Gesture as a Communication Strategy in Second Language Discourse

A Study of Learners of French and Swedish

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CONTENTS

LIST OF ABBREVIATIONS

B	beats
Co	code
Com	complementary
Cn	conceptual
CS	communication strategies
D	deictics
EFL	English as a Foreign Language
Fr1	French as first language, French group
GCS	gestural communication strategies
He	hedging
I-C1	iconics C-VPT1, character viewpoint mimetic
I-C2	iconics C-VPT2, character viewpoint highly mimetic
I-C3	iconics C-VPT3, character viewpoint true mime
I-O	iconics O-VPT, observer viewpoint
IL	Interlanguage
L1	language 1, first language
L2	language 2, second or foreign language
M	metaphorics
Mi	mixed
NNS	non-native speaker
NS	native speaker
NVC	nonverbal communication
O	object
Oa	overt appeal
OCS	oral communication strategies
S	subject
SLA	second language acquisition
SLI	specific language impairment
Sub	substitutive
Sw1	Swedish as first language, Swedish group
V	verb

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Title and subtitle

Gesture as a Communication Strategy in Second Language Discourse. A Study of Learners of French and Swedish

Abstract

Gesture is always mentioned in descriptions of compensatory behaviour in second language discourse, yet it has never been adequately integrated into any theory of Communication Strategies (CSs). This study suggests a method for achieving such an integration. By combining a cognitive theory of speech-associated gestures with a process-oriented framework for CSs, gesture and speech can be seen as reflections of similar underlying processes with different output modes. This approach allows oral and gestural CSs to be classified and analysed within a unified framework. The respective fields are presented in introductory surveys, and a review is provided of studies dealing specifically with compensatory gesture–in aphasia as well as in first and second language acquisition.

The experimental part of this work consists of two studies. The production study examines the gestures exploited strategically by Swedish learners of French and French learners of Swedish. The subjects retold a cartoon story in their foreign language to native speakers in conversational narratives. To enable comparisons between learners and proficiency conditions both at individual and group level, subjects performed the task in both their first and their second language. The results show that, contrary to expectations in both fields, strategic gestures do not replace speech, but complement it. Moreover, although strategic gestures are used to solve lexical problems by depicting referential features, most learner gestures instead serve either to maintain visual co-reference at discourse level, or to provide meta-linguistic comments on the communicative act itself. These latter functions have hitherto been ignored in CS research. Both similarities and differences can be found between oral and gestural CSs regarding the effect of proficiency, culture, task, and success. The influence of individual communicative style and strategic communicative competence is also discussed. Finally, native listeners' gestural behaviour is shown to be related to the co-operative effort invested by them to ensure continued interaction, which in turn depends on the proficiency levels of the non-native narrators.

The evaluation study investigates native speakers' assessments of subjects' gestures, and the effect of gestures on evaluations of proficiency. Native speakers rank all subjects as showing normal or reduced gesture rates and ranges–irrespective of proficiency condition. The influence of gestures on proficiency assessments is modest, but tends to be positive. The results concerning the effectiveness of gestural strategies are inconclusive, however. When exposed to auditory learner data only, listeners believe gestures would improve comprehension, but when learner gestures can be seen, they are not regarded as helpful. This study stresses the need to further examine the effect of strategic behaviour on assessments, and the perception of gestures in interaction.

An integrated theory of Communication Strategies has to consider that gestures operate in two ways: as local measures of communicative 'first-aid', and as global communication enhancement for speakers and listeners alike. A probabilistic framework is outlined, where variability in performance as well as psycholinguistic and interactional aspects of gesture use are taken into account.

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GESTURE AS A COMMUNICATION STRATEGY IN SECOND LANGUAGE DISCOURSE
A STUDY OF LEARNERS OF FRENCH AND SWEDISH

MARIANNE GULLBERG

Fil. Kand., Helsingkrona nation

<div align="right">

Part One
1 Introduction

</div>

[…] the Hand, that busie instrument, is most talkative, whose language is as easily perceived and understood, as if Man had another mouth or fountaine of discourse in his Hand.

<div align="right">

Bulwer (1644/1975:1)

</div>

This study deals with the question of what we as language learners do when we have to survive in a language we have not mastered. A common answer is that people use whatever means they have available to overcome their problems, including hands and feet. Hand and foot solutions are thus part of what has come to be known as communication strategies, or means of ensuring communicative survival in the messy reality with which language learners are faced once they leave the language classroom. Oral communication strategies have received much attention, but despite the popularity of hand and foot solutions in actual communication, these latter have rarely been studied.

This work, then, stems from a desire to investigate a phenomenon generally agreed upon as being essential to survival in a second language, but rarely addressed in the scientific literature. The 'fountaine of discourse' which learners have in their hands serves as the point of departure for this study, and the aim is to bring together two different domains–research on communication strategies in a second language, and gesture research–to reveal whether lay intuitions about the usefulness of gestures in difficult communicative situations survive scrutiny.

Not all hand and foot movements will be considered, however. Only those gestures which are related to language and performed unwittingly during speech are included in this work, rather than overall general nonverbal behaviour such as scratching or facial expressions.

This study has two fundamental objectives:

(1) The first is empirical in its quest to provide answers to precise questions regarding issues relating primarily to communication strategy theories, but also relevant to gesture theory:

> • what (compensatory) gestures do adult second language learners use in real communicative situations when faced with a native speaker? How do such gestures function as communication strategies? Are they essentially instances of mimetic gestures occurring when speech fails, or are there other types of strategic gestures?

• what is the quantitative and/or qualitative effect of cultural background and first language, proficiency level, task, and individual style on the use of such gestural strategies?

• are oral and gestural communication strategies similar or different?

• how well do gestures work as a compensatory device? How are they reacted to by interlocutors and onlookers?

(2) The second aim is more exploratory and concerns theoretical issues:

• can the study of compensatory gestures be integrated into existing theories of communication strategies?

• what makes a gesture compensatory/strategic?

As a consequence of these concerns, this volume is divided into three broad parts. The first is a relatively extensive overview of the theoretical fields of communication strategy research and gesture study.

Chapters 2 and 3 are intended to serve as introductions to readers unfamiliar both with the terminology and relevant issues in either or both fields. Chapter 2 discusses definition problems and classification systems for communication strategies, as well as some empirical results from previous studies regarding proficiency level and tasks. A brief survey of how gesture has been treated within the existing frameworks is also provided.

In Chapter 3, a definition is given of the type of gesture dealt with in this study, and a distinction is made between speech-associated gestures, other gestures, and nonverbal behaviour in general.

Chapter 4, the final chapter in this section, deals specifically with questions concerning compensatory gestures, and the relationship between gestures and language. Gestures as compensation for linguistic problems are discussed in relation to aphasia, and first and second language acquisition.

The second part comprises the empirical studies on which this study is based, beginning with the study of gesture *production*, followed by the study dealing with the *evaluation* of gestures as communication strategies. The emphasis in the empirical chapters is on qualitative analyses of the data, and the quantitative aspects are summarised.

The second part opens in Chapter 5 with a description of the data collection and the theoretical framework within which this study has been conducted.

A sample of the data is presented in Chapter 6 in the form of individual learner profiles to provide readers with a sense of the range of behaviour dealt with in

the analyses, both with respect to proficiency levels, strategic behaviour, and gestures. The learner groups are also characterised briefly.

Chapter 7 examines the oral communication strategies in the data, and discusses both individual and proficiency-related aspects.

Chapters 8 and 9 deal with overall and strategic gestures. Different types of gestures and their strategic functions are analysed in Chapter 8, and lexical compensation is shown to be but one of a number of functions.

Chapter 9 contains quantitative summaries of the data, and factors such as proficiency and cross-subject issues pertaining to first language and cultural background are also discussed in this chapter.

Chapter 10 addresses the issue of listeners' gestures and the relationship between such gestures and co-operative listener behaviour.

The evaluation study in Chapter 11 closes the second part of the volume. The chapter is concerned with native listener evaluations of learner performance–both oral and gestural–and discusses the influence of gestures on proficiency evaluations, as well as the importance of individual communicative competence for global assessments.

The third and final part of this work, Chapter 12, gives a brief evaluation of the study, and discusses the implications of learners' use of compensatory gestures for theories of communication strategies, and for the concept of 'strategy' itself. It is suggested that both psycholinguistic and interactional aspects of strategic behaviour must be taken into account.

Finally, the scope of this study is strongly cross-disciplinary, and scholars from the different fields are bound to find irritating omissions or superficial treatment of essential points. However, no exhaustive account can be given of two major fields in a project of this order. The main objective has instead been to explore possibilities of integrating findings from different traditions, and to suggest a method for broadening the scope of studies of communication strategies.
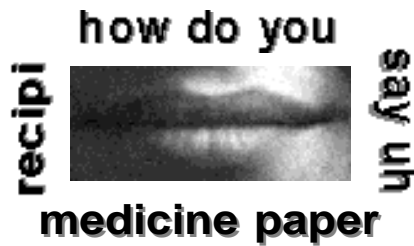
2 Communication strategies–
A brief survey of the field

2.1 Introduction

All accounts of second language *use*–as opposed to accounts of language acquisition–have to deal with the discrepancy between what learners 'know' theoretically about their second language (L2), and their performance when they put this knowledge to use. In language teaching, test tools have been developed in order to distinguish between students' Cognitive Academic Language Proficiency (CALP) and their Basic Interpersonal Communicative Skills (BICS) (Cummins 1979). Academic proficiency is often measured in terms of grammatical and lexical competence. Interpersonal communicative skills, on the other hand, relate to how the linguistic knowledge is put to use in real communication. In theories of second language acquisition (henceforth SLA), the distinction has led to a differentiation between different types of competences, such as syntactic competence as opposed to sociolinguistic competence. Moreover, a particular type of manifestation of learner competence and language use has attracted research attention, viz. the use of *Communication Strategies* (henceforth CSs). All accounts of such strategies mention gesture, but to date, no serious analysis of gesture has been performed within a framework for communication strategies.

This chapter will review the literature on communication strategies, starting with the theoretical concept of communicative competence. The notions of communication and strategy will then be revised, followed by a discussion of the numerous taxonomies of CSs found in the literature. Definitions will be briefly presented and discussed, as will some of the fundamental empirical findings on the use of strategies in second language production. Finally, the previous treatment of gesture as a strategy will be reviewed.

2.2 Communicative competence and proficiency

Language proficiency is a central issue in all research on SLA, since learners' performance is compared to a standard, usually that of the ephemeral native

speaker (NS). Proficiency has been and still is measured as the result on tests of the CALP type, of which many standard languages have their own kind, such as the *Cambridge proficiency test* for English, and *Rikstest* for Swedish. In this sense, proficiency is often synonymous to syntactic and, to some degree, lexical knowledge. Contemporary language teaching, however, is often said to be communicative and to be geared towards BICS-related phenomena. This implies a weaker focus on grammar, form and rules, and greater emphasis on the importance of communicative skills or *communicative competence* in the L2.

The term communicative competence was introduced by Hymes (e.g. 1972; 1979) and is based on a composite view of competence as being based on rules for language use, acceptability and appropriateness, rather than on grammaticality alone, as is the case in mentalist accounts of competence. A distinction was subsequently made between communicative competence on the one hand, seen as the underlying knowledge and skills required to use language, and actual communication on the other, or the realisation of these elements under limiting psychological and environmental conditions (Canale 1981; 1983; Canale & Swain 1980). Underlying communicative competence was further divided into four types of specific competence. *Grammatical competence* consists of linguistic competence regarding the code; *sociolinguistic competence* involves the culturally and socially defined appropriateness of meaning and form; *discursive competence* deals with the appropriateness of utterances in linguistic context.[1] *Strategic competence*, finally, is seen as an element which helps the learner to compensate in cases of communicative breakdown due to processing constraints or lack of competence in any of the other areas. It is thus a means of enhancing the effectiveness of communication.

The development of communicative competence is often discussed in contrast to the development of other specific aspects of competence, especially grammatical competence. The 'immersion studies' in Canada (e.g. Swain 1985; Swain & Lapkin 1982) and California (Galván & Campbell 1979; Meyer 1990) have investigated these contrasts. Immersion is defined as the condition where children are enrolled in classes where the language of instruction is exclusively the second language. The results from studies of English-speaking children's development of French or Spanish as an L2 often indicate that learners develop good communicative skills, but that their syntactic and morphological development lags behind.

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[1] For a critique of these constructs, and specifically the difficulty in distinguishing sociolinguistic from discursive competence, see Schachter (1990).

A case where the development of socio-pragmatic communicative competence seems to have hindered the development of syntactic competence, is the well-known study of Wes (Schmidt 1983). In this case study the learner is shown to have developed practically no grammatical competence in the L2 despite long exposure to the target language. However, his sociolinguistic, discursive and strategic competences are well-developed. His reliance on formulaic expressions, transfer from his first language (L1), guessing, etc., helps him both to overcome communicative problems, and to integrate well into the new environment.

These findings have led to claims to the effect that language teaching directed at developing overall communicative competence will be detrimental to learners' grammatical development, even though their social skills in the foreign language may benefit. The significance of grammatical development is then balanced against the importance of being able to conduct successful communication for the individual learner. The view that both factors are essential have resulted in the development of test tools for assessing learners' communicative abilities in addition to traditional CALP-related competence (e.g. Bachman 1990).

Another theoretical implication of communicative competence is that it introduces *variability*, such that competence is no longer a unitary and stable phenomenon–not even in NSs whose communicative competence instead varies with their experiences (Davies 1991; Hymes 1979). This assumption has important ramifications for theories of communicative competence in L2 and also for theories of L2 achievement and proficiency. It has to be questioned what particular aspect of nativeness is the goal for an individual speaker. Markham (1997) has shown that variability in native proficiency applies even to pronunciation, the linguistic level at which learners are usually considered to be most susceptible to be detected as NNSs. The study indicated that NSs are not always capable of identifying NSs of their own language when factors such as regional varieties, geographical mobility, attrition after living abroad, etc., are considered.

2.3 Communication Strategies

One of the most salient characteristics of learner language are the communication strategies (henceforth CSs) learners use to overcome problems in real situations. The introduction of the communicative, and specifically strategic, competence construct, provided researchers with a theoretical framework within which to place the study of CSs.

Strategic competence has been defined as a means of repairing communicative break-downs and of enhancing communication in general:

> Strategic competence, then, insofar as it relates to acts of reference via language, must involve an ability to select an effective means of performing a communicative act that enables the listener/reader to identify the intended referent. This ability must depend […] on a speaker's linguistic resources, knowledge of the world, and assessment of the listener/reader's knowledge of the world.
>
> Yule & Tarone (1990:181)

> Strategic competence is a compensatory element which enables a speaker to make up for gaps in his knowledge system or lack of fluency by means of communication strategies.
>
> Trosborg (1994:11)

Like many other notions in current research on SLA, CSs were invoked by Selinker (1972). They appeared in his list of five fundamental processes in the development of *Interlanguage* (IL), the internal system a learner constructs of the target language at a given point in time. The processes were: language transfer, overgeneralisation of target language rules, transfer of training, strategies of L2 learning, and strategies of L2 communication.

Much of the subsequent research on CSs has been concerned with definitions of and criteria for distinguishing CSs from other related phenomena. Despite the intuitive appeal of the notion, it has proved to be far from straightforward, and to contain a number of problematic elements. The following sections will outline some of the issues discussed in this context.

2.3.1 Communication

A fundamental, albeit often implicit, prerequisite for most studies of problems in second language communication is the particular view of language production on which they rest. The individual's communicative potential is seen as a dichotomous relationship between linguistic means and ends, between communicative intentions and linguistic expressions available, between meaning and form (Corder 1983).

This view also forms the base of a number of models of language production, of which Levelt's is perhaps best known (Levelt 1989; Poulisse 1993). Concept formation, or formation of the message, is assumed to be initialised in the conceptualiser unit. Linguistic encoding then follows suit, when linguistic material is retrieved from a lexicon. NSs are generally not aware of the encoding process in their L1, since they encounter few problems. L2 learners, on the other hand, will experience problems when the pre-verbal message from the conceptualiser cannot be linguistically encoded due to gaps in the lexical knowledge. This model will be discussed further below.

The underlying view of communication is rarely explicitly mentioned. Poulisse (1990), however, argues that Levelt's model of speech production can also be

used as a model of communication, since it takes into account contextual factors such as knowledge of the world, the situation, and the interlocutor in the generation of the message. However, the view of communicative potential as dichotomous does not automatically entail a simplistic view of general communication. Shannon & Weaver's classical linear code or *conduit model* of communication (cf. Lakoff & Johnson 1980; Reddy 1979; Shannon & Weaver 1949) suggests that communication consists of a sender generating series of monological messages, which are then unilaterally transmitted and finally decoded by a receiver. This model, although strictly speaking not a model of human communication at all, came to be very influential, especially in behaviourist circles.

In fact, the study of CSs has assumed at least two different approaches to the issue of communication. On the one hand, the tradition headed by Tarone (e.g. 1977, 1980) considers communication explicitly in terms of *interaction.* Language use is clearly seen as a collaborative effort between speakers and listeners (cf. Bakhtin 1986; Clark 1996b). On the other hand, another strand of research has emphasised *psycholinguistic* and cognitive aspects of CS use, where the focus is on mental processes within the speaker, and the context in which they apply is less important.

Most studies, then, do not explicitly define what communication is taken to mean in relation to CSs, despite the fact that the study of CSs should afford important contributions to theories of both communication and language production. In practice, however, the definitions offered for the whole concept of CS give a good indication of whether or not communication is in fact considered to be a relevant theoretical construct at all. The same is true for the underlying view of language production.

2.3.2 Defining and identifying strategies

Much of the discussion regarding CSs has focused on the issue of determining criteria for what constitutes strategic behaviour and what the cognitive and psychological characteristics of such behaviour are.

In everyday language, strategy often means "a set of procedures for accomplishing something" (Dörnyei & Scott 1997:179), but the term appears as a technical term in fields as diverse as social psychology and game theory. Goffman (1969) identifies strategic behaviour as *calculation behaviour* where a party tries to maximise the gain while keeping the risk or uncertainty to a minimum. Cognitively based suggestions for the treatment of strategies frequently view them as central parts of cognitive processing, in particular in relation to problem-solving. With regard to communication, strategies are often informally said to be "plan[s] of action to accomplish a communication goal"

(Dörnyei & Scott 1997:179). This is reminiscent of Goffman's definition, and implies that strategic behaviour is conscious and volitional. Parties assess a given situation and then decide on a course of action based on their observations. These conscious and volitional aspects have frequently been discussed in relation to CSs in terms of problem-orientedness and consciousness. Both concepts were introduced as defining criteria in the well-known definition of CSs proposed by Faerch & Kasper:

> [...] communication strategies are potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communicative goal.
>
> Faerch & Kasper (1983b:36)

It has been noted that *problem* is not a straightforward concept in itself. Faerch & Kasper use it in the sense of 'difficulty', whilst in other contexts, it seems more related to 'task', albeit presumably to a strenuous one. This ambiguity makes 'problem' unreliable as a defining criterion for what is or is not a strategy.

Consciousness is an equally problematic criterion. It has been observed repeatedly (e.g. Faerch & Kasper 1983b, 1984) that consciousness is a matter of degree rather than of either/or. Schmidt (1993, 1994) has suggested that consciousness can be divided into intentionality, attention, awareness, and control. Similarly, Dörnyei & Scott (1997) have proposed a division of consciousness into awareness of the problem, intentionality and awareness of strategic language use. These suggestions are theoretically interesting, but it is doubtful whether they provide consciousness with a more easily handled definition. First of all, the various sub-components are hardly better defined notions than 'consciousness' itself, and it is not immediately obvious what distinguishes attention from awareness, for instance. Secondly, it is still unclear how the sub-components should be distinguished from one another in actual language use, especially since the frequent use of strategies will tend to automatise them, and with increasing automaticity, strategies will become less conscious.

Bialystok (1990) rejects both of the aforementioned criteria. Her view of strategies includes all attempts to reach a communicative goal, not just instances of difficulties or problems. Instead, she suggests that two criteria need to be considered for defining strategy: 1) behavioural evidence, and 2) objective and elsewhere applicable parameters.

With respect to *behavioural evidence*, Faerch & Kasper (1983a, 1984) have proposed a set of explicit and implicit *performance features* indicative of strategic behaviour. Implicit temporal features such as pause, slower articulation rate, drawls, repeats, etc., can be recognised, as well as more explicit self-repairs, speech slips and overt markers of uncertainty or hedges, such as 'how

do you say this?'. An accumulation of such features would indicate that the speaker is experiencing encoding problems, and it seems likely that such problems would lead to strategic behaviour. However, as nothing is said about the status of these features, the methodological problems remain. There is no way of knowing which features are sufficient or necessary. Any researcher faced with actual data still have to make a relatively arbitrary choice as to which features and/or how many of them need to be present for a particular utterance to be characterised as strategic (cf. Allwood 1996).

Moreover, some of the features, such as pause, are complex in themselves. Pause has been said to indicate speech planning (Goldman-Eisler 1968), but planning does not necessarily entail difficulty. An additional problem with pause phenomena are that they can be regarded not just as indices of strategies, but as strategies in their own right (Perales & Cenoz 1996; Raupach 1983), as stalling strategies. Finally, strategies may well have been applied without telltale performance features appearing in overt speech, as is often the case in the performance of advanced learners. These strategies cannot then be detected.

In the Nijmegen-study of CS (cf. section 2.4.2), identification of CSs was done partly on the basis of such performance features as those mentioned above, and partly on the basis of retrospective comments made by the subjects themselves (Poulisse 1990). It was argued that retrospective data are useful in that they help reveal instances of strategy use which are not preceded by strategy markers such as hesitation signals, particularly with proficient learners. When introspective data are delivered spontaneously immediately after the original test and treated by several coders, they might provide valid information. In fact, the number of CSs identified in the data doubled when retrospective data were considered.

As for the *objective* parameter, Bialystok concludes that it has not yet been found. In fact, she does not consider it relevant to determine criteria for strategic behaviour, as she does not maintain the distinction between strategic and non-strategic language use, but rather gives an account of overall language production, as shall be seen below.

2.3.3 Strategies and other solutions to problems

In his list of factors influencing the development of interlanguage, Selinker gave equal status to strategies and other processes. A number of studies have attempted to distinguish *strategies* from *processes.*

Time has been proposed as a distinguishing criterion. Blum & Levinson (1983) define strategies as isolated occurrences of problem-solving at a specific point in time. Processes, on the other hand, are strategies which have become

automatised and part of a learner's interlanguage, through their application over time. Similarly, Seliger (1984) distinguishes strategies from *tactics*. Strategies are said to be universal and context-independent, and lead to long-term acquisition. Tactics, on the other hand, are momentary solutions used to cope with an immediate situation, and depend on factors such as L1, age, and context. The terminology in these studies is unfortunate, with strategy signifying the lower-level concept in the first case, and the higher-level one in the other. Moreover, as pointed out by Bialystok (1990), time is a precarious criterion. The same linguistic behaviour risks being labelled as strategy or process depending on whether the study is synchronous or diachronous.

Yet another distinction is that between strategies and *plans*. Faerch & Kasper (1983b) see language production as consisting of a planning phase and an execution phase (cf. Levelt 1989). Strategies are considered to be a subclass of plans developed during the planning phase. In this framework, strategies are not opposed to processes at all, but rather to products, defined as observable speech. However, such a dichotomy is not unproblematic. Clark & Clark (1977) have noted the difficulty in distinguish planning from execution. At any given moment, a speaker may be expected to be engaged in a bit of both, with speech progressing by simultaneous planning and execution.

2.3.4 Different types of strategies

CSs have also been defined functionally, as separate from other strategy types. A notion closely related to CSs is that of *social strategies* (Wong Fillmore 1979). These strategies supposedly enable the learner to function in social interaction and to deal with input. Social strategies in turn rely on a set of cognitive strategies, one of which might function as an underlying definition of a communication strategy: 'Make the most of what you've got'.

The distinction perhaps most widely upheld is that between CSs and *learning strategies*. If CSs apply to actual performance, then language learning strategies are defined as attempts to develop linguistic and sociolinguistic competence in the target language (Tarone 1980). This includes various pedagogical tricks to help memory and provide practice (Naiman, Fröhlich, Stern, & Todesco 1996; O'Malley & Chamot 1990; Oxford 1990). Others see CSs as a subclass of learning strategies. Stern (1983), for instance, makes no distinction between learning and communication strategies as such. Rather, he sees everything as part of the learner's attempt to achieve proficiency.

Corder (1983) distinguishes between *production* and *reception* strategies, both of which can be said to be part of communication strategies or learning strategies. Similarly to Stern, he argues that it is difficult to classify language

data as examples of either type of strategy. Likewise, Bialystok (1983) stresses that strategies are potentially either communication strategies or learning strategies. Until the effects are known, it is impossible to classify a strategy as being one or the other.

Although the concept of CSs is immediately understandable, the abundant literature on the meaning of the defining terms, on criteria, and on various related terms makes it clear that many theoretical problems related to the construct remain.

2.4 Frameworks–definitions and taxonomies

As a result of the problems of defining and distinguishing strategies, every research project dealing with CSs appears to have offered a new definition. In the following, a number of the most influential frameworks will be briefly reviewed and discussed to give a broad overview of the development of the field. The definitions and taxonomies which appear in the following are summarised in Tables 2:1 and 2:2, respectively.

Framework	*CS definition*
Tarone (1980)	[...] a mutual attempt of two interlocutors to agree on a meaning in situations where requisite meaning structures do not seem to be shared [...]. (419)
Tarone (1983)	[...] attempts to bridge the gap between the linguistic knowledge of the second-language learner, and the linguistic knowledge of the target language interlocutor in real communication situations. (65)
Faerch & Kasper (1983a)	[...] communication strategies are potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communicative goal. (36)
Poulisse (1990)	Compensatory strategies are processes, operating on conceptual and linguistic knowledge representations, which are adopted by language users in the creation of alternative means of expression when linguistic shortcomings make it impossible for them to communicate their intended meanings in the preferred manner. (192-93)
Bialystok (1990)	[...] they are the dynamic interaction of the components of language processing [analysis and control] that balance each other in their level of involvement to meet task demands. (138)
Poulisse (1993)	[...] CS are used when the speaker is confronted with a lexical problem. Lexical problems arise when the speaker has set up a preverbal message containing chunks of conceptual, grammatical and language information and then finds that he cannot access the lexical item to match all of the specifications for a particular chunk. (178)

Table 2:1. Proposed definitions for CSs.

Váradi (1980)	Tarone (1977)	Faerch & Kasper (1983a)	Nijmegen (Poulisse 1990)	Bialystok (1990)	Poulisse
MEANING ADJUSTMENT -adjust meaning -replace meaning	**AVOIDANCE** -topic avoidance -message abandonment	**REDUCTION** *FUNCTIONAL REDUCTION* -topic avoidance -message abandonment -meaning replacement	**CODE** -transfer -morphological creativity -ostensive definition	**CONTROL** -transfer -code switch, -overt appeal -gesture	**MESSAG ABANDO**
FORM ADJUSTMENT -replacement -formal reduction	**PARAPHRASE** -approximation -word coinage -circumlocution	*FORMAL REDUCTION* -phonological -morphological -syntactical -lexical	**CONCEPTUAL** -analytic *circumlocution, description* -holistic *super-, sub-ordinates*	**ANALYSIS** - circumlocution, paraphrase -word coinage	**COMPEN** -Substituti -Substituti -Reconcep

	APPEAL FOR ASSISTANCE
	
	 MIME
		ACHIEVEMENT
		 COMPENSATORY
		 -code switching
		 -interlingual transfer
		   foreignising
		   literal transfer
		 -inter-/intralingual transfer
		   overgeneralisation
		 -interlanguage-based
		   generalisation
		   paraphrase
		   word coinage
		   restructuring
		 -co-operative
		   appeals
		 -non-linguistic
		   mime
		   gesture
		   sound-imitation
		 RETRIEVAL
			-mimetic gesture		**APPEAL**
					 ±EXPLICI

Table 2:2. Taxonomies for Communication Strategies.

The wide range of definitions and taxonomies proposed shows considerable overlap. The development of different frameworks for CSs has gone from taxonomic preoccupations and interactional aspects to issues concerned with psychologically plausible underlying mechanisms, the abolition of the notion of strategy, and global models for speech production.

2.4.1 The earlier frameworks

The early research efforts on communication strategies were often geared towards constructing taxonomies. Most of these systems are based on the intention~expression dichotomy. Fruitful though this distinction is, it has nonetheless produced little agreement as to how meaning or form are modified when strategies are applied. The organising principles for taxonomies vary and include adjustment (Váradi 1980), avoidance of difficulty (Faerch & Kasper 1983a), the information sources for strategies, i.e. L1, L2 or interlanguage (Bialystok 1983), or the knowledge type incorporated into the strategies, i.e. linguistic, pragmatic, or nonverbal knowledge (Paribakht 1985).

Váradi

In one of the earliest attempts to classify CSs, Váradi (1980) distinguishes between those strategies which *adjust meaning* and those which *adjust form*. Meanings can be adjusted in two ways. Meaning reduction entails abandoning some part or all of the intended meaning. An example would be when a student says 'The cat is going.' instead of 'Even the cat dashes off, who has so far watched the events from the corner.' (1980:62). Meaning replacement, on the other hand, results from parts of the meaning being replaced by similar parts which are expressible, as in saying 'The cat is going.' instead of 'The cat dashes off.'. Adjustment of the form can be achieved correspondingly by formal reduction, which means that forms in the interlanguage, i.e. words or phrases, are abandoned. When some forms are abandoned, this usually leads to over-use of other forms. Form can also be adjusted by formal replacement strategies, which entail changing the form while keeping the meaning intact. Examples of formal replacement are circumlocution and paraphrase.

This distinction was resumed by Corder (1983) who identified two strategies: *message adjustment strategies*, in which the communicative intention is changed, and *resource expansion strategies*, where the linguistic resources are instead exploited to the full. Message adjustment strategies can be scaled with respect to how global the impact is on the intention. Total topic avoidance is the most global effect, whereas in local adjustments only a few features are changed

in the intended goal. Resource expansion strategies, on the other hand, always entail a risk of error, and can therefore be scaled with respect to risk-taking.

Tarone–an interactional approach

In a series of papers, Tarone (1977, 1980, 1983) has presented an interactional framework. According to the definitions in Table 2:1, she considers solutions to communicative problems to be the result of co-operative work between the learner and the NS. CSs are applied when learners' problems become apparent in the interaction.

Tarone suggests a taxonomy based on five major categories of strategies. *Avoidance* was identified in this early study by comparing subjects' descriptions in L2 and L1. In cases where the description of an element was present in the L1 description but not in the L2, this was taken as evidence that avoidance had been applied. Two types of avoidance were distinguished: topic avoidance, where a topic is abandoned altogether and is never even introduced, and message abandonment, where the learner starts on a topic, but then gives up in face of the problems. *Paraphrase* involves the re-wording of the message, and this major category includes a number of sub-strategies. Approximation, word coinage, and circumlocution are examples of paraphrase. Approximation means using a target item which is close to the intended one, as in saying 'pipe' for 'water pipe' (1983:62). Word coinage entails the invention of a new word, and circumlocution is defined as a description of the intended referent, as in 'She is, uh, smoking something.[…] That's, uh, Persian, and we use in Turkey, a lot of.' for the same water pipe (p. 62). Conscious *transfer* takes the form of literal translation or a complete language switch. *Appeal for assistance* can be overt and explicit, or implicit as with the use of question intonation. *Mime*, finally, includes all non-verbal means of communication.

Faerch & Kasper–psycholinguistic perspectives

Faerch & Kasper (1983a, 1983b, 1984) claimed that the interactional definition proposed by Tarone was too narrow since it excluded the possibility of detecting a number of strategies not overtly signalled in production. For instance, strategies applied in situations where there is no or an unhelpful interlocutor would go undetected, as would strategies applied by advanced learners before the problem has manifested itself in production. As a consequence, Faerch & Kasper instead proposed a psycholinguistic account of CSs within a model of speech production, resting on the division between planning and execution.

CSs are seen as plans, related to the planning phase, and defined by problem-orientedness and potential consciousness (cf. Table 2:1). Problems in planning

lead to the application of strategies, which can then be detected by the presence of performance features such as pauses, drawls, and self-repairs. No such feature is in itself sufficient evidence for strategic planning, but clusters of features are argued to increase the likelihood that strategies are being applied.

The proposed taxonomy is based on two fundamental types of behaviour: reduction or achievement. *Reduction strategies* are either formal or functional. In the first case, the learner can reduce the formal or linguistic system to avoid errors; in the latter, the communicative goal can be reduced, resulting in topic or message avoidance or meaning replacement. *Achievement strategies*, on the other hand, are principally compensatory, and include such things as *code-switching*, *transfer*, *interlanguage-based strategies* like generalisation, paraphrase, word coinage, etc., *direct appeals*, and *non-linguistic strategies* such as mime, gesture and sound-imitation.

2.4.2 Later frameworks–critiques and revisions

The earlier frameworks came to be criticised on a number of grounds. Definitions and criteria were considered unclear or ambiguous. The growing empirical data became increasingly difficult to assess since they were based on different taxonomies. More importantly, however, the psychological plausibility of the early taxonomies was questioned. Again, a growing body of cross-linguistic data emphasised the need for CS taxonomies and definitions to be generalisable across learners and languages, and also across elicitation tasks.

The Nijmegen group–referential communication and lexical compensatory strategies

The Nijmegen study of CSs (most thoroughly presented in Poulisse 1990) is cognitively oriented and attempts to remove definitions and classifications from surface linguistic form. The fundamental argument is that the linguistic realisation of a strategy is an uncertain basis for classification, and that the many and various surface forms generated by learners reflect underlying cognitive processes which are much less numerous.

For instance, a given strategy might be referred to as word coinage, such as 'medicine paper' for 'prescription'. The most obvious property of this strategy is its semantic motivation, and, as such, it is really a description realised grammatically as a compound or a derived Noun. This means that it might be classified either as word coinage or as a description depending on the classification system. Furthermore, properties of the referent and the tasks proposed to learners will influence the type of strategy used. For instance, it is argued that the predominance of functional descriptions in some studies reflects only the large

number of concrete objects that had to be communicated. The aim, then, is to provide a definition and a taxonomy which are independent of language, learners or tasks.

In light of this, a cognitively motivated definition (Table 2:1) was proposed, as well as a binary taxonomy, tailored to deal with lexical compensatory strategies in referential communication.

A division is made between *Conceptual strategies* and *Code strategies,* reflecting the binary view of communication as intentions vs. expressions.

> [...L]earners can either manipulate the concept so that it becomes expressible through their available linguistic (or mimetic) resources, or they can manipulate encoding media.
>
>   Kellerman (1991: 149).

Conceptual strategies thus entail manipulation of the intention or the concept. The concept can be treated *analytically*, in which case particular properties of the intended referent are chosen and expressed, usually by being listed, as in 'it's long and thin an you blow it' for 'flute'. What properties are actually chosen depends on the referent, and the purpose of the communicative act. The concept can also be dealt with *holistically,* such that it is substituted for a different referent from the same lexical field, which shares one or more of the properties of the originally intended referent, for instance 'instrument' for the same 'flute'. Thus, in the case of holistic strategies, the listener is required to infer the referent, whereas when analytic strategies are used, the listener has to reconstruct the intention. These strategies manifest themselves as traditional paraphrase, or circumlocution.

Code strategies, on the other hand, involve manipulation of the linguistic means, which can include the creation of *ad hoc* labels through morphological creativity, language switch, borrowing, or foreignising, such as 'ironize' for 'to iron' (Poulisse 1990:62).

Both types of strategies are applied cyclically to deal with communicative sub-goals and are sometimes combined (Kellerman, Ammerlaan, Bongaerts, & Poulisse 1990; Kellerman, Bongaerts, & Poulisse 1987; Poulisse 1987).

Bialystok

Bialystok (1990, 1991, 1994) places the study of CSs firmly within a cognitive language processing perspective, removed from surface linguistic form and from the study of communication theory in interactional terms. She proposes a model for language processing in both L1 and L2 in which all language proficiency is seen as the outcome of two underlying components or cognitive processes ope-

rating on mental representations.[1] Specific language use requires specific levels of skill in these components. The first component is the ability to *analyse* (linguistic) knowledge. In terms of language learning, this implies rendering implicit knowledge explicit and accessible to inspection. The second processing component is *control* over linguistic processing. Control equals the ability to assign attention selectively to relevant information in real time. Effective control results in an impression of fluency and automaticity (Bialystok 1994).

The two processing components serve as the basis for two different sets of CSs. *Analysis-based strategies* result from the manipulation of communicative intention, usually by rendering explicit defining features in a referent. Analysis-based strategies lead to such forms as circumlocution, paraphrase, transliteration or word coinage.

