apology for making the floor dirty with the matter she had brought in on her shoes, but she chooses an expression that implies an alternative type of damage: that of breaking something.

When speakers do not have a direct and immediate route to an adequate verbal expression, they can use several different strategies to cope with the situation. They may give it a new try and start a different expression, they may use nonverbal strategies, they may leave the expression for the listener to complete, or they may reject the whole message (communicative strategies, as used by foreign language speakers, are discussed by eg. Tarone 1980, Tarone and Yule 1987 and Suni 1992). It could be claimed that one (unconscious) processing strategy that native speakers employ is to use any word, and this strategy may also result in a slip.

Speakers can, of course, also coin words of their own. If a ready expression does not seem to be available, or does not simply exist, a speaker can create one. Children and language-learners often make own words. Similar situations may arise for an adult speaker, when the topic or situation is novel. Also, it could perhaps be suggested that certain languages, such as Finnish, also structurally favour word-coinage processes, since their morphological derivative means are rich. Children use freely their own derivatives, such as the verb in the example (173).

(173) *märättää* (from adjective *märkä* 'wet'; pro *kastella* 'make wet')

In the next example (174), an adult speaker looked at a damaged car whilst attempting to explain something about the damage, and when she could not find a proper word for 'the front', she improvised with a compound.

(174) *kato sen etu+perä on menny ihan lyttyyn* (pro *etuosa, etupelti...*)
 'look at its front end - it's crashed'

Sometimes these improvisations may fill a gap in the lexicon, and become potential words of language also in the

normative sense. The following example might be such an example. Finnish has an adverbial phrase *viime kädessä* 'ultimately' (literally: 'at last hand'), which was neatly turned into an adjective by the speaker, who had started his talk with an utterance structure that assumed an adjective, and an adjective he used, albeit an improvised one.

(175) *viimekäteinen* 'last-handed, ultimate'

Thus it is also obvious that speakers' improvisations may also work as a treasury of possibilities to create new words. The examples that tend to end up with the slips of the tongue collections are obviously not very successful coinages, whereas more conscious and more successful attempts are made within the official linguistic policy, and perhaps within poetry and advertising as well.

Above I have discussed lexical activation as an automatic process, which occurs *within* the intention, so to say. Thus the speaker's interpretation of the situation and the standpoint s/he adopts automatically establishes a connection to the words that are needed. The 'grammar' that provides for the correct syntax and morphology is also present in the situation, primarily in the previous utterances of the discourse that have been uttered. Thus what have been traditionally regarded as independent and separate components of 'language' (eg. lexicon, morphology and syntax) may be more adequately described in terms of processes that operate on the basis of discourse and conversational factors.

9 ARTICULATIONS

"Take care of the sense and the sounds will take care of themselves"
(Lewis Carroll)

In the above, words were seen in terms of holistic acoustic patterns (for perception) and automatized motor patterns (for production). The psychological reality of words as abstract phonological matrices of segments was denied. One further level of speech production, as hypothesized within psycholinguistics, is that of phonology/phonetics, which is supposed to deal with the linearization of abstract sound segments (or in short: segments). Sound segment is a term which is used to refer to a sound-sized unit of speech, but which has been also referred to in different contexts as *phoneme*, *phone*, *sound*, *sound segment*, or sometimes even a *letter*. In the following, the idea of the internal representation of words as a matrix of discrete segments and the idea of speaking as a process of segmental linearization is discussed and questioned.

9.1 Sound segments: Letters in disguise?

Written language has been a powerful influence on both linguistic analysis and psycholinguistic experiments, as it was argued above. The notion of sound segment is one further example. It may be suggested that sound segments appear so fundamental and central in the linguistic theory, since they are the basic ultimate entities of the alphabetic script, and the script is seen as an image of the spoken language. The idea that writing has effected our notions about linguistic entities is not necessarily new: it was discussed by Firth in the 1930s (see eg. Firth 1970). Similarly, Erik Ahlman (1939), a Finnish philosopher, argued that it might have been the writing that has lead people to see spoken language as consisting of independent and discrete entities (such as sounds, words, or sentences). More recently, Harris (1980:13) has attacked the literary bias of modern linguistics, considering also the segment, "that elusive and sacrosanct unit", that has found its way into the descriptions of the spoken word through the influence of written language. The present arguments clearly support the view by Harris (1980:8-9) of segments as "letters in disguise". The role of the segment both in the language system and in speech production deserves closer examination.

First, it has to be noted that the alphabetic writing system is not a picture of spoken language 'as it is'. It is evident that the principle of the alphabet is only one possibility for transforming a language system into a written form (for a survey of writing systems, see eg. Sampson 1985). Thus writing systems can be based on concepts (eg. pictograms), words or morphemes (eg. Chinese), syllables (eg. Japanese *kana*) and possibly distinctive features (eg. Korean). The alphabetic notation is only one possible transcript of language or speech, not *the* transcript. The notion that it would be, linguistically, the most accurate, appears to result from an ethnocentric view only. Alphabetic scripts are highly efficient as far as the literary technology (of different types of print) is concerned, but this does not make them 'psychologically real'.

It is often argued that alphabetic script would not have been invented if, to begin with, there would not have been any segments to hear. Thus Liberman and Studdert-Kennedy (1977) argue that the very existence of the alphabet is proof of phonetic processing, ie. of the fact that segments 'exist'. However, scripts are products

of historical development, and the position of the sound segment in present alphabetic scripts is not similar to what it was at an earlier stage. For example, the alphabetic code was preceded by a consonantal script, to which the vowel characters were added. This seems to demonstrate that a segmental analysis (ie. the analysis of language as a linear representation of discrete vowel and consonant sounds) was *not* present in the first phases of the alphabetic notation. Moreover, it appears to support the view that the notion of segment was not discovered, but developed. A similar argument can be found in Marcel (1978) who regards the alphabet as an essentially 'unnatural' system. Obviously all present alphabetic scripts are descendants of the same system. To contrast with, several independently developed syllabic systems are in existence around the world. If alphabetic notation is not 'natural', but a product of a conscious development instead, its existence cannot really be used as proof of the assumption that segments are present in spontaneous processing.

Thus there are two competing views on the relations of the alphabet and spoken language. One is the view that the alphabet was developed precisely for the reason that sound segments do exist in spontaneous speech (or perhaps, in language). The alternative assumption is that as the alphabetic script is consciously developed as a vehicle for writing, its entities result from a conscious analysis of the properties of speech. Thus the basis for the alphabet lies in the conscious perception and analysis of spoken language structure. However, what might be relevant from the point of view of speech perception and conscious processes, might not be relevant from the point of view of speech production and unconscious processes. Thus, the alphabet and its letters are not to be regarded as proof of psychologically real production entities.

In the following, I will give a brief survey of the evidence that is generally employed in arguments on the psychological reality of the segment.

Phonetics. It may be customary to think that phonetics proves the idea that the segment is a psychologically real entity. Phoneticians, however, agree that the actual articulation of speech (ie. the movements of articulatory organs) on an observable and measurable level, cannot be described as a series of discrete segmental positions. Instead, speech is a continuum of parallel and overlapping articulatory functions and movements. Speech sounds (such as we refer to them) are produced by means of several physical processes.

I give one example of how speech sounds may be produced. First, the lungs provide the air-stream mechanism required and the amount of air necessary. The laryngeal processes produce linguistic (eg. voice distinction in consonants) or paralinguistic (eg. different voice qualities), and suprasegmental features (eg. pitch). Several supralaryngeal processes (eg. the movements of the tongue, velum, and lips producing different positions, and consequently, different resonances) contribute to the production of one particular segment. In addition, the processes are carefully timed (eg. with a distinctive consonant quantity, speech rate and rhythm). These are continuous parallel processes which are executed by the different articulatory organs.

Even this rough description indicates one essential phenomenon: what is called 'segmental', 'suprasegmental' and 'paralinguistic' (or 'nonverbal') in traditional grammar is - at this level - produced with the self-same equipment and through similar processes. The articulation of speech cannot be seen solely in terms of 'segment production'. What we see as segments are only a small particle of all the parallel processes that are engaged at a given time.

The acoustic signal which results is also a continuum. Although much phonetic research has been carried out from the point of view of segmental analysis, the segmentation of speech is by no means unambiguous. It can even be argued, that it is linguistic analysis which has influenced that of phonetics. Segments were thought to be inevitable from the point of view of linguistic theory. Thus it was impossible *not* to recognise them in the acoustic signal. The process of argumentation is circular: theoretical notions will determine what entities are looked for, and thus, such experiments will be devised, and even instruments developed that are suitable for the analysis of the original concept. As the linguistics of the 1940s and 1950s favoured segmental analysis, it was natural to develop such machinery that provided a window for the segmental process (see also Niemi and Aaltonen 1986).

This kind of procedure is certainly legitimate within a scientific paradigm. It is only that the theoretical assumptions of the paradigms will have to be checked from time to time. Thus, it can be argued that the data and experimentation of phonetic research can also be given a different interpretation, if different theoretical assumptions are made. According to the present interpretation, segments are *one* possible way to *perceive* speech, and analyze its

possible perceptual entities, but that articulated speech is not necessarily produced in a segmental manner.

However, articulatory and acoustic phonetics still operates on the notion of segment, which, however, has been modified towards non-static and non-discrete segments (see eg. Fowler 1980), in accordance with the data on articulation. The majority of the phonetic research, however, relies on the assumption that a segment is a relevant unit of the *central* processing system, which is supposed to control the *peripheral* articulatory gestures. The representation of phonetic segments has been considered in terms of ideal abstract and invariant positions, such as acoustic or articulatory target positions (see eg. MacNeilage 1970). These ideal targets, which are never arrived at in the reality of spoken utterances, however, seem to arise from the same idealistic argument that was criticized above.

If the sound segment is regarded from the point of view of *speech perception*, it appears that spontaneous speech is not perceived in sound-by-sound manner. As early as in 1950s, it was demonstrated in a series of phonetic experiments (see eg. Liberman et al. 1953; Liberman et al. 1957), that the perception of a stop consonant and an adjacent vowel is a common complex of intertwining acoustic cues. Thus segments are not perceived independently of their phonetic context. In addition, a number of later experiments have substantiated the view that hearers do not employ acoustic cues only, but that they also employ various contextual cues. Thus, perception of spoken utterances employs parallel *bottom-up* (ie. acoustic signal decoding) and *top-down* (ie. conceptual, contextual and inferential knowledge) processes, in which individual sounds, as such, have little significance.

Nevertheless, several experiments have shown that people can hear segments. Thus people can detect individual segments in the flow of spoken utterances, if they are asked to do it (see eg. Cole et al. 1978). This does not indicate that the continuous flow of speech would be perceived sound-by-sound. Time is one factor that speaks strongly for the view that speech is not perceived as a string of segments. It has been shown that subjects had considerable difficulties in perceiving correctly the order of representation of four different (non-speech) sounds (*viz.* a buzz, a hiss, a tone and a vowel) which were arranged as sequence of sounds as a simulation of a word (see Warren et al 1969).

Fuzzy segments. Thus it can be suggested that segment is a perceptual and conscious category, and not an entity of

spontaneous on-line processing. The prototype theory, as represented by Eleanor Rosch (see eg. Rosch 1973; 1975), discusses categories of perception in terms of fuzzy categories. Segment, as a perceptual category, is a good example of the fuzzy nature of categories. Rosch (1973) argues that categories, as they appear in human spontaneous categorization, are unlike the logically determined bounded categories of Aristotelian tradition. Fuzzy categories are not distinct classes that consists of discrete components, but instead, sets that have fuzzy boundaries, and that consist of members of different degree of membership. Fuzzy categories have both prototypical (focal) and less prototypical (marginal) members (see also Lakoff 1987).

