Hans W. Dechert / Dorothea Möhle /
Manfred Raupach (eds.)

Second Language
Productions

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Preface

This volume is another attempt of the Kassel Psycho- and Pragmalinguistic Research Group (KAPPA) to assess and describe the processing of second languages by advanced adult learners of English, French and German within the theoretical framework of contrastive psycholinguistics.

All articles collected in this volume, including the excerpts selected from the Kassel Corpus in Part Two, are the result of a research project initiated and sponsored by the research program "Sprachlehrforschung" (Language Acquisition Research) of the Deutsche Forschungsgemeinschaft (German Research Council). The coordinators of the program and Manfred Briegel of the German Research Council deserve our special gratitude.

The contributors to this volume, with one exception, not only talk about second language production but represent second language producers. Richard Geiger in the University of Göttingen as well as our colleagues Neal Norrick and Paul Heinemann in the University of Kassel have shared with us their native speaker intuitions in overcoming the fallacies of second language production.

Gabriela Appel, Dietmar Fütterer, Manfred Goldberg, Petra Kornstädt and Hjalmar Schumann have been responsible for the data collection, -analysis, -transcription and -documentation as well as the preparation and realization of this volume.

Several student assistants have worked with the data and prepared them for analysis and interpretation. Rolf Schreiner has been especially responsible for the instrumental analysis.

Ursula Sandrock, another student assistant, has done the typing of the manuscript and standardization according to APA standards.

A large number of American, English, French and German students have volunteered to provide us with the production data. Without them, consequently, the insights into second language production we feel to have gained in the course of this project from 1979 to 1982 would not have been possible. It is our hope that they have contributed to our teaching – and eventually will continue to add to the quality of teaching by others through disclosing the competition in the planning and execution of second language.

Kassel, Federal Republic of Germany   July 1983

H. W. D.   D. M.   M. R.

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PART TWO

Preface

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Introduction

The KAPPA second language processing project the articles in this volume are about was centred around Bernard Baars' "Competing Plans Hypothesis (CPH)". This hypothesis basically assumes that the planning and execution of language in order to be adaptive to ad hoc peripheral task demands must be flexible. Flexibility is achieved by a top down diminishing of control in the face of a limited processing capacity. The resulting lack of control enables occasional development of competing plans under the condition of increasing processing load. The temporal variables such as hesitations and error phenomena such as false starts, self-corrections and blends found in the language output vice versa provide access to an assessment of the underlying planning and competition and collision of planning.

Baars' Competing Plans Hypothesis originally developed and tested under experimental conditions in first language processing was extended to second language processing. It represents a powerful theoretical model for the description and explanation of second language processing phenomena.

The various contributions to this volume, although conceptualized and written (and therefore to be studied) independently have a number of methodological and theoretical elements in common:
- They deal with quasi-naturalistic language data of advanced adult speakers of closely related European languages collected in the Kassel Corpus.
- Temporal variables and error phenomena are considered to give access to inherent competition and collision of language plans.
- This approach claims to be essentially psycholinguistic.
- Processing as well as improvement of processing (processing over time) is the focus of interest.
- Processing occurs on various levels and dimensions. It is concept- and data-driven.

The various articles differ in many other aspects, such as subjects and types of texts, methodology and languages involved. Some of them make additional use of introspective data.

Richard Wiese's article stresses the similarity between first and second language production. It is based on an empirical investigation of temporal variables and hesitation phenomena in the speech of first and second language speakers. Modularity, the interaction of linguistic and non-lin-