Control-based strategies, on the other hand, entail keeping the communicative intention intact while changing the means of reference or turning the attention towards alternative output forms. This is primarily achieved through substituting the target language for another language, or through overt appeal for assistance.

Bialystok (1990) claims that the distinction between intention and expression does not serve as the basis for the division. She questions the possibility of assessing the extent to which learners modify their intentions, since all that can be seen in language data are modifications of form. However, the similarities between Bialystok's proposal and the strategies proposed in the Nijmegen framework are apparent. In fact, in a recent proposal, Bialystok's model has been combined with the Nijmegen taxonomy (Kellerman & Bialystok 1997). This model gives a detailed account of what type of strategy results from the operation of a given cognitive function on a particular type of representation. For instance, the process of analysis operating on meaning representations will lead to Conceptual strategies of the paraphrase type. Similarly, if control operates on linguistic representations, the outcome are Code strategies such as transfer.

The most interesting aspect of Bialystok's model is perhaps the fact that analysis and control processes are assumed to underlie all language use which requires both processes simultaneously. When CSs occur, the balance between the two processing types has been disturbed, such that one dimension becomes more

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[1] This model is closely related to the debate concerning different types of linguistic knowledge, as initiated by Krashen's distinction between *learned* and *acquired* knowledge (e.g. Krashen 1985). The dichotomy analysis/control has evolved out of Bialystok's distinction between *implicit* and *explicit* knowledge (Bialystok 1978). A number of similar distinctions have been made, for instance McLaughlin et al.'s *controlled* vs. *automatic* processing (e.g. McLaughlin, Rossman, & McLeod 1983), and also the more general constructs of *declarative* vs. *procedural* knowledge (Anderson 1983).

prominent. The distinction between strategic and non-strategic language use thus disappears: "Strategies are a normal and fundamental aspect of ordinary language processing. They are rooted in the same processing mechanisms as is non-strategic language use." (Bialystok 1990:146).

Poulisse–bilingual speech production

By combining essential findings from the Nijmegen project with Levelt's speech production model, Poulisse (1993, 1996) has endeavoured to construct a model for bilingual speech production, addressing both contextual factors and speech production processes, including the use of CSs.

The general framework for speech production is adapted from Levelt (1989) and contains processing units for message generation (the conceptualiser), grammatical and phonological encoding (the formulator) and articulation (the articulator). The preverbal message generated by the conceptualiser contains chunks of conceptual and linguistic information, which are then encoded. On the basis of this system, Poulisse proposes a formal cognitive definition of CSs. Lexical problems arise when the preverbal message contains chunks with conceptual and linguistic information, but no lexical item can be accessed matching these specifications. When such mismatches occur, learners apply CSs.

Three broad types of strategies are suggested: *message abandonment*, more or less *explicit appeal*, and *compensatory strategies*. Compensatory strategies are further divided into three types. *Substitution strategies* result in a related item or L1 item being used. They are based on the change or omission of one or more features of a chunk in the pre-verbal message. *Substitution plus strategies* only ever appear in conjunction with Substitution strategies and result in the atypical application of morpho-phonological procedures, such as foreignising. *Reconceptualisation strategies* are due to a change in the preverbal message involving more than a single chunk, or substitution, addition or deletion of entire chunks. The results can be listing of features, the combination of two lexical items, the addition of further background information, or gestures.

The three categories are hierarchically organised in the order Substitution> Substitution Plus>Reconceptualisation, according to growing cognitive demand and growing effectiveness. The choice between different and more or less successful CSs is seen as determined by contextual factors such as task demands, cognitive complexity, time constraints, supporting context, and opportunity to obtain feedback from the interlocutor. Learners appear to choose between different CSs balancing two Gricean principles against each other, viz. the principles of least effort and co-operation, in order to achieve maximum comprehension with a minimum of effort.

Dörnyei & Scott–a return to interaction

Another recent attempt at an all-encompassing taxonomy is that proposed by Dörnyei & Scott (1997). They suggest that CSs should include all problem-solving management mechanisms present in L2 discourse, not just phenomena related to solving actual problems, but also mechanisms employed to enhance communication in general, as suggested by Canale (1983). Three broad categories of strategies are posited, based on the way the strategies are used.

Direct strategies include most of the traditional strategies such as paraphrase, word coinage, etc., but also a host of new ones such as mumbling, and repair behaviour. *Indirect strategies*, on the other hand, are not problem-solving devices as such, but instead means of creating favourable conditions for achieving understanding by way of using fillers, feigning comprehension, and applying strategy markers or hedges. *Interactional strategies*, finally, involve all co-operative mechanisms such as appeals for help, comprehension checks, clarification requests, and other phenomena familiar from the literature on input. This framework represents a return to an interactional approach, with surface phenomena at the centre of the taxonomy.

2.5 Empirical findings

The empirical findings in CS research primarily concern the issue of why learners choose particular strategies, and thus deal with both the number and the type of strategies used by learners of different proficiency levels.

2.5.1 Proficiency effects

Quite a few studies have attempted to determine the effect of proficiency on *the number* of CSs used by learners. Less advanced learners have frequently been shown to use more CSs than more advanced learners (e.g. Chen 1990; Glahn 1985; Poulisse 1987, 1990; Poulisse & Schils 1989). Paradoxically, it has also been suggested that the more proficient a learner is, the more strategic language use will be present. In a study of different kinds of bilingual schooling systems, learners enrolled in 'submersion classes', where both the teaching and social activities are conducted in the L2, were generally considered more proficient than 'immersion' students, who are only exposed to the L2 during teaching (Hamayan & Tucker 1979). The submersion students were found to use more avoidance strategies than both students in immersion classes and NSs. It was argued that more knowledge makes it easier to avoid overt problems. This is supported by studies on teaching of CSs. Students trained in strategic interaction use less obvious and less reductionist CSs, and they are judged as better L2 speakers (Labarca & Khanji 1986). The seemingly contradictory results

concerning proficiency and strategy use thus reflect some of the difficulties regarding detectability and identification of different types of strategies.

Some studies have also suggested that proficiency affects *the type* of strategies chosen by learners. For instance, learners of low proficiency appear to draw less on sources of linguistic knowledge than on other knowledge sources, such as knowledge of the world (Chen 1990; Paribakht 1985). It has also been noted that learners of low proficiency seem to favour L1-based strategies, such as code-switching and transfer rather than interlanguage-based strategies such as description (e.g. Bialystok 1983; Bialystok & Fröhlich 1980; Glahn 1985; Poulisse 1990). On the other hand, L1-based strategies appear to be used only if the target and source languages are perceived as typologically related. Chen (1990) showed that Chinese learners of English did not employ L1-based strategies such as transfer in interaction with NSs of English, and it was suggested that this was because the learners considered the languages to be too different. This is consistent with Kellerman's *transferability hypothesis*, which states that only those L1 items which are perceived as transferable will be transferred into the L2 (Kellerman 1983). More evidence comes from a study of cross-cultural interactions between NNSs speaking as diverse L1s as Spanish, Korean, Chinese, Japanese and English (Tarone & Yule 1987). Transfer strategies were conspicuously absent from these data, as were cultural references in general. Instead, NNS/NNS interactions displayed other strategies, such as repetition and over-explicitness. Similar results were obtained for speakers of Persian learning English as a foreign language (Paribakht 1985; Yarmohammadi & Seif 1992), where learners instead seemed to favour IL-based strategies. Poulisse (1990) rightly remarks that it would have been surprising had learners not observed a minimal consideration both for their interlocutors and for themselves in choosing a strategy reasonably likely to be successful.

However, the results of proficiency effects on the type of strategy chosen are inconclusive. Individual psychological and cognitive factors have also been suggested to influence learners' choices, but have rarely been the subject of direct study. Subjects' have been reported to show personal preferences for strategy types (Haastrup & Phillipson 1983), and good inferencing abilities also appear to correlate with efficient use of strategies (Bialystok & Fröhlich 1980). Unfortunately, no personality tests were administered prior to the data collection which makes it difficult to assess the validity of these claims. It seems likely, however, that learners do have personal preferences and come to apply 'pet strategies'.

Language proficiency has also been shown to influence how *efficient* strategies are judged to be–irrespective of what strategy is chosen. However, the concept

of efficiency is not easily implemented. NS judgements have been used to rank learner utterances in terms of how effective they were at conveying the intended meaning (Bialystok & Fröhlich 1980; Ervin 1979). Haastrup & Phillipson (1983) relied on informal judgements of how the NS interlocutor handled disruptions and how well they appeared to understand the learner. Bialystok (1983) suggests that strategies based on the target language or descriptions are judged to be most efficient. Similarly, Haastrup & Phillipson (1983) indicated that L1- and IL-based strategies form a continuum with L1-based strategies considered the least effective and IL-based strategies the most effective.

Paribakht used the speed with which learners communicated the intended meaning as a measure of efficiency (Paribakht 1987). In the Nijmegen project, new tools for determining effectiveness were proposed, where contextual factors were also controlled for in the NS assessments (Poulisse 1990). NSs were required to guess what the intended target of a CS was, and pseudo-cloze tests were then constructed, where judges were asked to fill in the missing words. If the context was sufficient for them to guess the words, then nothing could be said about the intrinsic effectiveness of the CSs used for those items. Combinations of holistic and analytic conceptual strategies were judged to be the most effective, followed by analytic strategies and transfer, provided that the L1 and L2 items were cognates. In this design, holistic strategies were judged the least effective. In addition, Bialystok (1983) has suggested that all strategies–irrespective of type–are more efficient when applied by a proficient rather than by a less advanced learner.

Proficiency thus seems to influence both the number and the type of CSs chosen by learners, but the relationships between these factors are complex and they probably also interact with personality factors, and cognitive style. More proficient learners opt for less obvious strategies, and less advanced learners have to expose their shortcomings more often. Proficiency also appears to affect the amount of language used in the various tasks. More time and language is generally needed in L2, with minimal proficiency generating short L2 descriptions, intermediate proficiency resulting in longer descriptions than in L1, and high proficiency giving descriptions which are short or identical to L1 descriptions (Kellerman, et al. 1990). This naturally also affects learners' opportunities to employ and/or reveal their CSs.

2.5.2 Task effects

It was suggested quite early that different tasks would affect the type of strategy chosen by learners (Galván & Campbell 1979; Palmberg 1979). A host of tasks has been exploited in the elicitation of CS data, such as picture descriptions,

picture reconstructions, translation, interpretation, sentence completion, conversation, narration, instructions, word transmissions and interviews (for a list of studies, see Bialystok 1990).

Bialystok & Fröhlich (1980) tested the effect of elicitation tasks by manipulating a picture description task. Subjects were required either to write down the description, to describe the picture orally, or to describe it to an interlocutor so that this person could recreate the picture on a felt board. The three conditions affected the amounts of speech produced, but roughly the same strategies were employed in all conditions. Yarmohammadi & Seif (1992) also contrasted written and oral data and found that literal translation, for instance, occurred much more frequently in written translation tasks than in oral narratives. The Nijmegen project used a variety of elicitation tasks, including a concrete picture/photo description task, an abstract figure description task, a story retelling task and an oral interview task. Descriptions of photos were found to lead to a preponderance of analytic strategies, such as circumlocution and paraphrase, whilst story retellings and interviews chiefly resulted in holistic strategies, e.g. approximations (Poulisse 1987, 1990; Poulisse & Schils 1989).

Task and proficiency have also been found to interact (Poulisse 1990, 1993, 1997; Poulisse & Schils 1989). Tasks requiring the precise understanding of key lexical items have been shown to generate unsuccessful L1-based CSs in low proficiency learners, whereas tasks demanding overall comprehension, such as story retelling, often result in L1-based CSs even in high proficiency learners. Learners thus seem to resort to less successful CSs, following the conversational principles of maximum gain from least effort (Grice 1975; Poulisse 1997), when they can rely on the interlocutor and on contextual support. It is suggested that this might explain why the less successful holistic strategies were preferred in interactive tasks such as story retellings and interviews.

A different aspect of task effects is considered in a case study of how an English learner of Moroccan Arabic used CSs in narratives (Fahkri 1984). Discursive phenomena such as the narrative levels affected the use of particular strategies. Borrowing appeared predominantly at the episodic level of the narrative, or the level where events are narrated; formulaic expressions, on the other hand, were more common in the evaluation. This is a novel and interesting way of handling CSs, but the validity of the claims will have to be tested against a larger data set.

2.6 Communication strategies in the classroom

Just as there is little consensus regarding whether or not communicative competence is a valid goal in language teaching, so it is debated whether or not CSs can and should be taught in the classroom (Yule & Tarone 1997).

In the interactionist models of CS, the teaching of strategies is seen as beneficial to learners, since it provides them with tools to ensure continued interaction. This, in turn, will give them opportunities to perform, which will lead to competence. Rost & Ross (1991) found that the strategies used by more proficient learners could successfully be taught to less proficient students. When these students applied such strategies, they became more efficient communicators and their comprehension improved. Similarly, studying NSs of American English learning French as a foreign language, Labarca & Khanji (1986) found that students who had received instruction according to the *Strategic Interaction* (SI) method used fewer CSs and received better ratings than students trained by the *Total Physical Response* (TPR) method. The SI students used fewer strategies, were less reductionist and had more to say than the TPR students. The rather perplexing result, then, is that students trained by a strategic method use fewer CSs, or, at the very least, conceal them better. The authors conclude that the SI students are already trained to control difficult tasks, and to keep their problem-solving inner speech from being externalised in a vygotskian sense. The TPR students, on the other hand, externalise their inner speech since they have not been trained for control. A methodological problem with this study, however, is that learner proficiency was not kept constant, such that it is impossible to determine whether the results are due to training effects only.

In the cognitive frameworks, on the other hand, strategies are regarded as a natural aspect of general language processing (Bialystok 1990; Kellerman 1991). In this tradition, the teaching of strategies would amount to teaching language processing, which is not regarded as possible or feasible.

2.7 Gesture as a Communication Strategy

As could be seen in Table 2:2, all the CS frameworks mention the use of nonverbal strategies, including gesture. From a gesture theory perspective, however, the attempts at including gesture in CS taxonomies to date seem unsatisfactory and confusing, since gestures are generally left undefined, both in terms of their relationship to speech, and with respect to the type of gesture concerned. This section will review the treatment of gesture within the theoretical accounts of CSs. The different gestural CSs considered in the taxonomies are summarised again in Table 2:3 for convenience.

2.7.1 The traditional accounts

In the traditional accounts gesture was seen as a different type of strategy from oral CSs and the relationship between gestures and propositional content was never discussed or elucidated. Tarone (1977) lists mime as a strategy, primarily as a replacement for lexical items or actions. Faerch & Kasper (1983b) include

Framework	Nonverbal strategies	Description
Tarone (1977)	mime	replacement for lexical items or actions
Faerch & Kasper (1983b)	NONLINGUISTIC STRATEGIES mime gesture	support verbal output or signal appeal
Corder (1983)	PARALINGUISTIC STRATEGY	resource expansion
PIF–Glahn & Holmen (1985); Haastrup & Phillipson (1983)	NONLINGUISTIC	replace
Paribakht (1985)	MIME	accompany or replace verbal output
Chen (1990)	PARALINGUISTIC STRATEGY	
Dörnyei & Scott (1997)	MIME	related to resource deficits
Nijmegen– Kellerman (1991); Poulisse (1990)	CONCEPTUAL mime CODE ostensive definition	manipulate properties in the referent indicate (or change medium of expression)
Bialystok (1990)	ANALYSIS mime? (1990:133) CONTROL mime	manipulate properties in the referent change medium of expression

Table 2:3. Nonverbal strategies in the CS frameworks.

'nonlinguistic strategies' as a type of compensatory strategy subsumed under achievement strategies. These strategies are said to be used as support to verbal output or to signal appeal to the interlocutor. The authors list mime, gesture and sound-imitation. This is an improvement on the replacement-only strategy mentioned by Tarone, but no attempt is made to clarify what distinguishes mime from gesture. A number of authors mention 'paralinguistic' strategies (Chen 1990; Corder 1983; Dörnyei & Scott 1997) without further specification. Paribakht (1985) includes mime or knowledge of meaningful gestures in her taxonomy, and lists gestures both replacing and accompanying verbal output. In the PIF data (Project in Foreign Language Pedagogy, Glahn & Holmen 1985; Haastrup & Phillipson 1983) nonverbal strategies appear in the transcripts. It is stated that when nonverbal strategies are relied upon as substitutes for linguistic strategies, they tend to do more harm than good. However, nothing is said about their effectiveness when they serve as a supplement to the linguistic ones.

2.7.2 The process-oriented frameworks

Both process-oriented frameworks list gestures within the same taxonomies as oral strategies. Rather than regarding gesture as a separate strategy, these frameworks treat nonverbal behaviour as a manifestation of the same underlying processes as those governing oral CSs. A central assumption is that there is no essential difference between expressing a CS orally or gesturally.

In the Nijmegen taxonomy, gesture is seen as reflecting Conceptual or Code-related choices parallel to oral choices (e.g. Kellerman 1991; Poulisse 1987). Two types of gestural behaviour are considered, mime and pointing. *Mime* is seen as an instance of a Conceptual strategy, where properties of the referent are exploited. *Ostensive definition*, on the other hand, which essentially corresponds to pointing gestures, is described as the manipulation of the code. In fact, resorting to nonverbal means is seen as a Code strategy in itself, since an alternative encoding medium is chosen. However, iconic mime is assumed to result from a conceptual analysis since certain properties of the referent are selected to be expressed:

> [...] if some behaviour were to be described as Mime and another as Ostension, only in the first case will we suppose that a strategy has operated at the conceptual level; in the second case, the conceptual level will not have been involved. Yet, at the encoding level, the choice of non-verbal means of expression is the outcome of a code strategy.
>
> Kellerman (1991:151)

Bialystok sees the manipulation of the channel of expression or the medium as a Control-based strategy, such that choosing a gestural medium rather than an oral one results in Control-based gesture. She exemplifies the analysis with the problem of finding the word for 'flute' (example from the Nijmegen project, see Poulisse 1990), which can be solved by pointing at a flute present in the room, by acting out the action of playing the flute, or by switching language. In the first case the strategy would be ostension, in the second mime and in the third language switch. Bialystok claims that all these varieties can be seen as the outcome of a Control strategy when underlying processes rather than surface form are considered.

Both frameworks thus consider gesture to be based on the same underlying cognitive and communicative processes as oral language. Gesture is said to be a different code on a par with other languages or modes of expression. In both frameworks, all gestural strategies are therefore seen as Code- or Control-based, with Conceptual- or Analysis-based strategies considered to be a particular sub-variety of Code or Control strategies. Bialystok (1990) remarks that it is a matter of taste whether you prefer one classification over the other. Nor is it considered as a problem for the theory that a category can encode both processes simultaneously. In fact, mimetic gesture is seen as an example of the fact that both processes operate simultaneously–first by the allocation of attention or control towards the gestural channel, then by the analysis of features in the referent which can be exploited (Kellerman & Bialystok 1997).

Since Bialystok considers gestures to be Control-based, she does not have to discuss different types of gesture.[2] The Nijmegen classification distinguishes two different types, acknowledging the difference between mimetic and pointing gestures as reflected in the distinction between Conceptual mime and Code pointing. However, assignment of pointing gestures to the Code category is done by default, or because they are negatively defined as non-mime.[3] In other words, mime is still the only gesture type really considered, much as in the earlier frameworks. The important difference between the process-oriented frameworks and the earlier taxonomies is that gestural strategies are seen as fundamentally similar to oral strategies, and as reflecting the same underlying processes.

2.8 Summary

As part of their communicative competence, speakers have been said to possess specifically strategic competence to help them overcome communicative problems in situations of real language use. This strategic competence can manifest itself as Communication Strategies which is a way of matching communicative intentions with expressive means. Earlier studies of such CSs in second language learners were primarily preoccupied with taxonomies, listing strategies such as circumlocution, word coinage, transfer, etc., on the basis of surface linguistic form. Recent studies have instead attempted to create more psychologically plausible taxonomies by applying a cognitive process-oriented approach to strategies, often considering underlying mental operations related to speech production. This has lead to reduced taxonomies listing only two fundamental archi-strategies based either on the manipulation of the intention or of the expression.

Empirical results indicate that proficiency level and elicitation tasks influence how many strategies learners use, and also, to some extent, what type of strategy they prefer. These factors interact with individual speaker characteristics to account for specific learner choices.

All accounts of communicative competence and CSs mention gesture, but few attempts have been made to integrate gesture into the theoretical frameworks. The recent process-oriented studies have proposed that gesture reflects the same underlying linguistic processes as oral strategies. This assumption will form the basis of the taxonomy proposed for the present study.

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[2] It is somewhat unclear if Bialystok considers gesture and mime to be synonymous or different notions.

[3] Strictly speaking, mime is never defined either, it is only mentioned as mimetic gesture.
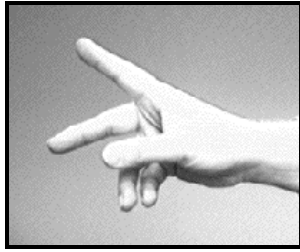
3 Gestures–An introduction

Manus vero, sine quibus trunca esset actio ac debilis, vix dici potest, quot motus habeant, cum paene ipsam verborum copiam consequantur. Nam ceterae partes loquentem adiuvant, hae, prope est ut dicam, ipsae loquuntur.[1]

Quintilianus. *De Institutione Oratoria*, XI.III.85

3.1 Introduction

Gesture has always fascinated students of human communication in all its multi-faceted complexities. This interest has generated much scholarly effort, both descriptive and normative (for an excellent historical overview, see Kendon 1982b). This chapter is meant to serve as an introduction to the vast field of gesture studies which is the result of this effort. The ambition is not to give an exhaustive account, since this is not within the scope of this volume (but see Feyereisen & de Lannoy 1985; Kendon 1987; Rimé & Schiaratura 1991), but rather to introduce some of the aspects of gesture which are relevant to the present work, such as definitions and physical properties of 'gestures', and the various classification systems in use. An overview will also be given of cultural and individual aspects of gesture use. The chapter closes with a brief look at studies of gesture in interaction.

3.2 What is a gesture?

The literature on 'nonverbal behaviour' is abundant and ranges from manuals of 'body language' and dictionaries of gestures from various cultures, to scientific work on the relationship between manual movements and psychological factors for a collection of papers, see Knapp & Hall 1992). When the technical literature dealing specifically with 'gesture' is examined, it becomes apparent that the term is taken to signify various non-vocal behaviours, such as head movements, facial expressions or posture, as well as some highly vocal behaviour, like articulatory movements or gestures performed during phonation (Neisser 1976), referred to in the gestural literature as *phonogènes* (Cosnier 1982) or *buccal articulatory kinesics* (Slama-Cazacu 1976). In view of this confusion, it is imperative to

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[1] "As for the hands, without which all action would be crippled and enfeebled, it is scarcely possible to describe the variety of their motions, since they are almost as expressive as words. For other portions of the body merely help the speaker, whereas the hands may almost be said to speak."

define the object of study, and distinguish it from such things as 'body language' and general nonverbal behaviour, and also to determine the terminology. In this section, a definition for 'gesture' will be proposed delimiting and defining gestures both with respect to the body parts involved, and with regard to how the movements of these body parts are related to language.

As suggested by the quotation from Quintilian, it is no easy task to describe or define gesture. However, everyday language offers a suitable starting point concerning the body parts involved, since it primarily includes movements of the hand or arms, as can be seen in standard dictionaries:

> gesture 1. a motion of the hands, head, or body to express or emphazise an idea or emotion. 2. something said or done as a formality or as an indication of intention.
> *The Collins Dictionary and Thesaurus.* 1987. London: Collins.

> 1. GESTE. n. m. (fin XIVe; lat. *gestus*). ♦ 1[o] Mouvement du corps (principalement des bras, des mains, de la tête) volontaire ou involontaire, révélant un état psychologique, ou visant à exprimer, à exécuter qqch. […]
> *Le Petit Robert.* 1985. Paris: Robert.

> GEST Säs[4]t, r l. m; best. -en; pl.-er. […] åtbörd, numera i sht med armar l. händer l. med huvudet, i avsikt att giva uttryck åt en känsla l. mening l. för att understryka ngt som blivit sagt […]
> *Ordbok över svenska språket*, band 10, 1929. Lund: Svenska Akademien.

A first trivial and temporary definition for 'gesture' can thus be posited:

> DEFINITION (temporary)   GESTURE: movement of the hand(s) and/or arm(s).

According to the trivial definition, all manual movements are gestures. However, the dictionary definitions also refer to intentions and expressions. Participants in dialogue have been shown to be able to distinguish gestures from other, less 'intentional' manual movements such as self-touching (Goodwin 1986), even across cultures (Kendon 1978). Listeners can also distinguish and identify gestures of emphasis on request (Bull 1987).

Manual gestures can be differentiated with respect to their relationship to communicative intentions and to language. Consider the following examples:

> (1) A lecturer is engaged in explaining an abstract concept to his students. Each time he mentions the concept, he holds out his cupped hand as if he were holding a small object. When he stresses the importance of the concept, his hand seems to be beating time.

> (2) You are off to have a cup of coffee, and you want to offer your colleague who is engaged in a telephone conversation a cup without interrupting. You establish eye contact with your colleague, raise your hand which seems to be holding the handle of a cup, bring it to your mouth and tip it towards you, as if you were drinking. Your colleague nods, and you bring back two cups of coffee.

(3) You have just finished your main course at a nice restaurant. The head waiter comes to ask you if you enjoyed your meal. In response, you bring your fingers together and kiss your fingertips, opening the hand at the same time.

(4) A native American woman is reciting a narrative to her younger relatives about the old ways of their people. She tells the story using a series of gestures.

(5) Two deaf individuals are talking to each other using the manual movements of Sign Language. Onlookers have no idea what they are talking about.

All of the examples above illustrate different kinds of gesture use. In what has come to be known as 'Kendon's continuum',[2] it is suggested that the manual movements considered above can be placed along a continuum reflecting their relationship to speech, their degree of conventionalisation, and how language-like they are (see Figure 3:1).

NO CONVENTION
SPEECH

gesticulation
1

mime
2

emblems
3

CONVENTION
NO SPEECH

4
Sign Language
5
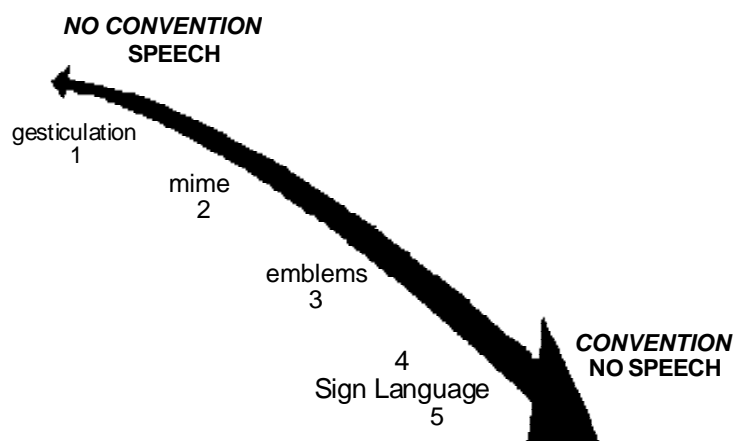
Figure 3:1. 'Kendon's continuum' (after McNeill, et al. 1990).

At the left-most end of the continuum we find what Kendon calls *gesticulation,* and McNeill refers to as *spontaneous* or *speech-associated gestures* (Kendon 1988a; McNeill 1992). This is the kind of gesture seen in (1). Such gestures are speech-associated in that they only ever occur together with speech and are closely associated to it in terms of meaning and timing. They are spontaneous as they show no degree of conventionalisation. This means that there is no rule or standard of well-formedness for the performance of such gestures, that they cannot be quoted, and that they are not learned but created *ab novo* each time they are performed. People are rarely aware of these gestures. They may remember having moved their hands, but usually have no recollection of the shape or precise occurrence of the gestures.

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[2] The term does not appear in Kendon's own writings, but seems to have been invented by McNeill (McNeill, Levy, & Pedelty 1990). It is based specifically on the discussion in Kendon (1988a) on lexicalisation processes in gestures. The gradual transition between gesture categories was suggested already by Wundt (1973), later by Hécaen (1967), and has been dealt with specifically for representational gestures by Feyereisen, van der Wiele & Dubois (1988b).

Further along the continuum, we find *mime* and language-like gestures, exemplified by the pantomime for drinking coffee in (2). With mime, the need for accompanying speech is attenuated. Mimetic or pantomimic gestures can be used to enact or imitate whole and complex actions, and as such they often occur instead of speech, serving the function of constituents of a sentence. McNeill defines them as "[…] standardized action[s] performed as if the speaker were acting with a canonical object." (McNeill 1987:500). These gestures are more consciously performed, and are sometimes exploited for artistic purposes as in ancient Greek theatre or by mime artists.

The fingertip kiss in (3) is an example of an *emblem*, or a more language-like gesture further to the right on the continuum, of the kind Kendon (1986 inter alia) likes to call *autonomous* or *quotable gestures*. Emblems often replace speech all together and display a high degree of conventionalisation. They have standards of well-formedness and conventional, lexical meanings, and sometimes even names. They are culture-specific and need to be learned when entering a new culture like any other lexical item[3], lest they cause misunderstandings (Schneller 1992). These gestures rarely designate objects or events, and rarely correspond to nouns or verbs. Instead, they are used to comment on and evaluate (usually negatively) the behaviour of others (Cosnier 1982; Kendon 1981). Inasmuch as these gestures function like words, they are consciously selected and performed. Although they are a salient type of gestures, they are as yet little understood (cf. Hanna 1996; Johnson, Ekman, & Friesen 1981).

Surveys and dictionaries of emblems include studies of French (Calbris & Montredon 1986; Wylie 1977), Spanish (Green 1968; Kaulfers 1931) and Italian emblems (Diadori 1990; Efron 1941/1972; Kendon 1992, 1995; Munari 1963), a Brazilian emblem (Scherzer 1991), Arabic (Barakat 1976; Brewer 1951) and Persian emblems (Sparhawk 1981), North American and Colombian standardised gestures (Johnson, et al. 1981; Saitz & Cervenka 1972), and gestures pertaining to four languages in Kenya (Creider 1977), Swahili (Eastman 1992) and conventional gestures related to the male veil among the Tuaregs (Hawad-Claudot 1992). Cross-cultural comparisons include the broad survey of European emblems by Morris, et al. (1979), and the Gothenburg study of 31 conventional gestures across 27 countries, including Africa, the Middle and Far East, and the US (Hirsch 1983).

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3 Evidence suggests, however, that cultural areas sharing the same emblems might not be isomorphic with linguistic areas, but generally somewhat broader (Kendon 1983; Morris, Collett, Marsh, & O'Shaughnessy 1979).

Larger systems of conventionalised gestures can be found further along the continuum (4). Kendon (1986) distinguishes *gesture systems* from Sign Language on the basis of restrictions on functional domains.[4] Gesture systems are typically developed by well-defined groups for a particular purpose, and show a limited number of forms in a specific domain. Examples include the gesture systems used by baseball umpires (Broeg 1957), or !Kung hunters (Marshall 1976). Highly codified, but limited gestural systems also exist in religious or theatrical contexts, such as the *hasta mudra* of classical Indian dancing (Ikegami 1971; Puri 1986), or Chinese theatre (Barba & Savarese 1991). Some professional codes are more elaborate and cover more domains, such as those developed by sawmill workers (Meissner & Philpott 1975). They are approaching sign language proper, at the farthest end of the continuum, characterised by a vast repertoire of forms and few or no restrictions on the functional domain.

Two types of sign language can be distinguished. Kendon (1983, 1988b) identifies *alternate sign languages* as systems where gestural languages serve as an alternative to spoken language, replace speech all together, and are "developed by people already competent in some spoken language" (Kendon 1988b:4). Such alternate sign languages often develop where speech is prevented for social or religious reasons. A well-known example is the monastic sign languages which replace speech in all functional domains. Whilst the Trappist, Cisternian and Cluniac orders are vowed to silence, the monks have nevertheless developed a restricted sign language based both on pantomimic and on arbitrary components (Kendon 1990b; Stokoe 1987; Umiker-Sebeok & Sebeok 1987).

More elaborate and versatile alternate sign languages exist in a number of indigenous communities throughout the world. The best known example is perhaps the gestural language of the Plains Indians of North America (e.g. the Witchita, Pawnee, Comanche), which was initially studied and documented in the nineteenth century (e.g. Mallery 1880/1978a, 1880/1978b), and in more recent times by Farnell (1995). This gestural system is assumed to have served as an intertribal lingua franca among the Plains Indians, and was also used in religious contexts for narrative and ceremonial purposes. Farnell has showed that the 'sign talk' in use among today's Assiniboine or Nakota people in northern Montana is used in narration, but that it is also used by speakers in other contexts, such as for entertainment, and concomitantly to speech.[5]

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[4] Throughout this thesis, the spelling convention which distinguishes Sign Language, i.e. the linguistic systems of the deaf, from other sign languages will be adhered to.

[5] Farnell (1995) suggests that signing is an integral part of the Nakota language (hence the term 'sign talk' rather than 'sign language'), and that speech acts are conceived of as being both vocal and manual. Sign talk is thus not a speech replacement, but is used simultaneously to speech. Farnell claims that sign talk is not merely an additional

Similarly, Kendon (1988b) has studied the gestural languages of Aboriginal Australia in the North Central Desert area, used by the Warlpiri, the Warumungu and the Warlmanpa, amongst others. These sign languages were initially used primarily by elderly women for religious reasons during speech bans associated with mourning, and in connection with male initiation ceremonies. As in the case of the Plains Indian sign language, however, these sign languages appear to be used at other times and also simultaneously with speech (Kendon 1986).[6] The Australian languages are not used as linguae francae, but are as diverse as the spoken languages of the region.

In contrast, *primary Sign Languages*, at the far end of Kendon's continuum (5), are the gestural languages used by the deaf as their sole means of communication. These Sign Languages are of course fully-fledged conventional languages in their own right, on a par with spoken languages (for overviews, see Klima & Bellugi 1979; Kyle & Woll 1985; Liddell 1980; Poizner, Klima, & Bellugi 1987; Stokoe 1972, 1980). Primary Sign Languages are not signed copies of the spoken languages surrounding them, but are independent linguistic systems. They show substantial morphological and syntactic complexity, and are often highly polysynthetic. Complex spatial, temporal and aspectual relationships are obligatorily encoded, using not only the hands, but also facial expressions, eye gaze and head movements (Liddell 1980). Complex articulatory phenomena such as assimilation and coarticulation can also be observed in Sign Language.

3.2.1 Gesture on its way to language

Kendon (1986, 1988a, 1993) has suggested that a general process corresponding to the development of systematic communicative codes, or linguistic development in terms of lexicalisation (and possibly also grammaticalisation) can be detected in the continuum for gesture types. The gradual replacement of speech with gesture influences both the form and communicative functions of gestures. In the absence of speech, gestures tend to develop standardised forms and more abstract meanings. This can be illustrated by historical change in Sign Language from holistic iconicity towards arbitrariness, or more abstract, general

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complement to speech, but rather a natural part of language. In view of this, she probably would not agree with the classification 'alternate sign language'.

[6] Kendon even suggests that sign language movements have replaced speech-associated gestures in these communities.

meaning (Frischberg 1975).[7] Full lexicalisation occurs when gestures are relied upon entirely to achieve discourse.

Experimental studies show that even non-conventionalised gesticulation can move along the aforementioned continuum when speech is suppressed and gesture becomes the sole means of communication. Dufour (1992) showed how hearing subjects, who were asked to retell stories using only gestures, displayed ordering preferences resembling an SOV[8] pattern, and a beginning grammaticalisation process. Similarly, Singleton, Goldin-Meadow & McNeill (1995) found that when hearing subjects were asked to retell stories using only gestures, they increased their gestural marking of objects. Objects were thus included in the gestural story-telling either as separate lexical entities (i.e. a separate gesture indicating the object of an action) or by means of incorporation (i.e. a separate gesture indicating both the action and the object). Moreover, gestures assumed a phrase-like quality in that they were no longer articulated separately, but rather in a flowing manner, reminiscent of Sign Language articulation.

In Home Sign (Fant 1972[9]), a gestural system developed by isolated deaf individuals in order to communicate with the hearing environment, the development of language-like qualities in gestures can be seen at work (Goldin-Meadow 1993). Home Sign often originates as elaborate pantomimes, but with repeated use, the gestures become simpler and acquire standardised formational characteristics (Scroggs 1981; Tervoort 1961).[10] Typical language-like properties in such systems include beginning *arbitrariness* in the use of highly stylised pantomime, and beginning *morphology* by the integration of pointing gestures with other more iconic gestures. Even a beginning *syntax* can be detected in terms of gesture sequences which are subject to ordering rules, and the expression of predicate structures (Feldman, et al. 1978; Goldin-Meadow 1993).