A close scrutiny of the (scientific) category of segment reveals that there are indeed focal and marginal members. If we consider the consonantal segments, it seems obvious that the obstruent consonants are focal, while resonants would seem less focal, and semi-vowels marginal. It is more difficult to establish, however, the line between segments and non-segments. Are schwa-vowels, or glides segments? Is consonantal palatalization a segment? And, if these phonetic phenomena are not segments, how should they be named? Harris (1980), for example, argues that aspiration of a stop consonant is one example of the arbitrary division between segments and non-segments, and that aspiration actually lacks the status of the segment simply because it originally had no written counterpart. If we accept the view that segment is a scientific category, which is basically fuzzy in nature and which is based on conscious reflection on language, then the analysis between segments and non-segments is not as awkward as in the traditional dichotomous models.

But even if the fuzzy and gradient nature of the segmental category is acknowledged, one intriguing problem may remain, and that is the question of vowels vs. consonants. Do vowels and consonants really comfortably fit into the same category of segments? If they do not, it is one argument for an 'anti-segmental' view of spontaneous speech. In fact, there is a considerable amount of data which appears to indicate that vowels and consonants differ both in perception and in production. For example, it is generally known that vowels tend to be perceived in less categorical manner than consonants (see eg. Pisoni and Tash 1974), and they may also be produced with different sets of gestures or by different systems (see eg. Fowler 1980). This suggests that vowels and consonants are, as it were, two parallel systems. Clearly, it can be

asked whether we really deal with one category of segments, or with two qualitatively different systems.

Phonological awareness. The research that is done within the framework of 'phonological awareness' ('phonetic awareness', 'awareness of phones' or 'segmental awareness') appears to suggest, already by its terminological description, that there *are* segments that people can be aware of, and thus research is focussed on the issue of *who* is aware. Experiments that test phonological awareness have been done primarily with preliterate (eg. Liberman et al 1974) and illiterate subjects (Morais et al. 1979; Morais 1985), which also shows the close relation of this issue to literacy. Subjects that use non-alphabetic writing systems have also been studied (see eg. Tzeng et al. 1977) in order to study the relations between alphabetic notation and segmental awareness.

Phonological awareness is tested with experiments which involve segmental tasks: eg. the addition of a segment at the word-initial position, the transposition of segments, or tapping or clapping hands as many times as there are sounds in a word. Phonological awareness is attributed either to the overall cognitive development of a child at about six years of age (Liberman 1973), or to exposure to alphabetic literacy (as implied by eg. Morais et al. 1979).

The interpretations of the results in the phonological awareness research seem to be particularly diverse and contradictory. Mehler et al (1984), for example, argue that although segments may be primary units in the production component, they, as perceptual entities, are related to the acquisition of literacy. This would mean that although children speak with segments, they do not realize that they do before they learn to read. Morais (1985), on the other hand, concludes with a certain degree of caution that phonetic segments are used in unconscious processing and that they play some role in perception or production, or both.

Ultimately, it seems that both psycholinguistic experiments and the existence of an alphabetic script indicates that subjects are able to distinguish between and to deal with segment-sized entities. Let us take a closer look, however, at experimentation. Any experiment on speech perception, production or awareness, necessarily supplies its subjects with directions. If subjects are told that they should push a button when they hear a /p/, for instance, it is certain that any literate adult person will succeed fairly well, since s/he knows what to listen for, and s/he has experience of

dealing with letters or segments as a part of cultural education. Thus the results that are gained with adult and literate subjects can always be interpreted in the light of the capability of subjects to work with written language entities.

This argument, however, would seem to be defeated when the test is done with pre-literate children. However, it is obvious that whenever children are tested, they also have to be given implicit or explicit directions. Thus the tasks may be more like lessons in understanding linguistic research techniques than intrusions into the child's world. Since the child obviously has no means to analyze what spoken language is like, s/he is taught to analyze it in the manner laid down by the experimenter. Along with the actual experiment, the child is implicitly taught what the experimenter aims at, and perhaps also what sort of response is expected. When the experimenter tells a child to carry out a certain task, at the same time the s/he implies that there is a meaning in carrying out this task. And perceptive as they are, children often discover the underlying *raison d'être* of the experiment.

The correct answers are embedded in the experimental design. Such tests no doubt tell us when the child is mature enough to co-operate and learn see things in an adult way, but they do not necessarily give us any remarkable insight into how a child spontaneously perceives his/her language and what s/he normally does with language. The world view - and the linguistic view - is always the adult one, conditioned by the specific linguistic and cultural community in which we live. The child's situation is similar to that of an illiterate person who is tested by a highly educated Westerner. Although anthropologists and psychologists are aware of the dangers of potential ethnocentricity, it remains extremely difficult to both recognize and to control the 'hidden agenda' in research design and implementation. The observer bias is woven into experiments, and it seems very difficult to 'go native' experimentally. Therefore it would seem justified to suggest a methodological re-orientation towards less intrusive and less interventive methods in phonological awareness research.

I have given a lengthy argument to show that psychological experiments - as present in the phonological awareness framework - may not be a very good indicator for describing the spontaneous processes of speakers and hearers. It was suggested that experiments often reveal more about the experimenter than the experimentee.

Psychologically real segments. As we have seen, the arguments about the ontology of segments are diverse and partly contradictory. My own hypothesis is based on the view that the present central position of segment in linguistic thought is due both to the influence of written language and to the idealistic philosophy of language. Moreover, it is argued that segment is a notion that has a completely different status in different modalities and subprocesses of language. Thus the role of segment in speech perception is different from that it has in the speech production, and segments, as they appear in analytic reflection, are not necessarily found in spontaneous speech.

It can be suggested that a segment is a possible structural part of the word, but only when we regard words from the point of view of the language system. This argument has been put forward by Ladefoged (1984). He sees segments as social constructs, which do not belong to the productive process of an individual. Segments in individual speech are entities that are generated as a side effect of social and motor activities. Ladefoged (1984) cites an example, originally presented by Lindblom (1983). Here, termites appear to build their nests according to highly sophisticated rules and accurate calculations. The finished construction has an impressive structure, which could be interpreted as having been produced by intelligent termite architects with precise plans. But as a matter of fact, the insects seem to follow very simple rules, according to which they add a grain of sand onto a location marked with their pheromone. The termites do not 'plan' their buildings. They just follow such patterns which have been shown to be successful by the experience of the preceding termite generations. In a similar vein, individual speakers should not be seen as producing segments and generating strings of segments when they speak.

In contrast, individuals can be described as using words that are holistic articulatory patterns. The interaction of several processes: the function of the lungs, vocal folds, tongue, lips and velum, produce patterns that may appear segments. In reality, speakers do not use segments to generate articulated words - they use various interactive articulatory processes.

This kind of view is based on a philosophy of order, which has been discussed within systems theory. Thus, Bertalanffy (1981:126) argues that there are two possible explanations for order. One is to propose a structural system. This is the assumption that underlies nearly all linguistics, structuralist and generativists alike. The other possibility is to assume that order and structure is

explained by the dynamic interaction of several different process. I try to argue for the latter explanation.

In addition, this view of segments seems to indicate that during the evolution of human languages, different articulatory positions and functions were a potential for developing word patterns. Although, at present, we have little knowledge of how this has happened, it can be assumed that some very simple sounds and combinations were used first, and that these - very slowly - developed into more complex sound patterns, such as those found in existing present languages. Thus, vocal systems probably developed as a result of an interplay between auditory and articulatory factors. Sequences of different vocal distinctions were a relevant means for communication, and these vocal distinctions could be achieved by means of different combinations of the articulatory positions, gestures and functions. Thus the *double articulation* of language was achieved in an evolution of articulatorily and acoustically motivated modifications and developments.

The segment may be quite justified for the analysis of language structure. As such, we may see segments in language structure, if so desired, but it is not the only way, or the ultimate way, to analyze language structures. Segments may exist in language for an analyst, or even for an ordinary hearer. Even then, their analysis is generally influenced by the literary segments, the letters of alphabet. The entities found in language structures should not be confused with internal processes. This was also pointed out by Bakhtin (see Volosinov 1930/1973:38) when he argued that

...without exception, all categories worked out by linguistics for the analysis of the forms of external language...are inapplicable to the analysis of inner speech, or, if applicable, are applicable only in thoroughly and radically revised versions.

The credit that is given for segment as a psychologically real production entity may thus be false, and it could be deduced that segment might be 'mentally real' only in the sense that it is *a possible entity in conscious perceptual analysis*. Yet, there is still one more source of evidence to be considered that might prove the psychological reality of the segments. This is the external evidence offered by slips of the tongue, which will be discussed in the following section.

9.2 The psychological reality of segments : Slips of the tongue

Slips of the tongue are one type of 'external evidence', on the basis of which it has been argued that speech planning inevitably has to involve - at a mental/internal level - segments that are discrete, and that these discrete segments are linearized in the actual production of speech. This hypothesis seems to be generally accepted. The external evidence, however, as given by slips of the tongue, is not as unambiguous as has been regarded. In the following I will consider the evidence, and argue that slips can be adequately explained even if the concept of the linearization of discrete segments is rejected.

'Phonetic slips' (also called as phonological errors, segmental errors, sequencing errors, sound-level errors, syntagmatic errors, order errors, see eg. Ellis 1979:169-170; Baars and Motley 1976:467) are the primary source for the assumed reality of discrete segments. Consider the following slip as a 'transposition of segments'.

(176) *kuukku+rukka* (pro *ruukku+kukka*)
'a pot plant'

These slips are commonly explained by the assumption that the initial consonants /k/ and /r/ of the compound components *ruukku* 'pot' and *kukka* 'plant' are transposed. Consequently, these slips are considered to be examples of a confusion between discrete segments in an abstract phonetic plan, which is "held prior to articulation as a string of individual speech sounds or phonemes" (Ellis and Beattie 1986:125). It is generally assumed that the phonemic/phonetic elements are brought to the working memory/short-term memory to form this plan so that the "phonemic errors in speech arise at the level of the response buffer (in STM)" (Ellis 1979: 170).

This view is found in the present psycholinguistic paradigm, and it can be found in practically all texts produced since the Chomskyan revolution. Thus, for example, Clark and Clark (1977: 273ff) refer to the abstract plan as an 'articulatory program', which directs the articulatory gestures. Clark and Clark (1977:276) also consider slips of the tongue as a crucial form of evidence for the existence and status of the theoretically relevant and psychologically real linguistic units. The planning of speech is

supposed to involve preplans, the size and nature of which is linguistically determined, the last phase being the retrieval of abstract segments which makes the program ready for final articulation.

A more recent discussion along similar lines can be found in Levelt (1989:284-412), in which both the phonetic plans for words and connected speech are discussed at length. These phonetic plans are, to a degree, consciously accessible, and can take the form of internal and subvocal speech, but also function without it. Levelt (1989) argues that the process of getting the segments into a linear order involves co-operation between the various linguistic levels and tiers that work in the speech production process. He suggests that speaking is a process in which speakers consult the different levels and linked tier-representations until they are ready for production of speech utterances.

Levelt (1989) also uses slips of the tongue as an example on the psychological reality of phonemic level, or, as we might call it, the level of discrete invariant segments. Levelt (1989) is aware of the potential inadequacy of the segmental approach, and relates the segments also to 'articulatory features' in order to avoid a strictly segmental view. Nevertheless, segments are seen as the basic entities out of which words and speech are built, although segmental plans work with consultation of 'connected speech knowledge'.

Levelt's (1989) discussion on speech planning sums up current theories and experimentation within phonological, phonetic, and psycholinguistic research, and considers data from, for example, discourse analysis, conversation analysis, speech act theory and the study of paralinguistic features. Thus, according to Levelt (1989), speaking is an extremely complicated multilevel affair, in which several (linguistic) levels and tiers of representation interact with each other and undergo necessary calculations for the production of an utterance. Speech is complicated, but the relevance of the abstract-to-concrete and back-to-abstract shuffle between assumed linguistic levels and representational systems is theoretically spurious. Furthermore, the complexity of speech seldom appears to be 'linguistic'. On the contrary, it could be suggested that 'linguistic' processes must normally be simple and even automatic in character.