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guistic knowledge, creativity and automatization are seen as basic production features. *Dorothea Möhle* in her contribution compares the oral production of advanced German speakers of French and French speakers of German as to the variation and distribution of temporal variables, linguistic character of texts, and potential differences in planning behavior and production strategies. *Paul Lennon* deals with an experiment on the oral reproduction of an orally presented story in English as a second language. Great variation among sample members is found in most of the variables studied. *Elisabeth Brenzel* reports on the written summarization of four stories by German students of English as a replication of David Rumelhart's summarization experiment with American students. No significant differences are found between native and non-native summarizations. Summarizing, in spite of certain second language deficits among the German subjects, proves to be a general cognitive production strategy. In *Manfred Raupach's* article, formulae, identified as speech segments which are delimited by pauses and hesitations, are studied. They represent psycholinguistic units of planning with different functions such as fillers or modifiers and as organizers in the spontaneous productions of German students of French. *Gabriela Appel* und *Manfred Goldberg* analyze nine second language productions of an American Indian narrative. Various referential devices are examined and the different variables determining referential choice by second language speakers are discussed. In *Hans W. Dechert's* analysis of two oral reproductions of the same Indian story, the individual variation between two advanced German speakers of English is assessed. The differences found in the two reproductions are mainly due to individual cognitive variation between the subjects. A case study of the improvement of the text production of an advanced speaker of English after taking part in a course on text processing in a pre-/posttest design is presented by *Gabriela Appel*. Improvement in second language performance is achieved through an improvement in metalinguistic knowledge. In the concluding article, *Hans W. Dechert* attempts to summarize the volume's basic ideas and results. A short discussion of the notions of production and computation leads to the formulation of six hypotheses characterizing second language production in the light of the concept of information processing.

In recent years the research on second language processing has made rapid progress. And yet at the end of this project we frankly admit that our knowledge of second language processing is comparatively limited in the light of what ought to be known – and surely can be made known in order to eventually improve our theoretical assumptions and models of language processing and learning. A lot more certainty must be done in course of time!

Language Production In Foreign And Native Languages: Same Or Different?

Richard Wiese, University of Düsseldorf

ABSTRACT

This paper first outlines some current findings and views on language production. Modularity, interaction of linguistic and non-linguistic knowledge, creativity and automatization are seen as some basic features of production. For second language production, the question arises whether the assumption that the mechanisms underlying second language production are of a *different kind* than those for 'normal' (first language) production is justified.

This paper argues against such qualitative differences between production in a first or in a second language. Arguments are taken from theoretical assumptions on the nature of psychological components and mechanisms and from an experimental study of temporal variables and hesitation phenomena in the speech of first and second language users. These surface indicators of formulation processes indicate that it is automatization of already existing abilities which separates first and second language users, while they are alike in many other respects, especially with respect to fundamental knowledge bases and processes.

0. Introduction

There are good theoretical and practical reasons for studying language production in a second language (L2). In most societies, the amount of social and individual energy spent on teaching and learning foreign languages is enormous, especially in comparison to the work necessary to teach children their first language. Since L2 acquisition requires a much more conscious and controlled effort than does L1 (at least modern societies are obviously convinced that foreign language teachers need academic training), a study of the nature and principles of L2 usage is warranted. In other words, a psycholinguistic model of L2 production and comprehension is needed.

From a theoretical perspective, use of L2 is of potential interest because it allows controlled variation of linguistic and non-linguistic knowledge. L2 users by definition have an incomplete knowledge of a language, whereas they have all the other cognitive abilities of their peers. For a number of hypotheses, therefore, L2 users are valuable subjects (see also Dornic, 1979).

This paper will be restricted to language *production*, but will not be concerned with questions of language learning or comprehension. This restriction is justified by the plausible assumption that production is not simply comprehension reversed. Ruder and Finch (in press), and Straight (1976)

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present a number of arguments from language acquisition, aphasic speech and sociolinguistics that there exist different underlying cognitive processes for comprehension and production. Although language production is obviously based on knowledge and skills previously acquired, the mechanism of learning is different from the mechanism of producing language. On the other hand, it is also true that the needs of language use define what has to be learned. There is therefore no logical priority for the study of learning. L2 use has been predominantly studied from a learning perspective, however, whereas problems of production have been largely neglected.

In part 1 of this paper, I will outline some recent work on models of language production in general and then turn to L2 production and the few existing theories on that issue in part 2. The basic question to be dealt with is the way in which L2 production differs from L1 production. The conclusion of this paper will be contrary to the position that there are qualitative differences between the two kinds of production (part 3). Arguments are taken from theoretical assumptions on the nature of psychological components and mechanisms and from an experimental study of temporal variables and hesitation phenomena in L1 and L2 speech production. These surface manifestations of verbalization processes indicate that automatization of already existing skills is what separates L1 from L2 speakers, while they are alike in many other respects.