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[7] The Saussurian concept of arbitrariness is one of the most often cited properties normally listed as characteristic of language (Hockett & Altmann 1968). For a discussion of iconicity in general and in Sign Language in particular, see Engberg-Pedersen (1996a, 1996b). Also, for a critique of arbitrariness as the ultimate test of linguistic status, see Armstrong, Stokoe & Wilcox (1995), and more particularly Deuchar (1990), who argues for conventionalisation as a better criterion.

[8] S=subject; V=verb; O=object.

[9] Cited in Feldman, Goldin-Meadow & Gleitman (1978).

[10] The process of repeated use as a source of change from the iconic towards the arbitrary and/or conventional was recognised already by Gerando, in his critique of the naturalness of the gestures used by the deaf:

"C'est ainsi que, par une dégradation continue et insensible, le langage mimique, d'un tableau vivant, animé, complet dont il se composait à l'origine, se transforme en une analogie successivement plus imparfaite, plus vague, pour se terminer enfin dans une pure convention."
de Gérando, J.M. 1827. *De l'éducation des Sourds-Muets de Naissance*. 2 vols. Paris. I:564. Cited in Knowlson (1965:508)

Specific exploitation of space can also be found, reminiscent of pronominal reference in Sign Language (Volterra & Erting 1990).

Internal hierarchical structure and compositionality are often seen as defining criteria of language. McNeill (e.g. 1992) argues that spontaneous, speech-associated gestures show no trace of such properties. Others have argued, however, that the observable gestural units can be assumed to reflect underlying semantic units which can then be combined. In an extensive study of French gestures, Calbris (1990) analysed a number of gestural features such as axis, plane, etc., for semantic content. She suggests that gestures are combined of such smaller units, thus showing morpheme-like internal structure. Similarly, Webb (1996) have analysed metaphorical gestures used by speakers of American English, and claims to have identified smaller recursive units of meaning out of which such gestures are built. A gesture for 'thinking', for instance, can be analysed into the combination of the head location (MENTAL) and a hand configuration (GRASP). There is little consensus in the field regarding this issue, however.

3.2.2 Gestures–a revised definition

Given the specifications above, a better definition for 'gesture' can now be posited. As the aim of this study is to look at all manual or gestural behaviour used by language learners to cope with communication, two limitations are imposed.

One concerns the body parts or articulators, as already seen in the trivial definition. Only hand and/or arm movements are considered. This narrows the scope of the study considerably, and excludes all other bodily movements.

The second constraint concerns the relationship of these movements to language in a broad sense. Only language-related movements are considered, meaning that only gestures performed in connection with speech–as a replacement for or a complement to speech–are taken into account. Specifically, this leads to the explicit exclusion of so called self-adaptors (Ekman & Friesen 1969). The term refers to a particular type of self-touching movements which typically include playing with strands of hair, scratching, or other grooming movements. It is not implied that these movements do not communicate, in a broad sense of the word, but they bear no obvious connection with language, which is why they are not considered in this study.[11]

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[11] For a critique of how the term 'communication' is used, especially in connection with nonverbal communication, and a proposal for a more stringent definition, see Wiener et al. (1972).

The following definition for 'gesture' is consequently proposed:

> DEFINITION (revised)   GESTURE: speech-associated movements of the hand(s) and/or arm(s), except self-regulators.

In this study the term 'gesture' will thus only be used to cover what has elsewhere been called gesticulation, speech-associated, or spontaneous gestures, or gestures showing no degree of conventionalisation. Other language-related manual movements, such as mime and emblems, will be dealt with if and when they occur, and will be referred to by their technical labels. A scale for mimesis will be introduced in order to relate mimetic gestures both to the gesture end of the continuum and to mime proper.

The meaning of the term 'verbal' is not always clear, since it is sometimes synonymous to 'vocal' and sometimes to 'linguistic'. Attempts have already been made to clarify these notions (e.g. Linell & Jennische 1980; Söderbergh 1982), by specifying output forms with respect to their verbal and vocal status, as in Table 3:1.

verbal (linguistic)	vocal	output
+	+	speech
+	-	Sign Language; linguistic gesture (e.g. McNeill)
-	+	e.g. laughter, coughs
-	-	gesture (traditional)

Table 3:1. Modalities and outputs

In the table, 'verbal' equals 'linguistic'. Speech is generally agreed upon as being verbal/vocal, and paralinguistic features such as laughter and coughing are regarded as nonverbal/vocal. Sign Language is of course an example of verbal/non-vocal output (or verbal/somatic, as in Söderbergh 1982). With respect to gestures, however, there is disagreement regarding whether they are nonverbal/non-vocal (traditional view), or verbal/non-vocal. As remarked by Argyle (1988), the distinction verbal/nonverbal does not correspond to vocal/non-vocal, "since there are hand movements which stand for words, and vocalizations which do not."(p. 3).[12]

Throughout this study, 'verbal' and 'linguistic' will be taken to be synonymous, and the term 'linguistic' will be preferred over 'verbal' wherever possible for reasons of clarity. 'Verbal' is therefore not equivalent to 'vocal/oral'. The term

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[12] This is the point of the title of McNeill's provocative article, 'So you think gestures are nonverbal?' (1985b), where it is argued that gestures are linguistic or verbal, but not vocal (cf. section 4.2.2).

'oral' will be used for vocal behaviour, such that speech is regarded as oral linguistic behaviour.

What are the effects of defining gesture as above? The narrow articulatory definition excludes other communicative body parts, ranging all the way from eyes and eyebrows (Argyle & Cook 1976) to the posture of the entire body (Bull 1987; Deutsch 1952; Hirsch 1989). More importantly, however, it sets gestures apart from non-linguistic bodily behaviour in general by stressing the relationship between these movements and language. Not only are some manual movements generally labelled as gestures excluded, but so are other bodily behaviours, covering everything from proximity between interactants (proxemics, Hall 1968), to tactile behaviour (tacesics, Kauffman 1971). In view of the complexity of human communicative behaviour, especially when overall communication is considered, it may seem arbitrary and inappropriate to limit oneself to the study of such a small subclass of behaviour as language-related hand movements. However, without diminishing the importance of the other aspects of nonverbal behaviour, it is a legitimate procedure to confine research to smaller areas which can be studied in more detail. Furthermore, since the focus of study is communication in cases of speech deficiencies, limiting the scope to manual movements related to speech seems all the more relevant.

The theoretical framework chosen as the basis for this study will be further discussed in Chapter 4, and specifically, in Chapter 5, where the data collection and classification systems used are presented.

3.3 The physical properties of gestures

Just as speech is seen as a physiological event based on 'articulatory gestures', so the performance of gestures depends on articulators and a place of articulation, the articulators being the hand(s) and arm(s), and the place of articulation being gesture space.

The modern, structured study of the human hand as an articulator was initiated with Stokoe's ground-breaking work on Sign Language (Liddell & Johnson 1989; Stokoe 1972, 1980).[13] He introduced a phono-morphological analysis of manual movements, influenced by the structural methods of linguistics. Stokoe identified smaller manual units similar to phonemes and morphemes which could be combined into larger meaningful units, by breaking down hand movements into a tripartite set of parameters. The hand shape or hand configuration (the *designator*), the articulatory place (the *tabula*), and the movement (the *signation*)

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[13] For an example of earlier studies of the hand, see Bulwer (1644/1975).
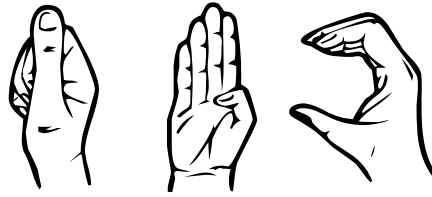
Figure 3:2. The letters A, B, and C in American finger-spelling.

serve as the bases for the analysis. These parameters allow clear descriptions of manual movements and they have come to influence not only Sign Language studies, but also the study of gestures.

Another useful artefact borrowed from Sign Language is the hand configurations suggested by the finger-spelling system, as can be seen in Figure 3:2. The classification system for manual activity afforded by finger-spelling has greatly facilitated the description of hand movements in general.

Similar rigorous structural analyses were performed on overall nonverbal behaviour (kinesics, Birdwhistell 1970; Kendon & Sigman 1996), and on gesture performance (Kendon 1972, 1980), isolating smaller units which were combinable into larger wholes. Kendon analysed particular body movements into gesture units (*G-units*), which were technically defined as "an excursion of the forelimb from a position of rest into free space in front of the speaker and back again to a position of rest." (Kendon 1983:18). G-units could combine into Gesture Phrases (*G-phrases*), characterised by a *preparation* phase, a nucleus of movement, the *stroke*, where the limb performs a distinct pattern of movement, and, finally, by a recovery or *return* phase to a position of rest. The stroke is what naive observers identify as 'the gesture'. Gestures were organised into phrases with hierarchical structure, and correlated to prosody.

The articulatory location is gesture space, or the space where gestures and signs are performed. Gesture space has been described as "a shallow disk in front of the speaker, the bottom half flattened when the speaker is seated" (McNeill 1992:86). It consists of the space immediately in front of the speaker, usually delimited by the length of the lower arms in all directions. For purposes of ana-

Figure 3:3. The speaker's central gesture space (the rectangle).

lysis, it can be further divided into central and peripheral areas. Central or neutral gesture space has thus been described as half a disk "bounded by the top of the head, the back, the space extending to elbow width on the sides, and to the hips" (Kyle & Woll 1985:86).[14] Figure 3:3 shows central gestural space. Everything outside this area can be considered peripheral. The centrality concept depends on a principle of economy, suggesting that central space is where gestures (or signs) are performed with the least effort. 'Peripheral' signifies every area which requires more muscular effort for gestures to be performed there.

3.4 Categorisation of gestures

Frequent attempts have been made to categorise speech-associated gestures. Most taxonomies are based on a combination of analysis of form and a more or less fine-grained semantic-semiotic analysis, with gestures ranging from those without any semantic relationship to speech, to those gestures depicting speech content. Moreover, classification systems have developed from rich taxonomies towards more simplified systems, based on the simple dichotomy of absence or presence of semantic relationship to speech. In the following, some of the most influential classification systems will be briefly outlined. Table 3:2 summarises the different classification systems (for gesticulation only) treated in this section, and some of the main categories are illustrated in Figures 3:4a-g. In Table 3:2, categories which correspond functionally across taxonomies have been placed on the same level.

One of the earliest classificatory attempts in modern times is that by Wundt (1973). His system is based on the distinction between affective and symbolic gestures. *Affective gestures* bear a close relationship to the content of speech in terms of proximity in space or form. *Symbolic gestures*, on the other hand, have a less direct connection to the content of speech, and rely on association. With a surprisingly modern turn of phrase, symbolic gestures are said to transmit "the concept to be communicated from one field of perception to another, e.g. implying a temporal conception with spatial means or depicting an abstract idea physically."(p. 74) Affective gestures are further divided into demonstratives, and gestures designating the form and/or function of objects.

Inspired by Wundt's system, Efron (1941/1972) developed a classification system which covers three aspects of gestures. He sees gestures as *spatio-temporal events* or movements, without reference to their interactive or referential content. Parameters such as form, plane, bodily parts involved, and tempo were identified (cf. Stokoe's system for Sign Language 1972).

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[14] The quoted definition in fact specifies signing space in Sign Language, but neutral gesture space and signing space appear to coincide.

Secondly, gestures are regarded as *interlocutional* or *communicative events*. The variables here include notions like conversational grouping or the proximity of interactants. Discourse studies and conversational analysis have resumed these notions in studies of gesture and turn-taking (Duncan 1972, 1973; Schegloff 1984).

Finally, gestures are discussed as *linguistic* or *referential* units. Three fundamental categories of linguistic gestures are distinguished. *Logical-discursive* gestures emphasise the verbal content. This group includes *batons*, rhythmic gestures, and *ideographic gestures*, which trace the movement of thought. Secondly, *objective* gestures have meaning independently of speech. Here we find *deictic* or pointing gestures, and *physiographic* gestures which visualise what they refer to. Physiographic gestures can be either *iconographic*, in which case they trace the form of a visual object, or *kinetographic*, in which case they depict bodily action. Thirdly, *emblematic* or *symbolic* gestures represent a visual or logical object by pictorial or non-pictorial form. They are culture-specific and have standardised meanings. Examples include the infamous V-signs, and various obscene gestures.

Figure 3:4a. Baton, beat.

Figure 3:4b. Ideographic, metaphoric gesture.

Figure 3:4c. Concrete deictic gesture.

Figure 3:4d. Abstract deictic gesture.

Figure 3:4e. Iconographic, pictograph, iconic gesture.

Figure 3:4f. Kinetographic, iconic gesture.

Figure 3:4g. Emblem.

Figures 3:4a-g. Examples of gesture categories.

Ekman & Friesen (1969) build on Efron's system, and their overall framework includes categories for language-related gestures, as well as for emblems, facial expressions, regulators or gestures which help manage interaction and conversation. They also include adaptors, which are movements performed unwittingly by individuals, for instance as part of self-grooming behaviour.

Illustrators are "movements which are directly tied to speech, serving to illustrate what is being said verbally."(p. 68). These gestures are said to substitute, contradict or augment the information provided orally. Illustrators are subdivided into a number of categories recognised from Wundt and Efron: *batons* or rhythmic gestures; *ideographs* which sketch a path or direction of thought; *deictic* movements which indicate objects present in the room; *spatial* movements which simply express spatial relationships; *kinetographs* or movement depicting bodily actions; *pictographs* which draw pictures of the referent. Illustrators thus include all spontaneous, speech-associated gestures.

Freedman (1972) has suggested a simplified system where two broad categories are distinguished: object- and body-focused movements. *Body-focused* movements are unrelated to the spoken word, and involve self-stimulation, whereas *object-focused* movements are intimately linked to the formal and/or contextual aspects of speech. They correspond to all the categories seen for gesticulation and are divided into *speech-primacy movements*, which closely parallel the formal and rhythmic properties of speech, and *motor-primacy* movements which express the content message.

David McNeill and his colleagues have conducted a large number of studies based on an adaptation of Ekman & Friesen's system for illustrators (summarised in McNeill 1992). Only *spontaneous* or *speech-associated* gestures are included, at the expense of both emblems and self-adaptors.

Four categories are considered. *Iconic* gestures depict the content of speech, both objects and actions, in terms of their physical aspects.[15] *Metaphoric* gestures depict abstract entities or the vehicle of a metaphor.[16] For instance, the well-known 'conduit metaphor' of communication (Lakoff & Johnson 1980; Reddy 1979) shows thought and ideas being represented as objects which can be

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[15] Although these aspects include features such as size and shape, these gestures should not be regarded as subject to feature analysis, as seen above, since that would imply internal structure in gestures, which McNeill does not accept.

[16] The relationship between metaphors and gestures has been observed by people outside the field of gesture study. Whorf, for instance, states: "Very many of the gestures made by English-speaking people at least […] serve to illustrate, by a movement in space, not a real spatial reference but one of the non spatial references that our language handles by metaphors of imaginary space." (Whorf 1956:155).

Wundt (1921/1973)	Efron (1941/1972)	Ekman & Friesen (1969)	Freedman (1977, 1978)	McNeill (1982, 1992)	
	LOGICAL-DISCURSIVE	**ILLUSTRATORS**	**OBJECT-FOCUSED MVMTS** *SPEECH-PRIMACY GESTURES*	**SPEECH-ASSOCIATED GESTURES**	
	–batons	–batons	–punctuating *rhythmic*	–beats	
			–minor qualifiers		
SYMBOLICS *association; concept transmitted from one field of perception to another*	–ideographic *trace or sketch in space the path and direction of thought*	–ideographic		–*metaphorics* *abstraction as object*	
DEMONSTRATIVES *objects present, spatial relationships*	**OBJECTIVE** –deictic *concrete*	–deictic *concrete* –spatial		–deictics *concrete or abstract*	
DESCRIPTIVES/ IMITATIVES –mime –connotatives *arbitrarily singles out secondary trait of object*	–physiographic		*MOTOR-PRIMACY GESTURES*		
indicative *outline in air*	iconographic *form of object*	–pictographic *form of object*	–representational	–iconics *form of object or action*	
plastic *three-dimensional*	kinetographic *bodily action*	–kinetographic *bodily action*	–concretising		
			–major qualifiers		

Table 3:2. Classification systems for gesticulation or speech-associated gestures.

held in the hand. "They imply that abstract thinking is based on concrete images of objects and space." (McNeill 1992:219). These gestures can be directly compared to Wundt's symbolic category. Since languages do not share the same metaphors, these gestures are culture-specific. *Deictic* gestures are pointing gestures which indicate either concrete entities in the physical environment, or abstract loci in space (McNeill, Levy, & Cassell 1993). As such, they correspond both to deictic movements and spatial gestures in Ekman & Friesen's terms expressing various spatial relationships. *Beats*, finally, are simple gestures, not depicting anything, but aligned with prosodic prominence patterns in speech, corresponding to the baton category. They are rhythmic and keep the same form regardless of content. They are distinguished from deictic gestures on the basis of directionality.

A number of classification systems, finally, distinguish only the fundamental dichotomy between movements which are related to the content of speech and those which are not. Butterworth & Beattie (1978) differentiate between content-related movements, *gestures*, and movements which are related to speech only in terms of rhythm, *speech-focused movements*. Kendon (1983) distinguishes *gesticulation* from *autonomous gestures* along the same lines. Bavelas, et al. (1992) instead separate *topic gestures* from *interactive gestures*, superimposing yet another dimension, viz. that of interactional value, on the underlying distinction between content- and rhythm-related gestures.

3.5 Gestures and culture
3.5.1 Perceived norms and differences

One of the most salient aspects of gesture is that people differ in their use of it. People generally harbour deep-rooted expectations regarding other people's propensity to gesticulate–both with regard to people from other countries and regions, as well as to people from their own country.

There is a general awareness of *norms* for gestural behaviour, both concerning the acceptable rate, range, and expanse of gestures. The social norm deeming gesticulation to be vulgar, primitive[1] and undesirable is general both across time

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[1] "Savage and half civilised races accompany their talk with expressive pantomime much more than nations of higher culture. The continental gesticulation of Hindoos, Arabs and Greeks as contrasted with the more northern nations of Europe, strikes every traveller who sees them; and the colloquial pantomime of Naples is the subject of a special treatise. But we cannot lay down a rule that gesticulation decreases as civilisation advances, and say, for instance, that a Southern Frenchman, because his talk is illustrated with gestures, as a book with pictures, is less civilised than a German or an Englishman."

Tylor (1865/1964), cited in Farnell (1995:29).

and cultures. Authors dealing with rhetoric in Antiquity (e.g. Quintilian 1922) distinguished the 'vulgar' gestures of the man in the street (some of which are still in use today, as shown by Morris, et al. 1979) from the refined rhetorical use of gestures. Christianity inherited not only the gestures themselves but also the terminology for treating them intellectually, and kept the division between moderate and virtuous *gestus* as opposed to excessive, sinful *gesticulatio* (Schmitt 1990, 1992).

In popular opinion the propensity for gesture is often considered to be genetically determined, rather than culturally inflicted, although it is often stated in climactic terms. A typical statement is that people in warmer climates develop volatile temperaments and therefore gesticulate more.[2] Stereotypical opinions concern both rate, form, and range of gestures. Western Europeans 'know' that Southern Europeans are more 'lively', 'extrovert', etc., while the 'cool' northerners are supposedly characterised by what Efron calls their "gestural taciturnity" (1941/1972). However, in his study of Southern Italian and European Jews in the United States, Efron showed that genetics is not a determining factor. Instead, the level of integration in second generation groups of these backgrounds determines whether or not subjects display the gestural behaviour associated with the original group or with the surrounding majority culture. Those second generation groups who felt closest to the immigrant communities used gestures typical of the respective ethnic group. Second generation individuals from both backgrounds who felt more at home in the American culture had instead adopted the gestural behaviour of Americans.

Another popular conviction regarding gestural norms is that, because they reflect national temperament, they are invariable. However, history shows this to be erroneous. Norms are clearly not static, but rather dynamic, flexible and subject to development under the influence of various socio-cultural factors such as fashions, and political domination. An illuminating example can be found in the changing norms for gestural behaviour in France and Great-Britain from the seventeenth century to our time. Contemporary stereotypes state that the British do not gesticulate, whereas the French do. However, a brief look at French norms for behaviour as indicated in manuals of *savoir-vivr*e and etiquette shows

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Whilst the author is trying to emphasise that gesture is not necessarily primitive, the quotation somehow speaks for itself as to his true convictions.

[2] "The theory has been advanced that Mediterranean peoples employ symbolic and pictorial gestures to save breath in the hot summer sun, but as far as is known there is no evidence that Texans gesticulate more often or more obviously than the average Brooklyn Dodger fan."

Brewer (1951:234).

that these norms have gone from advocating the utmost gestural restraint[3] to norms of liberal gesticulation and back, under the influence of political factors. In the nineteenth century the norm stabilised where it is today, i.e. on a moderate use of gesture.[4]

Correspondingly, the British norm has fluctuated in a similar way. During the entire seventeenth century as well as the first half of the nineteenth century the British indulged quite freely in expansive gestures (Barakat 1976). The present norm with its ideal of virtual immobility ('stiff upper lip') is a Victorian legacy.

Moreover, only one norm is normally recognised, whereas norms actually vary along regional and socio-economic dimensions everywhere, with less gesture accepted higher up in the social hierarchies, especially in urban areas.

3.5.2 Real norms and differences

Despite the multitude of preconceived ideas, surprisingly few truly comparative studies have been undertaken, bearing in mind that the focus here is on gesticulation and not on emblems (reviewed in section 3.2). Efron's work on Italian and Jewish gestures in the United States showed that systematic differences could be found between the cultural groups with respect to preference for gesture type and gesture size (Efron 1941/1972). The Italian group preferred descriptive gestures, whereas the Jewish group used more batons and ideographs, tracing the line of thought. The Italian group also used more expansive gestures, whilst Jewish gesture space is more restricted. On the other hand, the proximity between interactants was greater in the Jewish group.

With respect to other cultural or linguistic groups, very little has been done. Creider (1986) has studied the frequency and gesture types used by speakers of five African languages (Gusii, Luo, Kipsigis, Samburu, and Swahili) and Inuktitut. With respect to the African languages, he demonstrates that the prosodic stress systems of the languages affect the distribution of gestures. Creider also notices that the Inuktitut speakers engage in very little body movement during conversation, and only for emphasis, contrast or when animated. These results are potentially interesting, especially since the lack of gesture in Inuktitut

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[3] "Frenchmen are not gesturers by nature and dislike gesticulation." Henri Estienne (cited in Efron 1941/1972:53) on the Italian influence in France under Catherine of Medici in the sixteenth century.

[4] "Rappelons donc ces gens qui croient avoir des gestes spirituels, énergiques, et fatiguent leurs malheureux auditeurs par l'éternelle répétition des tics véhémens [sic] et bizarres qu'il leur plaît de qualifier ainsi. [...] [L]es gestes rares, points forcés, gracieux, déterminés par l'inspiration, et non exagérés par l'habitude, sont à la fois le complément et la parure du discours: ils ajoutent à l'agrément de la figure, et donnent, pour ainsi dire, une physionomie expressive au maintien [sic]."

Celnart (1833:207)

seems to correspond to the omnipresent notion that people from the North do not gesticulate. However, very little information about the data underlying the study is provided, such as the size of the data set, which would be valuable in order to estimate the validity of the study and also potentially replicate it for other linguistic groups. In addition, the prosodic categories used in the analysis (stress-timing vs. syllable-timing) are not uncontroversial.

Graham & Argyle (1975) performed a cross-cultural study in order to determine potential differences between English and Italian undergraduate students in the way gestures affect their verbal production and how they attend to gestural information. The results indicate that the presence of gestures in a description improved the accuracy with which shapes were drawn in both subject groups. However, the improvement was greater for the Italian than for the English subjects. This led the authors to conclude that gestural information is better attended to by Italians. However, as no information concerning the appearance of the gestures actually performed by the encoders is provided, it is difficult to know if the Italian advantage in decoding was not due to the Italian gestures being more descriptive (as indicated by Efron) than the English ones.

In a series of studies Raffler-Engel has dealt with culture-specific kinesic codes. Studying bilingual children in Canada, she has suggested that speakers of a given language transfer their kinesic code from one language to another when changing language (Raffler-Engel 1976, 1986). Unfortunately, it is not clear whether overall nonverbal behaviour is considered or only gestural behaviour, nor what the actual differences between the kinesic codes are.

Relatively little is thus known about real differences between cultures and languages with respect to speech-associated or spontaneous gestures. Differences can be assumed to pertain not only to culture, but also to such factors as region and socio-economic status, which are largely uncharted.

3.6 Gestures and the individual

Casual observers can easily establish that people within a given culture differ with regard to how much gesticulation they engage in, and even that the same individual uses gestures differently depending on the situation. Despite–or perhaps due to–this observation, studies considering factors relating to the individual such as personality, psychological make-up and context are scarce.

Personality and nonverbal behaviour in general has been extensively studied (for overviews, see Bruchon 1973; Feyereisen & de Lannoy 1985), but little work has been done specifically on gesture. Broad psychological types are often

used, such as extroverts vs. introverts, or psychological states such as anxiety. However, the methodological difficulties often lead to inconclusive results.

Argyle (1975) suggested that extrovert individuals might use more expansive gestures, and that introverts use more self-adaptors. Campbell & Rushton (1978) had 46 subjects tested and scored for extroversion, neuroticism, and IQ. Subjects were subsequently required to discuss their plans for the summer in an interview situation. The results indicated that extroverts were not more gesturally expressive than the other groups. However, anxious speakers engaged more in self-touching and in fewer outward directed gestures (cf. Mahl 1956). In a similar experiment, Wiens, Harper & Matarazzo (1980) examined the relationship between extroversion and the duration of certain gesture types, but found no correlation between extroversion and the duration of descriptive gestures.

Mental health and particular psychological disturbances have also served as a point of departure for many studies. Freedman and his colleagues have revealed that depressives tend towards a greater number of self-touching gestures, whereas schizophrenics use more speech-related gestures. Also, the number of self-touching gestures decreases with an amelioration of the condition of depressives, whereas speech-related gestures increase (e.g. Freedman 1972; Steingart & Freedman 1975).

The results from these studies are not easily interpreted. 'Gesture' is often ill-defined, such that it is difficult to know what sort of behaviour has been studied. Moreover, the personality types are treated somewhat carelessly, with 'introvert' often equalling 'neurotic' or 'anxious', which may or may not be adequate. In addition, it is not clear to what extent these findings can be applied to less pathological individuals, or if there is a continuum of behaviour from the 'normal' to the more particularly pathological. In fact, Marcos (1979) urges clinicians to exercise some care in the consideration of manual movements as symptomatic only of mental unhealth. He found that the number of gestures, both self-touching and others, increased when the subjects were speaking a language poorly mastered. Proficiency level thus affected the gestural behaviour along the same lines as psychological pathology. A final caveat is that these studies are often highly experimental, and nothing is known about what happens in naturalistic settings.

The few studies concerning *gender* and gestures show the same inconclusiveness as those regarding personality, partly due to terminological confusion. Two studies are reported as having found that females use more 'gestures' during speech than males (Ickes & Barnes 1978; Poling 1978). However, the type of gestures studied is again unclear, and head nods, head

shakes, and shoulder shrugs appear to have been included. With respect to gesticulation proper, Duncan & Fiske (1977) could find no differences between men and women with regard to gesture rate.

In addition to psycho-social factors, factors relating to the situation of the interaction, such as the topic being discussed, may influence the use of gesture. McBrayer, Johnson & Purvis (1992) found that the *topic* content affected the number of self-touching gestures used in conversation. An insect topic resulted in more self-touching than a bird topic. Familiarity with the topic also affects gesture use. Baxter, Winter & Hammer (1968) showed that more articulate subjects used more gestures on a familiar topic, whereas less articulate subjects used more gestures with unfamiliar topics. Transitions between topics have also been observed to be marked by gestures (Bull 1987). Unfortunately, the appearance and type of these gestures were never specified.

With respect to stylistic level and *rhetoric*, surprisingly little has been done in modern times. The historical legacy is heavy in this domain, especially regarding normative studies. A few contemporary studies deal with politicians' gestures (Atkinson 1984; Bull 1987), often in the context of how these gestures are exploited to organise audience reactions.

The individual differences in the use of gesture have thus received surprisingly little attention in comparison to other aspects of nonverbal behaviour (not reviewed here). The existing results are mostly inconclusive or contradictory. It is not always clear what type of gesture is under observation, but self-touching behaviour appears to be the main target, and hardly anything is known about speech-associated gestures. Moreover, remarkably little can be found on the role of situation or context. As pointed out by Feyereisen & de Lannoy (1985), many of the individual variables dealt with are themselves sensitive to the situations in which they are operating. Furthermore, little consideration is given to task-based effects in the studies mentioned (for an exception, see Aboudan & Beattie 1996; Beattie & Aboudan 1994). This in turn means that intra-individual differences remain uncharted territory. We still know little else than that individuals vary with respect to how much gesture they use. The reasons for this variability are still largely unknown.

3.7 Gestures in interaction

Although an intensely individual phenomenon, gestures have been found to serve the same functions in interaction across individuals.[5] Gesture usually occurs in spoken face-to-face interaction, what Goffman (1963) calls 'focused interaction'. Studies have shown that such focused interaction results in more speaker gestures than communication over intercoms or telephones, or speaking in isolation (Aboudan & Beattie 1996; Bavelas, et al. 1992; Beattie & Aboudan 1994; Cohen 1977; Cohen & Harrison 1973; Rimé 1982).

In face-to-face interaction, interactants tend to synchronise their nonverbal and gestural behaviour both with their own speech, and with the behaviour of the other person (Condon & Ogston 1971). This phenomenon has come to be known as mirroring, congruence (Kendon 1982a, 1990a; Scheflen 1973), convergence (Allwood & Ahlsén 1986), or accommodation (Giles & Smith 1979). Interactional synchrony under its various names has been interpreted as an indication of sympathy, rapport, co-operation or conversational involvement (for an overview, see Wallbott 1995).

Hand gesticulation in interaction serves as a reliable cue to turn-taking (Duncan 1972, 1973, 1975, 1976; Duncan & Fiske 1985). Termination of hand gesticulation or the relaxation of a tensed hand position signals that the turn is over. Conversely, initiation of hand gesticulation is a strong indicator that a person is going to speak. Non-termination or non-relaxation of the hand, finally, serves as a turn-holding device. In a similar vein, Streeck & Hartege (1992) have proposed that gestures can be used by listeners wanting to claim the turn prior to the end of the previous utterance without causing overlap. Gestures can also be used to elicit feedback without abandoning the turn, to comment on on-going talk without claiming it (Heath 1992), or to indicate agreement or co-operation (Fornel 1992).

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[5] Cf. the Functional Model of nonverbal behavioural patterns (Patterson 1991, 1994), where a number of functions are proposed for overall nonverbal behaviour: providing information, regulating interaction, expressing intimacy, social control, a presentational function, and affect management.

3.8 Summary

Gestures can be differentiated and classified with respect to how closely related they are to speech, and how conventionalised they are. When gestures are defined as non-conventionalised speech-associated movements of the hand or arm, paradoxically little appears to be known about them, despite the extensive literature on nonverbal/non-vocal behaviours. However, a number of classification systems have been proposed, usually based on semiotic distinctions.

Most preconceived ideas regarding cross-cultural variations in gesture use disregard the fact that socio-economic factors are as important as culture to gestural behaviour. Moreover, it is seldom recognised that such norms are subject to change and development. With respect to individual differences, few reliable factors have been isolated, although evidence suggests that extroversion corresponds to more outward directed gestures, whereas depressive behaviour seems to be related to restrained gesture use and more self-touching behaviours.

Functional aspects of gesture use in interaction appear to be constant across speakers. For instance, gestures reliably serve to regulate turn-taking.

4 Compensatory gestures–
Giving language a hand

4.1 Introduction

Despite the conspicuous lack of gesture studies in the literature concerning CSs, gesture is often seen as the compensatory device par excellence in other traditions. However, the issues of how such compensatory gestures are defined or work are rarely addressed. At least two fundamental assumptions must be considered in any theory of compensatory gesture:

> • Gesture and language must be associated such that gestures can compensate for an oral linguistic deficit and express the same meaning.

> • Gestures must have a communicative value for listeners. This in turn implies that gestures can be performed for the benefit of the interlocutor, such that speakers can exploit them to enhance their performance, i.e. that gestures can be used strategically.

These assumptions are all more or less controversial in the gesture literature. The fundamental relationship between gesture and language lies at the heart of this discussion. So do the issues of why speakers in general, and learners in particular, perform gestures at all, for whose benefit they are performed, and how these gestures are interpreted.

This chapter therefore opens with a survey of the debate regarding the relationship between language and speech. The notion of compensation itself will then be discussed, both in terms of compensation for speakers and for listeners, and with respect to how gestures are assumed to help interpretation. Finally, empirical results from studies dealing with compensatory gesture in different areas will be reviewed.

4.2 Gesture and language
4.2.1 Content and timing

In section 3.2 on the definition of gesture, the term 'speech-associated gesture' was introduced rather casually, as if the association between gestures and language were given and straightforward. That is hardly the case, however. This question constitutes a major theoretical (and experimental) issue in the literature. The basis for the assumption of a connection is the observed parallelism or synchronisation between the two channels, with respect to content and to time.

As could be seen in the section on classification systems, all systems have recognised that there are gestures which are easily identified as related to the content of speech, referred to alternatively as iconographic, pictographic, kinetographic or iconic. These gestures generally depict a physical aspect of an object such as size or shape. This connection seems so obvious as to be trivial.

A number of studies have dealt with the temporal synchronisation between stressed elements in speech and gesture. Gestures appear to precede or occur simultaneously with the corresponding units in speech (Butterworth & Beattie 1978; Feyereisen 1997; Kendon 1972; Morrel-Samuels & Krauss 1992; Schegloff 1984 inter al.). Rhythmic co-ordination has been found between *beats* and primary stress (Condon & Ogston 1971), tonic stress (Bull 1987), with tone group nuclei (McClave 1994), and also with more global intonation (Guaïtella 1995). *Content-related gestures*, on the other hand, tend to precede speech (Butterworth & Beattie 1978; Butterworth & Hadar 1989; Feyereisen 1997). There is no evidence to suggest that gestures ever occur *after* what Schegloff calls their 'lexical affiliates' in fluent speech.

There is less agreement, however, regarding whether gestures occur during articulation (Christenfeld, Schachter, & Bilous 1991; McNeill 1985b), during pauses and hesitation (Butterworth & Beattie 1978), or immediately after them (Dittman 1972).

Aboudan & Beattie (1996; Beattie & Aboudan 1994) have suggested that some of the disagreements regarding timing may stem from task-based differences. Their studies show that both gesture rate and duration is affected by the presence of an interlocutor in the test situation. The timing of gestures was found to be affected by whether or not speakers gesticulated while speaking to an interlocutor in a dialogue, in monologue in front of a silent listener, or while speaking to themselves in isolation. Gestures were mostly initiated during articulation, but more specifically during filled pauses in real dialogue.

The situationally based differences correspond to proposals made in conversation analysis, where gesture is seen as a contextualisation device. Schegloff (1984) has suggested that the pre-positioning of gestures creates a "projection space" in an utterance or "a span in which some element of talk is 'in play' before being produced." (p. 267). The gesture can thus suggest what is to come before the corresponding verbal units are in place. Similarly, Heath (1984) and Streeck & Hartege (1992) claim that the early onset of gesture is a means for the speaker to ensure the listener's co-participation.

The timing of gestures has been measured with varying precision, and less precise timing studies suggest that there is merely temporal overlap between gestures and speech. The discrepancies between results concerning timing might also depend on whether or not the preparation phase is distinguished from the stroke, as suggested by Kendon (1980). Preparation phases will naturally always anticipate the lexical affiliate, whereas greater synchrony can be expected when the gesture stroke is considered. Unfortunately, it is rarely specified which of these gestural aspects has been the subject of study.

4.2.2 The nature of the relationship

Historically, gesture has been seen as a language in itself–an opinion inherited from writers such as Cicero and Quintilian, repeated by Bulwer (1644/1975), and maintained by the encyclopaedists in the eighteenth century. Specifically, gesture was seen as a universal language understood by all (Knowlson 1965; Schmitt 1990). Today, the debate regarding gesture and language still concerns the linguistic status of gestures, but more in terms of the complex relationship between language and thought, and the interaction between gesture and the speech modality. Part of the controversy stems from the confusion which arises from the lack of stringent definitions regarding what type of gesture is under discussion, but it also relates to different views of speech production and functional aspects of gesture.