It seems that those claims about psycholinguistics that were established in the 1960s still hold. Speaking is still considered in terms of transformations that turn the underlying invariant

segments into variable external phones which finally result in the production of external strings of segments, or words. This view means that there are few serious doubts about the alleged fact that "individual phonemes of words are activated and readied for articulation" - they are spelled out as phoneme sequences (Smyth et al. 1987:152).

The 'segmental' slips of the tongue were used as external proof for the reality of this phonetic plan and its discrete segments. This view is primarily based on the influential paper by Fromkin (1973), which has a status of a classic. Fromkin (1973:217) wrote that "it is impossible to describe the grammars of languages without" linguistic units, such as segments, and argued that the grammatically relevant units can be shown to be psychologically real performance units by the evidence of slips of the tongue:

What is apparent, in the analyses and conclusions of all linguists and psychologists dealing with errors in speech is that, despite the semi-continuous nature of speech signal there are discrete units at some level of performance which can be substituted, omitted transposed or added. (Fromkin 1973: 217)

Thus the established view presupposes that the abstract discrete segments in the abstract phonetic plan are movable. In the following I discuss this Segmental Movability hypothesis. In what follows I will argue that the substitutions, omissions, transpositions and additions of segments can also be offered an alternative analysis.

Additions, omissions, substitutions, transpositions? The mainstream psycholinguistics holds the view that abstract sound segments that are present in the plan, can be dealt with in a manner which produces additions, omissions, substitutions and transpositions. In the following I discuss this segmental analysis in the light of some examples. The first example (177) is supposed to be an addition.

(177) *kaikki nuo svitsit spitaalisista (pro vitsit)*
'all these jokes about the lepracy...'

The /s/ in (177) is supposed to be an extra segmental addition into the target *vitsit*. In the following example (178), segment /l/ is substituted for /r/.

(178) *kelpo virkamiehiä* (pro *virkamiehiä*)
'good officials'

According to the analysis above, a segment is supposed to be omitted from the phonetic plan, but then replaced by another segment. Segments can also be totally omitted, as in (179).

(179) *syysmyr()kyt ovat alkaneet* (pro *syysmyrskyt*)
'the autumn storms have begun'

Finally, segments are supposed to be transposable, as in (180) and (181). The segments are transposed within a word in (180), and, in (181), between words.

(180) *majoseenipurkin...* (pro *majoneesipurkin*)
'a jar of mayonnaise'

(181) *vajotettuna Maakunaan...* (pro *majotettuna Vaakunaan*)
'you will be accommodated at the Vaakuna Hotel'

These processes are supposed to occur at a level in which the segments are discrete, ie. at some abstract level before actual articulation. The above analysis of slips of the tongue as structural changes is in accordance with the formalist view. A slip of the tongue is regarded in terms of comparison drawn between the output production and the assumed target production. Thus the formalist explanation necessarily works with a structural analysis of its own. If - and when - both the target and the output production are analyzed in terms of segments, it is inevitable that the changes are also seen in terms of segments. Whether this is a verification of the existence of the mental segment, remains open to doubt.

A functionalist argument, on the other hand, will not start with a comparison between the target structure and the slip, but with posing the question 'why'. In formalist psycholinguistics, reasons for change are either ignored, passed over with a remark such as that of slips occurring 'for some reason', or explained as 'extralinguistic' and thus of little interest. However, if the focus is turned from the formalist and structural analysis to the study of underlying functions, and if speech production is seen as motivated behaviour, we may find that a speaker's processes do not involve a mysterious misordering of segments - for whatever reason.

Accordingly, all the types of articulatory slips provided above can be reasonably explained by a non-segmental theory. This theory considers these slips as resulting from a problem in the articulation of a word pattern. The production of a normally automatized and spontaneous articulatory pattern is sometimes influenced by external factors, which distort it. The results, however, do not have to be explained in terms of segmental changes. Consequently, I would like to suggest that to analyze 'phonetic slips of the tongue' in terms of arbitrary 'phonological entities' and abstract rules is of little value to psycholinguistics. Such analysis leaves us faced with nonsensical and empty processes of segmental movements that occur without a reason. In the following I discuss the alternative, functional, explanation.

The non-segmental hypothesis. I argue that what have been referred to as 'segmental' errors (ie. additions, omission, substitutions, and transpositions) are not segmental. They occur in the phase of actual articulation, and are cases, in which *articulation process is interfered with*. The primary source of interference is perhaps the speaker's own (forthcoming or past) speech flow. Also other interfering factors, however, are possible. Thus speaker's articulation can also be interfered with the input stimuli (ie. what s/he hears or sees) and his/her own internal 'stream of consciousness', or associations.

To begin with, interference is caused by the scanning procedure of one's own speech. Many 'segmental' slips thus appear to be caused by this monitoring or scanning ability of the speaker. Speakers know what they will say in the immediate future, and they also hear what they themselves have just spoken. This ability may also turn into 'disability'. When a future action of the speaker interferes with the action that is being executed, the result is called an *anticipation* and when interference is caused by a past action, we deal with a *perseveration*.

The following example (182) is an anticipatory act, in which the observance of an impending articulatory gesture /l/ (underlined) interferes with the current (target) production of /r/.

(182) *haluaisin Kirjakell~~l~~arista* (pro Kirjakellarista)
'I should like to buy it in the Book Cellar'

The following example (183), on the other hand, shows how an articulatory gesture (ie. /m/) that has just been passed, interferes with a current gesture. In this case we deal with perseveratory influence.

(183) *siinä on huomattama joukko* (pro *huomattava*)
 'there is a remarkable amount of...'

Thus distorted articulations are generated, when the attention of the speaker is divided between the current articulatory gesture on one hand, and either a past or a future gesture on the other hand.

In addition, articulation may also be interfered with by the stimuli that come from the external environment, in a direct or non-direct manner. The next example (184) shows how an utterance may be interfered with by an overheard remark.

(184)

A: *oudossa valossa* 'in strange light'

B: *se on lousteputki* (pro *loisteputki*) 'it is a fluorescent tube'

Finally, it can be argued that speakers may also allow an internal association interfere with their articulation, as is probably the case in the following example: Formally, this is an omission, but one of the underlying causes is that the speaker refers to a person called Matti.

(185) *uskomattia lipsahduksia* (pro *uskomattomia lipsahduksia*)
 'incredible slips'

Thus, my first suggestion is that most 'segmental' slips are problems with the articulation of a word pattern, and that these problems are, primarily, caused by interference. This view means the dismissal of segments from a psycholinguistic theory of speech production. It is suggested that there are no abstract segments in speech plan, which could be moved from one position to another, and the entity that is of primary importance for the speaker is an articulatory word pattern. Thus lapses do not occur on an abstract level of phonetic plan, but on a concrete level of articulation. Articulatory word patterns, however, are *not* undivisible or monolithic units, no more than any other series of movements are, and they can be interfered with, or 'broken'. This is my tentative suggestion, and in the following I discuss some cases of 'segmental' slips, and develop my argument further.

Case 1: Segmental transpositions. Transpositions are said to occur when two elements of speech plan change places. The transposed elements can be words, syllables, morphemes, segments, even features. They are supposed to constitute a

"concrete manifestation of the problem of serial order in behaviour" (Mackay 1970b:315). Here, I discuss segmental transpositions, as apparent in (186) and their alternative explanation as word level lapses.

(186) *kasottuu ja tasvaa* (pro *tasottuu ja kasvaa*)
'when he grows older and more serene'

Transpositions are also called Spoonerisms, named after an Oxford scholar Dr. W. Spooner (1844-1930), who was widely regarded as constantly producing transpositions of sounds and words. However, Potter (1980:15) who has studied the evidence available on Spooner's errors, suggests that his oral errors were largely exaggerated, and that, in the words of one who knew him, "what he transposed was ideas". Thus, it may be that in fact it was those people around him who invented most of Spoonerisms, such as the following examples, as deliberate puns.

(187) *It's beery work addressing empty wenchies.*

(188) *Is the bean dizzy?*

(189) *You have hissed all my mystery lectures. In fact, you have tasted the whole worm.*

'Segmental' transpositions are claimed to be infrequent as compared to other 'segmental' errors. Nooteboom (1973:147), for example, estimated that Spoonerisms covered c. 5% of all segmental errors in his data. However, their relative infrequency is adequately explained, if we assume an alternative explanation for them. I will suggest that segmental transpositions are what can be called 'double slips', or *double blends*. Let us take the first example.

(190a) *sen villatakin kyynärpää oli pulunu kuhki...*
'and the elbow of his cardigan was quite worn...'

The assumed target utterance of the speaker is: *kyynärpää oli kulunu puhki* 'the elbow was worn out'. Now, it can be assumed that when the speaker arrives at the problem point, s/he anticipates the word that is supposed to follow, viz. *puhki*, which is by no means rare. Then, we must hypothesize: if the speaker had recognized her anticipation and made a correction, we would have an example of an *anticipation as a false start*. For example like this:

(190b) **sen villatakin kyynärpää oli pu..kulunu puhki..*

However, if the speaker would *not* have made the correction she would have produced what is usually called a *segmental anticipation*, as in (190c).

(190c) **sen villatakin kynnärpää oli pulunu puhki...*

The original genuine slip (190a) involves a third possibility: the first slip is followed by another, similar kind of mistake. When the speaker has to divide his/her attention between the detection and recognition of the first mistake, and the articulation of the forthcoming word pattern, his/her attempt to make a repair may produce another mistake. Thus, the speaker acknowledges the first slip, which is a blend of the two adjacent words, but makes a 'false repair' by introducing a converse blend. Thus it would appear that it is the feedback information on the first slip that acts as an interfering factor for the on-line production. Thus a 'segmental transposition' is not one error on segmental level, but a case of two successive slips, or a 'double blend' on the level of articulating word patterns.

This assumption also implies that what are labelled as 'anticipations', 'false starts' and 'segmental transpositions' might rather be different reflections of the same underlying phenomenon, which could be called *blending*. The ultimate surface form of a particular slip depends on *when* the speaker detects his/her mistake and on the *repair strategy* that s/he chooses in response. Compare a 'transposition' (191) with an ordinary anticipation (192):

(191) *vajotettuna Maakunaan* ('transposition' of *majotettuna Vaakunaan*)
'you will be accommodated at the Vaakuna Hotel'

(192) *minä en villään...millään viittis* ('anticipation' of *millään viittis*)
'I just wouldn't like to do it'

It is evident that the second example could well have been turned into a 'transposition'. It is obvious that we deal with the same underlying phenomenon which happens to produce different kind of structures in the surface speech, depending on the timing and reaction of the speaker.

This means that segmental transpositions are essentially blends. Similar analysis has also been suggested by Hockett (1973), who discusses blends and 'counterblends'. Thus a transposition like *I fool so feelish*, is generated when first the word *feel* is contaminated by the following word *foolish* (producing *fool*).

Then, a counterblend follows in which *foolish* and *feel* are blended into *feelish*. Compare also with the following Finnish example:

(193) *savu- tai tanapaino* (pro *tavu- tai sanapaino*)
'syllable (stressed) or word stressed'

If the word *savu* above were uttered alone, it would in all probability be analyzed as a lexical blend of two semantically related lexical items (*sana* 'word' and *tavu* 'syllable'). What makes it supposedly different in this particular context is that there is another blend that follows. To conclude with, it appears that the distinction between an anticipation, a segmental transposition and a blend is dictated by the structurally based linguistic and grammatical tradition, not by the properties of the data. In the following I discuss the lexical blends in more detail.

Case 2: Word blends. Lexical blends were given the following famous description by Lewis Carroll in his *The hunting of the snark* (1876):

For instance, take the two words 'fuming' and 'furious'. Make up your mind that you will say both words but leave it unsettled which you will say first. Now open your mouth and speak. If your thoughts incline ever so little towards 'fumin', you will say 'fuming'. 'Furious', if they turn, by even a hair's breadth, towards 'furious', but if you have the rarest of gifts, a perfectly balanced mind, you will say 'frumious'.