1. The Nature Of Language Production

1.1. Knowledge Bases And The Flow Of Information

It is useful and common in the modelling of language production to distinguish two domains of study: The speaker first has to plan *what* he has to say and then, *how* he says it. With Kempen (1977) I will refer to the 'what' of production as "conceptualization" and to the 'how' as "formulation". Kempen also shows that conceptualizations may be dependent on the available linguistic means of the speaker or of the language in general. Since a speaker may make his conceptualization dependent on the linguistic devices available, there is, therefore, not necessarily a strict ordering between the processes of conceptualizing and formulating. In the rest of the paper, language production will be viewed more narrowly as the translation of thought into language. Conceptualizing itself will therefore not be dealt with.

Most linguists and psychologists (see the contributions in Butterworth, 1980b, and Cutler, 1982) model the translation of thought into language in a sequence of subsystems. The subsystems are largely defined by levels of linguistic analysis and achieve the desired result by a step-by-step information processing on the conceptual structures. The strongest version of this

assumption is expressed by Garrett (1976, p. 235):

> (1) that for each linguistic rule system there is a processing system, (2) that the units of the computational processes are to be identified with those of the relevant type of linguistic description, and (3) that the relation of information flow between the processing levels is specified by the relation between rule systems of the grammar.

Let me illustrate this abstract description with an example. Foss and Hakes (1978, p. 198) summarize the work by Fromkin (1971), MacNeilage and MacNeilage (1973) and Garrett (1975, 1976) with the model shown in Figure 1. In this model, stages 1 and 2 constitute the conceptualization. (Unfortunately, Foss and Hakes call this "formulation," but this is only a terminological problem, since what is meant in Foss and Hakes' model and in this paper is a conceptual, non-linguistic representation.) The cognitive structure picked out and assembled is then transformed and enriched while it is passed on through the syntactic, prosodic, lexical and phonological-phonetic units. This assures in principle that all the features of the utterance are represented in the input to the "Motor Control Center" (stage 8). The particular stages in this model are empirically justified mostly by a number of speech error phenomena. Occurrences of particular types of errors (and the apparent non-occurrence of others) are taken as arguments for stages of production. Findings in aphasia research confirm some of the proposed production components. Saffran, Schwartz and Marin (1980), e.g., find evidence for a number of distinctions between types of linguistic knowledge, such as lexical and syntactic components. None of these seem to be reducible to more general cognitive processes.

Some comments regarding this basic model are in order. Foss and Hakes implicitly assume that the information flow is top down. It is unclear to what extent this is really true. I have already mentioned a possible feedback loop between the conceptualization and the formulation stage. Similarly, information passing through the stages could either be passed on in larger chunks or with considerable overlap or both. The lexical look-up, e.g., might take place while there is some message formulation going on at the same time (see Fry, 1973, for a model of this kind). At least for comprehension, there is evidence that the temporal organization of processing is more tightknit than is assumed in models of the type introduced in Figure 1 (see Marslen-Wilson & Tyler, 1980).

1.2. Some Essential Properties Of Language Production

Even if the precise form of an adequate language production model is not yet clear, there are some characteristics of language production that seem to be crucial for any kind of adequate model. I will try to summarize some current studies on language production by listing these essential properties.

The models introduced here have one formal feature in common: the decomposition of the complete mechanism into a number of subsystems or modules. *Modularity* is justified by the evidence for distinct knowledge

A Model of Sentence Production

	Production Stages	Characteristic Actions or Properties	Typical Errors
1.	Message formulation or plan	Basic functional relations are expressed in a nonlinguistic code. The unit is larger than the single clause.	Functional transpositions across phrases or clauses, e.g., direct and indirect objects are transposed.
2.	Message formulation (continued)	Topic or focus chosen.	
3.	Syntactic Structure	Grammatical items such as tense markers, question elements, etc., are inserted.	Markers may be inserted at the wrong locations, e.g., *I disregard this as precise.*
3A.	Surface Syntactic Structure Assigned	(Questionable stage)	
4.	Sentence Stress Assigned	This is a function of the syntax as well as the items to be focused upon.	
5.	Lexical Look-up	Search made on the basis of semantic information from Stage 2.	Early error: Semantic feature switch, e.g., *hate* for *love.*
		Lexical items that are "near" each other are arranged by their sound structure.	Two items are chosen resulting in a blend, e.g., *imposinator.*
		Syllable and featural information is transferred.	Late error: Malapropism, e.g., *magician* for *musician.*
6.	Storage	Serially-ordered storage.	Sound exchange errors of many types, e.g., anticipations, perseverations, transpositions.
7.	Adjustments to Morphemes	Late rules which adjust [indef art], etc.	Certain errors may be "repaired" (see text).
8.	Motor Control Center		

Figure 1: A model of language production. From Foss and Hakes (1978, p. 198).

bases involved in production (as well as in other kinds of performance). A comparison of various models, however, would disclose that there is no agreement on the number and specific kinds of modules involved. The question of modularity is also one of methodology. The assumption of a modular framework allows researchers to concentrate on one aspect of production and to ignore everything else for the moment.