Traditionally, gesture is seen as subordinate to or governed by speech. A second possible position instead considers gesture to be primary and language subordinate. However, not many modern researchers adhere to this position. Interestingly enough, though, an underlying assumption akin to this position can be found in the evolutionary and developmental literature (e.g. Armstrong, et al. 1995; Donald 1991; Hewes 1973, 1976; Kendon 1975). In that context, gesture is often seen as primary, in that it precedes speech developmentally–both onto- and phylogenetically. However, the gestural advantage is usually confined to pre-linguistic stages, and in the adult, speech is seen as primary to gesture. A third alternative gives neither modality primacy, but instead advocates

interdependence between gesture and speech. This position appears to be embraced by most gesture researchers today. However, there is little agreement regarding the precise nature of this interdependence.

In this view, gesture and speech are both considered to be part of the communicative intention. Kendon (1984, 1994) sees gesture as related to speakers' overall communicative effort, but offers no details as to the precise nature of the relationship. Krauss, Morrel-Samuels and Colasante (1991) propose that the communicative intention activates both an abstract propositional representation, and a motoric representation which may be reflected in gestural movement. However, they provide no comments on how, or if, these representations interact. Beattie, Butterworth and their colleagues (Beattie 1981; Butterworth & Beattie 1978; Butterworth & Hadar 1989) suggest that the two modalities share not one, but a number of common stages throughout the process of speech production. Iconic gestures are assumed to be most closely associated with the lexical encoding process, whereas beats are regarded as related to stress assignment at a phonological level of speech production. In these studies the bases of the arguments shift away from content~form relationships towards synchronisation phenomena.

McNeill: sensory-motor schemata

McNeill (1985a, 1987, 1989) has suggested a detailed model for the interdependence between speech-associated gestures and language. McNeill argues that language and gesture share a common underlying representation, consisting of complex and holistic *sensory-motor schemata* which are unpacked in speech and gesture production in parallel (McNeill 1985a, 1985b, 1992; McNeill & Duncan 1996). These schemata are "virtual experiences and actions" (Kendon 1993: 49), or models of sensory impressions and actions which serve as input both to the oral and the gestural output channels (cf. also Johnson 1987). Thought is considered to be imagistic (cf. Arnheim 1969; Kosslyn 1990), global and synthetic, and it is said to be channelled both into a global synthetic medium, gesture, *and* a linear and segmented one, speech. By virtue of the common underlying representation, gesture is seen as 'verbal' to the same extent as speech. Gesticulation and language are seen as equipotent reflections of thought with different output channels. They are interdependent and one is not a translation of the other.

McNeill also argues that gestures mark the *psychological predicates* (Vygotsky 1962), or *growth points* in discourse (Levy & McNeill 1992; McNeill 1992; McNeill & Duncan 1996), which are "the novel, discontinuous, unpredictable component of the current thought." (McNeill 1992: 127). Any given gesture is

seen as an expression of the new, or unpredictable, information in an utterance (cf. Kendon 1995).[1]

The arguments for this position are based on the observed temporal, semantic, pragmatic, pathological and developmental parallels between language and gesture. Gestures occur only during speech and are synchronised, both rhythmically and semantically, with the linguistic unit expressing the meaning features observable in the corresponding gesture, as suggested above. McNeill further proposes that gestures break down along the same lines as language in aphasia, such that Broca patients retain the ability to produce referential gestures (iconics), but not to indicate relationships (beats), whereas the reverse is true for Wernicke patients.

Further evidence comes from experiments where gesture and speech have been deliberately manipulated to be contradictory (Cassell, McNeill, & McCullough in press; McNeill, Cassell, & McCullough 1994). In these experiments subjects have been shown to integrate information received both from the oral and the gestural channel into their retellings of stories shown on video. When the content of gestures and speech are mismatched, subjects nevertheless incorporate information from the gestural channel and modify the story accordingly. McNeill claims that this supports the view that people form one underlying representation of information received, which is again expressed in both media when reformulated as output.

Modular gesture

Advocates for a modular view of gesture and language often rely on evidence from aphasia in signing deaf individuals. Their language abilities break down in aphasia, but their capacities for spontaneous spatial gesture remain intact (Corina, Poizner, Bellugi, Feinberg, Dowd, & O'Grady-Batch 1992; Poizner, et al. 1987). However, these studies chiefly show that Sign Language has the same neurological base as spoken language, and that the output modality does not influence the location of this base.

With respect to how the modalities interact in spontaneous gesture, there is experimental evidence to suggest that gesture and language result from separate but interactive processes, and that speech is affected by gesture but not the reverse (Feyereisen 1997; Levelt, Richardson, & La Heij 1985). During planning, gesture and speech appear to compete for resources, such that voice

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[1] For a similar view both of 'ideas' and of new information as discontinuous, unpredictable and inactive, see Chafe (1994).

onset time (VOT), for instance, is affected by delayed gesture initiation. During motor execution, on the other hand, the channels are modular. Once the gesture has been initiated, no VOT delay can be registered. Similarly, gestures are not affected by speech disturbances, such as when speech is impeded using delayed auditory feedback (DAF) techniques. During DAF, gestures remain slightly anticipatory as under normal circumstances, whereas the number of gestures increases (McNeill 1992). The gestural advantage has been explained by the fact that gestures do not require morpho-phonological processing. As pointed out by Morrel-Samuels & Krauss (1992), however, gestures are still likely to require some sort of processing before becoming articulate movements.

4.2.3 Gesture and language–a summary

The theoretical positions regarding the relationship between gesture and language reflect the discussions of modularity in other fields of linguistics, and range from those assuming gesture and language to be modular, to positions claiming gesture and speech to be reflections of the same underlying representations. The gesture-language relationship is connected to the issue of why speakers gesticulate. Gesture is seen as part of the speech production process, as part of global communicative intent, or as an integral reflection of thought.

4.3 Compensatory–and strategic–gestures

The term *compensatory gesture* is used to cover a number of phenomena referred to in the literature on both aphasia and language acquisition. In most studies, the term signifies those gestures occurring as *substitution* for words when the verbal-vocal channel collapses. Gesture is then either relied on entirely for the transmission of the message, or used to replace single items in an utterance, a process referred to by Slama-Cazacu (1976) as 'mixed syntax'.

Compensation is also used in a more general sense. Some compensatory gestures are said to *complement* the verbal-vocal message such that they augment, supplement or enhance it. Such complementing gestures occur simultaneously with speech. 'Augmenting gestures' can thus express the same meaning as speech in a redundant fashion, as when the vocal expression 'the sun' coincides with the performance of a sphere-like gesture. 'Supplementing gestures' express additional non-redundant meaning, as in a pointing gesture accompanying the oral expression 'that tree'. Another example of a supplementing gesture would be when a subject says 'And he left', while letting one hand take off in a sagittal plane upwards, palm down, to indicate an aeroplane taking off, thus offering information on the manner of leaving, not present in speech. The least precise expression is perhaps 'enhancing gesture', which only appears to imply making the message "more complete or more vivid" (Kendon 1994:194).

The difficulties in defining compensatory gesture seem very similar to the problems reviewed concerning definitions of CSs, and partly for the same reasons. Issues of intentionality, awareness and volition become pertinent, although they are seldom addressed. In this study, strategic gestures are defined on the basis of behavioural criteria (see Chapter 5), which will lead to some potentially compensatory gestures being excluded. The reviews below concern compensatory gestures in the broad sense, including all the aspects and functions enumerated.

4.3.1 Facilitative gestures–for the speaker

The theoretical literature on gesture contains statements to the effect that gestures are facilitative for the speaker since they are related to lexical access and planning. In this view, gestures occur as the result of speech failure, but they also help the speaker access the word sought.

Hesitation phenomena and pause are generally taken to indicate *planning*, as could be seen in section 2.3.2 (Goldman-Eisler 1968). The observation that gestures–both beats and depictive gestures–appear in pauses has led to the conclusion that they, in turn, are also related to lexical planning (e.g. Butterworth & Hadar 1989; Ragsdale & Silvia 1982). This is said to be confirmed by their affiliation to content words such as nouns, verbs and adjectives (Butterworth & Beattie 1978). More specifically, gesture is seen as the result of speech failure or of obstacles in speech planning (e.g. Feyereisen 1987).

Butterworth & Hadar (1989) propose that gestures precede speech in planning because speakers already 'know' the semantic specification of the utterance, and the lexical selection has to be done from a much bigger set of data than the choice of gesture. The asynchrony thus reflects the fact that gestures are less differentiated than words, and are therefore more readily available in the speech production process. This assumption is supported by the fact that word familiarity reduces the asynchrony (Morrel-Samuels & Krauss 1992).

The issue of lexical access also relates to the question of whether gestures occur during *fluent* or *non-fluent* phases of speech, which is an area of little consensus. Butterworth and Beattie (1978) have observed that content-related gestures appear in pauses in fluent execution phases of speech.[2] Dittman (1972), on the other hand, has argued that movements appear as clusters in non-fluent phases, but are more evenly distributed in fluent ones. It is uncertain how this should be

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[2] The distinction between planning and execution phases in speech was made by naive judges, in order to verify that such an alternation can be found in speech. For a critique of this distinction, see Clark & Clark (1977). Cf. also section 2.3.3.

interpreted for two reasons. First, no distinction is made between beats and representational gestures in his study. The observation that gestures cluster in non-fluent phases might reflect representational gestures occurring in pauses, and more evenly distributed gestures in fluent phases can reflect beats during non-hesitation. Secondly, the definitions of 'fluent' vs. 'non-fluent' are confusing. Butterworth & Beattie do not consider pause to define non-fluency, since they claim that gestures occur in pauses in fluent execution phases. Instead, planning phases are considered non-fluent, characterised by beats. Since Dittman does not define fluent and non-fluent clauses, we cannot tell whether his results are compatible with or contradictory to the previous claim.

An additional problem in the discussion is the distinction between *filled* and *unfilled pauses* (Mahl 1956). The results presented by Christenfeld, Schachter & Bilous (1991), who distinguish the two types, indicate that gestures are less frequent during filled pauses than during speech, both in formal speech (lectures) and during picture description tasks. The authors conclude that if filled pauses are assumed to indicate lexical planning, then gestures cannot be part of the planning process, since these phenomena do not co-occur.

With respect to the facilitated access of the lexicon, self-adaptors are sometimes argued to ease lexical encoding, rather than content-oriented gestures. Freedman, et al. (1986) considered body-focused movements to be part of a focusing process, which enables and facilitates linguistic planning. The rate of body-focused gestures decreases with age as subjects develop cognitive means of focusing during lexical access. Similarly, in studies of compensatory gesture in aphasia, tactile self-cues are sometimes mentioned as a means of improving lexical access (e.g. Simmons-Mackie & Damico 1997).

In opposition to the view of gestures as the result of speech failure, McNeill (1985b, 1987, 1989) instead argues that gestures fundamentally occur during speech, since both speech and gestures are reflections of thought (cf. 4.2.2). He maintains that gestures occurring during silence are either beats or metaphoric gestures for the conduit metaphor. Conduit metaphor gestures are symbols of the speech breakdown, and serve as metalinguistic comments on the function of silence. As such, they are not an indication of lexical planning, in his view.

There is thus little consensus regarding the benefit of gestures to the speaker. Both carefully controlled experimental and observational studies are needed to establish the relationship between gestures and speech planning and production.

4.3.2 Facilitative gestures–for the listener

Are gestures attended to by listeners?

When faced with a foreigner who speaks the language primarily by hand and foot, listeners sometimes seem to infer the intended words or phrases from the gestures. This suggests that gestures and the information they convey are attended to by listeners.

This claim is supported both by informal observation and by experimental studies. Mothers or caretakers attend and respond to their infants' gestures as conversational contributions, particularly by providing the children with lexical labels (Masur 1982). Moreover, adults also assess children's knowledge by observing the discrepancies between information conveyed by children in gesture and in speech (Church & Goldin-Meadow 1986; Perry, Church, & Goldin-Meadow 1992). Listeners also attend to gestural information conveyed by adults. Berger & Popelka (1971) showed that gestures help listeners identify pictures significantly better. Similarly, when abstract shapes are described with gestures, the accuracy with which subjects draw these shapes improves, and especially so for objects of low verbal codability (Graham & Argyle 1975). Furthermore, word lists and narratives are better recalled if accompanied by gestures (Riseborough 1981).

Listeners appear to integrate all available information, both gestural and oral, when retelling a story presented in both modes (Cassell, et al. in press; McNeill, et al. 1994). In these studies, a mismatch was introduced between the information expressed orally and in the gesture. When presented with a particular piece of information conveyed only gesturally, subjects would retain this information and reproduce it in their retellings. For instance, subjects were shown a video of a person saying 'and he went out' while performing a bouncing movement with the hand. When retelling this sequence, subjects would include the manner of movement in their descriptions, although this information had only been present in the gesture. Conversely, information expressed orally in the stimulus would sometimes be retold gesturally. When there was discrepancy between oral and gestural information channels, subjects would try to reconcile the conflicting information. The authors argue that this is because listeners form a single underlying representation of meaning based on incoming information from all modalities.

How are gestures attended to by listeners?

The information conveyed by gestures is thus recorded by listeners. Very little is known, however, about how this information is attended to. Little research has

been done on the perception of, or attention to, speech-associated gestures, as well as the perception of Sign Language (but see Siple 1978; Swisher 1990; Swisher, Christie, & Miller 1989). A few proposals have been made regarding visual attention or perception.

Goodwin (1986) suggests that gestures can be used both to direct the interlocutor's visual attention away from or towards the speaker. If speakers want listeners to focus on the gesture itself, they can perform the gesture in the vicinity of the face. Others (Streeck 1993; Streeck & Knapp 1992; Tuite 1993) propose that speakers can direct listeners' visual attention towards the gesture itself by looking at their own iconic gestures, sometimes using an accompanying oral 'framing' expression such as 'it was this big'.

In a study of visual attention towards speaker gestures using a modern eye-tracker, Gullberg & Holmqvist (forthc) could confirm that listeners focus on speakers' gestures in face-to-face conversational narratives, although the face is by far the most fixated area of attention. In particular, concrete deictic gestures articulated in the peripheral vertical axis tend to be focused, whilst gestures performed in central gesture space do not receive any foveal attention.[3]

Moreover, listeners fixated gestures which speakers themselves looked at. However, no accompanying oral deictic expressions were found in the data, nor any other evidence suggesting that speakers look at their own gestures as an intentional visual deictic device. Instead, speakers appear to look at their own gestures as part of the narrative effort, when they assume the role of one of the characters in the story, and mimetically act out certain actions. Mime thus functions as the gestural equivalent of quotation (cf. Clark & Gerrig 1990). When listeners are faced with miming narrators who look at imaginary objects held in the hands, they accept the switch in narrative level, step into the role of observers of the act, and align their gaze with the intended objects.

Furthermore, native listeners to second language learners were expected to direct more visual attention towards learners' gestures, since they respond to some of them as if they were appeals for help. However, native listeners did not direct any particular visual attention to learner gestures as opposed to gestures of NSs. In fact, listeners fixated virtually the same number of gestures in both conditions (12% of NS gestures vs. 11.8% of NNS gestures). The result raises the question of how cognitive attention functions. After all, it is possible to look at some-

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[3] The fovea is the central part of the visual field, where acuity is highest and where texture and detail can be perceived (e.g. Gregory 1990; Yarbus 1967). Foveal attention is thus synonymous with visual focus.

thing, even foveally, without 'taking it in', and also to foveally focus on something without intake. How gestures are 'taken in' remains largely uninvestigated.

The interpretation of gestures and understanding

The interpretation of gestures is not well understood. It has been suggested that gesture meanings are opaque in the absence of speech (Feyereisen, et al. 1988b). Subjects who were shown videotaped gestures and asked to identify their meanings chose plausible responses more often than correct ones, and implausible answers as frequently as correct ones. Similarly, subjects appear to assign meanings to gestures from separate semantic categories on the basis of oppositions between likely and unlikely categories (Krauss, et al. 1991). The authors conclude that meaning assignment is based on what is heard, not on the form of the gesture.

If gestures are indeed difficult to interpret, then their compensatory role in decoding and promoting understanding should be compromised. However, a number of studies indicate that gestures do improve listener comprehension. Rogers (1978) showed that listeners rely on gesture for comprehension when the oral channel is noisy. However, both children and adults appear to rely on gesture and speech in combination to identify referents (Thompson & Massaro 1986). Gestural information also seems to be most useful when speech is ambiguous.

These somewhat contradictory results are in part due to the difficulty in determining what is meant by 'comprehension'. With respect to the studies claiming that gestures are ambiguous, it might be argued that these experiments do not measure the extent to which gestures facilitate comprehension in naturally occurring interaction, since they all involve gestures presented in context-free isolation. Moreover, given that subjects were forced to choose a meaning from a set of deliberately similar meanings, the experiments can be said to have tested not how gestures aid comprehension, but rather how language can make comprehension of gesture more difficult.

Are gestures intended for the listener?

The issue of whether or not speakers perform gestures intentionally for the benefit of the listener is as problematic as for oral strategies. Not only do studies on compensatory gesture rarely address this problem, but no method for investigating intentionality in gesture production has been suggested. An interesting exception is the experimental study by Anderson, Robertson, Kilborn, Beeke & Dean (1997) of the gestural performance by 16 aphasic patients. The subjects were required to solve a map drawing task with an unimpaired interlocutor, and a screen was placed between the interlocutors such that gestures intended to be

seen had to be performed above it. Intentional gestures could thus be identified and distinguished from 'un-intentional' gestures which were performed in central gesture space with minimal effort behind the screen. The intentional gestures were assumed to be consciously exploited to compensate for linguistic deficits. The results showed that 'listener-oriented' or intentional gestures correlated with the successful resolution of the tasks in aphasic dyads.

4.3.3 Compensatory gestures–an intermediate summary

There is little consensus regarding whether or not gestures are facilitative primarily for listeners or for speakers. It is clear, however, that gestures are related to speech, and that they have some communicative value since listeners do attend to them both visually and cognitively. Furthermore, gestures appear to facilitate interpretation, understanding and retention of the message under some circumstances. Gestures thus have all the requirements of compensatory devices, and it does not seem implausible that speakers should exploit them to compensate or enhance their oral message. However, the issue of intentionality in gesture production remains largely uninvestigated.

4.4 Compensatory gestures in aphasia

Individuals suffering from aphasia would appear to offer unique opportunities to study compensatory gesture at work, and nonverbal modes of communication are said to be an important means of compensation for severe aphasics in the literature. However, when verbal capacity is diminished depending on brain damage, gesture does not always appear to be a possible solution to communicative problems. The capacity for nonverbal communication (in the traditional sense) can also be impaired in severe aphasics. The evidence on aphasia is ambiguous, partly due to terminological and classificatory confusion, and partly due to the complexity of all damage to the brain and the various forms of disturbances that arise as a consequence.

The nature of gestural impairment in aphasia is much debated (for overviews see Feyereisen 1988; Helms-Estabrooks 1988). Goodglass & Kaplan (1963) argue that disturbances in nonverbal communication can occur independently of the degree of aphasia. Such disturbances appear as *apraxia*, or the inability to imitate and use gestures (e.g. Hécaen 1967). Other authors have suggested that impaired nonverbal communication instead reflects an underlying symbolic disorder (e.g. Duffy & Duffy 1981). The gestural capacities of aphasic patients have also been said to remain unimpaired or at least less damaged than the oral capacities. Feyereisen argues that aphasic patients can and do exploit gestures to overcome some of their handicaps in interaction, such as pantomiming the

function of an object they cannot name (Feyereisen 1986, 1987, 1991; Feyereisen, Barter, Goossens, & Clerebaut 1988a).

Numerous studies have shown that aphasic patients use more nonverbal behaviour than their healthy counterparts (e.g. Ahlsén 1985; Anderson, et al. 1997; Herrmann, Reichle, Lucius-Hoene, Wallesch, & Johannsen-Horbach 1988; Le May, David, & Thoms 1988), and that the use of gestures decreases with the development of speech (Ahlsén 1991). Gestures are used as indicators of surrender, hesitation and word search, as well as to give feedback or affirmation (Ahlsén 1985). Other studies show no difference in gesture rate between aphasics and normal controls (Glosser, Wiener, & Kaplan 1986).

These diverging results may have several explanations. One is that the bases of calculation are sometimes unclear or questionable. For instance, Anderson, et al. (1997) compared the number of gestures *per dialogue* in aphasic and control dyads. The aphasic subjects were found to use twice as many gestures as the controls. This may be due to the aphasic patients' higher gesture rate, but it may also be a reflection of the fact that these interactions were longer and required more turns and negotiation than in the control dyads. A measure should have been applied where gesture rate could be calculated independently of the amount of speech.

Another problem is that it is not always clear what the aphasics' performance is compared to, i.e. who the 'healthy counterparts' are. Sometimes these counterparts are the therapists and at other times real control groups. Moreover, interaction with an aphasic patient is likely to be characterised both by convergence phenomena between interlocutors, and by modified behaviour on the part of the therapists as an attempt to achieve comprehension (cf. Anderson, et al. 1997; Volterra, Beronesi, & Massoni 1990). Herrmann, et al. actually suggest that behavioural convergence may be at work in their data. In Ahlsén (1985) the therapists are sometimes found to use more illustrators than the patients. Specifically in one case, the therapist conversing with the patient who uses the greatest number of illustrators also uses the greatest number of illustrators of all the therapists. These factors risk clouding the quantitative relationship between the nonverbal behaviour in aphasics and non-pathological speakers. One would wish for baseline data of non-pathological NS/NS conversations, or comparisons of therapists in non-pathological conversations.

With respect to the different types of gestures used in aphasia, the results are equally inconclusive. Studies have shown both that aphasics favour iconic gestures (Caldognetto & Poggi 1995), and that they use a reduced number of illustrators (Klippi 1996). Similarly, aphasic patients have been said both to

favour pantomimic gestures (Corina, et al. 1992), and to use reduced a number of pantomimes (Glosser, et al. 1986; Herrmann, et al. 1988). The differences appear to depend both on differing classification systems for gesture and on the different types of aphasia involved. The extent to which gestures are shown to occur with speech (Klippi 1996) or without speech (Herrmann, et al. 1988) also differs across studies.

McNeill (1985b, 1987, 1992, 1995) has argued that gesture breaks down along the same lines as speech in aphasia. The ability to use pantomime as a speech substitute is not comparable, in his view, to the ability to use speech-associated gestures. He maintains that the capacity to use speech-associated gestures such as iconics, metaphorics, deictics and beats are impaired in the same way as speech. Broca (anterior) aphasics have been found to perform meaningful gestures, particularly representational iconics, in isolation, just as they use meaningful but isolated words (Cicone, Wapner, Foldi, Zurif, & Gardner 1979; Pedelty 1987[4]). Wernicke (posterior) aphasics, on the other hand, make vague and uninterpretable gestures in fluent streams, just as their speech is fluent but vague and meaningless. They tend to avoid iconic gestures and instead favour beats. McNeill does not deny that those gestures which do occur in aphasia can replace or repair speech, but stresses that their origin is the same as those parts of speech which are spared.

Sign Language in aphasic adults breaks down in similar ways as speech in speaking subjects, with lexical and/or grammatical difficulties ensuing depending on the localisation of the lesion. However, the capacity to process visuo-spatial relations not used grammatically is generally preserved, as is the ability to use space for compensatory gesture (Bellugi, Poizner, & Klima 1990; Poizner, et al. 1987). Aphasic signing individuals can therefore exploit the gestural medium as compensation in the same way as hearing aphasics do.

Aphasic patients thus can and do use gestures to compensate for linguistic deficits, but the number and type of gestures used appears to vary both with the type and the degree of aphasia. However, it is difficult to assess the evidence from studies which make few distinctions between different types of nonverbal behaviour, and different types of gesture. Moreover, the complexity of brain damage and the effects on language *and* gesture is such that many questions remain unanswered, perhaps because they are too bluntly put to begin with, as suggested by Feyereisen (1991). Furthermore, as always with studies of pathologi-

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[4] Cited most extensively in McNeill, Levy & Pedelty (1990) and McNeill (1992).

cal cases, it is difficult to assess the implications for the behaviour of healthy subjects, since no comparative data are available.

4.5 Gestures and specific language impairment (SLI)

Compensatory gestures also occur in the communicative behaviour of specifically language impaired (SLI) children. The study of SLI affords particular insights into linguistic behaviour, as it supposedly only affects linguistic abilities, not other cognitive or developmental aspects (e.g. Fey & Leonard 1983). SLI children are neither mentally nor physically retarded, but typically show specific grammatical and phonological deficits compared with their peers.

A few case studies have investigated the number of gestures used by SLI children. One SLI child was found to use more illustrators in dialogue with the therapist than with the mother, which was taken as evidence of compensatory gesture during word search (Bresland, Holst, Jensen, Månsson, & Åström 1991). No explanation was given for the difference in behaviour with different interlocutors, however. Similarly, Sanmarco (1984[5]) showed that SLI children used more pointing gestures in a problem-solving task than normal controls.

In a larger study involving eight SLI children and eight normal controls, no significant quantitative differences between the groups were found (Lundström & Månsson 1995). However, the SLI children favoured different types of gestures from the normal controls, viz. emblems (head nods and head shakes) and adaptors, as well as pictographs and pointing gestures. The normal children instead preferred beats and spatial gestures.

The results from these studies are inconclusive, given the restricted data. Moreover, the effects of the specific impairment need further investigation.

4.6 Gestures in first language acquisition

Gesture is often seen as a precursor to language in children acquiring their first language. On the one hand, it is regarded as a compensatory device which is gradually replaced by speech. Pointing is often cited as a typical example of a gesture which is first used for deictic purposes instead of speech, then concomitantly with deictic words, finally to be replaced by speech entirely (Clark 1978a; Lock, Young, Service, & Chandler 1990; Vygotsky 1962). On the other hand, gesture is seen as instrumental in establishing patterns for form/meaning relationships, later to become arbitrariness in language (e.g. Clark 1978b). The dis-

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[5] Cited in Lundström & Månsson (1995).

cussion of compensatory gesture in child language is complicated by cognitive developmental factors, and by notions such as intentionality.

Those advocating a modular approach to language reject all connections between gesture and language in development (Chomsky 1972). This position is embraced in many studies comparing the acquisition of sign with the acquisition of gesture and spoken language. For instance, pointing may be a conventional rather than an innate function, since children acquiring ASL as their first language show no advantage over hearing peers in the acquisition of personal pronouns, but display similar developmental problems (Petitto 1987, 1990).[6]

However, most recent studies seem to advocate a position stating that gesture, rather than being replaced by speech, in fact evolves and develops in parallel with the communicative and discursive functions of oral language. The earliest development appears to move from gesture and vocalisation to gesture and divergent gaze, then to gesture combined with another gesture, and finally to combinations of gesture and conventional verbalisations (Masur 1990). There is little empirical evidence to suggest that speech replaces gestures. Instead, there is a steady increase in gesture use until the age of 18 years (Dobrich & Scarborough 1984; Jancovic, Devoe, & Wiener 1975). Although some gestures have been shown to have roughly six months' advantage over speech in terms of occurrence (Goodwyn & Acredolo 1993), the parallels between gesture and speech cover both timing, functions, and the contexts in which they appear.

The use of different gesture *types* is coupled with development. Early 'natural gestures', such as giving and pointing, can be differentiated from referential gestures such as pantomimes (Bates 1979; Bates, Bretherton, Shore, & McNew 1983). Before the age of two, children use mostly concrete pointing and tend not to use depicting gestures (Acredolo & Goodwyn 1988; McNeill 1992). At approximately 2;6 years, children start using iconic gestures (McNeill 1986, 1992) which differ from those of adults. Children under eight years of age tend to enact whole scenes, using not only the hands, but the whole body. They also use an extended gesture space which is relative to body size. This is in contrast to adults, who tend to depict events as observers, using only the hands in a restricted gesture space where a point in front of the speaker servers as *origo*. Hearing children appear to use more iconic gestures in oral narratives than deaf children, who instead prefer pantomime (e.g. Marschark 1994).

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[6] For an alternative interpretation of the same data, see Haukioja (1992).

Metaphorics, beats, and abstract deictic gestures appear much later, approximately at the age of five (Cassell 1988; McNeill 1986, 1992). These gestures are related to language and discourse in more complex ways than iconics, as will be shown in section 8.2. The development of the use of such gestures is not complete until the age of twelve.

There are also developmental trends for gesture *functions*. There is a shift away from the use of substitutive iconic or pantomimic gestures towards redundant discursive gestures with increasing age (Blake & Dolgoy 1993; Freedman 1977; Freedman, et al. 1986; Jancovic, et al. 1975). Evans & Rubin (1979) found that kindergarten children use gestures instead of speech in explanations of game rules, whereas the gestures of five- to ten-year-olds tend rather to be redundant to the verbalisations. Similarly, the use of representational gestures appears to decrease with age, whereas there is an increase in the use of emphatic or batonic gestures (Freedman, et al. 1986). At the age of four, speakers use gesture to substitute for speech. At age ten, gesture supplements speech, and is redundant. At fourteen, finally, gesture is said to be subordinate to speech.

Children and adults also differ with respect to how they use gesture as a referential device. Pechman & Deutsch (1982) showed that children and adults use pointing gestures in similar ways when these form an effective referential device. When pointing is not effective, adults will instead rely on oral means of reference. When children do not possess the appropriate oral resources, they will continue to use pointing despite its inefficiency. Children thus learn to use both linguistic and gestural cues for identification tasks with age, and their abilities to use and understand gesture varies as much as their oral comprehension and production levels (Bates, Thal, Whitesell, Fenson, & Oakes 1989).

Finally, the compensatory effect of gestural *input* to children has been addressed in a few studies. Mothers have been shown to use more gestures, specifically concrete deictics, the younger their children are (Bekken 1989[7]; Garnica 1978; Schnur & Schatz 1984). Bekken also showed that the number of deictic gestures correlates with the amount of oral motherese. Schnur & Schatz have argued that these gestures have little effect as comprehension supporting devices, but that they instead principally serve as attention attractors. Other gesture types, specifically metaphorics, abstract deictics and beats, tend to be virtually absent from the gestures directed to children.

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[7] Cited in Marschark (1994), and McNeill (1992).

Rather than being replaced by speech, children's gestures develop and become more complex and refined with age. There is a tendency for gestures to become less substitutive and more supplementary and redundant with age, increasing language proficiency and cognitive refinement, expressing more discourse-related than content-related functions. With this more differentiated view of gestural development in children, the tendency to regard gesture primarily as a compensatory device in first language acquisition is also attenuated.

4.6.1 Particular difficulties

A particular case of compensatory gesture occurs in cases of hearing families with deaf children who are not taught Sign Language but placed in oral education programs. As already seen in section 3.2.1, such individuals and their families often develop what has come to be known as *Home Sign*.

Studying an Italian deaf boy, Volterra & Erting (1990) noted that combinations of descriptive gestures and words expressing the same meaning were frequent in the initial stages of observation. However, with increasing verbal fluency, the number of gestures decreased, and the remaining gestures tended not to express the same content as speech.

Deaf parents using oral English and gesture as input to their deaf children, instead of Sign Language, have been found to use compensatory gestures (de Villiers, Bibeau, Ramos, & Gatty 1993). Such gestures occurred with all utterances in the study, both for immediate reference, absent reference, and as a means of getting the children's attention. The mothers used five times as many gestures as hearing mothers, and the children used twice as many gestures as deaf children in hearing families, and also more than hearing children. With the development of vocabulary, the children went from using unaccompanied gestures to gestures complementing speech.

In the special case of compensatory gestures used by deaf individuals deprived of Sign Language, the tendency is thus the same as for hearing children. Gestures move from being substitutive to being complementary to speech.

4.7 Gestures in second language acquisition

Despite the general conviction that gestures are a useful compensatory device for adult language learners, there are remarkably few studies of gestures in second language acquisition. With few exceptions, the existing studies have rarely been performed within any theoretical framework related to SLA theory, much less CS theory. The studies reviewed here have generally considered overall gestural behaviour in learners, not just overtly compensatory or strategic gestu-

res. Studies typically deal with emblems. It has been suggested, for instance, that 'gestures' (i.e. emblems) should be used in the foreign language classroom as a means of introducing the culture and its concomitant typical gestural styles (e.g. Calbris & Montredon 1986; Green 1968; Saitz 1966; Wylie 1977).

Empirical studies of the compensatory use of gestures in a second language support the expectation that *the number of gestures* grows with increasing encoding problems. Marcos (1979) found that Spanish-English and English-Spanish bilinguals used more gestures of all *types* in the weaker language, but that significant increases were found only for self-adaptors and beats. Japanese learners of English and English learners of Japanese have also been found to increase their use of gesture in L2 production (Jungheim 1995a; Kita 1993; Nobe 1993), especially of beats and representational gestures (Nobe 1993). These two language groups are particularly interesting since both represent cultures which supposedly discourage the use of gestures. French learners of English were also found to increase their use of gesture when describing their living rooms in the L2 (Sainsbury & Wood 1977). Kita (1993) measured the increased gesture rate in L2 in terms of number of gestures per clause, showing that NSs tend to produce only one gesture per clause, whilst learners typically display many gestures per clause. With development, the ratio of gestures per clauses was said to decrease, such that development in language ability was reflected by a decrease in gesture use.

Contrary to these studies, Chen (1990) found no difference in gesture frequency in Chinese learners of English in high and low proficiency groups. On the other hand, only five instances of gesture were found in the entire material, which makes the statement impossible to assess. Moreover, there is no baseline L1 data for comparison, which means that the author's claim that gesticulation is considered impolite in the Chinese culture has to be accepted at face value. Similarly, Valokorpi (1981) studied Finns learning English and found no increase in non-verbal behaviour in the L2, but learners maintained their *idiokinolect* or individual gestural behaviour across languages. Again, this result might reflect a focus on overall nonverbal behaviour rather than on gesture as defined here.

Strömqvist (1983) examined the gestures performed by two language learners while engaged in 'search games'. Lexical search games are similar to lexical CSs in that they are initiated when the learner is at a loss for words. The study showed that the learners combined their searches for concrete referents with iconic gestures, depicting the referent, or by pointing to the object they were trying to name.

The use of gestures in L2 seems to be conditioned by developmental factors similar to those in L1 use of gestures. Taranger & Coupier (1984) studied the natural acquisition of French as a second language by Moroccan immigrants in a face-to-face oral interview. The most frequent utterance type in the learners' early attempts combined oral and gestural elements (cf. Slama-Cazacu 1976). The native interlocutors often translated the gestural element into speech as a confirmation of understanding. With time, however, the mixed utterances became less frequent. With increasing oral proficiency, learners used fewer representational gestures to express content, and more emphatic or rhythmic gestures.

Similarly, De Geer (1992) found that internationally adopted children, who are child learners of a second language (or of a second first language), prefer the addition of 'nonverbal or somatic behaviour' to the oral channel to maintain communication on arrival in the new country. Complementary gesture was also the preferred strategy by their mothers. 'Change of channel', or substitutive gesture, was only used in a few cases. In accordance with Taranger & Coupier's results, the use of somatic communication also decreased over time as the children started to develop proficiency in their new language.

Adult L2 learners thus use more gestures when speaking their second language. There is evidence to suggest both that the rate of representational and discourse-related gestures increase, and that content-related gestures decrease as oral proficiency develops. However, contrary to children acquiring their first language, second language learners do not usually use gestures to replace speech entirely, but favour complementary gestures from the beginning. This is true even for children acquiring a second language.

A problem with most studies concerned with the use of gesture in L2 is that the relevant proficiency level is seldom indicated. Comparative data for individual performance in the L1 are also badly needed. Since gesture use is subject to substantial individual variation in the L1, the individual style needs to be ascertained before anything can be said about L2 performance, especially in terms of group performance (cf. Cummins 1991; Markham 1997). Another drawback is the fact that none of these studies have dealt with possible task-related effects, despite the wide range of tasks being used: oral interviews (Taranger & Coupier 1984), picture identification tasks (Chen 1990), role play (Jungheim 1995a, 1995b) and story retelling (Kita 1993; Marcos 1979; Nobe 1993).

4.8 Summary

Studies of compensatory gestures must be based on the double assumption that gesture and speech are interdependent, and that gestures have a communicative value for listeners, such that speakers can exploit them to enhance their performance. The relationship between gesture and language is a central issue in gesture research, and ultimately related to the question of why speakers gesticulate. Gestures may be compensatory for speakers if it is assumed that they are part of the lexical encoding process or, at least, part of the communicative effort. Others have suggested that gesticulation is an involuntary and spontaneous reflection of a common underlying meaning representation which generates both linguistic oral and linguistic gestural output.

Since listeners attend to speakers' gestures, and incorporate meanings expressed gesturally, the communicative value of gestures to *listeners* seems to be established. This stresses their potential value as compensatory devices.