In psycholinguistic research, blends have been primarily approached in terms of lexical selection. Fromkin (1971) suggests that blends occur in the phase of lexical selection, in which the speakers hesitate between two possible choices for a slot in the sentence plan, and thus, the result may be a blend. Crompton's (1982:123; 138) analysis follows the same lines. He suggests that lexical blends occur if - during the retrieval of phonological information - the source is changed from one lexical candidate to another one.

The classic explanation of blends as two approximately synonymous words that compete for the same position would seem to hold for a number of cases.

(194) *odelluttaa* (*odottaa/edellyttää*) 'expect'

(195) *lähimmäkseen* (*lähinnä/enimmäkseen*) 'primarily'

(196) *nekka* (*nenä/nokka*) 'nose'

(197) *kamalaton* (*kamala/jumalaton*) 'awful'

However, the difference between what is called a lexical blend and what is called an anticipation or a segmental transposition, appears to lie only in what kind of elements are blended together: whether they are blends of two (or more) *potential* selections (for the utterance), or two *actual* selections (in the utterance). Thus when a speaker makes a blend of two potential selections, the result may be as follows:

(198) *kätterä* (*kätevä* 'handy' / *ketterä* 'agile')

But a speaker may also make a blend of two actual selections, as in the following in which the speaker makes blends of the two adjacent words.

(199) *professori Sari Kajavaara* (pro *Kari Sajavaara*)
'professor Kari Sajavaara'

The first blend in (199) is an anticipatory mixture of the first name and the surname, and the second slip is a false repair that leads to the resulting double blend.

What I have argued this far, is that blend is a more extensive category than usually admitted. When we consider the level on which blends occur, it appears obvious that ultimately, they are problems in articulation. Blends result from a situation, in which there are two (or more) word patterns that are active and available for the speaker. This is not an exceptional state, as I have argued above, and there are additional factors that operate towards the generation of this error type. One factor is the classical one: the speaker is faced with a selection. If two optional word patterns (synonymous) rival for an expression of a same idea, they may interfere with each other and produce a blend, as in the following example (200) in which the speaker hesitates between a standard expression and its colloquial equivalent. Thus competition between word choices (but also structural choices or idiom choices) explains a large number of lapses (for the notion of competition and competing plans, see eg. Baars 1980; Dechert 1990).

(200) *nekka* (pro *nenä/nokka* 'nose')

But blends can also be generated if the speaker suddenly changes his/her interpretations. In the following example (196), the speaker was thinking of two possible locations for an object. While he was already speaking, he changed his estimate of the correct

place, but traces of the original estimate remain in his utterance in the form of a blend:

(201) *se on mulla laskussa* (pro *taskussa*, as influenced by *laukussa*)
'it is in my pocket' / 'it is in my case'

Blends can also be caused by the presence of words activated by the discourse topic or by the actual previous discourse. The speaker in (202) is talking about the phonetic categorization of sounds, and has used both words before.

(202) *ja naseraalit...* (pro *nasaalit*, as influenced by *lateraalit*)
'naserals' (pro 'nasals', as influenced by 'laterals')

Furthermore, blends can be caused by visual or auditive stimuli present in the context. The following example (203) is a situation blend which involves the written input of a recipe called <Purolohi> 'Brook Trout', and the presence of a real-world fish called *kirjolohi*, 'rainbow trout'.

(203) *purjolohi* (pro *kirjolohi/Purolohi*)
'rainbow trout/'Brook Trout'

To sum up, a blend results when an active word pattern interferes with the current articulation of another. The interfering pattern can be active because of the topic or, for example, evoked by an incoming visual or auditory stimulus. What is relevant is that the resulting articulatory word pattern is inadequate: either a non-word or a pragmatically unsuitable alternative. Sometimes the first lapse is followed by a second mistake, producing a double blend.

Now, I have tentatively suggested that segmental transpositions, segmental anticipations and lexical blends are different external manifestations of a similar underlying process, and that they are in fact similar enough to form a common category. Thus, certain 'segmental' categories were dismissed, and a more extensive category of articulatory blends, that occur on lexical-articulatory level, was suggested in their place. In the following, it will be seen whether all 'segmental slips' can be described in terms of blends, or whether it is necessary to posit another type of category.

Case 3: Omissions. Above, it was argued that the presence of two or more active patterns and their consecutive blending accounts for a large amount of slips. Some slips, however,

obviously do not fit into this category. One such example is an 'omission', in which the speaker skips a step of his/her production altogether. These seem to be different from blends in that no presence and no direct influence of another word pattern may be observed. On the other hand, they are similar to blends in that they distort an articulatory word pattern. Thus some articulatory distortions at least seem to be caused by factors other than word pattern interference. Let us consider the following example (204).

(204) *passi(ivi)a ei ole sovellettu*
'the passive (rule) has not been applied to...'

Thus it might be suggested that *word-internal factors* are involved here. The sound structure of the above slip *passiivita* → *passia* is an example of this. In the word *passiivita* there is a sequence that involves two /i/ vowels. The speaker omits the chunk that lies between them. Hockett (1973) discusses these *haplogogies* (ie. omissions) in reading, and explains them as anticipatory skips in attention: "the eyes are just scanning the second occurrence of the recurrent phonemic shape" when the tongue is still mouthing the first. Thus it is possible that we deal with interference after all: the interference of an articulatory gesture.

In addition, many omissions in my data come from non-conversational speech: radio speech or reading aloud, for example. Obviously we need to investigate the effect of the speech situation on omissions. It would appear that omissions tend to occur when the attention given to own's one articulated speech is small. Experienced readers, for example, read aloud in a routine manner, and the process is run habitually with little feedback. So there is no actual need for them to follow carefully what they read, and the omissions might be related to a decrease in the amount of monitoring. This would also seem to be indicated by the fact that omissions are made when an extra amount of processing is required, such as a simultaneous interpretation in the following example (205).

(205) *liikuttavat sivel(tim)iään*
'they are moving their brushes...'

Often omissions also produce real words, as in the example (206), in which the omission of /s/ in *myrskyt* 'storms, tempests' results in a word *myrkyt* 'poisons'.

(206) *syysmyr(s)kyt ovat alkaneet*
 'autumn storms have begun'

This supports the argument that 'legal' words creep through the attentional system more easily than 'illegal' ones (attested also in slips other than omissions). This is the 'disguise effect': real words are accepted more readily than non-words, even if they are inadequate for the present utterance. In all, although omissions seem to be rather rare (cf. Nootboom 1973:147) they serve to show that the distortion of an articulatory pattern can manifest itself in a manner other than that of blending.

Case 4: Metatheses. Moreover, there is one particular group of 'transpositions' that also does not seem to fit into the blend category. These are the 'transpositions' of segments within a word, or metatheses, which tend to occur between adjacent syllables (Mackay 1970b:329). Metathesis is not easily explained as a word pattern blend, since there does not seem to exist any pattern that would interfere. The motivation for these changes has to be found either in the articulatory properties of the word, or in some other, perhaps external, factors.

In the first place, it might be worth investigating whether metathetic slips are common, and whether they are produced by all speakers alike. If we take a closer look, a similar pattern seems to emerge than that found in the analysis of malapropisms. Metatheses appear to be fairly infrequent with adult speakers, but more common in children's speech (see Mackay 1970a; 1970b), and they also appear to occur more frequently in novel words than common ones. In addition, it appears that certain sounds and sound contexts act as a catalyst to this type of articulatory distortion.

When children's metatheses in Table 1 are considered, we find that they appear to occur when certain phonetic combinations are found within the word. Thus, for example, the presence of several (different) resonant consonants within the word would appear to increase the probability for a metathetic lapse. A combination of a liquid consonant (*l* or *r*) plus another resonant (a liquid or a nasal), for example, provokes it. This effect can be observed also in metathesis as seen in language change (cf. eg. Hock 1985). Sturtevant (1947) gives several examples of metatheses that attest for similar influences in (American) English. Thus it could be suggested that certain word patterns might be inherently built in a manner which makes an analysis for the 'segmental properties' or 'segmental order' less evident. Thus, certain word patterns would be perceptually hazier than others.

TABLE 1. Children's metatheses in the present corpus

<i>ketsuppi</i> ->	<i>kepsutti</i>	'ketchup'
<i>kapteeni</i> ->	<i>kapneeti</i>	'captain'
<i>bordelli</i> ->	<i>dorbelli</i>	'brothel'
<i>orava</i> ->	<i>ovara</i>	'squirrel'
<i>kirahvi</i> ->	<i>kivahri</i>	'giraffe'
<i>oliivi</i> ->	<i>oviiri</i>	'olive'
<i>näre</i> ->	<i>räne</i>	'small fir tree'
<i>norsu</i> ->	<i>ronsu</i>	'elephant'
<i>Ronja</i> ->	<i>Norja</i>	'first name'
<i>lurjus</i> ->	<i>ruljus</i>	'rascal'
<i>lokero</i> ->	<i>rokelo</i>	'locker'
<i>Beetlehem</i> ->	<i>Beethelem</i>	'Bethlehem'
<i>laho</i> ->	<i>halo</i>	'rotten'
<i>tilhi</i> ->	<i>tihli</i>	'waxwing'
<i>hävvenee</i> ->	<i>lähvenee</i>	'thin' (v.) (of smoke)

The presence of many plosives that differ in respect to the place of articulation is another problem area. Furthermore, all the plosive examples above have a similar prosodic pattern (three syllables), and it may be that this, for a child, involves an additional processing difficulty. A new word pattern with more than two syllables may simply be too demanding when it is practised at the beginning. This also corresponds to the intuition of Finnish adults that Finnish children make frequent errors like *atpeekki* for *apteekki* and *Epygti* for *Egypti*.

What this means is that learners may have difficulties in the perception, production or both of certain word shapes. This may indicate that some word patterns are inherently articulatorily or perceptually more 'difficult' than others. This difference between easy-to-process and hard-to-process acoustic and/or motor shapes may be partly universal, and partly language-specific. Its effects can be found in various linguistic changes during history.

Adult metatheses are infrequent, but one can also find the articulatory effect in them. There are examples of /l, r/ effect, as in (207):

(207) *koIIeroi* (pro *korreloi*)
'correlates'

The plosive effect is present in the examples (208) and (209):

(208) *arkitt.. (pro artikkeli)*
'article'

(209) *uotistinen (pro utopistinen)*
'utopian'

The examples of adult metatheses are thus either of the 'liquid type' or the 'plosive type', and in addition, they all seem to occur in relatively infrequent words. Adult metatheses seem to be manifestations of the combined influence of novelty and perceptual/articulatory complexity. In addition, this assumed difficulty to perceive and produce novel word forms seems to be present in such slips that are difficult to classify into any clear structural category.

(210) *kielellisen relevatistmin hypoteesi (pro relativistmin)*
'the hypothesis of linguistic relativity'

The result here is unsuccessful as a word, but it is not strictly speaking a (classical) metathesis. It is simply a misconstrued pattern. Strikingly similar failures or misconstructions were made by the subjects in an experiment (see Dufva 1991) in which adult Finnish speakers heard unfamiliar words, which they were required to write down. For example, the target word *oneirodynia* was given following written interpretations.

TABLE 2. Renderings of target word /oneirodynia/ in a listening experiment of unfamiliar words

oreinonymia, oneyrolu, oreedodynio, oreinodynia
oneiredynia, oneerodynio, oneirolynia, oneironylia
oneidorymi, oneerodynia, oneirodinio, oneeridynia,
oneironymia

Many of these 'word impressions' are similar to metathetic slips of the tongue. The perceptions are certainly not haphazard, but they are not accurate either. It could be suggested that the perception of previously unknown verbal material is inherently unsegmental. This also corresponds to the experience of listening to a foreign language unknown to us. The flow of foreign speech is not organized in our perception as distinct sequences and segments when we first hear it at normal speech rate. Thus the analysis of

speech flow into words, and possibly, into segments, is a result of a conscious analysis, which also requires more time, and repetitions of the verbal material. The difficulty that is inherent in the perception of novel acoustic patterns, was shown also in the above experiment as the influence of word length. When the syllable number of the test words in the experiment was increased (from 5 to 7), the number of 'errors' increased (see Dufva 1991). It therefore appears that when the three factors of (a) difficult sound combinations, (b) word length, and (c) low frequency coincide slips of this type will occur.