If we assume that language production entails the use of a set of modules of knowledge, the question arises what kinds of knowledge are involved. Foss and Hakes base their model (Figure 1) exclusively on linguistic knowledge, but it is evident that knowledge of, e.g., the topic, the hearer, and the situation is also needed in order to produce adequate utterances. Thus language production relies on the interaction of *linguistic and non-linguistic (world) knowledge.* This may appear trivial, but one or the other of these domains has very often been neglected in the literature. On the one hand, cognitive psychology has disregarded the role played by knowledge of the language, while, on the other hand, linguistic approaches have often tried to model production from linguistic knowledge alone. Stressing the interaction of these two domains does not answer the question as to how the respective knowledge bases should be characterized. Without turning to this question in any detail, it will be assumed that frame- or schema-like bases exist for non-linguistic knowledge, whereas linguistic knowledge, as needed for language production, might be seen rather as a system of strategies or heuristics for translating conceptual into linguistic units (see Fodor, Bever & Garrett, 1974, ch. 7, and Schlesinger, 1977).

It is also another important aspect of language production that the conceptual structures serving as input do not completely determine the utterance. There are considerable degrees of freedom for the speaker with respect to various levels of formulation. Language production is *creative* in the sense that the speaker has a number of alternatives available for syntactic structures, lexical units, phonetic realization, etc., even for any given conceptual input. It is in principle necessary for a speaker to make a number of decisions on the various levels of formulation. On the surface, this appears as the enormous variability of utterances even under almost identical input conditions.

It is only an apparent contradiction to the concept of creativity, if the role of *automatization* in language production is emphasized as well. In a complex decisionmaking process, it remains possible to short-cut and simplify complex activities previously learned in order to reduce the number of mental operations required for the activity. Automatization in language production thus makes the costly construction of some structures superfluous (since the outcome is already available), or speeds up search in the mental lexicon. The reduction in time and work can also lead to an improvement in the quality of the result. Automatization can optimize language production, and therefore has a special importance for the study of L2 pro-

duction. L1 and L2 users not only have different amounts of knowledge of the language, but also differ in the efficient use of their knowledge.

Modularity, interaction of knowledge bases, creativity, and automatization as aspects of production are not components of a new model of language production. The only purpose intended here is to emphasize some neglected and relevant properties of a language production model. This sketch is furthermore limited to the cognitive processes which occur within an individual speaker. The cultural, social, communicative and intentional conditions of speaking are largely omitted in such a perspective; the psycholinguistic analysis alone seems to be difficult enough. We can only hope that the analysis outlined here is compatible with a broader view.

2. Production In L2 Theories And Data

One of the weaknesses of existing models of language production is that they disregard the limitations of knowledge bases. This ignores the fact that speakers grasp any language only to a limited extent. This is particularly the case for users of a second language, who have almost by definition an incomplete knowledge of (and/or access to) the second language. The idealization in the models, justified or not, makes it impossible to use them directly as models of L2 production.

Research specifically concerned with models of L2 production is scarce, however. Moreover, adequate standards of empirical research are not always met in the field of L2 studies. The small amount of extant research will now be reviewed.

2.1. Information Processing In Bilinguals

On a very general level, we might consider how information processing is different for bilinguals or for users of L2. It is hardly surprising that information processing in L2 is generally slower than in L1. Kolers (1966) found that bilinguals (American English and French), although they did not differ in recognition memory for material in the two languages, were faster in reading aloud their native language than L2. By composing reading texts consisting of mixed material from both languages Kolers was able to calculate a "switching time." Kolers concludes that for language production (not for comprehension) only one language is active at a given moment. Changing to another language requires (switching) time to activate that language.

Cook (1977) compared beginning and advanced learners of English with respect to their perception and memory abilities. Advanced learners could generally take in and retain more information than beginners, even if all subjects knew all test items (numerals, words, sentences) in the foreign language. The general cognitive abilities of the subjects could not, on the