Studies of first and second language learners show that compensatory gestures are used by both groups. In both categories, the lower the proficiency, the greater the number of gestures. For children acquiring their first language, gestures are not replaced by speech, but develop in parallel to it. Nevertheless, children use more substitutive gestures in the earlier stages of development, whilst gestures become more supplementary with increasing proficiency. In adults, gestures tend to be complementary from the beginning. The results from studies of compensatory gesture use in aphasia, in deaf children in hearing families, and in specifically language impaired children are more difficult to assess.

Part Two
5 The production study

5.1 Data collection

A semi-experimental design was set up for the data collection, which took place in Lund, Sweden and Caen, France. A number of Swedish and French language learners were asked to look at and memorise a printed cartoon containing pictures, but no text or words. The subjects were subsequently asked to retell the story both in their first and in their second language to a NS of the respective languages.[1] Their performance was video- and audio-recorded and analysed for the occurrence of gestures and CSs, both oral and gestural.

5.1.1 The task

The task-based variation in the use of oral CSs has led to the use of a broad set of tasks in other studies in order to chart this variation as closely as possible. In the present study, however, the main objective was to look at gestural behaviour in communicatively difficult situations. Therefore, a task had to be chosen which would ensure the occurrence of gestures.

The task of retelling a story presented as a cartoon was chosen for a number of reasons. Firstly, since the scope of the study is cross-disciplinary, it was desirable to collect data which could be compared to earlier studies both of gestural behaviour and of CSs. Oral narrative production based on the viewing of an animated cartoon has been used consistently by McNeill and his associates (McNeill 1992) for the study of gestures in first language production across a

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[1] The second language of the learners is in fact a 'foreign language', following the prevailing terminology. *Second language acquisition* is said to take place when a language is acquired naturalistically without formal instruction in the country or a community where the language is spoken. *Foreign language learning*, on the other hand, takes place when subjects are given formal instruction in another language, usually while remaining in their own country. Following this definition, the subjects were required to retell the story in their foreign language. However, throughout this study, the foreign language of the subjects will be referred to as the second language for convenience.

wide range of languages, as well as for first language learners (see section 4.6). The cartoon has been shown in shorter segments so as not to tax memory, and subjects have then been asked to retell these segments consecutively.

Secondly, story retellings is a favoured elicitation technique in studies of first (e.g. Berman 1988; Strömqvist & Day 1993) and second language acquisition (e.g. Klein & Perdue 1992). Story retellings have also been included in the many tasks used to elicit CSs in language learners. In the early studies, the task was usually a picture description task (Ervin 1979; Palmberg 1979; Tarone 1977; Váradi 1980), where subjects had to create a story on the basis of a number of pictures. As Poulisse (1990) remarks, this procedure has a number of drawbacks. First of all, it entails the lack of control over a critical variable, viz. the creative aspect of the narrative. The fact that the subjects have to invent a story might interfere with the communicative processes the studies aim to explore, since the invention of the story might be assumed to be more taxing than the process of communicating it. Secondly, the fact that there is no interlocutor in these experiments makes the set-up unnatural despite the fact that most studies of communication strategies aim to tap natural communicative processes. In a number of studies, therefore, the stimulus story has been presented orally. In the Nijmegen project (Poulisse 1990), subjects heard a ten-line story in their L1, Dutch, and were then asked to retell it in their L2, English. A disadvantage with this method is that linguistic structures are imposed on the learner in the L1. Although this in some respects allows for control of content, there is an obvious risk that the types of CSs elicited primarily reflect a translation process. The type of design favoured in this study was aimed at eliciting relatively natural conversational narratives (cf. Sacks 1974), leading to the participation of both interlocutors.

The choice of a printed cartoon as stimulus in this study is thus a compromise between the existing story retelling varieties. It is not as taxing on memory as a longer animated cartoon and permits the whole story to be treated at once. Furthermore, the story line is well developed and does not have to be invented by the subject. However, as the input modality does not include any verbal message or lexical elements in either L1 or L2, the subject has to find a way of his or her own to communicate the story. Note that no assumptions are made about whether this is done in L1 or L2 at the initial stage. Moreover, and perhaps most importantly for the purposes of this study, there is an interlocutor to whom the subjects tell the story. Not only does the presence of the interlocutor make the situation more natural than it would otherwise have been, but it has a bearing on the elicitation of gesture since it is known that gestures occur more frequently in face-to-face interaction (cf. Aboudan & Beattie 1996; Bavelas, et al. 1992).

The experimental design was tested in a pilot study which was not specifically geared towards the study of CSs, but rather towards overall gesture (Gullberg 1993). No particular alterations were made to the design.

The point of punchlines

The cartoon stimulus chosen (Bretécher 1985, see Appendix A) had a number of advantages over other types of picture stories. First, it provided an opportunity for comparison with already existing gesture data, as seen above. The general narrative construction of the cartoon is the same: characters with easily recognisable characteristics are introduced; the events are presented in a linear chronological order without artistic narrative devices such as flashbacks; the events presented build up expectations, which are then overthrown by the punchline (cf. Sacks 1974).[2] In this respect the cartoon adheres to general narrative structures as assessed elsewhere (cf. Chafe 1994; Klein & Perdue 1992; Labov & Waletzky 1967). Furthermore, in terms of the narrator's task, a humorous stimulus provides the narration with a natural goal or end point, viz. to transmit the punch line and (hopefully) to elicit mirth on the part of the listener. Similarly, the listener knows the task is over when s/he has seized the point of the story. Successful transmission and reception of humorous intent is thus a convenient way of operationalising completion of the task.[3]

This particular cartoon was chosen because it was short, yet contained a number of referents to keep track of, and a set of actions which entailed clear references to such concepts as 'anteriority', 'posteriority', and spatial movement. The sti-mulus thus provided narrative challenges in terms of coherence and reference continuity, but also with respect to vocabulary, since the lexical field of medi-cine contains potentially confusing lexemes in the languages involved. Furthermore, the underlying assumptions on which the humour in the cartoon rests are cultural assumptions shared both by Swedish and French cultures, namely the fact that doctors have illegible handwriting.[4] All subjects understood the punchline, even if they tended to interpret it from slightly differing view-points. Some claimed that the prescription was more legible when written by foot than by hand. Others instead assumed that the prescription could not be

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[2] "A narrative which fails to conflict with expectations is no narrative at all." Chafe (1994:122)

[3] Reception of humorous intent might possibly also be used to operationalise comprehension.

[4] The French expression *écrire comme un pied*, literally 'to write like a foot', indicates bad hand-writing, and the cartoon does in fact allude to this expression. However, interestingly enough, only two out of five NSs of French recognised this play on words as the basis of the cartoon. Furthermore, the Swedish subjects seemed to find the culturally shared assumption about doctors and their hand-writing sufficient grounds for humour.

filled the first time because it was too legible when written by hand. This made the pharmacist doubt its authenticity. When written by foot, it was properly illegible and therefore more authentic. Both interpretations, however different, still allude to expectations found in both cultures regarding the legibility of doctors' handwriting.

5.1.2 Procedure

The subjects were tested individually in a room specially prepared for the experiment. The set-up was the same in Lund and in Caen. As they arrived, the subjects were offered tea or coffee to help establish a relaxed atmosphere. Instructions were given orally and the subjects were shown a short printed cartoon without text. They were told to look at the cartoon carefully and to memorise it, since they would have to retell the story to an interlocutor without being allowed to look at the cartoon. No time constraint was imposed on the memorising phase, but in no case did the subject spend more than two minutes looking at the cartoon. The subjects were then asked to retell the story carefully enough for the interlocutor to understand the punchline and be able to retell the story in his/her turn. When the subjects felt comfortable with the story, the interlocutor came into the room.

The listeners also received oral instructions. They were told that they were going to listen to a story, and that they had to make sure they understood both the story and the punchline. The circumstances for the listener instructions were somewhat different than for the narrators, as will be seen in section 5.1.4.

Narrator and listener subjects were seated in pairs with a table between them as shown in Figures 5:1a-b. A video camera (a Panasonic S-VHS NV-MS1E) was placed as unobtrusively as possible approximately 2 metres away, so that both interlocutors were in view. The narrator subject was always seated with his/her
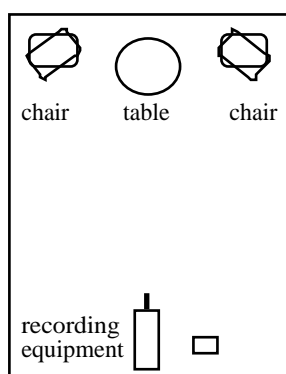
Figure 5:1a. Schematic representation of the experimental set-up.

Figure 5:1b. An example from the dialogue set-up, with the learner to the left and the native listener to the right.

dominant hand towards the camera. In addition, audio recording equipment was placed closer to the subjects.

When the narrator had finished the story and the interlocutor was satisfied with the narrative resolution, there was generally a few minutes of relaxed small talk, before the listener took leave. Depending on how well the subjects kept to their schedule, there were sometimes a few minutes' break before the introduction of the next interlocutor. The narrator subjects were offered the opportunity to look at the cartoon a second time before telling the story in the other language. The same introductory procedure as for the first narrative then ensued. Half of the subjects were asked to perform the task in L1-L2 order, and the other half in L2-L1 order.[5]

A post-test questionnaire was distributed immediately after the completion of the two tasks (see Appendix D). None of the subjects guessed the precise objective of the study. Suggestions as to the aim of the experiment generally included vague formulations of "to see how well we do when actually forced to talk to a native speaker". No one identified gesture as being the target of study. All subjects expressed surprise at how well they had performed after the experiment and also said they had enjoyed the experience.

5.1.3 Narrators

Fur the purposes of this study, subjects fulfilling a number of requirements were needed. Two groups of NSs were required, NSs of Swedish and NSs of French, who were simultaneously students of the other language at an intermediate level. Subjects with extensive experiences of talking to NSs of the L2 were excluded.

Subjects were recruited using a questionnaire (see Appendix D) which was distributed to teachers at secondary schools in Lund and at Caen University respectively. The questionnaire served a) to establish the learners' language background or linguistic profile, and b) to indicate that those who filled it in were prepared to participate in the experiment. The linguistic profiles provided information about first language, parental linguistic background, other foreign (or second) languages, auto-assessed levels of knowledge of the L2s (with respect to speech production, reading and oral comprehension, and writing), length of study of the L2s, and auto-assessed language learning skills. The subjects were told that their participation would in no way affect their grades in French and Swedish, respectively, and that the experiment would last roughly 40

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[5] In fact, in the Sw1 group, two narrators performed the task in L1-L2 order, and three narrators in L2-L1 order (2+3). The same set-up was used in the Fr1 group.

minutes. Subjects were offered a small financial remuneration for their parti-cipation (100 SEK/100 FF).[6] All subjects also gave the researcher permission to use the video material for scientific purposes, provided their anonymity was protected.[7]

A total of 17 subjects volunteered, seven Swedish and ten French students.[8] Of these, one subject in the Sw1 group, and two subjects in the Fr1 group had to be rejected due to their bilingual background. In addition, one subject in the Swedish group and two subjects in the French group were excluded because they had spent more than three weeks in the country or a community where the second language was spoken. This procedure resulted in five Swedish and six French subjects remaining for the study. Since two comparable groups were desired, one French subject was excluded from the data by random selection.

Two sets of language learners thus serve as narrator subjects (for individual details, see Table 5:1):

• five NSs of Swedish (1 male, 4 female) learning French as a foreign language. The learners were all secondary school students in their final year, and had studied French for 5;6 years at the time of the experiment. None of them had spent more than four consecutive weeks in France. They had only been exposed to spoken French in the classroom and very occasionally to French films or television programs (subtitled). All subjects had very little or no experience of face-to-face interaction with NSs of French. All subjects studied at least two languages, English and French. Two subjects reported an above average facility for language learning, two subjects claimed they were average, and one subject claimed below average ability. All subjects were right-handed.

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[6] Offering subjects a financial compensation partially served to compensate for the potential bias in the data resulting from the voluntary basis of participation. Volunteers in experiments in applied linguistics can generally be assumed to be above average language students. Since the aim was to study gestural behaviour in cases of communicative problems, and communication strategies, less proficient students rather than accomplished ones were preferred. By offering a small amount of money for participation, it was hoped that also average students might be encouraged to take part. That this was indeed the case was shown by the fact that the study includes a number of students in both groups who, according both to self-estimates and evaluations by fellow students and teachers (where available), were mediocre or even poor students. In a few cases this is confirmed by their actual performance on the task.

[7] Since no explicit written permission was obtained to use still pictures from the videos in print, the pictures in this volume have all been manipulated on a computer to blur the faces of the subjects, thus protecting their identity whilst still illustrating the gestures.

[8] In fact, 14 French students volunteered, but four students were never considered since they had experienced either more, or less than two years of study. The aim was to keep the exposure variable constant–at least within the groups.

• five NSs of French (2 male, 3 female) learning Swedish as a foreign language. They were all undergraduate students at Caen University, France, in their second year of Swedish studies at the Dept. of Scandinavian Studies. None of them had spent any time in Sweden and their exposure to Swedish was limited almost exclusively to the classroom. All subjects had had little or no experience of face-to-face interaction with NSs of Swedish. All subjects studied at least two languages, primarily German or English, in addition to Swedish, and they all claimed to have an average language learning ability. All subjects were right-handed.

French narrators						*Swedish narrators*					
Fr1A *M* *21 ys* French	**L2**	German English Swedish	**Ys of** **study**	9 5 2	**Other**	several stays in Germany (Ge.)	*Sw1a* *M* *19 ys* Swedish	**L2**	English French	**Ys of** **study**	9 6	**Other**	-
Fr1B *M* *23 ys* French	**L2**	English Spanish Swedish Icelandic	**Ys of** **study**	7 3 2 2	**Other**	3 weeks in the UK (Eng.)	*Sw1b* *F* *20 ys* Swedish	**L2**	English French German	**Ys of** **study**	6 6 2	**Other**	1 y in Canada (Eng.)
Fr1C *F* *23 ys* French	**L2**	English Spanish Swedish	**Ys of** **study**	9 7 2	**Other**	3 mths in Spain (Sp.)	*Sw1c* *F* *19 ys* Swedish	**L2**	English French	**Ys of** **study**	9 6	**Other**	10 days as au-pair in Switzerland
Fr1D *F* *21 ys* French	**L2**	German English Swedish	**Ys of** **study**	8 7 2	**Other**	several stays in Germany (Ge.)	*Sw1d* *F* *18 ys* Swedish	**L2**	English French	**Ys of** **study**	9 6	**Other**	3 weeks family in Switzerland
Fr1E *F* *20 ys* French	**L2**	German English Swedish	**Ys of** **study**	9 7 2	**Other**	-	*Sw1e* *F* *20 ys* Swedish	**L2**	English French	**Ys of** **study**	9 6	**Other**	10 mths in Australia (Eng.)

Table 5:1. Narrator subjects.

Throughout this work, the two groups will be referred to as the Fr1 group and the Sw1 group, respectively, even when dealing with their L2 performance. The subjects will be presented in the order they were recorded.

5.1.3.1   Matching of narrator groups–preliminaries

The two groups of subjects were not perfectly matched in terms of number of years/ hours of study, and as a consequence, presumably not in terms of overall proficiency.[9] The Sw1 group may have been expected to be more proficient than the Fr1 group. However, although the learners in the Sw1 group had studied

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[9] Proficiency is here taken to mean both communicative competence in BICS terms and in CALP terms (cf. 2.1-2.2).

their foreign language longer, the Fr1 group consisted of full-time university students with an intensive study rate, who could be expected to advance faster.

Since consistent teacher evaluations could not be obtained for the learners, and a proficiency test could not be distributed for practical reasons, all subjects' L2 performance was evaluated by a panel of NSs with respect to overall proficiency, lexical and grammatical knowledge, and foreign accent.[10] This evaluation was part of a bigger evaluation study, which will be presented in detail in Chapter 11. In this section, therefore, only the results pertaining to overall learner L2 performance will be described.

5.1.3.2 Results on the NATIVE SPEAKER EVALUATION TEST (NSET) for overall L2 performance

The NSET scores for L2 performance with respect to overall proficiency indicate that the learner groups do not differ significantly (Table 5:2).[11]

	VIDEO	*AUDIO*	*MEAN*
Fr1A	2	1.6	1.8
Fr1B	1.8	1.6	1.7
Fr1C	2.4	1.8	2.1
Fr1D	3.4	2.6	3.0
Fr1E	1.4	1.6	1.5
Sw1a	2.4	2	2.2
Sw1b	2.4	1.8	2.1
Sw1c	1.6	1.4	1.5
Sw1d	3.4	2.8	3.1
Sw1e	2.6	2.2	2.4
Fr1/Sw1	n.s.	n.s.	n.s.

Table 5:2. NS scores for learners' overall L2 performance in the VIDEO and AUDIO conditions. Scaling: 1-5 with 1= lowest score; 5=highest score. Mann Whitney U Test for comparisons between groups.

Both learner groups receive consistently lower scores when evaluated on the basis of audio recordings only, than when evaluated on the basis of video recordings. Although the Sw1 group generally receives slightly higher scores throughout the NSET test, and thus appears to be somewhat more proficient overall than the Fr1 group, no significant difference can be found between the groups in either condition, nor in the total scores over both conditions, as ascertained by a Mann-Whitney U Test (VIDEO $z=-.836$, $p \le .4034$; AUDIO $z=-.836$, $p \le .4034$; total $z=-.940$, $p \le .3472$).

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[10] Since the data were collected in the middle of final exams, only a few teacher observations were obtainable.

[11] In all the analyses shown, Mann-Whitney U Tests have been applied for unpaired comparisons (Fr1 vs. Sw1 production), whilst Wilcoxon Signed Rank Tests have been used for paired comparisons (L1 vs. L2 production). For further discussion of the statistical analyses employed, see section 5.2.

5.1.3.3   Speech rate

When the two narrator groups are compared with respect to speech rate, as measured in number of clauses uttered per minute (calculated on the total sample size), some differences can be observed.[12]

The L2 narratives are significantly longer than the L1 narratives in the overall material, as well as in the individual learner groups. However, the subjects in the Fr1 group produce significantly longer narratives in both proficiency conditions, as seen in Table 5:3 and Figure 5:2a (z=-2.089, p≤.0367* in L1 vs. z=-2.611, p≤.0090** in L2).

	DURATION			CLAUSE/MINUTE		
Ss	*L1*	*L2*	*L1/L2*	*L1*	*L2*	*L1/L2*
Fr1A	1 min 8 s	5 min 22 s		21.2	11.0	
Fr1B	1 min 30 s	8 min 23 s		24.7	10.5	
Fr1C	1 min 43 s	6 min 39 s		20.9	9.2	
Fr1D	1 min 53 s	5 min 24 s		24.5	10.4	
Fr1E	1 min 54 s	7 min 58 s		17.9	5.8	
			p≤.0431*			p≤.0431*
Sw1a	1 min 8 s	2 min 7 s		34.5	18.9	
Sw1b	1 min 22 s	2 min 30 s		21.2	17.6	
Sw1c	52 s	5 min 2 s		29.9	9.9	
Sw1d	1 min 16 s	1 min 56 s		39.4	18.6	
Sw1e	52 s	1 min 38 s		27.6	17.2	
			p≤.0431*			p≤.0431*
Fr1/Sw1	p≤.0367*	p≤.0090**	p≤.0051**	p≤.0367*	p≤.0472*	p≤.0051**

Table 5:3. Duration of narratives, and clauses/minute in L1 and L2 production, and comparisons between the conditions.

Figure 5:2a. Duration of the narratives in L1 and L2 production. Time has been converted to decimal values. N=normalised.

Figure 5:2b. Individual use of clauses per minute in L1 and L2 production.

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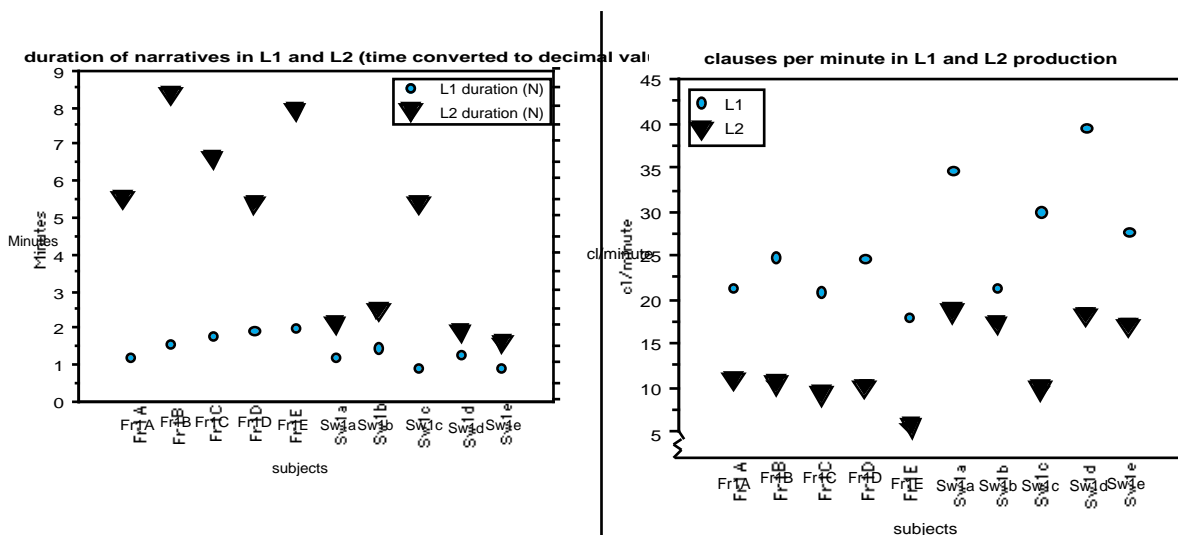
[12] Durational times have been converted to decimal values.

Conversely, all learners produce significantly fewer clauses per minute in L2 than in L1. The narrators in the Fr1 group utter significantly fewer clauses per minute in L2 than the narrators in the Sw1 group, as seen in Figure 5:2b (z= -1.984, p≤.0472*). The lower rate of clauses/minute thus reflects the fact that the Fr1 narrators are non-fluent and display many pauses and silences in their L2.

5.1.3.4   Type/token matching

A calculation of type/token (T/T) ratios has been applied to the data as an additional control for differences in lexical proficiency. False starts and hesitation sounds have been excluded, but the calculation includes units which are not target language words, but used as if they were by the learners.

It is known that T/T ratios are sensitive to the sample size, such that they correlate negatively with the number of tokens. The more tokens, the lower T/T ratios (e.g. Richards 1987). However, the individual sample sizes were not sufficiently large for a standardisation to be made (recommended standardised sample size is 400-500 tokens). Thus, a calculation was done using the total sample size of each individual.

	L1			L2			L1/L2
	TYPE	*TOKEN*	*T/T*	*TYPE*	*TOKEN*	*T/T*	*T/T*
Fr1	550	1191	0.446	415	1139	0.368	p≤.0431*
Sw1	454	1061	0.436	357	972	0.366	p≤.0431*
Fr1/Sw1			n.s.			n.s.	p≤.0051**

Table 5:4. Type/token ratios for the two groups in L1 and L2 performance, and comparisons.

As is shown in Table 5:4, the T/T ratios decrease significantly in the L2 condition for both groups (z=-2.803, p≤.0051**), and are very similar (0.368 for the Fr1 group vs. 0.366 for the Sw1 group). Since the number of tokens *decreases* in the L2 condition, due to the narratives being shorter in L2, it might be assumed that the corresponding decrease in T/T ratio actually reflects the learners' limited L2 lexicon rather than a sample size bias (cf. Richards 1987). No significant difference can be found between the groups, neither in the L1 condition (z=-.209, p≤.8345), nor in the L2 condition (z=-.209, p≤.8345).

Interestingly enough, the Fr1 group shows a higher mean value than the Sw1 group on both types and tokens in both language conditions. The interpretation of this result is not entirely straightforward, but the higher values in L2 could reflect the fact that the Fr1 group has more lexical problems, and engages in more lexical negotiation with the NSs than the Sw1 group. Negotiation leads to more language being used in the Fr1 L2 narratives.

5.1.3.5   Matching summary

When the two learner groups are compared with respect to NS evaluation scores, speech rate and type/token ratios, the Sw1 group appears to be somewhat more proficient than the Fr1 group overall. However, only the difference in speech rate is statistically significant. The groups have therefore been judged as comparable. Moreover, the NS judgements are based on the very task which the subjects performed in the data collection. This means that although the Sw1 group can be expected to show advantages on traditional proficiency tests of the CALP type, dealing with knowledge of grammatical rules and vocabulary, the present face-to-face task requires BICS-related skills not actively practised by either learner group. The fact that neither group is accustomed to dealing with real communicative problems is reflected in their performance, and in the similar NS judgements of their proficiency.

5.1.4 The listener subjects

The Swedish1 group

For the native Swedish dyads, two sets of listeners were used. In two cases, the native Swedish listeners were narrators having finished their narrating task. In other words, once a narrator had finished retelling the story, s/he moved to the other chair and became a listener to the next narrator. This meant that the listeners knew the story beforehand. However, they were instructed to pretend not to know the story, and to ask as many questions as they felt they would have needed to understand the story. They generally played their roles very well. In the three remaining cases, students at the Dept. of Linguistics performed the native Swedish listener role.

For practical reasons the native French listeners had to be limited to two individuals, one male, one female. The male interlocutor was older than the narrators (in his fifties), whereas the female listener was herself a student. In the case of the male listener, the age discrepancy was not considered disruptive, however, since the subject managed to establish a friendly and relaxed ambience.

The French1 group

In the native French dyads, the same procedure was employed as for two of the native Swedish dyads, i.e. the narrators moved on to becoming listeners once they had completed the narrative task.

Again, providing a wide range of native listeners of the L2 proved impossible, since NSs of Swedish were scarce at Caen, and one single native female Swedish listener serves as the listener in the French data, herself a student.

It might be argued that the validity of the dyads and of the experimental design is compromised as it is based on listeners who are not 'genuine' in the sense that there is no true 'information gap'. However, a number of arguments can be advanced against this objection.

First, regarding the effect on subject performance during the experiment, the narrators were not aware that the listeners had themselves been narrators previously. They genuinely believed the listeners to be ignorant of the content of the story. That this is so is amply shown by their efforts to tell the story as exhaustively as possible. The *perceived* information gap seems to be sufficient for the narrators to make the necessary communicative effort, as long as their interlocutors maintain the deception. Second, the fact that the listeners in the NS/NS dyads were themselves previous subjects made them sympathetic to the new narrators' task, and they played their roles as listeners very well, asking appropriate questions and feigning surprise. Furthermore, with respect to CSs, the linguistic problems are at times so severe in the NS/NNS dyads, that even though the listeners are familiar with the story, the interaction is still characterised by a high number of clarification questions and negotiation of reference and overall message (cf. Long 1983).

The NS listeners in NS/NNS dyads thus behave very much like 'true listeners' since they a) adjust their interactive behaviour to overcome real comprehension problems, accepting linguistic deviance and oddities, as long as the message is comprehensible, and b) display different behaviours depending on the interlocutor. They are sometimes helpful and supportive, sometimes not, depending on factors such as personal sympathy/antipathy, or tiredness. The listeners also respond to each narrator individually in terms of linguistic behaviour, adapting themselves to the requirements of each new dyad, sometimes showing evidence of linguistic adjustment to the NNS level in terms of lexical and syntactic simplification, and careful pronunciation. (e.g. Wesche 1997).

5.2 Data treatment and a methodological note

The narrative data were transcribed, using a modified version of orthographic transcription, a sample of which can be found in Appendix B. In order to facilitate the analysis of gesture quantification, and subsequent comparisons with other gesture studies, the transcripts were divided into clauses. Clauses have been defined minimally as a nexus relationship between a NP and a VP (Jörgensen & Svensson 1986). However, in conversational data a great number of clause fragments are to be found, and they have been identified as clauses when they function as clause-worthy elements or turns, and when clear boundaries in terms of intonation and pause set them apart. Backchannel

feedback signals such as 'mhm', 'yeah', etc., which do not serve as turns, have not been labelled as clauses (Allwood 1988).

Two types of coding were performed on the data: coding for gesture and coding for communication strategies, both oral and gestural. Gestures were identified, and still pictures were generated directly from the video clips on the computer screen. These pictures were then matched to the appropriate text segment in the transcripts, and a database was created, containing all the coding information relevant for a particular clause.

The coding was performed twice by the same researcher at an interval of eight months. For practical and financial reasons, it was not possible to train an independent coder to perform a second coding. However, measures for intra-rater, as opposed to inter-rater, reliability can be said to reflect the combination of two classical methods for estimating reliability, viz. measures for reliability over time and equivalence in judgement (cf. Poulisse, 1990). Establishing intra-coder reliability takes the form of the test-retest method on which it is possible to run a Pearson Correlation Test to estimate a reliability coefficient (Hatch & Lazaraton 1991). An additional argument for why intra-rater reliability can be used is that the training of an independent coder will still reflect the understanding the researcher has of the defining criteria, which is likely to influence the outcome of 'independent coding'.

With respect to the quantitative analyses performed on the data, two notes are in order. First, since the data are restricted, the quantitative results are presented as summaries.[13] The statistical analyses would obviously benefit from being based on a larger data set, but the results serve as indications of tendencies in the material, as well as of method. The choice of alpha level or level of significance is generally .05 throughout, unless otherwise specified, for two reasons. Despite the small size of the sample, a fairly conservative value has been chosen, since it seems less desirable to reject the null hypothesis when it should have been accepted, than the inverse. A more conservative critical value leads to a more cautious assessment of subject behaviour. Secondly, .05 is the value most often chosen in studies of CSs, which enables comparisons to be made. Whenever results are significant at a lower alpha level, this will be noted. The following convention will be used: $p \leq .05^{*}$, $p \leq .01^{**}$. $p \leq .001^{***}$. Given the nature of the data, non-parametric tests have been used for the statistical analyses. Recurring comparisons are the contrasts between the Fr1 and Sw1 group, as well as

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[13] Compared to many SLA studies, the data set is small, whilst in comparison to most gesture studies, the data base is quite substantial.

between performance in L1 and L2. Throughout, the tests used for these comparisons are the Mann Whitney U Test for unpaired, between-group comparisons (Fr1 vs. Sw1), and the Wilcoxon Signed Rank Test for paired, within-group comparisons (L1 vs. L2). Note also, that there is no correction to the p-values for multiple comparisons.

Second, in some studies of CSs, results are discussed on the basis of proportions of absolute figures (for instance, 'learner group A uses 40% Code strategies'). This procedure is questionable, since no consideration is given to the fact that the number of strategies used is the result of different quantities of speech. A better measurement of how many strategies learners use would be a calculation which is independent of the amount of speech, such as ratios of how many strategies are used per clause. As a consequence, throughout the quantitative summaries, the strategy rates will be presented both as proportions of the total, and as ratios of strategies per clause, in order to enable comparisons between the groups. Where the bases of calculation yield different results, this will be noted. Figures will graphically display results based on ratios only. The explanations for and the implications of the distributional facts are more thoroughly discussed in the sections following the quantitative summaries.

5.2.1 Identifying gestures

As defined in section 3.2.1, *gesture* refers only to movements of the arm(s) and/or hand(s), and to movements which occur spontaneously during speech. Mime and emblems are also considered whenever they occur, and labelled technically as such. Note that emblems in this study do not include behaviour such as head shakes or head nods, but only hand and arm movements. Manual emblems instead include such gestures as V-signs, or thumbs-up gestures.

Gestures, pantomimes, and emblems in sequence are identified as separate when *global rest*, as defined by McNeill (1992), occurs between them, i.e. when the hands come down to rest (generally in the lap or on the armrests of the chair) between two movements. *Local rest*, or gesture-holds in the air, do not qualify gestures as separate items, but a gesture with internal local rest positions counts as one gesture. The gesture stroke is identified as the most effortful part of the movement, and is marked in the transcript by square brackets ([]) around the corresponding speech unit.

The intra-rater reliability for gesture identification was Pearson $r_{xy}=.99$.

5.2.2 Classifying gestures

Of the many classificatory systems which exist for gesture, the semiotically based system developed by McNeill has been chosen. The reasons for doing so are threefold. Firstly, the underlying assumptions made by McNeill regarding the interdependence of gesture and speech are adhered to. Gestures are considered to be reflections of an underlying representation which is common to gestures and speech such that the two output channels are equivalent. Secondly, the classification system has already been successfully applied to a large body of data, and a number of research projects are currently under way where this system is in use. For a comparison of gesture studies to be possible, it is desirable to favour a single coding system. Thirdly, the classification categories are sufficiently broad to handle the complexity and multi-functionality of the gesture data, such as superimposition of one category on another. At the same time, however, the categories are few in number and defined so as to permit easy understanding of the defining criteria. The categories employed are repeated here for convenience (for illustrations, see Figures 3:4a-f in Chapter 3):

- ICONIC GESTURES–closely resemble in form and manner the semantic content of speech;

- METAPHORIC GESTURES–depict an image of an abstract concept or the vehicle of the metaphor;

- DEICTIC GESTURES–point to a locus in space, describe a location or a motion;

- BEATS–simple rhythmic gestures, not depicting but punctuating speech.

In addition, deictic gestures were coded as *concrete* or *abstract*, with concrete deictics pointing to something present in the immediate physical context, and abstract deictics pointing to 'empty space' or discourse space.

It should be noted in this context that there is potential ambiguity in the literature concerning one particular type of gesture which is sometimes described as iconic, and sometimes as deictic. Many gestures indicating movement of referents across discourse space are, for instance, coded as iconic gestures by McNeill and his associates. However, in this study, the broader definition suggested in McNeill, Levy & Pedelty (1990) is applied, such that deictic gestures are defined as those gestures which point to a locus in space, describing location or motion. This means that a number of gestures which would be coded as iconic by McNeill are seen as deictic here. The quantitative distribution of gesture types is naturally affected by this choice.

All gesture categories were also assigned a confidence value between 1 and 5, with 1=marginally confident and 5=totally certain (cf. McNeill 1992). The form

of the gesture was also coded, indicating with which hand the gesture was performed (right, left or both), using ASL finger spelling to indicate handshape, and general explanations for direction of movement. All gestures were also given a gloss. *All* gestures occurring in the material were coded according to this classification system, not just the ones assumed to be part of CSs.

In view of the frequent mentions of mime in the literature on oral CSs, a formal definition is desirable to enable a distinction to be made between mime and iconic gestures. It might be argued that what distinguishes mime from iconic gestures, as defined here, is that *mime* often covers not only manual or brachial behaviour, but the movement of other and more numerous body parts. However, it is apparent that it is not a clear-cut distinction, but rather a difference of degree. A scale for mimesis is therefore suggested, which expands the transition area between gesticulation and mime in Kendon's continuum (cf. 3.2).

5.2.3 A suggested mimesis scale–an expansion of Kendon's continuum

Gesture research has seldom dealt with the distinction between different kinds of iconics and/or mime, and mime is rarely defined at all. Calbris (1990) sees 'mimic representation' as "a synthesis of the relevant characteristics of the physical configuration"(p. 107). However, this is a broad definition, which does not, and is not intended to, distinguish mime proper from iconics. McNeill has suggested that mime is the prototypical action which would result from handling an object (McNeill 1987). In order to establish what distinguishes iconics from mime, it is therefore necessary to perform a more fine-grained analysis of the gesticulation end of Kendon's continuum.

The continuum is problematic in that it includes not just one, but a number of dimensions, such as the necessity of concomitant speech, convention and language-like qualities. The gesticulation end of the continuum covers speech-associated gestures which are not conventionalised. If, in addition, McNeill's semiotic gesture categories are superimposed on this scale, then Kendon's continuum can also be said to include a dimension of motivation. This means that the further towards mime a gesture moves, the more motivated the gesture is, in the sense that it is clearly referential, and, specifically, closely resembling objects or events in real life.

With this superimposition, the left-most end of the scale would contain beats without any real referential value or resemblance to reality. The next category would be abstract deictic gestures, which do not depict reality, but localise abstract discourse referents in space. Metaphoric gestures would be next, with a beginning depictive function, albeit of abstract concepts. Concrete deictics and

iconics would be at the end closest to mime, since the motivation is greatest in these gestures. The more fine-grained continuum would read as follows:

gesticulation   >   mime
beats > abstract deictics > metaphorics > concrete deictics > iconics

Note that this analysis implies that iconics are more motivated, more conventional and less speech-dependent than beats.

The transition between iconics and mime can similarly be seen as a gradient scale. McNeill and his associates (e.g. Cassell & McNeill 1990; McNeill, et al. 1990) have suggested a first step towards a distinction between true iconics and iconics with mimetic components in terms of viewpoints. A speaker's hands can express either the viewpoint of the character (C-VPT), in which case they have become the hands of a character in the story, or the viewpoint of the observer (O-VPT), in which case the hands correspond to objects, either turning into the objects themselves, or outlining them. A similar distinction has been made by referring to the C-VPT as *iconics1* and O-VPT as *iconics2* (Stephens & Tuite 1983[14]; Tuite 1993).