Some metatheses, however, occur in ordinary words, and are made by the adults as children alike. Thus it appears that certain sound combinations as such may be more susceptible of metathetic changes, and that these metatheses are further generated by the influence of sound context. In Finnish, the combinations that involve the sibilant /s/ and a plosive consonant may be one example, and if there are two such combinations, or two converse ones that are close to each other, a metathetic lapse often follows.

(211) *syöksylaks..syöksylaskun huippuihin...*
'among the tops of the speed ski'

(212) *sillä on niin irtsas katse...* (pro *irstas*)
'he has such a lecherous look...'

(213) *jossa pitää vatsausta etsiä* (pro *vastausta*)
'in which you should look for an answer...'

Thus, we may deal here with both an inherent complexity of a particular sound combination, and the complexity involved in the production of certain successive sequences. This complexity is also recognized by naive speakers, as Finnish tongue twisters (Table 3) serve to show.

Thus word play, tongue-twisters, and slips of the tongue may be indicators of a complexity that is inherently present either in certain articulatory gesture as such, or in the production of certain successive articulatory gestures.

In consequence, a structural explanation of metathesis in terms of two segments that change place is not a functionally adequate one. What have been called metatheses are, again, surface manifestations of several underlying forces. One of them is the novelty and/or infrequency of the material. When a word is

TABLE 3. Finnish tongue twisters

Mustan kissan paksut posket.
'Fat cheeks of a black cat'

Yksikseskös yskiskelet.
'Is it alone you cough?'

Lauri löysi ruplan rahan jyrkän penkereen reunalta.
'Lauri found a rouble on the edge of a high hill'

Appilan pappilan apupapin papupata pankolla kiehuu ja kuohuu.
'The bean stew of the vicar of the rectory at Appila is boiling'

heard for the first time, the hearer gets an impression its general outline, but a considerably poorer idea about its detailed acoustic and/or articulatory structure, and thus speakers may also produce 'disorganized' word patterns in their own speech. But also certain inherent perceptual properties of a word, and its possible articulatory complexity may conspire in the generation of metatheses. Thus, perceptually, some acoustic word patterns might be inherently more 'non-segmental' than others (as eg. possibly the 'liquid pattern'). Furthermore, some word patterns, quite obviously, are more complex from the point of view of production.

9.3 Articulations and misarticulations

Ultimately, it can be argued that slips of the tongue do not give evidence for the mental reality of segments, and that alternatives for the idea of abstract plans of segmental strings can be offered in terms of articulatory gestures and word patterns. The truth is, however, that slips do not necessarily provide a conclusive evidence for the opposite, non-segmental view either. The issue of segments is involved in a larger theoretical framework, and with wider theoretical assumptions.

According to a formalist framework language is also psycholinguistically a structural system, and an act of speaking

means linearization of linguistic entities. When a formalist psycholinguist analyses the structure of a linguistic product, s/he assumes that the processes that underlie this structure, will have a structure that corresponds to his/her analysis. Thus the linguist who sees an utterance as a string of segments, inevitably sees the underlying process in segmental terms as well. If the words in (214) are seen as strings of segments, we can logically assume that the initial consonant segments have been transposed.

(214) *vilkki...silla* (pro *silkki...villa*)
'silk, wool'

If, however, we see the words as articulatory word patterns, the above case is an instance in which two word patterns intrude into each other's production. Segments are not necessary, and not inevitable in the analysis, and slips of the tongue can still be adequately explained.

The formalist segmental analysis of contemporary psycholinguistics is arbitrary in the sense that it works with entities that are abstract and empty for both meaning and articulation. Lapses are just formal operations. The non-segmental hypothesis, on the other hand, goes hand in hand with the functional explanation, which assumes that the slips of the tongue are motivated actions, which are justified by meaningful and concrete grounds.

To date, slips of the tongue have primarily been formally classified. This means that the resulting structure (ie. the slip) has been analyzed and compared to the target structure. The differences are observed and accounted for by suggesting formal operations that are responsible for deviation. However, this procedure is merely one type of formal analysis and does not offer an explanation. In contrast, the functionalist argument maintains that the structure in which slips are manifested is of secondary importance. As it was suggested, a similar underlying force can result in different kinds of slips (eg. an anticipatory process may result in a 'false start', 'segmental anticipation' and a 'blend'). Similarly, one particular surface form may result from various coinciding processes. The surface structures are certainly not meaningless and totally arbitrary, but they do not, and cannot, serve as a basis for direct causal explanations.

All of the 'segmental' slips that have been described above, occur on a concrete, articulatory level of speech. This level,

however, is not a segmental, but an articulatory one. As argued above, the primary articulatory unit is the word pattern, and this pattern which is normally fluent and automatized is distorted in these lapses.

The factors and forces that underlie articulatory slips are various. It was suggested above that the quality and quantity of slips of the tongue depends on the *speaker*. Experienced speakers (such as most adults) use unconscious, highly routinized, or automatized articulatory processes, which, however, are highly susceptible to external factors. This is why most adult misarticulations seem to be due to interference (eg. blends). Inexperienced speakers, on the other hand, are affected by different strategies which are shown, for example, in the fact that they tend to produce more disorganized word patterns (eg. metatheses).

Another force that causes articulatory slips, is the natural inherent mechanism of speech monitoring: *the forward and backward scanning mechanism*. The process of attending to one's future and past speech may cause interference (eg. anticipatory and perseveratory slips). In addition, it was also shown how the speaker's *higher-level processes* that are involved in the decision-mechanism, for example, may also interfere with articulation (eg. blends between two optional expressions).

But articulatory slips may also be caused by *factors that are inherent in the articulatory system itself*. Among other things, this articulatory factor is manifest in such lapses that seem to be due to an intrinsic complexity of a certain articulatory gesture, to a close relation between two articulatory gestures or the presence of certain sound combinations. These articulatory influences seem to be partly language-specific and partly universal in nature.

Furthermore, it would not seem inappropriate to propose that there are also minor articulatory mishaps in ordinary speech, which are heard as slightly deviant or slightly disfluent, but which do not really seem to be given serious attention. These minor *motor inadequacies* might result from an inherent articulatory problem point, or perhaps from physical factors, such as exhaustion, stress or intoxication. In conclusion, articulation can be affected by various factors, which combine to produce either *blend-like* or *disorganized* articulatory patterns.

It can be suggested that the basically linear flow of articulation, which, in addition, is highly routinized and probably fairly 'unintelligent', is run in parallel with various higher-level and 'intelligent' processes for scanning options, or deciding between

options, for example. When we consider these two kinds of processes, the *decision level* and the *articulation level*, it could be suggested that slips occur in three different qualities with respect to these levels. Contrary to common arguments, I would like to suggest that some slips may in fact occur because of purely concrete (articulatory and/or acoustic) reasons. Thus, they are, truly, slips of the *tongue*. A metathesis, an omission, an anticipation or a perseveration may result from physical factors only. On the other hand, however, there are clearly slips that occur on a prearticulatory level, and which result in correct articulations, but produce nonsensical or inappropriate utterances. These include the various 'incorrect' choices that are made on the higher level of decisions, and which result in lexical problems, as discussed in the chapter 8. These could be called slips of the *mind*. In addition, however, there appears to exist a third group. These are the various slips in which we can see the interaction between the articulation and decision levels. These are the slips in which articulations are interfered with the higher-level processes and decisions. Blends of two optional words are one example of the lapses that can follow. Consequently, it appears that these lapses are both slips of the tongue, *and* slips of the mind.

10 CONCLUSION

10.1 "Where the tongue slips, there slip I" (Charles Hockett)

External slips of the tongue are manifestations of internal processes, and as argued above, these internal processes involve social, cognitive and sensori-motor activities that form a very complex network. This complex network, however, operates according to basically simple and automatized subprocesses. Slips of the tongue are fundamentally caused by a variety of underlying phenomena rather than one particular process only, and a causal explanation in terms of a broken linguistic rule, or mishandled linguistic process is both simplistic and false. Slips of the tongue are *emergent* phenomena: phenomena which surface from an underlying variety of processes, and which, consequently, can be seen in terms of uncertain outcomes and unpredictable results. This means that it is inadequate to analyze various slips in human speech behaviour only as structural patterns: it is much more useful to examine the underlying forces, that coincide or collide, in their production.

What this means is that we have a full range of diverse external speech phenomena, some of which are judged as abnormal, deviant, incorrect or false, in some respect. Some speech

phenomena are regarded as good and correct language, and successful social behaviour, while other are classified as slips, errors, mistakes, lapses, recognition failures, misarticulations, faux pas, blunders, insults, misunderstandings and the like. What we do, no matter whether we are naive speakers or psycholinguists, is that we evaluate external speech behaviour according to some criteria or another, and attribute it to some cause or another. The process thus involves an *evaluation* and an *attribution*.

The utterances of speech can be evaluated and judged against the social and linguistic norms of correctness and appropriacy. Utterances may thus be graded on scales like (1) articulatory fluency (2) linguistic correctness (3) pragmatic appropriacy or (4) social propriety. Ethic and sometimes also aesthetic grades can be given: is the utterance correct, appropriate, good, fluent and sensible, for example. If a fault is detected, the observer turns to the attribution procedure: Why did the speaker make that particular mistake? Is s/he ignorant of a particular rule? Does s/he not know the correct word? Did s/he do that on purpose?

As we know, the slips of the tongue literature has this far drawn a rather categorical distinction between an error and a slip. An error is a linguistic deviation, which is accounted for by the ignorance of the speaker, while a slip is an involuntary or unintentional deviation. Following from this distinction, only linguistic and prototypical easy-to-deal with cases of both categories have been discussed. In reality, however, speech behaviours are variable, and there is a multitude of different kinds of faults and errors, the gravity and nature of which should deserve a closer examination in the future. Neither the evaluation nor the attribution is unambiguous and binary in nature. Speech behaviours are evaluated and assessed on various different scales that judge the quality of the error, its level, its gravity, and its causes. To force them into a taxonomy that is based on binary distinctions and structural analysis is to take too narrow a viewpoint.

To explain speech phenomena, a *formalist* psycholinguist turns to the structural analysis. Both the 'normal' utterances and those considered deviant (eg. slips) are analyzed as structures. Slips are assumed to be explained through the process of comparing two structures: one failed, one correct. The entities that are proposed by the theory and tradition of linguistics are also searched for in the slips of the tongue. It does not come as a surprise that they are found. Both the normal and the exceptional in language is

explained through structures, which are basically generated as meaningless and arbitrary operations.

A *functionalist* explanation, however, gives primacy to the features that can be observed in actual speech behaviour of actual speakers. A central concept is that of *motivation*. This means that observable speech phenomena are not to be explained as linguistic computations, but as primarily social deeds and actions which have their own particular function. Slips that occur are not arbitrary changes either but behaviour that is motivated by one or more factors. In earlier chapters I have suggested several features and forces that seem to underlie the observable slip phenomena. To conclude, I summarize and rephrase some of my earlier arguments.

Similarity is a powerful force that works in various mental processes. It could be argued with reason that the recognition of similarities and differences is a fundamental notion in all perception, learning, and behaviour, and thus, also in language and speech. Thus it could be suggested that one of the most interesting fields of study for future psycholinguistics is the study of the role of *analogy* in speech processing.

It appears that speakers employ analogous processes at all levels of speech. They attend to similarities between the present task and their past experience of social situations, topics, words, phrases, syntactic constructions, morphology and articulation. Thus they know that similar circumstances necessitate similar reactions. Quite often, however, speaker also make mistakes. Similarity of a situation, or similarity of one word with another, or an articulatory similarity in nearby production may act also as a misleading cue, and an inappropriate response may result.

Prominence is one of the factors that seems to play a role in the generation of slips. When speakers process the elements of the situation in the way described above, it is evident that some of the elements are more prominent than others. Some of the situational or linguistic factors present are highly intensive, relevant, thematic or salient, while some are of less importance. There are permanent linguistic and nonverbal means for signalling prominence: speakers generally thematize, focus, and emphasize some points over others, for which they may use such external means as grammatical constructions, linguistic stress, or emphatic gestures. The effect of the prominence is shown in slips on various levels. A situationally prominent point, for example, may appear in the form of anxiety, and thus cause more frequent, or more serious slips. On a linguistic level, a stressed or an emphatic element often somehow

participates in the generation of a slip, as may be the case in an anticipation (of a stressed element).

This factor is connected to *novelty*. It was argued that novices are different from experts, also in regard of their slips. In addition, it was argued that there is a difference between well-practiced and seldom used verbal material. Slips occur in both, but they are of a different quality. Novel situations and marginal words are different from familiar situations and basic vocabulary. The opposite of the novel process is the *habitual* one. Responses in social situations or items in language can become routinized and habitual, because of frequency, repetition or recent usage. As shown above, habitual slips are different from those of novel situations. Some linguistic or cultural behaviours will be routine or *automatized*. Certain structures in language and discourse will be conventionalized, and thus tend to become automatized for individual speakers as well. Naturally, however, the degree of automatism depends on the speaker, and learners certainly differ from experts. As we see, the factors discussed above clearly overlap.

Complexity is another, related, force. Both certain tasks and certain constructions (or linguistic means) seem to bear some inherent complexity in themselves. The presence of two different goals in a social situation would be an example of a socially complex task. Grammatically, the whole Finnish morphology would be an example of its own, and multiple suffixation would be an example of a particularly complex morphological task. On an articulatory level, a repetition of similar but unidentical gestures or sequences that are close to each other might serve as an example.

Finally, all the above points and all external speech behaviours are related to the rules of *language, discourse and culture*. It was emphatically argued that speakers do not 'employ their internal grammar' when they speak. Rules and entities of language, discourse and culture are not internalized by the speakers in a form that resembles the present external linguistic grammars. However, the conventionalized structures certainly affect the speaker's choices and behaviours. The rules, structures and norms of language, discourse and culture thus influence the generation of slips through the potentials and probabilities they offer. It is to be emphasized that although the speakers may occasionally create new language in their slips, it is very seldom that they do something grossly improbable, or something which would lack sense. Thus the

language seems to set certain limits, even on creativity, in the production of mistakes.

The language the speakers work with when they speak is not in the mental grammar in the form of rules and representations, but in the concrete social situations, in which the speakers are engaged, and in the cognitive and sensori-motor processes. The nature of these processes will influence the quality and quantity of the slips that occur. We can argue that this or that mistake was made because 'the words were similar', 'because the speaker had repeated the phrase too often', and so on. Mistakes are inevitably made and most of them can be lead to the factors discussed above. The question of *why* a certain slip occurs is partly answered by understanding of these features, and by understanding how *attention* operates. Slips occur because our attention is low, or high, or because it is divided between two or more tasks.

I first argued that the categorization of slips of the tongue is not unambiguous. It becomes increasingly evident, however, that it might be a practical impossibility. Partly, this is due to the finding that one slip is - without an exception - caused by several underlying processes and factors which work in parallel. This means that one slip is normally a member of several categories. This also means that one underlying process can assist in the production of several kinds of slips.

The issue at stake here is that slips of the tongue do seem to form obvious categories only if they are described in a certain respect, or on a certain scale. Thus, it is wise to avoid treating slips in a simplistic vein, and give up linguistic classification. Instead, we could benefit from devising various scales on which the 'error phenomena' can be studied. One such scale could be the appropriacy of the external utterance. Then the quality and degree of the failure could be studied: in what respect the speakers fail, and how seriously they fail. External spoken language is full of phenomena, slips being one example, that can be judged against different criteria, such as fluency, meaning (or sense), correctness, appropriateness, adequacy, or propriety.

Another possibility for further classification is that lapses are classified with respect to articulation, attention, analogy, or monitoring, to name a few possible areas, in order to study the relations of one particular cognitive or articulatory process and a slip of the tongue. But emphatically: a general classification, especially one that is based on theoretical linguistics, seems both meaningless and false, and, as it was shown, slips in behaviour

seem to be far from an unambiguous and unproblematic category that has been accepted until now. When the normative terms of linguistics are rejected, we see that far more research is needed to throw new light upon the issues which were previously considered self-evident.

10.2 Language revisited

Throughout the present thesis I have suggested that as speech is produced by real speakers who work in real external and cultural circumstances speaking real languages, it should also be studied upon this basis. The observation of actual speech phenomena should be the cornerstone of the study. This approach, however, also means that the focus of research is necessarily *particular*: particular in relation to the individual, culture, situation and language, and that this study of the particular precedes that of the general. Thus psycholinguistic study can also be carried out by induction, as opposed to deduction as evident in mainstream psycholinguistics.

The present assumptions about the nature of the internal processes are made on the basis of external speech behaviour, and especially its 'problem areas', such as the slips of the tongue, and not on the basis of a linguistic theory. As I argued above, an internal production system which would explain the interactive behaviour has to work in a *parallel* fashion. It is reasonable to assume that only such a parallel system can cope with the several tasks that are carried out in spoken interaction. The persons involved in a conversation work at both lower (sensori-motor) and higher levels and both act as agents and perceivers. Several parallel processes thus always run simultaneously.

Furthermore, it can be suggested that these parallel operations can be explained without a specific linguistic component. It can be proposed that speaking functions in conjunction with the auditive and visual sensory areas and those motor areas that are concerned with articulatory movements. This means that instead of abstract linguistic representations, speakers have *concrete* representations that are both auditive (acoustic

patterns), visual (graphemic patterns) and motor (articulatory patterns) representations. The representations are *means-dependent* and acquired in real circumstances. Speaking involves the use of these various patterns which are triggered by diverse external and internal circumstances and cues.

These knowledge systems bear relation to each other, to internal conceptual knowledge, and external situations, acts and objects. When we speak, it is only possible through co-operation between all these types of knowledge. The recognition of an external object, or a written word shape may evoke a corresponding articulatory response. Hearing a particular word evokes an association with an internal concept, with an external object, or with some other word/s. In normal everyday situations, all these systems of representation constantly work as a kind of associative network. This would appear to indicate that models that have been developed both within the theory of activation spreading (see eg. Dell 1986) and the connectionist framework (for an introduction, see eg. Bechtel and Abrahamsen 1990) could have bearing on the theory of speech.

But the system does not work solely on the basis of direct associations and automatic responses. The different input stimuli, for example, may not be turned into direct reactions: the speakers do not 'think aloud'. The system needs an intelligent manager that evaluates the stimuli, compares them to others and makes decisions on appropriate action. Thus it could be claimed that the higher-level processes are - to a great extent - *analogical* processes in which speakers pick *relevant* features and make decisions about *appropriate* actions. It can be argued that the mind does not work with abstract 'linguistic' entities and rules, but with concrete sensory and motor patterns, which it studies and deals with in an analogous manner.

This view also stresses the *perceptual* and *interpretative* nature of speaking more perhaps than is usually the case, which is one of the natural consequences of the *dialogical* approach. To be able to speak means to be able to understand, and to estimate a given situation. In internal processes, the perceptual and the productive readily mix and overlap: the generation process of an utterance is a response in the ontological sense, but it is also often a practical response.

In addition, internal speech can be envisaged in terms of constant multi-level processes of decision-making, that concern the contents, quality and timing of the utterances. In some cases these

decisions are hardly more than fast automatized responses, while at times they might be complex and time-consuming tasks. These internal processes can be manifested in external speech, in the form of various speech phenomena labelled as 'hesitation pauses', 'false starts', 'modifications' and 'specifications', which all reflect the constant nature of these processes. Speakers do not only make decisions to initiate speech, but they continue to engage in decision-making throughout delivery of their speech. Slips of the tongue clearly show that these decisions often are hasty or inappropriate. Speakers may be misled by one or another factor and carry out an action which is not appropriate in a given context. Then the resulting utterance obviously will not make sense, nor fulfil its function. These utterances are misplaced or inappropriate patterns. A number of slips of the tongue thus occur on level of decision-making.

It is obvious, however, that one aspect of external speech is *linear*. Thus word patterns are articulated one at a time, and within a word pattern, articulatory gestures follow each other in a preconditioned manner. As argued, this process should be largely automatic, and run with little conscious effort. It was further argued, however, that the flow of articulation is particularly susceptible to error. Thus the fact that slips in articulation are as frequent as they are, may be caused by (a) the enormous complexity of the internal parallel level, but also by (b) the complexity and nature of articulation itself. In addition, articulation, although routine and automatized in adult speech, is in reality a finely tuned and sophisticated system that has its own laws and rules. These two systems, *parallel internal processing* and *linear articulation*, operate side by side in spoken interactions. Sometimes they are both smooth, sometimes clumsy. Sometimes they work in synchrony, sometimes they interfere with each other. Sometimes, possibly exceptionally, the speech that results is smooth, but often it is not, and is full of traces of problems at all levels.

The above view also means that the internal linguistic processes are not a series of mysterious processes that are operating inside of an inaccessible black box, also referred to as the linguistic module. If speaking is considered in terms of auditive, articulatory and visual processes, these processes are perhaps far more accessible than is generally regarded. If, in addition, speaking involves the use of attention and various higher-level cognitive processes, it seems that a fairly reliable picture of the speaking process could be outlined already. Much data is available on such

areas as memory, problem-solving, decision-making or learning, and more future research could be directed towards the issue of consciousness and conscious processes.

Here, the view that internal processes are mysterious and inaccessible is denied. The study of the speaker's processes through the self-reports and explanations of the speaker him/herself has hardly begun, but could clearly supply us with a new kind of data about the inner language. Consequently, it would be worthwhile to pay attention to such introspective methods, which could make the internal spoken language production more accessible for research.

The framework of cultural models (see eg. Holland and Quinn 1987) is another possibility of analysis. A cultural model of language refers to the notions speakers have about their language, and its structure, function and usages. In psycholinguistics, for example, we seem to have almost the whole fascinating area of people's own notions, theories and models about their internal processes unexplored. This particular kind of research would give us better insights into what psycholinguistic processes are accessible for conscious analysis, and it would greatly increase our understanding of the internal, experiential language.

Commonly cultural models refer only to notions of so-called naive persons. That is why they were often called as folk models. Ontologically, however, the distinction between a scientific model and a folk model may not always be so drastic, as scientists would like to assume. As a matter of fact, a suggestion that seems to be implicitly present in many of my arguments is that the scientific model about speaking has been in fact seriously handicapped. A logical conclusion is to find other means and methods for analysis. The study of cultural models and experiential mental language could be such areas.

This amounts to saying that, at the moment, we actually have only little scientific knowledge about the experiential language. This is due to the fact that psycholinguistics has been dominated by ideas which have called for the notion of the language structure internalized and idealized. Language was distinguished from speech, speech was judged as a corruption of language, and the properties of speech were thought to be either irrelevant or false. Thus language became to be something that was never realized in speech. However, this language system, which either was never realized - or that was realized in written language - was projected into the speaker's mind as his/her grammar. The

grammar was based on abstract and invariant linguistic entities and rules.

As I see it, language and speech are two fundamentally different things. Language is a social system, which has developed in co-operation with external factors: universal human laws, and particular cultural circumstances. Thus language system has slowly developed particular constructions, such as word structures and grammatical structures. In addition to external influences, the language system also develops internally, as seen in linguistic changes. The social and collective language system could thus be described as formal structures, which, however, are essentially motivated solutions, not arbitrary ones.

Speech, on the other hand, is not a language system internalized. Speakers are not interested in the production of linguistic forms but in fulfilling some function. Speakers may have their own sets of rules and own concrete entities to work with, and this notion also allows for the variation that is observed between different speakers. Speaking and listening are not regarded as a process decomposition and reconstruction of language. As the 'linguistic' processes are taken care by several habitual and automatized responses to various cues, 'linguistic' processing plays a minor role in speaking. To date, it has been far too readily assumed that real-life speakers - unknowingly - behave like sophisticated linguists. The famous cliché of a child as a 'linguist *par excellence*' sums up this idea. In the present work, I have given some very tentative suggestions as to how the speaker's rules and entities might, in reality, operate. It remains to be seen, however, what the exact nature and quality of these processes is actually like.