In Sign Language research, motivated or iconic signs have already been differentiated on the basis of how the articulation of the sign is influenced by the referent. Bergman's typology for iconic signs in Swedish Sign Language (1979; reprinted in 1982) divides iconic signs into three broad categories based on whether the signs reproduce shapes, movements or relationships. For instance, *shape-reproducing* signs (*formåtergivande tecken*) outline the form of the referent either three- or two-dimensionally. They correspond to McNeill's O-VPT iconics or true iconics. Similarly, Engberg-Pedersen (1991) classifies signs in Danish Sign Language into five categories depending on what the hand articulator represents. In *whole object* signs (*hel genstand-proformer*), for instance, the hand represents an entire object, which corresponds to O-VPT. *Handling* signs (*håndtere-proformer*), on the other hand, show the articulator handling both two- and three-dimensional objects, and would correspond to C-VPT gestures.

The C-VPT and O-VPT labels thus conveniently group two sets of characteristics to represent a change of viewpoint within one single articulator, viz. the hand. However, as noted above, true mime appears to be characterised by the inclusion of other articulators in the performance, and particularly the head. A scale for mimesis could therefore start with the distinction expressed by viewpoint in the manual articulator, with C-VPT being more mimetic than O-VPT. A subsequent

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[14] Cited in McNeill (1992) and Tuite (1993).

level would include additional articulators, such as the feet. With the inclusion of the head as an articulator, the gesture has become entirely mimetic, or true mime. In fact, in true mime the speaker's entire body serves as an articulator, as suggested by McNeill's definition of mime as the enactment of a prototypical action. However, the fundamental criterion is the inclusion of the head, since the head articulator ultimately determines who a speaker is. When a speaker's head equals the head of a character in the story, then the speaker has become that character, and true mime is achieved.[15]

> beats > deictics > metaphorics > iconics>
>   true iconics   >   true mime
>   O-VPT > C-VPT > other articulator added > head articulator

Kendon's expanded continuum can be seen in Figure 5:3. Note again that the implication of this analysis is that the more mimetic an iconic gesture is, the more motivated, the more conventional, and the less speech-dependent it is.

Figure 5:3. Kendon's expanded continuum: a mimesis scale. The area between gesticulation and mime expanded, and the area between iconics and mime expanded.

A scale for mimesis can thus be established such that a formal definition can be given for how mimetic an iconic gesture is.[16]

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[15] This might not be the case for Sign Language, as suggested by Elisabeth Engberg-Pedersen (personal communication). In Sign Language, the face and head serve other grammatical and morphological purposes, and consequently, mime might not be signalled in the same way as in spontaneous gesticulation. It is an empirical question to determine how mime functions in Sign Language.

[16] The scale is based on the answers to the following questions:
• Do the hands of the iconic gesture express O-VPT, i.e. do they depict or constitute an object? Assign value 0.
• Do the hands of the iconic gesture express C-VPT, i.e. are they the hands of a character in the story? Assign value 1.

Figure 5:4a. O-VPT gesture, assigned value 0, true iconic. The gesture outlines a piece of paper.

Figure 5:4b. C-VPT gesture, assigned value 1, mimetic. The articulator represents the hand of a character writing.

Figure 5:4c. C-VPT gesture, assigned value 1, mimetic. The articulator represents the hand of a character giving something to someone.

Figure 5:4d. C-VPT gesture, assigned value 2, highly mimetic. The articulator represents the foot of a character writing with his foot. However, the narrator's head is still turned towards the interlocutor.

Figure 5:4e. C-VPT gesture, assigned value 3, true mime. All articulators represent the corresponding body parts in a character placing a pen between his toes and looking at his foot as he performs the act.

Figure 5:4f. C-VPT gesture; assigned value 3 or true mime. All articulators represent the corresponding body parts in a character holding and reading a paper.

Note that for true mime to occur, neither hands nor other body parts need (strictly speaking) be used if the head is an active articulator, and this will always result in a score of 3. In addition, note that the mimesis scale does not consider the lack or presence of concomitant speech as a defining criterion; the necessity of concomitant speech has instead been modified into a speech depen-

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• Is any other articulator involved in the iconic gesture other than the hand? Add +1.
• Is the head involved as an articulator in the performance of the iconic gesture? Add value +3 to any value already achieved.

Key:
Value 0   true iconic
Value 1   mimetic iconic gesture
Value 2   highly mimetic iconic gesture
Value 3-   true mime

dency. This means that a more mimetic gesture is less dependent on concomitant speech for its interpretation than a less mimetic gesture.

The different types of gesture are exemplified in Figures 5:4a-f. The mimesis scale has been applied to the data such that all iconic gestures are coded for degree of mimesis. Note also that mime proper is thus included in the iconic gesture category for all quantitative purposes, under the label Iconic C-VPT 3.

The coding reliability for gesture classification was Pearson r_{xy}= .99.

5.2.4 Identifying Communication Strategies

On the basis of the procedures described in section 5.2, *all* of the data were coded for use of (overt) CSs, i.e. both the non-native and the native narrative data.

The difficulty in identifying oral CSs has been discussed amply in Chapter 2. For the purposes of this study, strategic behaviour has been identified on the basis of two sets of criteria. On the one hand, strategic status can be assigned on the basis of overt strategic qualities, such as obvious word coinage, which is immediately recognised as such and as a strategy. On the other hand, strategies are identified on the basis of the accumulation of performance features such as dysfluencies (filled/unfilled pauses), false starts, self-corrections, laughter, gambits, and question intonation. Filled pauses have been identified by the presence of 'uhs' and 'uhms', which are not used as inter-individual feedback signals (Allwood 1988).

A minimum of two such implicit signals must co-occur in order for a given behaviour to qualify as a strategy. This is in accordance with the recommendation in Faerch & Kasper that

> [N]o performance feature can itself be taken as unambiguous evidence for strategic planning–what indicates a communicative problem is the increased frequency and the co-occurrence of performance features, making it likely that the subsequent utterance is the result of a communication strategy.
>
> Faerch & Kasper (1983a:224).

Note, therefore, that strategies which are overt and explicit in themselves might not need additional implicit performance features accompanying them for identification. Finally, gesture has not been taken into account as a performance feature, since that would have led to circularity. Instead, gesture is regarded as a strategy in its own right.

The coding reliability for identifying CSs was Pearson r_{xy}=.93.

5.2.5 Classifying Communication Strategies–including strategic gestures

The process-oriented theories of CSs assign equal status to oral and gestural strategies, since both outputs are seen as the result of linguistic processes. This is consistent with the view of gesture suggested by McNeill. In the choice between Bialystok's system and the Nijmegen classification, the Nijmegen system is preferred since it allows for an initial distinction between two fundamental gesture categories: representational gesture and pointing. By superimposing McNeill's semiotic taxonomy for gesture types on the Nijmegen CS system, a taxonomy is achieved which will allow for a more fine-grained analysis of strategic gestures. The Nijmegen taxonomy was initially developed to account for lexical compensatory strategies only. Since this study deals with overall performance, three other categories will also be considered: Overt appeal, Hedging, and Avoidance. The summarised taxonomy is outlined in Table 5:5.

STRATEGY LABEL	ORAL	GESTURAL
Avoidance		
Conceptual	manipulation of the intended concept by -listing features (analytic) -replacement by related concept (holistic)	mimetic gestures, iconic and metaphoric gestures exploiting referent features
Code	manipulation of linguistic knowledge	all other gestures
Mixed		
Overt appeal		
Hedging		

Table 5:5. The proposed classification system for CSs.

Avoidance and abandon

Avoidance is notoriously difficult to identify, but with an experimental design permitting the collection of both L2 data and corresponding L1 data, a direct comparison can be made between constructions in L1 and L2. The rationale underlying this mode of identification is the same as in Váradi (1980), where constructions present in the L1 but not in the L2 narratives are seen as avoided. Two kinds of avoidance are considered in this study. Overt avoidance occurs when an initiated topic or message is abandoned in mid-stride. Covert avoidance occurs when referents or events in the narrative are omitted.

Lexical compensatory

The lexical compensatory strategies are the same as in the Nijmegen project (see section 2.4.2): Code, and Conceptual strategies. Conceptual strategies have been analysed into analytic and holistic strategies, following the definitions in that project.

Mixed

A mixed category has been introduced, which covers cases where strategies are combined such as Overt appeals and lexical compensatory strategies, for instance, or combinations of Code and Conceptual strategies. These combinations are not hierarchically or cyclically applied strategies, as in cases where a first Code strategy fails and is followed by a Conceptual sub-strategy. Instead, the Mixed category deals with cases when a single strategy is a combination of both Conceptual- and Code-related mechanisms.

Overt appeal

Overt appeals are either explicit questions on vocabulary, or question intonation.

Hedging

Hedging includes cases of constructions like *I don't know the word, but…* and gambits such as *what's it called*. However, if no other performance feature such as pause co-occurs with these hedges, they are not regarded as strategies. Only in cases where there is dysfluency or other combinations of features is Hedging seen as a strategy.

Gestural CSs

In accordance with the Nijmegen conception of gestural CSs, all gestural CSs are considered to be Code strategies, or manipulation of the code (mode). Exceptions are gestural CSs which obviously entail the manipulation of features in the referent, in which case gestural CSs are regarded as Conceptual. *Strategic gestures* are thus identified on the basis of their co-occurrence with other performance features, such as hesitation, pause, for instance.[17] The criterion stating that at least two other features have to be present for a behaviour to qualify as strategy applies in all except straightforward cases, such as obviously *substitutive gestures*, which only ever occur during silence. Strategic gestures which co-occur with speech (or other performance features) are *complementary gestures*.[18] The gesture-related points can be summarised as follows:

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[17] As noted in section 4.3, the strict application of the functional criteria might lead to the exclusion of some gestures elsewhere regarded as compensatory.

[18] Note that 'complementary' is used here in opposition to 'substitutive', and essentially means co-occurring with speech. Calbris (1990) uses the term in a different manner, and distinguishes between substitutive, complementary and synonymous gestures. In her typology, complementary gestures are gestures co-occurring with speech which express additional meaning to the oral message, whilst synonymous gestures are simultaneous gestures expressing the same content as speech.

- All strategic gestures are by default instances of CODE STRATEGIES, since another modality of expression is involved.

- When strategic gestures obviously express the manipulation of conceptual features, they are instances of CONCEPTUAL STRATEGIES.

- When strategicgestures obviously express meta-comments of a stalling or hedging kind, they are instances of HEDGING.

- Gestural strategies can work in isolation, in which case gestures are SUBSTITUTIVE for speech, i.e. they function as speech substitutes in cases of total oral collapse.

- Gestural strategies can also be superimposed on speech or on oral strategies, in which case gestures COMPLEMENT and support speech or oral strategies.

The coding reliability for classifying CSs was Pearson $r_{xy}=.99$.

6 Individual profiles

(Brian) You're all individuals! – (Followers) Yes, we're all individuals! – (Brian) You're all different! – (Followers) Yes, we are all different! – (Dennis) I'm not.

Monty Python. *Life of Brian.*

6.1 Introduction

Like all language data, the present data are characterised by individual variation which is both quantitative and qualitative in nature. Most modern SLA studies are dedicated to establishing behavioural patterns in groups, thus levelling out many interesting facets of individual behaviour by applying quantitative group analysis. In contrast, in studies of gesture, the focus is often individual, which in turn leads to group factors going undetected. The study at hand aims to bring together the two fields, and to consider overall linguistic behaviour in both modes. As a consequence, both individual and group aspects will be considered in this study. The qualitative analysis, taking the individual example as its starting point, will take some precedence over the quantitative aspects, given that this is exploratory work and that the validity and interest of the categories proposed is indeterminate. This is why the quantitative aspects will be treated as summaries.

To facilitate the understanding of the categories discussed in subsequent sections, this part of the study will start with a presentation of samples of the individual learners' L2 performance, with concrete examples of behaviour. The profiles are meant to serve as background for the discussion in the following chapters. Two samples from each learner group will be given, to illustrate the range of individual variation within the groups. The format for the presentations is strict throughout, starting with a brief description of the L2 oral performance (lexicon, morphology, syntax, discourse), both strategic and non-strategic, followed by an example. Similarly, an overview of the gestural behaviour (both in L1 and L2 for comparison) is presented, followed by illustrated examples of strategic gestures. The profiles are complemented by brief quantitative data for the individual behaviour (in absolute figures). Tables of absolute figures for all individuals can be found in Appendix C.

The progression of the results chapters dealing with the Production study is the following: the samples of individual profiles will be presented first, with brief summaries given for the respective learner groups. The profiles are followed by chapters on oral and gestural strategies, respectively. Greater emphasis will be placed on the analysis of gestural strategies, or on gesture types and their strategic functions, with some consideration given to overall gestural behaviour.

6.2 Samples of individual L2 profiles from the French1 group
Fr1B

Subject Fr1B handles his problems in L2 by the application of abundant strategies. Fr1B's L2 narrative is characterised by frequent interruptions which reflect his considerable lexical problems, and by cross-linguistic influences from both his L1, French, and from English. His L2 narrative is much longer than the L1 narrative (1.30 vs. 8.23 minutes), and the number of clauses increases dramatically (37 in L1 vs. 88 in L2). His use of present tense verb morphology is largely correct, whereas nominal agreement is hardly ever present, although definiteness is usually marked. The subject runs into temporal problems in explanatory phases, but abandons any attempt to apply a different tense. Syntactically, canonical Swedish SVO word order is applied everywhere, except in direct questions without wh-words, 'yes/no questions', where the correct inverted VS order is always present. The subject also engages in metalinguistic debating concerning the choice of locative preposition and the correct possessive pronoun. The lack of connectors and the frequent interruptions for negotiation give the narrative a noncohesive impression.

The most frequent oral communication strategies (OCSs) in L2 are Code strategies with transfer both from the L1 and from English. The Mixed strategy is also frequent, usually combining transfer with conceptual, functional elaborations. There are some instances of Overt appeal, usually in connection with failed approximations. A typical extract is seen is (1).[1]

(1)

Fr1B	ehm // hon eh / vill / vill gå ehm på en eh *pharmacie* <laughter>	Fr1B	uhm // she uh / wants / wants to go uhm to a uh *pharmacy* <laughter>
NS	=va e de	NS	=what's that
Fr1B	=ehm eh / förstår du *pharmacie* / ehm ehm / *pharma[cie]* är en euh [//] bu eh / är en [commerce] / [förstår] du [commerce] =[une] boutique	Fr1B	=uhm uh / do you understand *pharmacy* / uhm uhm / *pharma[cy]* is a uh [//] bu uh / is a [business] / do you [understand] [business] = [a] shop
NS	eh en =butik	NS	uh a =shop

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[1] For a complete list of transcription conventions, see Appendix B. = overlapping speech per gesture; / short pause (not measured); // longer pause; [plain] gesture stroke; **[bold]** illustrated gesture stroke; *italics* not target language item; <extra-linguistic elements>.

Fr1B	=en =butik		Fr1B	=a =shop
NS	=en butik ja		NS	=a shop yes
Fr1B	ehmm / som ehm *källar* eh *kä källar* eh [*käller*] ehm		Fr1B	uhm / that uhm *källar* uh *kä källar* uh [*käller*] uhm
NS	säljer		NS	Sells
Fr1B	[säljer]		Fr1B	[sells]
NS	säljer		NS	sells
Fr1B	euhm / \<ph\> ehm // *elf* euh / euhm / kan du euh / [euh] i euh // e *elf* euh / *non* /// \<laughs\> [när] du är [sjuk]		Fr1B	uhm / \<ph\> uhm // *elf* uh / uhm / can you uh / [uh] in uh // e *elf* uh / *no* /// \<laughs\> [when] you are [ill]
NS	ja ja ja OK		NS	yes yes yes OK
Fr1B	du [går] [på] en [*pharmacie*]		Fr1B	you [go] [to] a [*pharmacy*]
NS	ja OK då e de när du e sjuk behöver du medicin		NS	yes OK when uh it when you are ill you need medication
Fr1B	[*=exacte*]		Fr1B	[*=exactly*]
NS	=så då		NS	=so then
Fr1B	*exacte*		Fr1B	*exactly*
NS	så då går du ti apoteket		NS	so then you go to a pharmacy
Fr1B	[apoteket]		Fr1B	[pharmacy]

The subject is a liberal gesticulator, and his overall gesture use increases in L2 compared to L1 production (1.38 gestures/clause in L1 vs. 1.65 gestures/clause in L2 production). His personal gestural style in L1 reveals a preference for non-referential gestures, with beats and abstract deictic gestures dominating his performance. Beats and deictics also dominate his L2 production, as exemplified in Figures 6:1a-b, although the number of beats decreases proportionally in L2. In addition, the L2 production is characterised by a great many metaphoric gestures for hesitation, which coincide with word searches. There are a few cases of depictive iconic gestures, but no instances of mime.

The vast majority of the subject's gestural communication strategies (GCSs) consist of complementary Code strategies and, more specifically, pointing gestures, both abstract, as seen in Figure 6:1b, and concrete, as in Figure 6:1c. A few complementary Conceptual iconic gestures occur, as do some complementary metaphoric Hedging gestures, as in Figure 6:1d. All the subject's oral strategies are accompanied by gestural strategies, but gestural strategies also occur in the absence of oral ones. The most frequent combination of oral and gestural strategies is that of an oral Code strategy and a Conceptual gestural strategy, as in Figure 6:1e.

1 [när]
2 [du är]
3 [sjuk]

1 [when]
2 [you are]
3 [ill]

Figure 6:1a. Beats in L2.

and eh / s euhm euhm a
[han] *the docteur*

and uh / s uhm uhm a **[he]**
the doctor

Figure 6:1b. Complementary Code GCS (abstract pointing) to indicate the locus of a referent.

på svenska **[euhm den]**

in Swedish **[uhm that]**

Figure 6:1c. Complementary Code GCS (concrete pointing) to elicit the word 'foot'.

mm eh **[// ehm ehm]** *ce
qu'elle* euh k

mm uh **[// uhm uhm]** *what
she* uh k

Figure 6:1d. Complementary Hedging gesture in L2 (metaphoric), indicating hesitation.

ehm / förstår [inte] d ehm / *le*
euhm förstår inte / ss / euh
sitt <ph> / euh / **[*paper*]**

uhm / understand [not] d uhm
/ *the* uhm don't understand /
ss / uh their <ph> / uh /
[*paper*]

*Figure 6:1e. Combination of oral Code strategy (transfer) and gestural Conceptual strategy
(iconic O-VPT gesture), outlining the 'prescription'.*

	duration	clauses	gestures	gest/clause
L1	1 min 30 s	37	51	1.38
L2	8 min 23 s	88	145	1.65

Table 6:1a. Fr1B duration of narrative in L1 and L2, and overall gestures/clause in L1 and L2.

	I-O	I-C1	I-C2	I-C3	M	D	B	sum
L1	-	4 (8)	-	-	9 (18)	16 (31)	22 (43)	51 (100)
L2	8 (5.5)	8 (5.5)	-	-	29 (20)	52 (36)	48 (33)	145 (100)

Table 6:1b. Fr1B overall gestures in L1 and L2 across gesture categories (frequencies relative to rows given within brackets as percent). I-O=iconic O-VPT; I-C1=iconic C-VPT1; I-C2=iconic C-VPT2; I-C3=iconic C-VPT3 or mime; M=metaphoric; D=deictic; B=beat.[2]

	Avoid.	Code	Concept.	Mix	O.appeal	Hedging	sum
Fr1B	4	12	5	10	3	4	38

Table 6:1c. Fr1B OCSs in L2 in absolute figures.

	Hedging	Conceptual	Code	sum
substitutive	4	-	-	4
complementary	9	18	34	61
TOTAL	13	18	34	65

Table 6:1d. Fr1B GCSs in L2 in absolute figures.

Fr1E

Subject Fr1E is a very hesitant L2 narrator, with important lexical difficulties resulting in numerous pauses, accentuated by the rather passive interactional style. Her L2 narrative is much longer in duration than the L1 narrative (1.54 vs. 7.58 minutes), although the increase in number of clauses is not as dramatic (34 vs. 46). Morphologically, the present tense is established, and nominal agreement between the definite article and the noun is present. There is a clear preference for canonical SVO word order in main clauses. However, inverted VS word order in wh-questions seems well established, and is overgeneralised into subordinate clauses. At the discourse level, the many interruptions and silences give the narrative a dislocated impression. The subject appears to have a relatively good theoretical knowledge of the L2, but this knowledge is not realised fast enough in actual communication, nor does it compensate for the lexical deficiencies.

Of the overt OCSs used by the subject, Mixed and Code strategies are the most frequent. Typically, the Mixed OCSs consist of an Overt appeal including a suggested lexeme from the L1, as seen in example (2). This strategy is rarely

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[2] These abbreviations are used throughout the chapter.

successful, but the subject makes few attempts to elaborate or offer the NS further clues to the word sought.

(2)

Fr1E	ehm / man kan eh / se eh att hon eh går ehm // i ehm / hur kan man säg säga euhm *pharmacie*	Fr1E	uhm / you can uh / see uh that she uh walks // in uhm / how can you sa say uhm *pharmacy*
NS	[/ du får förklara vad eh] / vad för ställe [/] [vart vart går hon]	NS	[/ you must explain what uh] / what sort of place [/] [where where does she go]
Fr1E	ehm mhm / ehm / <whistling sound>	Fr1E	uhm mhm / uhm / <whistling sound>
NS	<laughs> [försök] å å förklara	NS	<laughs> [try] to to explain
Fr1E	ehm [hur kan man] säga eh / *pharmacie* eh på svenska	Fr1E	uhm [how can you] say uh / *pharmacy* uh in Swedish

The subject's gestural behaviour in L1 is very reduced, with only a few beats and metaphorics expressing hesitation. She is the only subject whose use of gesture *decreases* in L2 production (0.35 gestures/clause in L1 vs. 0.15 gestures/ clause in L2 production), which is surprising in view of her problems. Her gestural L2 production consists almost exclusively of metaphoric gestures for hesitation or abandon.

The two single cases of GCSs are both substitutive, and consist of one Hedging gesture and one Conceptual gesture, as seen in Figures 6:2a-b. Four of the OCSs are accompanied by gestures, none of which are strategic.

ehm / den doktoren euh /
skriver euh igen euh på
bilden **[/]**

uhm / the doctor uh / writes
uh again uh on the picture **[/]**

Figure 6:2a. Substitutive Hedging GCS (metaphoric), indicating that bilden, 'the picture', is an approximation for the word 'prescription'.

[hur kan man eh säga] eh [på
svenska] euh *ordonnance*
[//]

[how can you uh say] uh [in
Swedish] uh *prescription*
[//]

Figure 6:2b. Substitutive Conceptual GCS (iconic O-VPT), outlining the shape of the prescription.

	duration	clauses	gestures	gest/clause
L1	1 min 54 s	34	12	0.35
L2	7 min 58 s	46	7	0.15

Table 6:2a. Fr1E duration of narrative in L1 and L2, and overall gestures/clause in L1 and L2.

	I-O	I-C1	I-C2	I-C3	M	D	B	sum
L1	-	-	-	-	5 (42)	1 (8)	6 (50)	12 (100)
L2	1 (14)	-	-	-	6 (86)	-	-	7 (100)

Table 6:2b. Fr1E overall gestures in L1 and L2 across gesture categories (frequencies relative to rows given within brackets as percent).

	Avoid.	Code	Concept.	Mix	O.appeal	Hedging	sum
Fr1E	3	5	2	6	1	1	18

Table 6:2c. Fr1E OCSs in L2 in absolute figures.

	Hedging	Conceptual	Code	sum
substitutive	1	1	-	2
complementary	-	-	-	-
TOTAL	1	1	-	2

Table 6:2d. Fr1E GCSs in L2 in absolute figures.

6.2.1 Summary–the French1 group

The subjects in the Fr1 group have very varying knowledge of the L2, Swedish. All subjects display lexical deficits, not only in the lexical field relevant to the story, but also more globally. The group as a whole engages in an important number of negotiation sequences. In some cases, the cross-linguistic influence from other L2s, especially German, is substantial. Morphologically, both verbal and nominal marking is unstable. Present tense dominates and there are few examples to suggest that past tense is established. Definiteness also causes morphological problems. Syntactically, the group as a whole shows a preference for canonical SVO word order, but VS order appears to be acquired for direct questions without wh-words. At the discourse level, the narratives suffer from frequent interruptions caused by lexical problems and subsequent negotiations between the interlocutors, and there is generally a lack of cohesive markers or connectors. The concatenation of main clauses kept together by 'and' is the most frequent structure. In general, the L2 narratives are longer than the L1 narratives, but the increase in number of clauses is not always comparable, resulting in long pauses. This gives a non-fluent impression for the group as a whole.

Gesturally, the group is heterogeneous, consisting of both extremely reluctant and more liberal gesticulators. Personal gestural styles in the L1 can be detected, with a preference either for non-referential gestures, such as deictics or beats, or a tendency towards iconicity and even mimesis. The L2 styles are dominated by metaphoric gestures.

6.3 Samples of individual L2 profiles from the Swedish1 group
Sw1c

Subject Sw1c is also a hesitant L2 narrator, troubled by her reduced lexicon, which causes frequent and long pauses. Her L1 narrative is very brief, whilst the L2 narrative is much longer (0.52 vs. 5.02 minutes), and the number of clauses also increases (26 vs. 53). Verb morphology for present and past tense (*passé composé*) are applied correctly in the singular, but plural agreement is lacking or leads to a metalinguistic detour. There are no pronominal objects, and canonical SVO word order is applied everywhere. The frequent interruptions and the lack of connectors gives the discourse a dislocated and episodic character.

In terms of oral strategies, the subject prefers Code and Mixed strategies. The Mixed strategies are usually combinations of Code strategies and Hedging characterised by code-switch into the L1, as seen in (3). Swedish appears to be the only cross-linguistic influence. There is also a case of overt abandon, which is later followed by extensive negotiation over the punchline.

(3)

Sw1c	[le docteur] [qui a signé le papier]	Sw1c	[the doctor] [who has signed the paper]
NS	mm	NS	mm
Sw1c	eh / [il a] ehm / signé / [faux]	Sw1c	uh / [he has] uhm / signed / [falsely]
NS	mhm mhm	NS	mhm mhm
Sw1c	ou eh / lé *signé* est / ehm / \<giggles silently\> *va ska man säga* \<whispered\> // ehm // [c'est plus eh] // [*ja kan ente förklara*] *de* \<laughter\> / ehm // \<t\> *ja* [d'accord eh]	Sw1c	or uh / the *signed* is / uhm / \<giggles silently\> *how would you put it* \<whispered\> // uhm // [it's more uh] // [*I can't explain*] *that* \<laughter\> / uhm // \<t\> *yes* [OK eh]

The subject is also a reluctant gesticulator, displaying only one gesture in L1. There is an increase in overall use of gesture in L2 production (0.04 gestures/ clause in L1 vs. 0.41 gestures/clause in L2 production) across all categories, with metaphoric gestures for hesitation being the most frequent in L2, followed by a few iconic gestures.

The GCSs are primarily complementary metaphoric gestures, either as Hedging or Conceptual to express abstract lexical content, as in Figure 6:3a. There is only one iconic gesture, despite the serious lexical problems. Half of the OCSs are accompanied by gestures, almost all of which are strategic. The combinations of oral and gestural strategies are chiefly oral Code strategies and Conceptual GCSs, as seen in Figure 6:3b.

lé s la signature / ehm / <t>
c'est eh / **[très ehm //]**

the s the signature / uhm /
<t> it's uh / **[very uhm //]**

Figure 6:3a. Complementary Conceptual GCS (referential metaphoric), to indicate 'illegible'.

est **[crochu eh]** / *de e ju inte*
rätt ord // ehm // ehm

is **[hooked uh]** / *that's not*
the right word // uhm // uhm

Figure 6:3b. Combination of Code OCS and complementary gestural Hedging (metaphoric) to indicate hesitation or that the suggested word is not correct.

	duration	clauses	gestures	gest/clause
L1	52 s	26	1	0.04
L2	5 min 2 s	53	22	0.41

Table 6:3a. Sw1c duration of narrative in L1 and L2, and overall gestures/clause in L1 and L2.

	I-O	I-C1	I-C2	I-C3	M	D	B	sum
L1	1 (100)	-	-	-	-	-	-	1 (100)
L2	-	6 (27. 3)	-	-	11 (50)	4 (18.2)	1 (4.5)	22 (100)

Table 6:3b. Sw1c overall gestures in L1 and L2 across gesture categories (frequencies relative to rows given within brackets as percent).

	Avoid.	Code	Concept.	Mix	O.appeal	Hedging	sum
Sw1c	2	5	3	4	1	1	16

Table 6:3c. Sw1c OCSs in L2 in absolute figures.

	Hedging	Conceptual	Code	sum
substitutive	-	1	-	1
complementary	5	4	3	12
TOTAL	5	5	3	13

Table 6:3d. Sw1c GCSs in L2 in absolute figures.

Sw1d

Subject Sw1d is a relatively fluent L2 speaker, with few lexical problems and few pauses, and she interacts actively with the NS. In contrast to the other Sw1 subjects, her L1 narrative is longer than her L2 narrative in terms of number of clauses (50 vs. 36). She masters the verb morphology both in the present and past tense (*passé composé*), and applies the different tenses in an ordered manner, with present tense as the dominating tense throughout for events, and *passé composé* used for background comments. She frequently uses direct speech. The word order is varied according to idiomatic French usage, with left dislocation of subject nouns followed by subject pronouns. Pronominal direct objects are lacking, and canonical SVO word order dominates. The cohesive markers are varied and include temporal markers, which gives the narrative a lively and cohesive character.

The subject does not use many overt OCSs, but displays some Code-based transfer from English and Swedish, as in (4).

(4)

Sw1d	c'est c'est une femme qui vient d'un docteur / et eh elle a un [*prescription*] / elle [va au pharmacie]	Sw1d	it's it's a woman who comes from the doctor / and uh she has a [*prescription*] / she [goes to the pharmacy]
NS	mm	NS	mm
Sw1d	pour [aller chercher] le *medecin*[3]	Sw1d	to [get] the *medication*

The subject's fairly liberal gestural style in L1 is dominated by iconic gestures, including two cases of mime proper. There is a slight increase in overall gesture use in L2 (0.54 gestures/clause in L1 vs. 0.86 gestures/clause in L2 production). Iconics are still favoured in the L2 production, although mime proper disappears entirely, and the use of iconics decreases proportionally compared to L1.

The restricted use of GCSs is dominated by iconic gestures, especially C-VPT1 gestures, as seen in Figure 6:4. All OCSs but one are accompanied by gestures, but only two of these are strategic.

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[3] The Swedish subjects typically foreignise the Swedish word *medicin*, 'medication', into French, which becomes a French word *médecin*, meaning 'doctor'. See Table 7.2.

et il euh [/] il **[/ commence à écrire une nouveau / =*prescription*]**

and he uh [/] he **[/ begins to write a new / =*prescription*]**

Figure 6:4. Complementary Conceptual GCS (iconic C-VPT 1), indicating 'writing'.

	duration	*clauses*	*gestures*	*gest/clause*
L1	1 min 16 s	50	27	0.54
L2	1 min 56 s	36	31	0.86

Table 6:4a. Sw1d duration of narrative in L1 and L2, and overall gestures/clause in L1 and L2.

	I-O	*I-C1*	*I-C2*	*I-C3*	*M*	*D*	*B*	*sum*
L1	1 (4)	11 (41)	-	2 (7)	4 (15)	4 (15)	5 (18)	27 (100)
L2	6 (19)	7 (22.6)	-	-	8 (26)	7 (22.6)	3 (10)	31 (100)

Table 6:4b Sw1d overall gestures in L1 and L2 across gesture categories (frequencies relative to rows given within brackets as percent).

	Avoid.	*Code*	*Concept.*	*Mix*	*O.appeal*	*Hedging*	*sum*
Sw1d	-	3	2	-	-	1	6

Table 6:4c. Sw1d OCSs in L2 in absolute figures.

	Hedging	*Conceptual*	*Code*	*sum*
substitutive	1	1	-	2
complementary	1	4	2	7
TOTAL	2	5	2	9

Table 6:4d. Sw1d GCSs in L2 in absolute figures.

6.3.1 Summary–the Swedish1 group

The Sw1 group has fair theoretical knowledge of their L2, French. The subjects have lexical problems, but the problems are less severe than in the Fr1 group, and occur in the lexical field specific to the story, i.e. medicine. Outside of this field, there are few negotiations in the group. English is the primary source for transfer. The subjects have a relatively good command of the L2 morphology and syntax, although they are evidently unused to having to realise their knowledge in actual oral communication, with one or two exceptions. Their L2 narratives are moderately longer than the L1 narratives, in terms of duration as well as number of clauses, with the exception of one subject, who displays an increase in both domains. The other subjects give a fluent impression. Both present and past tense appear to be established, although the alternation between the two is somewhat random. Subject-verb agreement is slightly unstable, with plural marking rarely occurring. Nominal agreement is mostly consistent, even if most gender markings are erroneous. Syntactically, there is a preference for canonical SVO, but a few

cases of idiomatic left dislocation also occur. At the discourse level, the narratives show greater cohesion than the Fr1 narratives, mostly due to the lack of interruptions and extended pauses, but also as a result of the more varied clause structures. Although there is a tendency to build narratives of main clauses joined by the conjunction 'and', there are also individual cases of more sophisticated use of subordinate clauses and temporal cohesion markers.

The group shows greater gestural consistency than the Fr1 group in L1. All subjects except one favour iconics. Their L2 production is also dominated by iconics with one exception, in which case metaphorics is instead the favoured category.

6.4 Summary

It was argued in Chapter 5 that the learner groups are comparable with respect to overall proficiency. The more detailed analysis of the subjects' performance, illustrated by the sample profiles in this chapter, suggests that individual variation is important, and that the learner groups display slightly different profiles at group level.

The Fr1 group has numerous chiefly lexical problems, but also syntactic and coherence-related difficulties. The frequent negotiations, interruptions, and the long silences, convey an impression of non-fluency, even when the learners have a relatively good theoretical knowledge of the L2.

The Sw1 group displays similar if less severe lexical problems, and some syntactic difficulties. However, the Sw1 group manages these problems without as much interruption and negotiation as in the Fr1 group. The Sw1 subjects therefore appear more fluent. The difference in fluency is what distinguishes the groups most clearly.

With respect to the use of gestures, the individual variation in gesture rate is greater in the Fr1 group where subjects use both more and fewer gestures than subjects in the Sw1 group. With respect to gesture types favoured, the groups differ little, however.
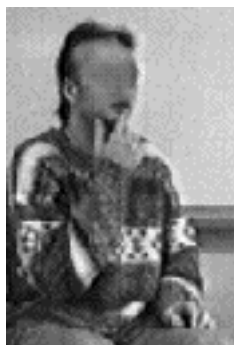
7 Oral Communication Strategies

7.1 Introduction

This chapter deals with the oral strategic behaviour of the learners in the study. The analysis of oral communication strategies (henceforth OCSs) is fairly brief, and is meant to serve primarily as a basis for comparison with other studies of CSs, and as background to the more elaborate study of gestural strategic behaviour.

In the profiles in the previous chapter, numerous typical extracts from the data were presented. Part of the example from subject Fr1B is repeated here for convenience. It shows a learner struggling to arrive at the word for 'pharmacy' but getting entangled in various other problems along the way.

(0)

Fr1B	=ehm eh / förstår du *pharmacie* / ehm ehm / *pharma[cie]* är en euh [//] bu eh / är en *[commerce]* / [förstår] du *[commerce]* =[une] boutique*	Fr1B	=uhm uh / do you understand *pharmacy* / uhm uhm / *pharma[cy]* is a uh [//] bu uh / is a *[business]* / do you [understand] *[business]* = [a] shop*
NS	eh en =butik	NS	uh a =shop
Fr1B	=en =butik	Fr1B	=a =shop
NS	=en butik ja	NS	=a shop yes
Fr1B	ehmm / som ehm *källar* eh *kä källar* eh *[käller]* ehm	Fr1B	uhm / that uhm *källar* uh *kä källar* uh *[käller]* uhm
NS	säljer	NS	sells
Fr1B	[säljer]	Fr1B	[sells]
NS	säljer	NS	sells
Fr1B	euhm / \<ph> ehm // *elf* euh / euhm / kan du euh / [euh] i euh // e *elf* euh / *non* /// \<laughs>	Fr1B	uhm / \<ph> uhm // *elf* uh / uhm / can you uh / [uh] in uh // e *elf* uh / *no* /// \<laughs>

OCSs are applied cyclically, and the sample exemplifies almost all the strategies found in the overall data. A first L1-based strategy fails (*pharmacie*), and is followed by two other attempts using the L1 (*commerce* and *boutique*), the latter of which seems to work. However, in further elucidating the sought word, the learner applies a Conceptual strategy which fails again, as the keyword of the

construction is not successful (*källar*). This in turn leads to another Conceptual strategy where yet another keyword fails (*elf*).