What this all amounts to is that the dualistic and idealistic notions that have been dominant within psycholinguistics must be seriously questioned. The human mind works in an essentially and fundamentally dialogical, or interactive manner. No dualistic line can be drawn between the intelligent Mind and the subservient speaking Body. Mind is in dialogue with the Body using the available motor and sensory mechanisms. Minds are also in constant interaction with another Minds. Interaction is not to be understood as a formal exchange of propositions and linguistic structures but as a process in which a common cognitive ground is created for the speakers to negotiate meanings in. The Mind interacts with Reality, both perceiving sensations, interpreting and modifying them, and considering its own reactions. The acts, or the speech utterances that the mind produces, are not separate from

their speaker. They are not disembodied separate linguistic products alienated from their producer, but functional messages and meanings. We live in a world of interaction, and the solitary mind is a theoretical impasse. The solitary mind which is a language-producer is an absurdity.

What we have considered as speech errors are also products of this network of complex interactions. When we examine ordinary everyday speech, as it is, we see how very habitual the 'problems' are: how speakers hesitate, start again, change their wordings, pause, repeat themselves, and sometimes, lapse into what seems incorrect, inadequate, odd, or improper. It could be argued that this is the true nature of speech, not the idealized image that is given in the assumed internal grammars. Speech is inherently slipshod, and in that, it is also an accurate image of the internal processes. To speak is to be able to evaluate things, to make choices, to mean. The slips are a manifestation of these processes that make the human communication meaningful. *Errare humanum est* carries a strong sense of what humanity really is.

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ABBREVIATIONS

FINNISH CASES

ABESS.	abessive
ABL.	ablative
ACC.	accusative
ADESS.	adessive
ALL.	allative
ELAT.	elative
ILL.	illative
INESS.	inessive
NOM.	nominative
PART.	partitive

Finnish case system is discussed in eg. Karlsson (1983b).

PHONOLOGY

Reference is made throughout the thesis to phonemic level. Written representations of pronunciation in chapter 4 are written with conventional orthographic equivalents in order to avoid phonetic script. There, /ä/ refers to a low unrounded front vowel and /ö/ to a mid rounded front vowel. Long vowels and geminate consonants are indicated with two graphemes. Stress is indicated with ' .

LIPSAHTELEVAA PUHETTA - TUTKIMUS EPÄKIELESTÄ

Tutkimuksessa käsitellään puheen tuottamisen teoriaa. Kyseessä on psykolingvistinen tutkimus, jonka aineistona on käytetty suomenkielisestä spontaanista keskustelusta kerättyjä *virhesanontoja* eli puheen lipsahduksia (N= n. 1000). Virhesanonnaksi luokitellaan tavallisesti ilmaus, joka ei ole puhujan intention mukainen, ja tällaiset virhesanonnat vaihtelevat pienistä artikulaation lipsahduksista pahoihin sosiaalisiin kömmähdyksiin. Kieli voi viattomasti lipsahtaa ja muuttaa *ruukkukukan kuukkurukaksi*, mutta pahempi kömmähdyks sattuu, kun onnittelija puhuttelee iäkästä syntymäpäiväsankaria juhlapuheessa *rakkaaksi vainajaksi*. Lisäksi tutkimuksessa on käytetty ns. interaktiolipsahdusaineistoa (N= n. 500), joka on kerätty yhteistyössä FL Maarit Valon kanssa.

Viimeaikaisessa psykolingvistisessä tutkimustraditiossa ihmisen puheen tuottamista on mallinnettu pääasiassa jonkin kielitieteellisen ajatusrakennelman avulla. Tämä ajatusrakennelma on tavallisesti ollut ytimeltään generatiiviseen kielioppiin pohjautuva. Kieliteoriasta on johdettu hypoteeseja, joita on pyritty todentamaan kokeellisen tutkimuksen tai ns. *ulkoisen evidenssin* keinoin. Tutkimusote on tällöin hypoteettis-deduktiivinen. Kielen lipsahdukset onkin psykolingvistiikassa nähty ainoastaan kieliteorian evidenssinä, ei itsenäisenä tutkimuskohteena. Psykolingvistiikan teoreettiseen taustaan kuuluu tavallisesti *sisäisen kieliopin* metafora. Tämän käsityksen mukaan puhujan sisäiseen kielioppiin kuuluu lapsuudessa omaksuttu kielen *sääntöjärjestelmä* ja ns. *mentaalin leksikko*, joka sisältää sanojen mentaaliset edustumat eli abstraktit kielelliset representaatiot. Virhesanontojen on oletettu kertovan toisaalta kielellisten sääntöjen luonteesta ja toisaalta niistä periaatteista, joiden mukaan mentaalinen leksikko on järjestynyt. Siten väärä sanavalinta, esimerkiksi *siivousanemia siivousmanian* sijasta tai *juustoviila juustohöylän* sijasta, kertoisi siis sanojen järjestymisestä leksikkoon ja niiden hakuprosessin luonteesta.

Sisäisen kieliopin mallissa ulkoinen puhe - siis arkinen, tavallinen ja jokapäiväinen kielenkäyttö - nähdään monessa suhteessa virheellisenä. Sisäinen kielioppi ja mentaalinen leksikko

ovat sen sijaan luonteeltaan invariantteja ja täydellisiä: 'virheettömiä'. Puhutun kielen 'lipsahdukset', 'virheet', 'haparoinnit', 'epätäydellisyydet', ja sen 'fragmentaarisuus' tai 'epäsujuvuus' on kuvataan toimintahäiriöinä. Sisäisen kielen suhde ulkoiseen puheeseen on tällöin sama kuin puhtaan suhde tahriintuneeseen, ja puhe nähdään itse asiassa kielen turmeltumisena. Tässä ajattelussa näemme oikeastaan platonilaisen ideamaailman siirrettynä ihmisen psyykeen. Kielitieteen voidaankin väittää olevan filosofialtaan idealistista.

Tutkimuksessa tarkastellaan normin ja normista poikkeaman käsitettä kielitieteessä, ja pohditaan *kielivirheen* ja *lipsahduksen* eroa. Tavallisimmin kielivirhe on määritelty poikkeamaksi virallisesta kielinormista, ja lipsahdus puhujan poikkeamaksi omasta normistaan. Tutkimuksessa kuitenkin osoitetaan kielivirheen ja lipsahduksen välisen rajan häilyvyys. Molempien määrittelyyn kuuluu ilmauksen arviointi. Kielenkäyttäjät arvioivat kuulemiaan ilmauksia - sekä toisten puhetta että omaansa, ja vertailevat niitä erilaisiin normeihin, joista kielen 'oikeellisuus' on yksi. Muita kriteerejä voivat olla esimerkiksi sosiaalinen sopivuus, merkityksen järkevyyt, puheen sujuvuus jne. Jonkinasteista oman ja toisten puheen arviointia tapahtuu jatkuvasti: kuuntelemme toisia ja *monitoroimme* omaa puhe-suoritustamme osana normaalia vuorovaikutustilannetta. Puhutulle kielelle on tyypillistä juuri oman puheen monitorointiin perustuva korjaaminen, täsmentäminen ja uudelleen muotoileminen. Perustellumpia ja syvällisempiä arviointeja tehdään tarvittaessa ja silloin, kun aika antaa myöten.

Puheen 'arviointiin' voi kuulua myös *attribuutioprosessi*, jossa virheelliseksi tai epätäydelliseksi huomatuille ilmaukselle etsitään myös syitä, vaikuttimia ja perusteita: esimerkiksi onko puhuja toiminut näin *tietämättömyydestä, tahallaan, tietten tahtoen* vai *vahingossa* tai *epähuomiossa*. Lasten ja kielenoppijoiden tuotokset luokitellaan helpommin kielivirheiksi, kun taas aikuisten samantapaisia virheitä arvioidaan periaatteessa helläkätisemmin, ja niitä pidetään satunnaisina lipsahduksina. Jako kielivirheisiin ja lipsahduksiin on kuitenkin karkea ja riittämätön kuvaamaan sitä vaihtelua, jota kielenkäytössä todella esiintyy. Tulevassa tutkimuksessa on syytä ryhtyä selvittämään niitä perusteita, joilla ihmiset itse asiassa arvioivat omia ja toisten puhe-suorituksia, ja sitä mistä he arvelevat 'virheellisyyksien' ja 'puutteiden' johtuvan. Tässä tutkimuksessa virhesanonta on määritelty *sellaiseksi puheen ominaisuudeksi, jonka puhuja itse voi*

tunnistaa jollain tavalla 'vääräksi' ja jonka hän itse arvioi johtuvan muista tekijöistä kuin tietämättömyydestä.

Tässä tutkimuksessa on kuvattu puheen virhesanontoja kvalitatiivisin keinoin. Ote on induktiivinen, ja tutkimuksessa tarkastellaan puheen virhesanontoja vailla kieliteorian rajoituksia, mutta samalla ilman sen suojaa. Niin lipsahduksia, kuin muitakin puhutulle kielelle luontaisia piirteitä on usein pidetty juuri 'virheinä' (*speech errors*). Puheen *virheinä* on siis pidetty paitsi kielen lipsahduksia (*slips of the tongue*) myös 'vääriä aloituksia', 'täsmennyksiä' ja jopa taukoja! Syy siihen, että puhutun kielen luontaisia piirteitä pidetään virheinä, löytyy kielentutkimuksessa vallitsevasta kirjoitetun kielen ylivallasta (ks. Linell 1982). Kirjoitettua kieltä on kautta vuosisatojen pidetty sosiaalisesti hyväksyttävämpänä ja tavoitellumpana kielimuotona kuin puhetta. Kirjoitetun kielen sosiaalinen yliote on vaikuttanut - vaikkakin piilevästi - myös kielitieteen kielikäsitykseen. Se 'kieli', joka on kielitieteen normaalikieltä, onkin paljon lähempänä kirjoitettua kuin puhuttua kieltä, ja useiden kielitieteellisten peruskäsitteiden on helppo todeta olevan erittäin läheisessä yhteydessä kirjoitettuun kieleen. Tällaisia kirjoitetusta kielestä lähtöisin olevia käsitteitä ovat erityisesti *äänne* (*foneemi*) ja *lause*. Silloin kun tämä kielitieteen normaalikieli nähdään myös *psykologisesti todellisena* ilmiönä, käsitetään myös puheen tuottaminen esimerkiksi 'lauseiden tuottamisena' tai 'foneemien lineaaristamisena'. Tällainen näkemys on tyypillistä *formalistiselle* psykologistiikalle, joka näkee puheen tuottamisen prosessina, jossa kielellisistä yksiköistä rakennetaan hierarkkisesti kielellisiä rakenteita.

Tässä tutkimuksessa lähdetään liikkeelle ulkoisesta puheesta, ei kieliteoriasta, ja pyritään mallintamaan sisäistä kieltä ulkoisessa puheessa havaittujen ominaisuuksien perusteella. Kun puhetta tarkastellaan sellaisena kuin se esiintyy arkisissa keskustelutilanteissa, nousee esiin kaksi selkeää piirrettä, jotka formalistinen kielitiede on joko unohtanut tai heittänyt ns. kielenulkoisten tekijöiden tilavaan roskakoriin. Toinen on puheen *vuorovaikutuksellisuus* ja toinen on *funktion* käsite. Formalistinen näkemys korostaa kieltä muotona ja rakenteena ja näkee ihmisen ikään kuin kehittyneenä kielellisiä ilmauksia tuottavana tietokoneena. Funktionalistiset koulukunnat taas korostavat kielen voimaa viestiä erilaisia merkityksiä ja näkevät rakenteet erilaisten funktioiden seurauksena. Psykologistiikassa tämä tarkoittaa sitä, että kielen käyttöä - eli tavallista puhetta - säätelevät erilaiset

ulkoiset ja sisäiset tarpeet. Puheella on siis aina *syynsä* ja *seurauksensa*, joiden mukaan ilmaukset rakentuvat, noudattaen niitä sovittuja, konventionaalistuneita keinoja, joita kullakin kielellä ja kulttuurilla on käytössään.