This chapter gives a brief presentation of the oral strategies found in the data. The quantitative summaries of the results are followed by a discussion of these results in terms of proficiency, task, and the success of strategies.

7.2 Avoidance and abandon

Both topic avoidance and topic abandon occur in the data, with topic avoidance being the most common of the two. A schematised version of the story, in Table 7:1, shows the topics and characters covered.

> **the female character comes from the doctor**'s surgery
> the female character **goes to the pharmacy with a prescription**
> **the sales assistant at the pharmacy cannot decipher/read** the prescription
> the sales assistant shows the prescription to the chief pharmacist
> they both show the prescription to the cleaning lady
> the sales assistant returns the prescription to the female character
> **the female character goes back with the prescription to the doctor's surgery**
> the doctor's secretary tries to decipher the prescription
> the secretary **shows the prescription to the doctor**
> the doctor cannot decipher/read the prescription
> the doctor goes into another room and checks his files
> the doctor removes his shoe and sock on one foot
> **the doctor writes a new prescription with his foot**
> the secretary **gives the new prescription to the female character**
> the female character returns to the pharmacy
> the sales assistant at the pharmacy gives **the female character her medicine**

*Table 7:1. The story schematised, with the characters and events present in all the narratives (L1 and L2) marked in **bold**.*

Overall, both learner groups express the central events and characters in the L2 narratives, as marked in boldface in the table.[1] The woman who is the main character, the prescription, the sales assistant at the pharmacy, the doctor, and the foot always appear. Omitted or avoided elements in the L2 narratives are chiefly peripheral. Peripheral characters include the staff at the pharmacy, where the third character, the cleaning lady, is more likely to be avoided than the second character, the chief pharmacist. Peripheral events and objects include such things as the removal of shoes and socks at the doctor's office, the pen, and the filing cabinet. Curiously enough, the event leading up to the punchline is sometimes omitted. The fact that the main character returns to the pharmacy is not always mentioned.

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[1] Central events have been assessed as such by NSs (see Chapter 11). Note that not all events and characters are present in all L1 narratives, but that they are only seen as 'omitted' in the L2 narratives when they have been present in an individual subject's L1 narrative.

The data contain only one case of overt topic abandon. Sw1c abandons the explanation for why the sales person is unable to decipher the prescription. After having unsuccessfully attempted to say that the signature is illegible, and having hedged in her problem by code-switching into the L1, Swedish, she overtly abandons the attempt, using code-switch and a dismissive French phrase before proceeding, as in (1):

(1)

Sw1	*ja kan ente förklara de* \<laughter\> / ehm // \<t\> *ja* d'accord eh	Sw1	I can't explain that \<laughter\> / uhm // \<t\> *yeah* OK uh

In general, avoidance and abandon are not used as often as might have been expected. This is probably because the main lexical problems in the story concern some of the central concepts which cannot be avoided in order for the story to work. The lack of avoidance might of course also be a reflection of the task, and an experimental effect, raising the learners' general ambition to solve the task as well as possible.

7.3 Lexical compensatory strategies

The lexical compensatory strategies are the most frequent in the data, and, as shown above, both groups favour L1-based (or Ln-based) Code strategies, where code-switching and transfer are the most common types. In general, the Swedish group tends to favour English as a source for transfer, whilst the French subjects instead rely on their L1, or on German.

Swedish	*English*	*French*
recept	prescription	ordonnance
medicin	medicine, medication	médicament
medicin	medicine (the discipline)	médecine
läkare, doktor	physician, doctor	médecin, docteur

Table 7:2. A trilingual list of some of the central concepts in the lexical field of medicine.

The lexical field of medicine is not very well known to the learners, and the learners are confused by the phonological similarity of the central concepts in the various languages, as demonstrated in Table 7:2, where the concepts are listed in three languages. In particular, the words for 'prescription' and 'medication' consistently cause problems in both groups. In the Fr1 group, the prescription is most commonly referred to as 'paper' in English or German: *paper, Blockpapier;* in one case the Swedish word *bild*, 'picture', is used before the English *paper* is resorted to, and in another case, *paper* is replaced by the Swedish *ord*, 'word'. In the Sw1 group, both English and L1 Swedish serve as source: *script, prescription, recept, recipi*. In one case *papier*, 'paper', is used directly instead.

For 'medication', the Sw1 group predictably uses the Swedish word *medicin* in one of two (or both) foreignised (frenchified) forms: *médecin*, and/or *médecine*. The confusion arising from the fact that the French word *médecin* means 'doctor', and *médecine* means 'medicine', the discipline, is surprisingly easily resolved by the French native listeners. In one case *médication* is used, which is a word in French but with a slightly different meaning from *médicament*. It is impossible to know whether this word is actually known by the subject, or whether it is a case of English influence. The subjects in the Fr1 group instead favour *medikament*, which in most cases appears to be an L1 French influence, but in one case is more likely to be German, since it has been given a German plural ending: *Medikamenten*.[2]

Code strategies also include what the Nijmegen group calls morphological creativity, but there are no examples of this in the L2 data. Instead, it is found only in the L1 (Sw1) data, with examples like *medicinlapp*, literally 'medicine note', for prescription, and *apotekskvinna*, 'pharmacy woman' for female pharmacist or sales assistant.

The Conceptual strategies are expressed either holistically or analytically. The holistic strategies contain the use of general terms (hyperonyms) such as *table*, 'table', *femme*, 'woman', and *homme*, 'man', used instead of more specific vocabulary such as *bureau*, 'desk', and *pharmacienne, pharmacien*, 'pharmacist' (female and male). Analytic strategies comprise descriptions like *kvinna som jobbar på apoteket*, 'woman who works at the pharmacy'. Typically, a Code strategy is used first with transfer or foreignisation. The ensuing strategy is then usually Conceptual, either analytic or holistic.

7.4 Mixed

Code strategies are highly favoured, and they are often found to be the main component in the Mixed category.[3]

(2) Fr1A   du kan bota en *fit*   (2) Fr1A   you can cure a *fit*

(3) Fr1B   kan du *elf?*   (3) Fr1B   can you *elf?*

(4) Sw1c   crochu *e ju ente rätt ord*   (4) Sw1c   crochu *isn't the right word*

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[2] One of the Swedish native judges remarked that *medikament* is a perfectly acceptable word for 'medication' in Swedish, although the native listener in the dyads did not accept it as such. It is indeed possible, but somewhat marked and archaic.

[3] Note that only combinations of OCSs are considered in this chapter. For combinations of OCSs and gestural CSs, see Chapter 9.

The combination of Code and Conceptual strategies is by far the most common, a typical example of which can be found in (2). The learner has initiated a conceptual sub-strategy to arrive at 'pharmacy', by introducing illness, and the place to go to obtain the medication with which to cure the illness. In the Conceptual strategy explaining the curing, a code-switch is introduced, which in fact generates another sub-strategy. This strategy is the most common of the Mixed strategies. In (3), a combination of Overt appeal and Code is used, and in (4), Sw1c hedges in a lexical suggestion by switching entirely into the L1, Swedish. The Code and Hedging category only occur in the Sw1 group.

7.5 Overt appeal

Overt appeal mainly occurs in the Fr1 group, and concerns specific lexical items, as in example (5), or more general comprehension, as in (6) below:

(5) Fr1B   euhm [/] [vad] / [heter] eh   (5) Fr1B   uh [/] [what] / [is] uh
            [<click>] / <laughs> [vad säger du]   [<click>] / <laughs> [what do you
                                                            say]

(6) Fr1A   =tror du att att du   (6) Fr1A   =do you think that that you
            förstår =förstod   understand =understood

Overt appeal is also most common in combination with other strategies, as exemplified above in the section on Mixed strategies.

7.6 Hedging

A few cases of Hedging occur in the data. A typical example is seen in (7).

(7)
Sw1d   [ah je] je sais pas comment / on dit   Sw1d   [uh I] I don't know how / you say
        mais /   but /

The learners use Hedging to stall while they are thinking, or, as in (7) above, to indicate that they know they are not using the correct word or expression.

7.7 Quantitative summaries

This section will summarise the quantitative results from the study with regard to OCSs. Readers are reminded that the number of strategies will be presented both as proportions of the total, and as ratios of strategies per clause, to enable comparisons between the groups.[4] For convenience, Table 7:3 shows the number of clauses in L1 and L2 and the individual number of OCSs/clause in L2.

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[4] The resulting figures may seem difficult to relate to real behaviour which is not normally considered in ratios. However, the fact that one learner uses 0.07 strategy per clause and another learner uses 0.14 is meant to highlight the *relationship* between the two, rather than to indicate individual real behaviour. The absolute figures are provided in Appendix C.

Ss	L1 clauses	L2 clauses	L2 OCS/clause
Fr1A	24	59	0.39
Fr1B	37	88	0.43
Fr1C	36	61	0.33
Fr1D	46	56	0.32
Fr1E	34	46	0.39
sum	177	310	m=0.372, sd.=0.046
Sw1a	39	40	0.125
Sw1b	29	44	0.25
Sw1c	26	53	0.30
Sw1d	50	36	0.17
Sw1e	24	28	0.14
sum	168	201	m=0.197, sd.=0.075
total	345	511	m=0.285, sd.=0.109

Table 7:3. The number of clauses in the narratives, and OCSs/clause in L2.

7.7.1 Overall use of OCSs

Table 7:4a shows the distribution of OCSs in the total data in percent. The results are also displayed as ratios of OCS per clause in Table 7:4b and Figure 7:1. The learners in both groups favour Code strategies (36% or 0.106 OCS/clause in the total material). The preference for Code strategies is to be expected from learners of relatively low proficiency, and also from the story-telling task.

	Avoid	*Code*	*Concept Holistic*	*Analytic*	*Mixed*	*Overt appeal*	*Hedge*	*Total*
Total	11 (17)	36 (58)	12 (20)	9 (15)	18 (28)	5 (8)	8 (13)	100 (159)

Table 7:4a. OCSs across both learner groups in percent (absolute figures in brackets).

	Avoid/cl	*Code/cl*	*Concept Holistic/cl*	*Analytic/cl*	*Mixed/cl*	*Overt appeal/cl*	*Hedge/cl*	*Mean total/cl*
mean	0.032	0.106	0.026	0.038	0.046	0.013	0.023	0.285

Table 7:4b. OCSs/clause across both learner groups.
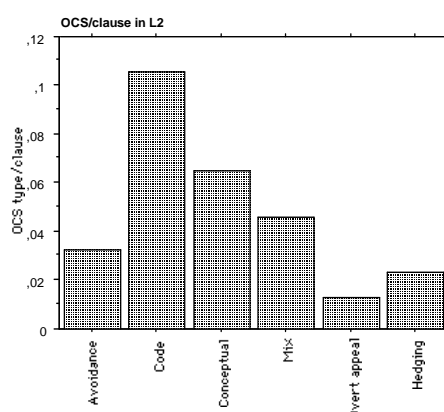
Figure 7:1. OCS types/clause across both learner groups.

Conceptual strategies are the next most popular category (21% total, or 0.065 OCS/clause). The Conceptual category makes a good test case for the different bases of calculation, proportions vs. ratios. Interestingly enough, the distribution over holistic and analytic Conceptual strategies differs depending on whether it is calculated in percent or as OCS/clause ratios. In percent of total OCSs, holistic categories dominate over analytic ones (12% vs. 9%). As ratios, however, the analytic category is instead more frequent than the holistic type (0.038 vs. 0.026 OCS/clause).

	Co+Cn	*Co+Oa*	*Co+He*	*Cn+Oa*	*total*
Mixed	53.5 (15)	28.5 (8)	14 (4)	3.5 (1)	100 (28)

Table 7:5a. The combinations of the Mixed strategy in percent (absolute figures in brackets). Co=code; Oa=overt appeal; He=hedging; Cn=conceptual.

	Co+Cn/clause	*Co+Oa/clause*	*Co+He/clause*	*Cn+Oa/clause*	*mean total/clause*
Mixed	0.03	0.01	0.008	0.002	0.05

Table 7:5b. The combinations of the Mixed strategy /clause.

The next most favoured category is the Mixed strategy. As seen in Tables 7:5a-b, Code strategies combined with Conceptual strategies are the most frequent mix (15% or 0.03 strategy/clause), but they also combine with Overt appeal (8% or 0.01 strategy/clause). The remaining strategy types are favoured in the following order: Avoidance (11% or 0.032 OCS/clause), Hedging (8% or 0.023 OCS/clause) and Overt appeal (5% or 0.013 OCS/clause).

7.7.2 OCSs in the Fr1 group vs. the Sw1 group

Tables 7:6a-b show the distribution of OCSs in the different learner groups, both for the total amount and for the types of OCSs. The learner groups differ significantly with respect to how many OCSs they use overall. The Fr1 group uses significantly more OCSs than the Sw1 group (z=-2.611, p≤.009**).

However, no differences can be found between the groups with regard to particular strategy types, except in the case of Code strategies. The Fr1 group uses significantly more Code strategies than the Sw1 group (z=-2.611, p≤.009**). The distribution of holistic vs. analytic Conceptual strategies in the Sw1 group differs depending on the bases of calculation. When seen as proportions, holistic categories dominate over analytic ones (9% vs. 3%). However, when seen as ratios, the analytic category is instead favoured (0.04 vs. 0.016 OCS/ clause). This emphasises the need to consider measurements which are independent of the amount of speech. The Fr1 group favours both types equally often.

	Avoid	*Code*	*Concept Holistic*	*Analytic*	*Mixed*	*Overt appeal*	*Hedge*	*Total*
Fr1	8.2 (13)	27 (43)	7 (11)	7.5 (12)	14.5 (23)	4.4 (7)	5 (8)	73.6 (117)
Sw1	2.5 (4)	9.4 (15)	5.7 (9)	1.9 (3)	3.1 (5)	0.6 (1)	3 (5)	26.4 (42)
total	10.7 (17)	36.5 (58)	12.6 (20)	9.4 (15)	17.6 (28)	5 (8)	8.2 (13)	100 (159)

Table 7:6a. OCSs in the two L2 groups in percent (absolute figures in brackets).

	Avoid/cl	*Code/cl*	*Concept Holistic/cl*	*Analyt/cl*	*Mixed/cl*	*Overt appeal/cl*	*Hedge/cl*	*Total/cl*
Fr1	0.043	0.138	0.037	0.037	0.072	0.022	0.023	0.372
Sw1	0.022	0.074	0.016	0.040	0.020	0.004	0.023	0.197
Fr1 vs. Sw1	n.s.	p≤.009**	n.s.	n.s.	n.s.	n.s.	n.s.	p≤.009**

Table 7:6b. OCSs/clause in the two L2 groups and comparisons between groups.[5]
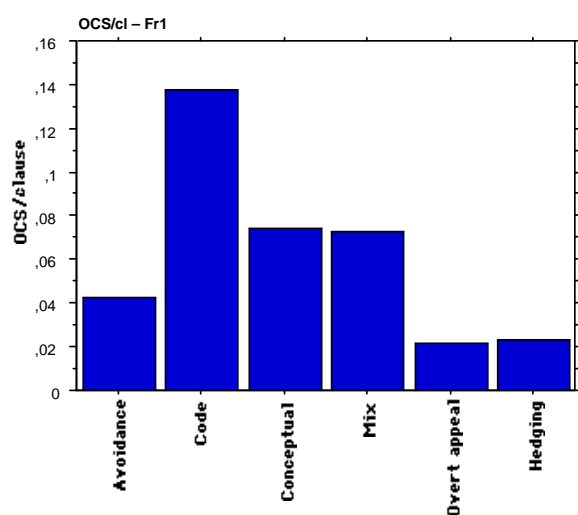
Figure 7:2a. Use of OCS types/clause in the Fr1 group.
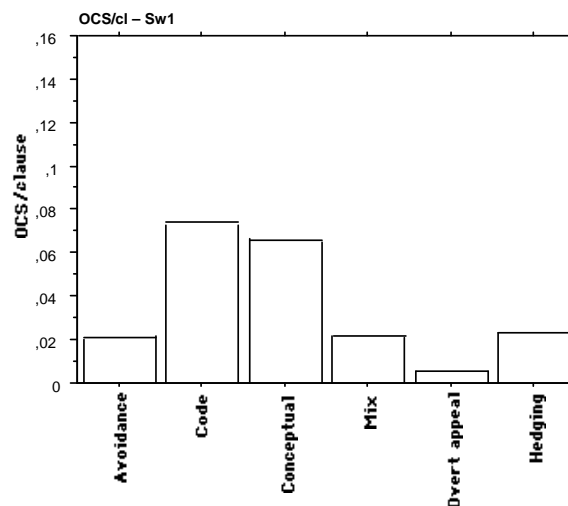
Figure 7:2b. Use of OCS types/clause in the Sw1 group.

As can be seen in Table 7:6b and Figures 7:2a-b, there are similarities between the groups with regard to the favoured strategy types. Both groups prefer Code strategies, followed by Conceptual strategies. With respect to the Mixed type, the Fr1 group uses this category nearly as often as the Conceptual strategy. In contrast, the Sw1 group uses the remaining categories roughly equally often, except overt appeal which is rare.

The more frequent use of OCSs in general and Code strategies in particular in the Fr1 group, can be assumed to be a reflection of their proficiency level. Their further preference for the Mixed strategy type is probably also related to their greater need to create redundancy, as will be discussed in the following.

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[5] Mann-Whitney U Tests for unpaired comparisons (Fr1 vs. Sw1 production); Wilcoxon Signed Rank Tests for paired comparisons (L1 vs. L2 production).

OCSs also occur in the L1 data, but only five cases could be found altogether. In the Fr1 group there is one case of Hedging. In the Sw1 group, one case of Overt appeal, one case of Hedging and two cases of Code strategies (*medicinlapp*, *apotekskvinna*) can be found. The results indicate that the task did not tax communicative, and especially not lexical, capacities in L1. It seems fair to assume that the cases of OCSs which do occur reflect nervousness in the subjects rather than proficiency-related problems.

7.7.3 Summary of the OCS results

The Fr1 group uses significantly more OCSs than the Sw1 group. However, both learner groups favour Code strategies for dealing with lexical problems in the domain of medicine. Transfer and code-switch are the most prominent sub-categories of Code strategies, whilst morphological creativity is entirely missing from the L2 material. The Fr1 group favours German or French as source languages, whereas the Sw1 group prefers English.

Conceptual strategies are the next most common type, with the Sw1 group pre-ferring analytic strategies, whereas the Fr1 group uses equal numbers of holistic and analytic strategies.

The mixed category is relatively frequent in the Fr1 group, and usually consists of a combination of a Code and a Conceptual strategy. Avoidance, Hedging and Overt appeal follow in that order across the groups. OCSs also occur in L1 pro-duction, but only sporadically.

7.8 Proficiency, tasks, success

The empirical findings in this study are in accordance with those from other investigations of OCSs. Learners of low proficiency were expected to use more OCSs, and to favour Code strategies.

The Fr1 group, evaluated by NSs as somewhat less proficient in their L2 than the Sw1 group, displays a significantly greater number of OCSs, and particularly of Code strategies. The difference between the groups suggests that the learner groups are perhaps less well matched than the matching tests used in Chapter 5 led us to believe, and that the differences in proficiency are in fact quite sub-stantial between the groups. On the other hand, although the subjects in the Sw1 group use fewer OCSs, they also favour the Code category. This preference seems to indicate that the proficiency in the Sw1 group is also relatively low, despite the Sw1 subjects' advantage over the Fr1 group.

However, proficiency level alone does not account for the dominance of Code strategies in both groups. Yule & Tarone (1997) have suggested that the presence

of an interlocutor should lead to the avoidance of L1-based strategies, such as transfer. This assumption is not supported in the data. Instead, the interlocutor's presence may be precisely what accounts for the heavy reliance on Code strategies. Studies within the Nijmegen project (Poulisse 1990; Poulisse & Schils 1989) have shown that Code-based strategies are particularly frequent in story retellings. Since the task places emphasis on overall comprehension rather than on understanding of single lexical items, even more proficient learners are led to use Code strategies when they can rely on the co-operation of the interlocutor. The listener is thus seen as a resource, whose inferencing capacities allows the vague reference created by Code strategies to be resolved. In the data at hand, both the task and the learners' proficiency levels can therefore be assumed to favour Code strategies.

Global comprehension is thus a priority in the narratives. However, considerable time is also spent by both learner groups negotiating lexical items in the stories produced. The comprehension of single items is in fact given some prominence, which in turn explains why Conceptual strategies are the *next* most favoured strategy type. Even in a setting where interlocutors and context can be relied on, Code strategies are almost invariably followed by Conceptual strategies, expanding and explaining the code-switches and transfers.

The differentiated use of Conceptual sub-strategies in the groups also follows expectations regarding proficiency. The Fr1 group uses holistic and analytic strategies equally often. Subjects in Sw1 group, however, have the linguistic means to exploit the more effective analytic strategies. The subjects' descriptions are generally brief but successful. The Fr1 group appears to compensate by using strategies from the Mixed category, presumably to maximise redundancy and information density to the best of their capacity.

Cost

Although there is individual variation with respect to how many OCSs learners use, all learners appear to favour strategy types in the order Code > Conceptual > Mixed strategies. If learners only apply one or two strategies, they are more likely to be Code strategies than Overt appeal, for instance, which is rare.[6] The cyclical application of Code-based followed by Conceptual strategies suggests a progression in use towards more costly solutions to problems. Poulisse has suggested that Conceptual strategies are more *cognitively costly* than Code strate-

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[6] This pattern is reminiscent of an implicational scale. However, since such scales are based on the presence/absence of dichotomous features, a calculation according to the Guttman procedure (Hatch & Lazaraton 1991) cannot be made on the present data.

gies, which is why learners will opt for Code-based solutions despite their low success rate, if circumstances allow it (Poulisse 1993).

However, strategy choices do not only move towards heavier cognitive load with increasing number. There is also a progression in the data towards more costly strategies in terms of social interactive cost. The least frequent strategy in the data, Overt appeal, could be argued to be the most effective strategy of all, since it will invariably result in help. However, it has a high *social cost*, since it is potentially face-threatening (e.g. Goffman 1971), and is thus avoided by learners except in cases of near total failure, or when everything else has been tried.

The fear of losing face is both an individual and a cultural factor, intimately connected to the issue of why learners want to avoid being detected using strategies. In game theory contexts, strategies are considered effective only if they go undetected or are not perceived as deliberate (cf. Patterson 1994). This is not necessarily the case with CSs, since learners may profit from revealing their strategies by being accorded lexical help, and extended patience. However, learners presumably believe that the use of perceived strategies will result in negative evaluations. Indeed, a comparison between the ranking of individuals based on their use of OCSs, and the NS proficiency evaluations, supports this belief. The cross-ranking shown in Figure 7:3 indicates that there is a modest, although not statistically significant, negative correlation (Spearman $\rho=-.624$, $p\leq.0611$). The more OCSs learners use, the less favourably they tend to be evaluated.
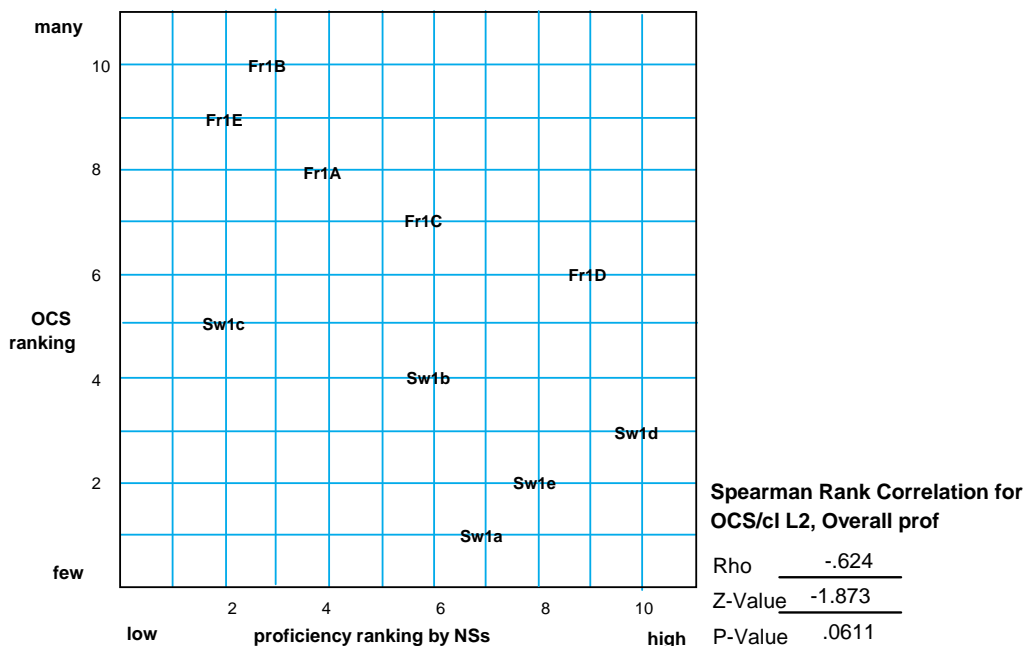

Figure 7:3. Ranking of all subjects based on the use of OCSs/clause vs. NS rankings of subjects' overall proficiency. 1=lowest ranking, 10=highest ranking.

Although NS judgements of proficiency are moderately affected by the number of strategies learners use, not all strategies appear to be detected or evaluated in the same way. For instance, the OCS-based ranking suggests that, although subject Fr1D uses a fair number of strategies (ranked as the fifth most frequent user), she is nevertheless ranked as the second best subject by the NS judges. Some of her strategies must be detected, but they do not appear to influence the NS judges negatively. Conversely, when subject Sw1c uses almost the same number of strategies, it results in a very low proficiency ranking by the NSs. Different types of OCSs must therefore be presumed to affect NSs' proficiency rankings differently.

Learners appear to be aware of this difference. Their reliance on Code strategies such as transfer or code-switching is initially surprising, since these strategies are obvious indications to a NS that a strategy is being used. However, learners appear to favour strategies such as transfer, which indicate that the learner is trying on his or her own, whilst avoiding strategies like Overt appeal, where the learner instead overtly abandons the attempt and hands over the responsibility to the interlocutor. Learners appear to estimate that resignation will affect the evaluation of their proficiency more negatively than a strategy which indicates that an effort is being made. Exactly what types of OCSs affect judges negatively remains an empirical question, however. In addition, NS are likely to be influenced by other factors in their assessments of learner performance, such as narrative skills. A tentative investigation of some such factors will be described in Chapter 11.

Success

The issue of cost is also related to the matter of effectiveness. The favoured Code strategies are less costly, but also less efficient. Success has not been operationalised in this study, but might be determined as the instance where the learner is allowed, or explicitly encouraged, to proceed with the narrative beyond a particular overt problem without further interference from the NS.

Poulisse (1990, cf. section 2.5.1) has suggested a scale for which strategies are most efficient, starting with the most effective:

> holistic and analytic Conceptual strategies > single analytic strategies > Code-based transfer of cognates > Conceptual holistic strategies.

Whilst both groups in these data favour the relatively inefficient Code strategies, the more proficient Sw1 group appears to be more successful in using this strategy. This could be explained by the Swedish subjects' choice of transfer source, usually English. As suggested by Poulisse, a Code-based transfer strategy might

be more effective than a Conceptual strategy, provided that the L2 word is related to the L1 word.

The frequent and free use of transfer in both groups indicates that the learners perceive the languages involved as similar and items as being transferable (Kellerman 1983). It has been shown that learners tend to avoid transfer when the languages are perceived as un-related (e.g. Tarone & Yule 1987; Yule & Tarone 1997). The Fr1 subjects show some sensitivity in this respect, as they appear to consider German to be a better candidate for transfer than French when talking to a Swedish listener. However, their evaluation is rarely correct. English, the preferred source by the Swedish subjects, seems to have a better transfer value than either German or French, the preferred sources by the French subjects. In fact, the widespread knowledge of English in Western Europe probably overrides issues of whether or not lexemes are cognates. The choice of source language is thus an important part of the individual's strategic competence, to ensure success.

A second explanation for the Sw1 group's seemingly more fortuitous use of Code strategies might reside in the fact that their applications of subsequent Conceptual strategies are less riddled with problems than those of the Fr1 group. The French subjects generally need longer chains of strategies to solve a single problem. The success of the Sw1 group's Conceptual strategies could be explained by the fact that they are mainly analytic, which Poulisse suggests is the most efficient type of Conceptual strategy. The preference for analytic Conceptual strategies in the Sw1 group appears to be the result of their somewhat higher proficiency. Descriptions or circumlocutions require a fair amount of lexical knowledge and a relatively developed Interlanguage system to be possible. The Sw1 subjects have sufficient syntactic and lexical means to achieve such descriptions. The French subjects, on the other hand, use both holistic and analytic strategies, but not generally to solve an individual problem. Instead, their application of subsequent Conceptual strategies tends to be the result of trying to solve sub-problems generated by previous strategies, and they also create new problems. However, even the holistic strategies work somewhat better in the Sw1 group, presumably because they are correct and understandable, in some sense, i.e. the suggested lexemes are correct in terms of referential content and pronunciation. This is not always the case in the Fr1 group. As a consequence, not only do strategies vary in form depending on the speaker's proficiency level, but the effectiveness of a particular strategy varies along the same dimension. In

other words, the success of a given strategy depends on who is using it (Bialystok 1983, 1990).[7]

A final methodological comment is that is it difficult to apply categories developed and based on lexical word definition tasks to interactive data such as narrative tasks. It is far from self-evident how learner problems involving reformulations of entire sections or episodes in the narrative should be coded, or how problems more related to temporal than to lexical problems should be dealt with. The results clearly show that the CS categories applied to the data primarily single out and favour the detection of explicit lexical problems.

7.9 Summary

In accordance with previous findings, the results from this study indicate that proficiency and task influence learners' use of OCSs. The less proficient Fr1 group uses significantly more OCSs than the Sw1 group. However, both groups favour Code strategies, although the Fr1 group uses them significantly more often than the Sw1 group. The next most preferred category is Conceptual strategies. The Sw1 group favours analytic Conceptual strategies, presumably as a reflection of their higher proficiency, whereas the Fr1 group uses analytic and holistic Conceptual strategies equally often. The Fr1 group also exploits Mixed strategies to maximise the gain from their limited resources. Face-threatening strategies like Overt appeal were avoided by all learners.

Although favoured by the learners due to their low cognitive cost, Code strategies such as transfer are generally not very successful. They frequently need to be complemented by Conceptual or Mixed strategies. However, the success of a given strategy also appears to depend on the proficiency level of the learner using it. The choice of source language for Code-based transfer, for instance, is essential to the efficiency of the strategy. English is the better choice in the data.

Finally, although NS evaluations of learners' proficiency appear to be negatively affected by the number of OCSs used, it is clear that the influence of OCSs is differentiated. The effect of particular strategy types on assessments remain to be empirically investigated.

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[7] "Communication strategies, by extension, vary in form with the cognitive and metacognitive sophistication of the speaker, and vary in quality with the speaker's oral proficiency." Bialystok (1990: 108)

8 Gestural Communication Strategies–Qualitative analysis

Lors feist l'Angloys tel signe. La main gausche toute ouverte il leva hault en l'air, puys ferma on poing les quatre doigtz d'ycelle, et le poulse extendu assist suz la pinne du nez. Soubdain après leva la dextre toute ouverte et toute ouverte la baissa, joignant le poulse on lieu que fermoyt le petit doigt de la gausche, et les quatre doigtz d'ycelle mouvoyt lentement en l'air; puys, au rebours, feist de la dextre ce qu'il avoyt faict de la gauche (sic) et de la gausche ce que avoyt faict de la dextre.

Rabelais, F. *Pantagruel*, Chap. XIX.

8.1 Introduction

This chapter presents an initial analysis of how the learners in the data use gestures strategically in their L2 production. Gesture research has generally not dealt with strategic behaviour specifically. However, an analysis of strategic gestures necessarily draws on some of the findings from the study of gesture in general. This chapter therefore opens with a brief review of what is known about gesture and narrative discourse, since the study is based on that type of data. The review is followed by the qualitative analysis of how gesture types function as strategies in the narratives, and how they are distributed across types of gestural communication strategies (henceforth GCSs). The GCS types, as they are realised by different gesture categories, will be seen to relate to several aspects of narrative production, and not only to lexical problems. The quantitative aspects of the analysis and the implications of these findings for the study of CSs will be presented in Chapter 9.

8.2 Gestures in discourse and narrative

The distribution of gestures in discourse appears to be predictably related to different narrative levels. Storytelling can be seen as the alternation between foregrounded information, which answers the question "what happens with p" (at a given time), and background information (e.g. Hopper 1979; Hopper & Thompson 1980; Klein & Perdue 1992). The *narrative level* proper is thus the foregrounded level where the storyline is advanced, the level where actual narra-

gesture type	Narrative proper (storyline)	Meta-narrative (background)	Para-narrative (the narrative situation)
iconics	depict concrete objects, characters, events		
metaphorics		provide meta-narrative comments, the story itself as an object of reference	
deictics	-movement and direction -introduction of new referents	-movement and direction -introduction of new events	-movement and direction -interpersonal relationship between interlocutors
beats	←→	transitions	←→

Table 8:1. The distribution of gesture types over narrative levels.

tive events are presented in sequence, subject to temporal constraints. The *meta-narrative level*, on the other hand, consists of background comments on the storyline, where temporality is of less importance. The *para-narrative level*, finally, provides comments on the situation in which the narrative is performed, such as on the relationship between the interlocutors. These levels can be compared to the elements of overall narrative structure as proposed by Labov & Waletzky (1967) and modified by Chafe (1994). They include an orientation or setting (space, time, society, ongoing background), the complication, the climax, the *dénouement* (often interactive), and usually a coda. These elements result in comments on different narrative levels.

The distribution of gestures across these narrative levels in story retelling tasks has been shown to be regular and predictable (Cassell & McNeill 1991; Levy & McNeill 1992; McNeill 1992; McNeill & Levy 1982, 1993; McNeill, et al. 1990; Pedelty & McNeill 1986). The distribution of gesture types over narrative levels is summarised in Table 8:1.

Iconic gestures depicting concrete objects or actions occur naturally at the narrative level. These gestures express viewpoint, such that it can be inferred from the gesture which character is acting (referred to as 'voice'). Perspective, or where a character is standing, is also expressed in iconics.

Metaphoric gestures, on the other hand, occur at the meta-narrative level, where the story structure becomes an object of reference in itself. Many of the meta-phoric gestures are expressions of the conduit metaphor, showing the story as an object to be handled.

Deictic gestures occur at all levels when orientation or direction are involved. Concrete deictics are relatively rare in narratives. In contrast, abstract deictic gestures, or pointing gestures which appear to indicate empty space, are very common and serve various functions (McNeill, et al. 1993). At the narrative level, abstract deictics mark the introduction of new referents by giving them specific loci in space. These gestures are also used to indicate a shift in the

semiotic value of space, such that at the meta-narrative level they mark the introduction of new events (Marslen-Wilson, Levy, & Tyler 1982). At the para-narrative level, finally, deictic gestures indicate the relationship between the speaker and the interlocutor.

Beats, finally, mark a distancing between the content and the speaker, and thus appear at the transition from one narrative level to another, and accumulate at episode boundaries.

8.3 Strategic iconics

Iconic gestures are perhaps the most prototypical learner gestures in the mind of the lay person, and also the gesture type where the relationship between content and gesture is most evident. Learners exploit iconic gestures by focusing on features of a referent or an action, which can be illustrated and, most importantly, recognised by the interlocutor. In this respect, these gestures correspond to what Peirce (1932) defines as icons. Iconic gestures are interpretable on the basis of their relationship to the propositional content of speech and the context, which they actually help create. It is the content of speech, and not speech itself which is determining, as pointed out by McNeill: "[...] the iconicity of the gesture is determined by whether it exhibits aspects of the same scene described in speech, not the speech itself." (McNeill, et al. 1990: 215). Iconics are thus not interpreted in a vacuum, but take their meaning from the *co-text*, created by the surrounding utterances.

Learners perform strategic iconic gestures when they experience lexical problems concerning concrete referents–problems which are sometimes overtly negotiated between the language learner and the NS, and sometimes not. Typically, learners produce an iconic gesture simultaneously with a lexical suggestion, depicting the sought lexeme *during* the word search, to align the NS's assumptions about the word looked for and to elicit help. The use of a gesture and a single word as a trigger has been observed by others, e.g. Kleifgen & Saville-Troike (1992). In response, the NS typically provides a lexical counter-suggestion, which generally corresponds to the intended referent.