Puhuminen on siis aina nähtävä lähinnä kielellisten ja sosiaalisten merkitysten välittämisenä ja *puheakteina*, ei formaalisten lauseiden tuottamisena. Formalisti siis näkee kielen rakenteena (lauseina, sanoina, morfeemeina, foneemeina...) ja päättelee, että tietynlaisen kielellisen rakenteen tuottaa vastaavanlainen rakennusprosessi. Tässä harhapäätelmässä unohdetaan, ettei kielen rakenneanalyysi ole kielen käyttöohje. Formalistisen psykolingvistiikan mukaan virhesanonnatkin analysoidaan rakenteina, vaikkakin virheellisinä. Oikeaa, puhujan aikomaa tuotosta kutsutaan tavoitteeksi (target). Tutkimuksessa pyritään osoittamaan millainen lingvistinen prosessi synnyttää tällaisen rakenteellisen poikkeaman. Formalistinen tutkimus päättyy kuitenkin vääjäämättä operoimaan vain niillä käsitteillä, jotka löytyvät paradigmasta. Tällöin puhe ulkoisen evidenssin todistusvoimasta menettää merkityksensä. Oivallinen esimerkki tästä ovat niinsanotut 'äänteiden paikanvaihdokset'. Esimerkiksi *kuukkurukka* -sanassa ovat yhdyssanan osien alkuäänteet 'vaihtaneet paikkaa'. Jos lingvisti näkee sanan koostuvan äänteisistä, hänellä on tuskin muuta mahdollisuutta analysoidakaan kyseistä virhesanontaa. Ulkoinen evidenssi eli 'äänteiden paikanvaihdos' todistaa juuri sen, mitä tutkijan oletuksissa on kirjattuna eli tässä tapauksessa oletuksen siitä, että puhetta tuotettaessa sanat muodostetaan ikään kuin sijoittamalla ääniteitä peräkkäin.

Tässä tutkimuksessa kritisoidaan virhesanontojen käyttöä ulkoisena evidenssinä, sillä tämänkaltaisen deduktion avulla näyttää olevan mahdotonta päätyä paradigmanvastaisiin tuloksiin. Samoin kritisoidaan formalistisen analyysin perimmäistä epäselittävyyttä, ja vastahakoisuutta etsiä vaihtoehtoisia tulkintoja. Tutkimuksessa esitetään esimerkiksi 'äänteiden paikanvaihdoksille' vaihtoehtoinen tulkinta, jonka mukaan tällaiset virhesanonnat ovatkin *kaksinkertaisia virheitä* eli puhujan epäonnistuneita yrityksiä korjata ensimmäinen lipsahduksensa. Virhe selitetään *sanan* tasolla tapahtuvaksi ja esitetään, että se kuuluu samaan luokkaan ns. *kontaminaatioiden* (blend) kanssa. Näin pystytään osoittamaan sekä selittävämpi että teoreettisesti ekonomisempi tulkinta klassiselle virhesanontatyypille.

Funktionalistisessa lähestymistavassa, jollaiseen tämä tutkimuskin pohjautuu, etsitään virhesanonnoille syitä, eikä vain tyydytä toteamaan, että virhesanonnat tapahtuvat 'jostain syystä'. Lisäksi funktionalisti etsii virhesanontojen yhtäläisyyksiä 'ei-kielillisiin' virhetoimintoihin. Formalistisen psykolingvistiikan 'kielenulkoiseksi' luokittelemat prosessit saattavat kuitenkin olennaisesti selittää 'kielellistä' prosessointia. Näin voi olla syytä muokata kielikäsitystä funktionalistiseen suuntaan ja esimerkiksi *kognitiivisen kielitieteen* käsityksiä kohti, joissa kieltä ei tarkastella ympäristöstä irrallisena ilmiönä.

Eräs tällainen tavallisesti kielenulkoiseksi luokiteltu seikka on juuri vuorovaikutuksellisuus. Käytännössä puhuminen on aina sosiaalista vuorovaikutusta, *dialogia*. Se opitaan dialogissa, sitä käytetään dialogissa, eikä puhuja ei ole koskaan yksin. Hänellä on aina joko kuvitteellinen tai todellinen kuulija. Tämä sosiaalinen sfääri nähdään usein vain puheen ja kielen ulkoisena ympäristönä, kontekstina, ikään kuin kielenkäytön näyttämönä. Vuorovaikutukselle voidaan kuitenkin antaa syvällisempi merkitys, jolloin se nähdään läpitunkevana piirteenä ja ehdottomana olemassaolon edellytyksenä kaikelle kielelle. Tällöin puhujaa, kuulijaa ja kontekstia ei tarkastella toisistaan irrallaan, vaan yhtenä toimivana ja muuttuvana kokonaisuutena. Puhumiseen ei ole yksilön kielellisen tietojenkäsittelyn tulosta, vaan lähinnä merkitysten neuvottelua tuossa kokonaisuudessa. Puhuminen on siis aina ulospäin suuntautuvaa dialogia.

Toisaalta puhe on myös *sisäistä dialogia*. Se syntyy useiden erilaisten ja eritasoisten osatekijöiden ja prosessien yhteisvaikutuksesta. Eräänä tärkeänä, usein sivuutettuna osana puheen tuottamiseen kuuluu sosiaalisen ja fyysisen ympäristön *havainnointi*. Jotta pystyisimme puhumaan, meidän tulee kuunnella ja katsella, havaita ja ymmärtää. Intentiont eivät synny tyhjästä, ja ajatuksella on alkunsa. Samoin puhumiseen kuuluu myös *muistaminen* ja luultavimmin *analoginen* erilaisten kielellisten ja sosiaalisten kokemusten hyväksikäyttö. Puhuminen on myös *motorista* toimintaa, artikulaatiota. Se on siis sekä havaitsemista että tuottamista, sekä sosiaalista että psyykkistä ja sekä kognitiivista että sensomotorista.

Prosessoinnin luonne on siis luultavimmin paralleelinen, eri toimintojen muodostama kokonaisuus. Tutkimuksessa päädytään ehdottamaan näkemystä, jonka mukaan erillisen sisäisen kielellisen (lingvistisen) komponentin (tai modulin) olemassaoloon tulisi suhtautua epäilyksellä. Sisäinen kieli löytyy useista paralleelisista

prosesseista ja taidoista, ei leksikosta ja kieliopista. Kielen käsite olisi erityisesti psykolingvistikossa tutkimuksessa 'purettava': *kielen* käytön sijasta tulisi puhua *puhumisesta, kuuntelemisesta, ymmärtämisestä, kirjoittamisesta, lukemisesta, viittomisesta, päättelystä* jne. Nämä prosessit ovat osin samanlaisia, osin erilaisia, mutta ei ole välttämättä syytä olettaa, että niiden takana olisi jokin sellainen ehdoton yhteinen *kielen* syvämuoto, jota generatiivinen ajattelu ja autonominen kielitiede esittää.

Tästä seuraa, että puhetta on syytä tarkastella nimenomaan niiden havaittavien ja tunnettujen prosessien kautta, *jotka ovat tyypillisiä puhutulle kielimuodolle*. Puheen mallintamisessa voidaan siis lähteä liikkeelle sosiaalisessa vuorovaikutuksessa havaittavista prosesseista ja konkreettisesta keskustelupuheesta. Tällöin havaitaan, että eräs puheen suunnittelun tärkeä osatekijä löytyy juuri tilanteen observoinnista. Kukin puhetilanne aktivoi - usein jo etukäteen - sanastoa, koska tiedämme, mitä missäkin tilanteessa on tapana sanoa. Diskurssin eteneminen, jokainen puhuttu ilmaus ja sana voi taas aktivoida uusia sanoja. Siten *sanaston aktivointi* on osin tiettyjen tilanteissa nähtyjen ja kuultujen ärsykkeiden ja osin oman assosiaatio- ja analogiakyvyn perusteella tapahtuvaa toimintaa. Aktivaatioprosessi on jatkuvaa ja tahatonta; voisi sanoa, että on mahdotonta olla mieltämättä maailmaa sanoin. Ajatukset ovat kuin pilviä, jotka satavat maahan sanoina, totesi Vygotsky.

Mitä sitten itse asiassa tarkoitetaan sanalla ja sen aktivoitumisella? Tutkimuksessa päädytään käsitykseen, jonka mukaan sanojen edustamat ihmisen mielessä ovat sidoksissa niihin reitteihin, joilla sanastoa omaksutaan, opitaan ja käsitellään: kuulo- ja näköhavaintoon sekä artikulatoriseen puheeseen. Puhetilanteessa aktivoituisi siis tavallisimmin suoraan tietty artikulatorinen toimintamalli eli sana. Virhesanonat taas syntyisivät siitä, että sanojen jatkuvan aktivoitumisen vuoksi puhujan mielessä on aina enemmän sanoja aktivoituneena kuin puheeseen tarvitaan, ja puhuja valitsee aktivaatiotasoltaan kohonneiden sanojen joukosta väärän sanan.

Myös *kieliopillinen* prosessointi (eli syntaktiset ja morfologiset prosessit) on paljolti sekä ulkoisen diskurssin rakenteen että puheen funktioiden sanelemaa. Siten esimerkiksi tarve kysyä saa puhujan valitsemaan tietyn kielellisen konvention, esimerkiksi kysymyslauseen, johon kuulijan on taas reagoitava tietyllä tavalla. Puheen syntaksia ohjaa siis sekä puhumisen funktio, kielen konventionaalituneet muodot että edeltävä diskurssi.

Puheen rakenteet tulevat osittain 'ulkoa' puheen funktioista ja diskurssin ominaisuuksista. Osittain rakenteita taas säätelevät kieleen konventionaalituneet säännöt. Puhujan säännöt olisivatkin siis mahdollisesti mallinnettavissa *prosessointivihjeiden* käyttönä. Näiden vihjeiden kuvausjärjestelmän kehittäminen ja niiden tarkempi analyysi on jatkotutkimuksen aihe.

Puheen 'viimeinen' vaihe on *artikulaatio*. Tässä vaiheessa tapahtuu paljon virhesanontoja, ja periaatteessa niissä on kyse normaalisti rutinoidun artikulaatiomallin lipsahtelusta. Lopullinen lipsahdus saattaa olla toisen artikulaatiomallin pienehkö vaikutus toiseen (esim. *svitsit spitaalisista*) tai isompi kahden sanahahmon yhteensulautumisprosessi (*houkullisia* munkkeja *houkuttelevien* ja *herkullisten* sijasta).

Virhesanontojen voidaan sanoa olevan *emergenttiä* toimintaa. Puheen pinnan alla, ihmisen mielessä, on käynnissä useita samanaikaisia prosesseja, joiden yhteisvaikutusta myös virhesanonnat ovat. Virhesanonta ei ole yhden tietyn kielellisen prosessin toimintahäiriö, eikä yksi väärä valinta mentaalisesta leksikosta, vaan useiden osatekijöiden aikaansaama kielen muoto. Siten se on osin ennustettava mutta osin satunnainen tuotos, joka on selitettävissä sekä perinteisesti kielellisiksi että ei-kielellisiksi luokiteltujen prosessien avulla. Virhesanontojen klassinen luokitus formalististen ja kielellisten kriteerien mukaan ei siis näytäkään psykologisesti todelliselta. Puhuttuun kieleen ja samalla niihin sisäisiin prosesseihin, joiden avulla puhetta tuotetaan tuntuu kuuluvan luontaisesti 'epätäydellisyys'. Epätäydellisyyttä ei kuitenkaan ole syytä nähdä puhutun kielen heikkoutena ja virheellisyytenä, vaan kenties paremminkin sen voimavarana, joka antaa mahdollisuuden viestien täsmentämiseen, ajatuksien kehittämiseen, toisen osapuolen kuunteluun ja ehkä myös perimmältään - oppimiseen.