1 Fr1B [han] *the* [*docteur*]
euhm *the* [*docteur*] ehm
euhm [skrif] skri
[skriver] en / [ny] euh //
[ord] [/] ort

2 NS   eeh / ett [nytt] ett [nytt] papper / =[ett nytt
recept]
Fr1B   =**[ja]** ett [ny] euh [papper]

1 Fr1B [he] *the* [*doctor*] uhm
the [*doctor*] uhm uhm
[writ] wri [writes] a /
[new] uh // **[word]** [/]
word

2 NS   uuh / a [new] a [new] paper / =[a new
prescription]
Fr1B   =**[yes]** a [new] uh [paper]
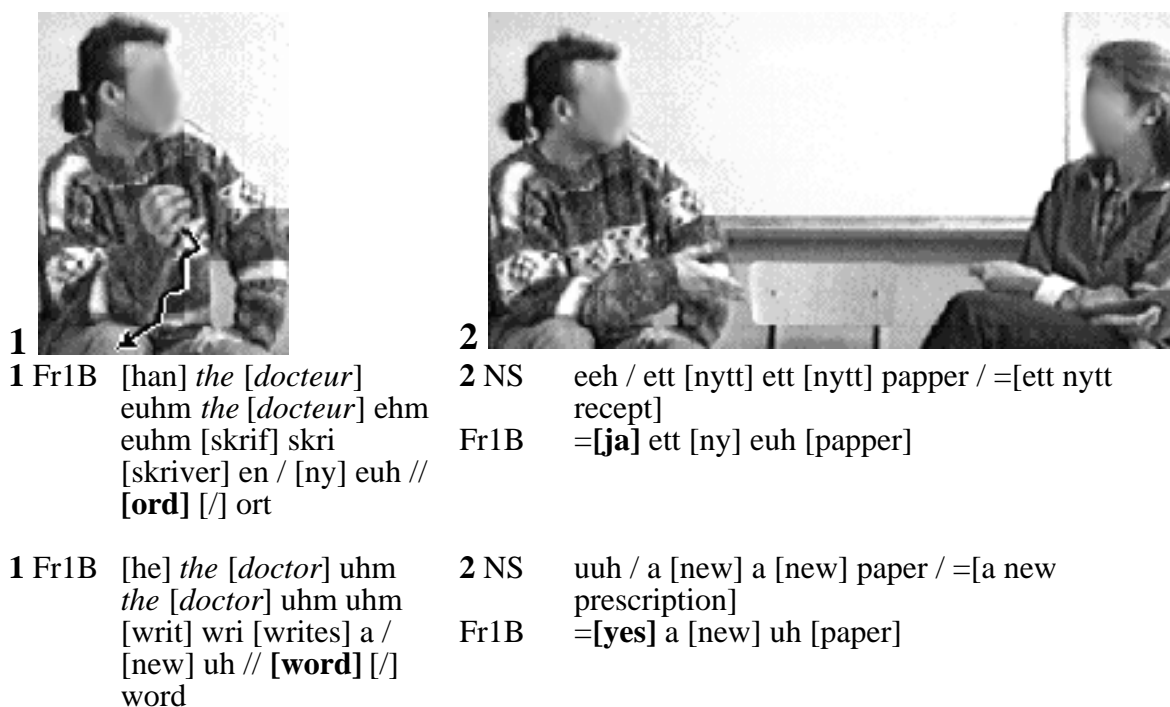
Figure 8:1. Strategic iconic gesture (C-VPT1) for the negotiation of the word 'pen'.

Figure 8:1 illustrates a typical example. The lexical item being negotiated is the word for the prescription, which the learner refers to as *ord*, the Swedish for 'word'. At this point, the subject uses an iconic C-VPT1 gesture for writing, rather than a gesture outlining the paper (1). The NS provides two words, both the more general *papper*, 'paper', and the specific *recept*, 'prescription'. The negotiation typically ends with the learner repeating the lexeme provided, and pointing towards the listener (2)–or the lexical suggestion which is accepted (see also below on deixis). The learner's iconic gesture is sometimes sustained during the entire negotiation. This is to ensure both that the NS arrives at the right lexeme, and to mark that, although the learner needs lexical help, s/he has not yet yielded his or her speaking turn. The gesture thus serves as a place-holder (Gullberg 1993).

In section 8.2, iconic gestures were said to occur at a narrative level which corresponds to the narrative proper, where events and characters are described. The learner data support these results. Iconic gestures, strategic or not, chiefly occur when lexical items central to the storyline are being negotiated, such as concrete characters, objects, and main events. Once these have been established, learners devote their efforts to other narrative problems, as will be seen in the following.

The features exploited in iconics are usually shape, size, manner or perspective, comparable to what could be found in the typologies of iconic signs in Sign Language (see section 5.2.3). The choice of the feature to be illustrated is personal or idiosyncratic, as are the differing viewpoints and mimetic levels cho-

Figure 8:2a. Fr1A outlining, O-VPT.

Figure 8:2b. Fr1B outlining, O-VPT.

Figure 8:2c. Fr1C showing the paper as entity, C-VPT1.

Figure 8:2d. Fr1D outlining, O-VPT.

Figure 8:2e. Fr1E outlining, O-VPT.

Figure 8:2f. Sw1a grasping the paper, C-VPT1.

Figure 8:2g. Sw1b outlining, O-VPT.

Figure 8:2h. Sw1d outlining, O-VPT.

Figure 8:2i. Sw1e grasping the paper, C-VPT1.

sen to express the features. This can be exemplified by the various gestures used to depict the prescription. Figures 8:2a–i show the first 'paper' gesture of all the learners (except Sw1c, who does not make a 'paper' gesture at all) in the L2 condition. The gestures are remarkably similar, and the exploited features appear to be chosen from a relatively small set. A majority of the learners choose an O-VPT gesture for the paper, outlining its size and shape, but three learners instead prefer an iconic gesture of the first mimetic grade, C-VPT1, showing the paper as held in the hand, in a fist-like grip. One of the latter subjects actually shows the paper as a surface, in the manner described by Engberg-Pedersen (1991) as a *whole object* sign.

Other referents appear to generate only one perspective. The events concerning the foot-writing, for instance, are generally depicted from a C-VPT. The mimetic levels involved range from first to third. Strategic iconics C-VPT3 or *mime* proper are rare in the material, and only a minority of these are substitutive. The instances of mime in the data are in fact not used to elicit lexicon, not even the substitutive cases. Figure 8:3 shows a substitutive C-VPT3 gesture where the learner does not wait for the NS to provide lexical labels. Instead, the subject

1 Sw1a: mis le [*script*] [dans] [le] [table] / et après [ça] / il fait comme ça / **[<click sound>]**

2 et [prend un] [stylo][et lee] / fait comme ça **[<click sound>]** / et après ça il eh [//] [écrit dans le *script*]

1 Sw1a: put the [*prescription*] [in] [the] [table] / and after [that] / he goes like this / **[<click sound>]**

2 and [take a] [pen][and it] / goes like this **[<click sound>]** / and after that he uh [//] [writes in the *prescription*]

Figure 8:3. A learner using a C-VPT2 gesture (taking off the shoe) and a substitutive mime proper (C-VPT3) putting an imaginary pen between the toes in the L2, but without waiting to elicit lexical items.

proceeds with the narrative. This is the typical use of mime in the study. Four subjects are responsible for all instances of mime or C-VPT3, and they all perform more than one such gesture. Furthermore, only two of eight cases of mimes are substitutive. This suggests that the use of mime proper reflects personal preference for mimesis, and perhaps for direct speech, as much as oral linguistic labelling difficulties. This is not to say that mime is never used to elicit lexical help. Like any other iconic gesture, it can be exploited in this way, even though there are no instances in this study.

In a few cases, the combination of features results in iconic gestures coinciding in form and shape with existing emblematic gestures, causing interesting cross-cultural incidents. In Figure 8:4, the French subject makes a circle-shaped iconic O-VPT gesture depicting a pill. The gesture is created *ab novo* on the basis of the size and shape features of a pill. However, the resulting conceptual iconic gesture as a whole happens to coincide with a French obscene emblem. The learner suddenly realises the implication of her gesture, and giggles in embarrassment. The Swedish NS is not aware of the *double entendre* and simply encourages the learner to go on with the lexical search. This clearly illustrates the conventional nature of emblems and the fact that, in contrast to iconics, they have to be learned.

Fr1D	hur [säger man euh]		Fr1D	how [do you say uh]
	[//] <giggles>			**[//]** <giggles>
NS	jo jo de e bra		NS	yes yes that's good
Fr1D	*medikament*		Fr1D	*medication*

Figure 8:4. A unique strategic iconic O-VPT gesture coinciding with a French emblem.

When faced with lexical labelling problems concerning central characters and events in the storyline, learners exploit strategic iconic gestures in similar ways to oral Conceptual strategies. Features in the referents are manipulated and depicted gesturally in like manner to how properties in the referent are listed orally. The features chosen differ from individual to individual, as does the mimetic level or viewpoint chosen to express them. The features are nevertheless chosen from a relatively predictable pool, and the context helps determine the intended referent. This is confirmed by the fact that NSs provide learners with the correct lexical items in response to these strategies. The major difference between oral and gestural Conceptual strategies is that gestures, which depict features holistically, permit more information to be expressed simultaneously.

8.4 Strategic metaphorics

Metaphoric gestures appear to divide essentially into two types: those gestures clearly pertaining to the content of speech and with a distinct referential quality, and those gestures expressing affective or attitudinal perspectives at a metalinguistic level.

Referential (or lexical) metaphorics are those gestures which give abstract concepts physical properties, typically along the lines of conceptual metaphors present in the language, such as regarding ideas as entities which can be handled (Lakoff & Johnson 1980). In short, referential metaphorics function as iconic gestures for abstract, as opposed to concrete, referents. As such, they also serve as strategic Conceptual gestures when learners encounter labelling problems for abstract entities.

Fr1B: [ingen] [förstår] euh // förstår emm *ce que* <whispers> euhm / ett **[problem]** / [euhm]

Fr1B: [nobody] [understands] uh // understands umm *what* <whispers> uhm / a **[problem]** / [uhm]

Figure 8:5a. A referential metaphoric gesture giving 'problem' size and shape.

Sw1a: il eh [//] [écrit dans le *script*] eh des choses qui eh / [est] / eh // **[correcte]**

Sw1a: he uh [//] [writes in the *prescription*] uh things that uh / [is] / uh // **[correcte]**

Figure 8:5b. A referential metaphoric gesture giving 'correctness' size and shape.

In Figure 8:5a, the learner is giving the notion 'problem' a physical aspect, as if it were an entity (or more specifically a spherical object) to be handled. In other words, size and shape features serve conceptually to denote abstract referents in the same manner as concrete ones. Similarly, in Figure 8:5b 'correctness' is indicated by letting the hand grip an imaginary small object, indicating that a precise grasp on something small can be metaphorically taken to correspond to correctness.

Fr1D *apotekarin* [förstår] euh // ehm / förstår ehm [//] **[*now*]**

Fr1D *the female pharmacist* [understands] uh // uhm / understands uhm [//] **[*now*]**

Figure 8:6. A referential metaphoric gesture for a temporal expression ('now').

However, size and shape are not the only features exploitable for metaphorical gestures. In Figure 8:6, learner Fr1D is looking for the word 'now', and code-switches into English whilst accompanying the code-switch with a metaphorical referential gesture, clearly indicating the present as an entity immediately in front of her body. This particular gesture exploits a locative feature in addition to size- and shape-type features.

Metaphoric gestures for temporal expressions typically exploit imaginary time axes which usually locate the present in central space in front of the speaker, or with the speaker as *origo*. Most gestures related to temporality tend to be deictic

gestures, but in some cases, like the one in Figure 8:6, it can be debated whether gestures are metaphoric or deictic. In the case at hand, the gesture has consistently been classified as metaphoric, probably largely due to the impression that an entity is actually being handled, or perhaps better, located in front of the speaker. The temporal axes will be more thoroughly described in the section on deixis below.

The data contain few referential metaphoric gestures. This can be assumed to be a task-based effect. The story is of a concrete nature, and does not include many abstract concepts other than the ones the learners themselves create as part of their OCSs.

The other (and far more frequent) major group of metaphoric gestures consists of those gestures which are not related to the propositional content of speech, but instead *express attitudes* towards what is being said. Typically, they express affective states in the speaker, such as hesitation, uncertainty, or even abandonment.

Three immediate functions can be recognised in these gestures. Firstly, attitudinal metaphorics clearly serve to mark word searches in L2 production, and presumably even in L1 speech. Contrary to iconics or referential metaphorics, these gestures are not exploited to elicit lexical help on the part of the listener, but instead function as place-holders, indicating to an interlocutor that a search is under way, as seen in Figure 8:7a. The attitudinal metaphoric word search gesture therefore does not indicate a sought referent, but instead indicates the word search itself as an event. It constitutes a metalinguistic comment on the linguistic performance.[1]

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[1] Another such comment or signal is gaze aversion. Learners typically avert their gaze from the interlocutor during word searches (Fehr & Exline 1987; Strömqvist 1987). In combination with metaphoric gestures, this is a very powerful way of signalling that the floor has not been yielded and that internal metalinguistic debate is taking place.

Sw1b: [et elle eh / ehm / ehm] [elle veut] ehm **[/ le lire]** oui	Fr1A: de [dom] [kan inte] / [läsa / ett *paper* papper] papper **[/]**	Fr1A: OK <whispers> // mm **[/]**
Sw1b: [and she uh / uh / uhm] [she wants to] uhm **[/ read it]** yes	Fr1A: they [they] [cannot] / [read / a *paper* paper] paper **[/]**	Fr1A: OK <whispers> // mm **[/]**
Figure 8:7a. Attitudinal metaphoric gesture for hedging and word search.	*Figure 8:7b. Attitudinal metaphoric gesture, for modification of word just uttered.*	*Figure 8:7c. Attitudinal metaphoric gesture for abandonment.*

Secondly, once a word search is completed, the speaker can exploit these metaphoric gestures to indicate that the utterance needs to be modified, as seen in Figure 8:7b. The speaker uses a general term for 'paper' instead of the specific 'prescription', and modifies this suggestion by using a hedging gesture. This particular kind of hedging can be achieved in other ways, by smiling, or by adding oral gambits such as *what's it called* or *what's the word I want*.

Thirdly, attitudinal metaphorics can be used to signal resignation or abandon if the speaker's word search is unsuccessful, as in Figure 8:7c. Aphasic patients have been noted to use compensatory gestures to perform these functions (Ahlsén 1985). Abandonment indicated by gesture results either in the NS refraining from an attempted interpretation of what has gone before, or in repeated efforts to encourage the learner to try again. Moreover, many of these gestures are cases of substitutive Hedging and occur in silences. This phenomenon confirms McNeill's (1985b) claim that gestures occurring in pauses are chiefly metaphoric gestures of a conduit metaphor kind, expressing metalinguistic commentary on the process of speaking–which includes silence.

Hedging is thus a metalinguistic comment directed at the interlocutor to specify, qualify or modify what has been said (Scheflen 1973). Such modifying behaviour always takes place outside the narrative proper at a meta-narrative level (McNeill 1992). Since it is directed towards the interlocutor, it is also a highly interactive phenomenon (cf. Bavelas, et al. 1992). The literature dealing with the facilitative aspects of gesture has rarely considered how such interactive

gestures can be helpful. It might be argued that, although they presumably do not help the speaker in the encoding process, they are still instrumental in ensuring that the interlocutor aligns his or her expectations regarding the intended message towards those of the speaker (cf. Kleifgen & Saville-Troike 1992). This is why such gestures can be exploited strategically, to point the listener towards a more accurate interpretation of what has been said.

With respect to features, it is interesting to note that a small set of physical properties seem to recur in non-referential metaphoric gestures as well. These features are not related to properties in referents, but instead to the emotions expressed. As can be seen in Figures 8:7a and c, these gestures often involve circular movements at the wrist, or sweeping movements in the horizontal plane rightwards and/or leftwards, sometimes involving both hands. Word searching metaphorics also frequently comprise wiggling of the fingers, as if the speaker were leafing through a stack of papers. This seems to support the proposals made by Calbris (1990), and Webb (1996), to the effect that metaphorical gestures can be analysed into smaller recursive units of meaning which may constitute a type of gestural morpheme lexicon. More in-depth studies may reveal if such as lexicon does exist, in which case it should be possible to establish minimal pairs of gestures which viewers could distinguish along the semantic dimensions manipulated.

8.5 Strategic deictics

Deictic or pointing gestures differ from iconics and metaphorics, in that they do not exploit features in referents.[2] Instead, they exploit the medium in which gestures are performed, space, as a feature. By their connection to space, they are highly useful strategically to learners, and it is perhaps surprising that they have received so little attention in theoretical accounts of CS.

Concrete deictic gestures, which refer to immediate physical surroundings, are exploited to solicit lexical help much along the lines of clearly referential gestures, such as iconics and referential metaphorics. In the data at hand, this

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[2] The issue of what constitutes a pointing gesture is not as straightforward as might be expected. Intuitively, pointing gestures are expected to consist of a protruding index finger (an 'index hand' configuration). However, it is obvious from the observation of gestures in interaction that a number of gestures whose hand shape is far from that of the index hand contain important deictic elements, elements which refer to space. As suggested in section 5.2.2, McNeill, for instance, codes gestures indicating movement of referents across discourse space as iconic gestures rather than as deictics. These gestures are said to be O-VPT gestures with the hand representing a character moving. Similarly, a number of metaphoric gestures, like the one seen in Figure 8:6, also contain clear localisation elements and reference to space, and should as such perhaps be better coded as deictics. Beats, finally, can be confused with deictics if there is a directional element in their performance. Even the interpretation of pointing gestures is not straightforward, but may be culturally determined (e.g. Haviland 1993).

Fr1B: på svenska **[euhm den]**   Sw1c: mm **[avec le pied]**

Fr1B: in Swedish **[uhm that]**   Sw1c: mm **[with the foot]**

Figures 8:8a and b. Concrete deictic gestures indicating a body part.

usually means that they point to body parts, as seen in Figures 8:8a-b. In 8:8a, the concrete deictic is combined with an overt appeal for lexical help, whilst in 8:8b, the learner does not wait for the NS to provide the word.

However, strategic concrete deictic gestures are rare in the data. The L2 context might have been expected to generate more concrete deictics as part of learners' elicitation techniques, as described by Strömqvist (1983). However, it has been proposed elsewhere that concrete deictics are rare in narrative discourse (cf. McNeill, et al. 1993). The results from this study suggest that the task influences learner behaviour towards restricted use of concrete deictics despite their obvious need to elicit lexical help.

Abstract deictic gestures, on the other hand, are much more frequent. In combination with iconic gestures, abstract deictic gestures are used to locate referents in gesture space. In any narrative, be it in L1 or L2, a referent which is introduced into the narrative is given a locus in space which serves as an index for future reference.[3] The indices or loci can be referred back to anaphorically, such that a referent can be tracked by pointing to the locus associated with it in space.

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[3] The term 'index' is used here rather loosely, but in fact corresponds to Peirce's use of the term, which says that an index is a

> sign, or representation, which refers to its object not so much because of any similarity or analogy with it, not because it is associated with general characters which that object happens to possess, as because *it is in dynamical (including spatial) connection both with the individual object, on the one hand, and with the senses or memory of the person for whom it serves as a sign, on the other hand.* (my emphasis).

<div align="right">Peirce (1932, Vol 2:305)</div>

An index thus points out the referent with which it is linked, and which has caused it. Abstract deictic gestures point out discourse referents located in discourse space in this manner.
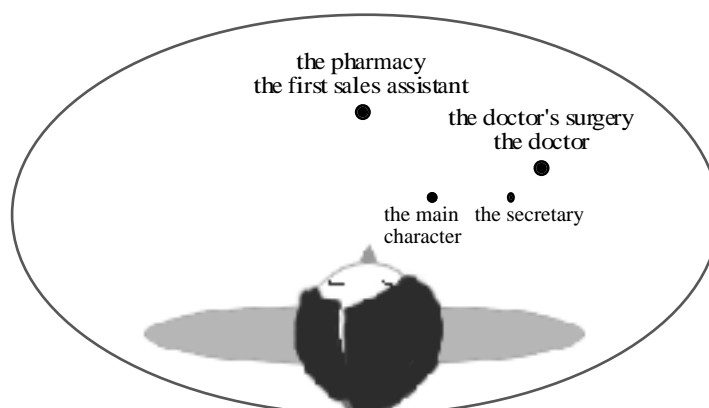
Figure 8:9. Schematic representation of narrative space as seen from above in both native and non-native narratives across the learner groups.

A referent's movements can also be traced across discourse space (cf. McNeill, et al. 1993). Referent identification can thus be handled explicitly, since interlocutors 'see' the referent being dealt with. As referents are continuously given loci with which they are associated in space, gesture space becomes symbolically charged with discursive meaning, and gesture space in fact turns into a map of discourse and of the narrative located along a horizontal plane.[4]

In the present narratives, referents, places and events are distributed across space in a very similar manner by all subjects–both in the L1 and L2 narratives, and across the learner groups. When the main protagonist, the woman getting the prescription filled, is first mentioned, she is usually located slightly to the right of the narrator. As reference is made to the pharmacy and the first sales assistant, they are always located immediately in front of the narrator in central gesture space. The other staff and the cleaning lady are usually situated further to the right. The doctor's surgery and the doctor himself are invariably found in the right periphery, sometimes with the secretary located slightly between the central and the peripheral areas indicated. This spatial construction of the narrative, schematically shown in Figure 8:9, holds across all subjects (who are all right-handed). Interestingly enough, despite the clearly geographical or topographical nature of gesture space, deictic gestures rarely occur with deictic references like 'here', 'this place', etc. (cf. Levy & McNeill 1992).

The practice of localising or 'anchoring' referents in space has a direct parallel in Sign Language. Nominals in Sign Language are localised or signed in a particular place in space as part of the grammatical encoding, and this index

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[4] Space is probably not exploited in the same manner across cultures. For a review of the literature on this topic, see e.g. Levinson (1996a, 1996b).
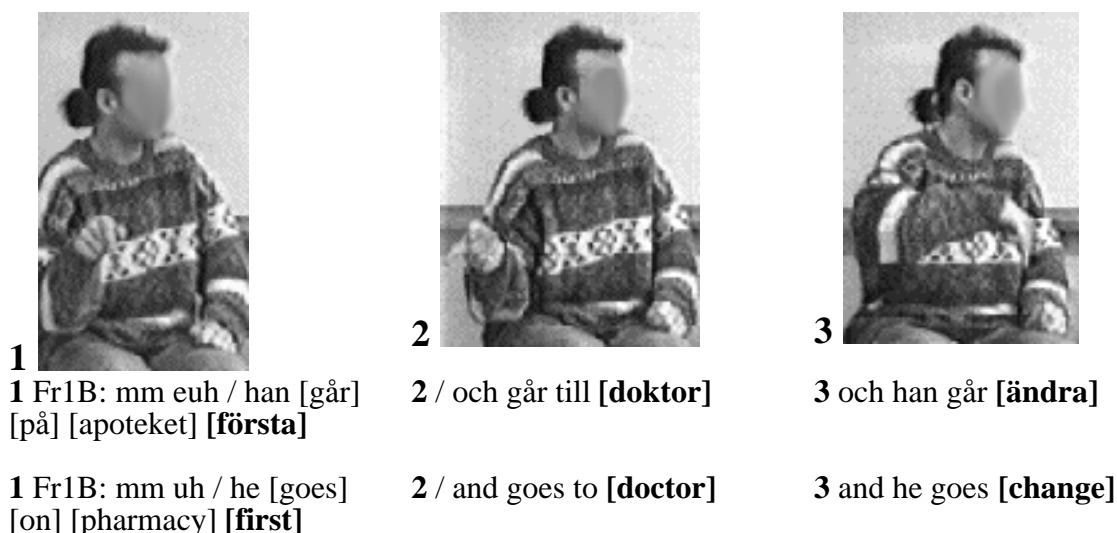
1 Fr1B: mm euh / han [går] [på] [apoteket] **[första]**

2 / och går till **[doktor]**

3 och han går **[ändra]**

1 Fr1B: mm uh / he [goes] [on] [pharmacy] **[first]**

2 / and goes to **[doctor]**

3 and he goes **[change]**

Figure 8:10. Deictic gestures exploited for contrast.

point is later referred back to (e.g. Ahlgren 1990; Engberg-Pedersen 1993; Lillo-Martin & Klima 1990; Poizner, et al. 1987).[5]

The construction of a discourse map in space is not strategic in itself. However, it affords learners with important additional strategic means. An example is seen in Figure 8:10. A learner is seen exploiting discourse space to indicate the movement of a referent between two spatial loci which are clearly contrasted, the pharmacy and the doctor's surgery. The possibility of rendering the contrast explicit in this way is an important means for the learner to clarify the event structure in the narrative.

8.5.1 Co-reference and coherence

By exploiting indices left in space, learners can ensure explicit and unambiguous co-reference. This is particularly important where oral linguistic devices such as chains of alternating NPs, pronouns, and zero anaphora, or various agreement systems such as gender and number, fail.

Topic or referent continuity, and the related problem of pronominal use, is a hazardous area of linguistic competence for learners of all types. The use and acquisition of pronouns has been investigated for L1 acquisition (Charney 1980; Clark 1978a), L1 acquisition of Sign Language (Petitto 1987), as well as L2 acquisition (e.g. Extra, Strömqvist, & Broeder 1988). The cognitive complexity of pronouns or 'shifters' is generally addressed in these studies. In L2 the pro-

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[5] There is an ongoing debate in Sign Language research regarding pronouns (e.g. Ahlgren 1990; Lillo-Martin & Klima 1990; Meier 1990). The issue concerns whether there is a distinction between personal and demonstrative pronouns. It is not clear whether people are deictically referred to mainly by their location, or by their conversational roles.

Ss	ratios N/clause			ratios Pron/clause		
	L1	L2	L1/L2	L1	L2	L1/L2
Fr1	1.145	0.769	p≤.0431*	1.196	0.765	p≤.0431*
Sw1	0.784	0.798	n.s.	1.426	0.948	n.s.
total	0.964	0.784	n.s.	1.311	0.857	p≤.0093**
Fr1/Sw1	p≤.0163*	n.s.		n.s.	n.s.	

Table 8:2. Nouns and pronouns per clause in L1 and L2 production, and comparisons.[6]

blem is not cognitive, but instead related to the fact that pronouns encode numerous semantic distinctions such as case, gender, person, and number (e.g. Felix & Hahn 1985). The presence of pronouns in learner data–subject, and particularly (clitic) object pronouns–then indicates that the language learner is relatively advanced (for L1 acquisition, see e.g. Broeder, Extra, & van Hout 1989).

In the present data, learners use significantly fewer pronouns in the L2 condition than in the L1 condition (z=-2.599, p≤.0093** for the total), as seen in Table 8:2. Instead, they tend to use full NPs throughout the narrative. The subjects refer to the main character as either *la fille*, 'the girl', *la dame*, *la femme*, or *kvinnan*, 'the woman', in the definite form. These labels come to serve as names (cf. Poulisse 1997) which sometimes have to be complemented by adjectives, such as *la malade femme*, 'the sick woman', for reference to be clear. This result is in accordance with other findings regarding adult language learners' use of referring expressions. Strömqvist & Day (1993) found that learners tended to use indefinite NPs to introduce referents, but that nouns were used at subsequent mentions rather than pronouns.[7] This can be contrasted with the overuse of pronouns for reference often found in aphasic patients (Ahlsén 1988).

Since learners overuse nouns and avoid pronouns, full NPs occur even in linguistic contexts where one would expect a pronoun or zero-anaphora. In 'normal' constructions, an established and accessible referent or topic is demarked (Givón 1984), as in example (1). Learner constructions, in contrast, tend to be of the type in (2), where the second NP, 'the woman', would normally be indexed NP_j, rather than NP_i.

(1) The woman$_i$ takes the paper and $\emptyset_i$ goes to the doctor.
(2) The woman$_i$ takes the paper and the woman$_i$ goes to the doctor.

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[6] Mann-Whitney U Tests for unpaired comparisons (Fr1 vs. Sw1 production); Wilcoxon Signed Rank Tests for paired comparisons (L1 vs. L2 production).

[7] It is interesting to note that the use of nouns at the expense of pronouns has been seen as an expression of 'restricted code' (Bernstein 1968), or of overly context-dependent language use. Language learners might have been expected to rely heavily on context for the production of their narratives. Instead, they appear to use as decontextualised language as possible. This is presumably a task-based effect.

An example from the data is given in (3) where indices have been added to the referents.

(3)

| Sw1b | eh elle$_i$ a un une [*script*] / qui elle$_i$ eh / [*donné*] à la [/] femme$_j$ / qui est dans la [réception] / et la [femme$_j$] ne comprend pas / et la [femme$_j$] dans lé [réception] eh [donné] la *script* eh de le [*supervisé$_k$*] / de la [pharmacie] | Sw1b | uh she$_i$ has a a [*prescription*] / that she$_i$ uh / [give] to the [/] woman$_j$ / who is in the [reception] / and the [woman$_j$] doesn't understand / and the [woman$_j$] in the [reception] eh [give] the *prescription* eh of the [*pharmacist$_k$*] / of the [pharmacy] |

'Woman$_j$' in (3) would have been expected to be replaced by a pronoun at the second and third mention. Givón states that

> […] second-language users use a more marked device–one normally involving more *discontinuity*–at a much less marked functional point (i.e. in environments of much higher topic-continuity) than one would expect in first-language users of comparable devices.
>
> Givón (1984:126).

The use of such marked devices or full NPs, as in example (3), actually risks complicating the interpretation of the message. Paradoxically, then, in their attempts to avoid errors and resolve potential misunderstandings, learners instead risk creating referential ambiguities by *over-marking* referents orally.

8.5.2 Over-marking in all modes

However, oral linguistic over-marking, in the form of heavy nominal expressions, does not seem to suffice in itself. Learners also over-mark the referent gesturally by referring to it anaphorically in space.

In L1 production, new information is typically indexed by the appearance of gestures (Levy 1984[8]; Levy & McNeill 1992; McNeill, et al. 1990), and the first mention of a referent or of a scene is more likely to be accompanied by a gesture than later mentions. Abstract deictics predictably appear when new referents are introduced, or re-introduced in new episodes, thus localising only new referents (Marslen-Wilson, et al. 1982; McNeill 1992; McNeill, et al. 1993). This is in accordance with Givón's *Quantity universal*: "The less predictable/ accessible/ continuous a topic is, the more coding material is used to represent it in language." (Givón 1985:197). New or unpredictable referents are typically marked with more coding material, both oral and gestural, and they are accompanied by gestural deictics.

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[8] Reported in McNeill (1992).

1 Sw1a: eh elle a un une [*script*] / qui elle eh / [*donné*] à la [/] femme / qui est dans la [**réception**] /

1 Sw1a: uh she has a a [*prescription*] / that she uh / [give] to the [/] woman / who is in the [**reception**]

2 et la [**femme**] ne comprend pas /

2 and the [**woman**] doesn't understand /

3 et la [**femme**]

3 and the [**woman**]

4 dans lé [**réception**]

4 in the [**reception**]

5 eh [*donné*] la *script* eh de le [*supervisé*]

5 uh [give] the *prescription* uh of the [*pharmacist*]

6 / de la [**pharmacie**]

6 / of the [**pharmacy**]

Figure 8:11. Referents localised deictically in space and additionally specified by iconics.

However, in L2 narratives abstract deictics do not only occur when new referents are introduced, but also upon subsequent (anaphoric) mention in an immediate context (Gullberg 1996a, 1996b). This anaphoric use of gesture blurs the new~old distinction found in L1 production. In the present data, L2 production is instead characterised by consistent over-marking of referents–not only oral, as suggested by Givón, but also gestural. Significant redundancy is thus created.

There are two types of gestural over-marking, as illustrated in Figure 8:11. This passage, which is the same as in example (3), deals with two characters (the sales assistant and the chief pharmacist) who are tracked gesturally. The sales assistant is identified by an iconic gesture, signifying the sales counter at the pharmacy (picture 1). At the second mention of this character, a full NP is again used, leading to potential confusion, as seen above, due to the rules for co-reference. However, the referent is specified deictically-anaphorically in space

(2), which helps establish explicit co-reference. Surprisingly enough, though, the referent is specified even *further* by two gestures at the third mention, first by a deictic gesture coinciding with the woman (3), then by another deictic gesture indicating the counter (4). At the third mention in an immediate context, the referent is thus specified by no less than two gestures. It is noteworthy that the counter itself is located specifically in central gesture space, whereas the deictic gesture for the woman is located somewhat to the right, so that the double gestural marking actually serves a disambiguating goal. In the case of the chief pharmacist, he is located by a deictic gesture at the first mention (5), but is subsequently surrounded by a circling gesture indicating the locus of the pharmacy (6). Both characters are thus not only located deictically, but also gesturally specified to allow unambiguous identification to separate them from other characters in the story.

When this sequence is compared to the corresponding passage in the L1 condition, as told by the same subject (Figure 8:12), it is clear that this over-marking–oral and gestural–is particular to the L2 condition.

1 Sw1a: receptet [recept] va de ja / så [visar] hon de eh till eh då en **[tjej]** i disken

2 / som tar detta då å tycker att de ser mycke mystisk ut / varefter hon tar de till typ **[föreståndarn]**

1 Sw1a: the prescription [the prescription] yeah that's it / so she [shows] it uh to uh a **[girl]** at the counter

2 / who takes this then and thinks it looks very strange / whereupon she takes it to the sort of **[manager]**
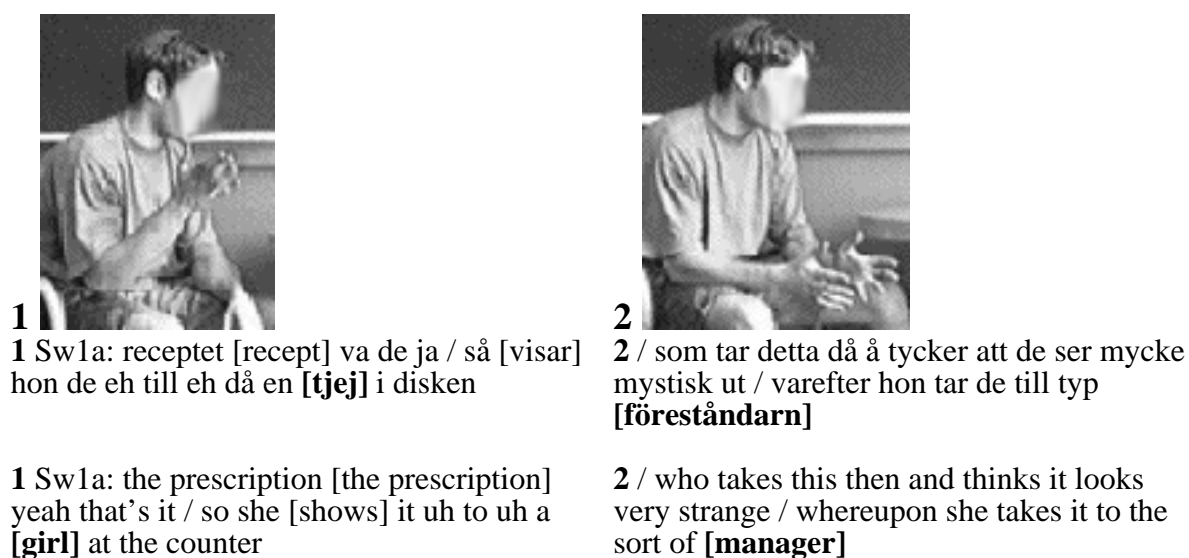
Figure 8:12. The same referents as in Figure 8:11 localised in L1 production.

In Figure 8:12, a deictic gesture indicates the first mention of the female sales assistant (1), and the chief pharmacist is indicated by an iconic gesture (2). In this case, the rules for oral linguistic co-reference are obeyed, with already established referents being de-marked by the use of pronominals and zero anaphora. These de-marked expressions are not reinforced by deictic gestures.

Linguistic over-marking is thus a general characteristic of learner language, and it occurs in three forms. It can take the form of oral over-marking, such as the use of full NPs where pronouns or zero-anaphora are expected. In combination with oral over-marking, referents can also be gesturally over-marked. Anaphoric

use of deictic gestures can over-mark an already established referent. A referent may even by gesturally indicated both by a deictic gesture and an additional iconic or deictic gesture to ensure identification.

In addition to tracking referents explicitly in space, deictics also help maintain reference during metalinguistic negotiation. In a typical example, one of the subjects runs into trouble with the Swedish possessive pronominal system while trying to distinguish the main character from the doctor.
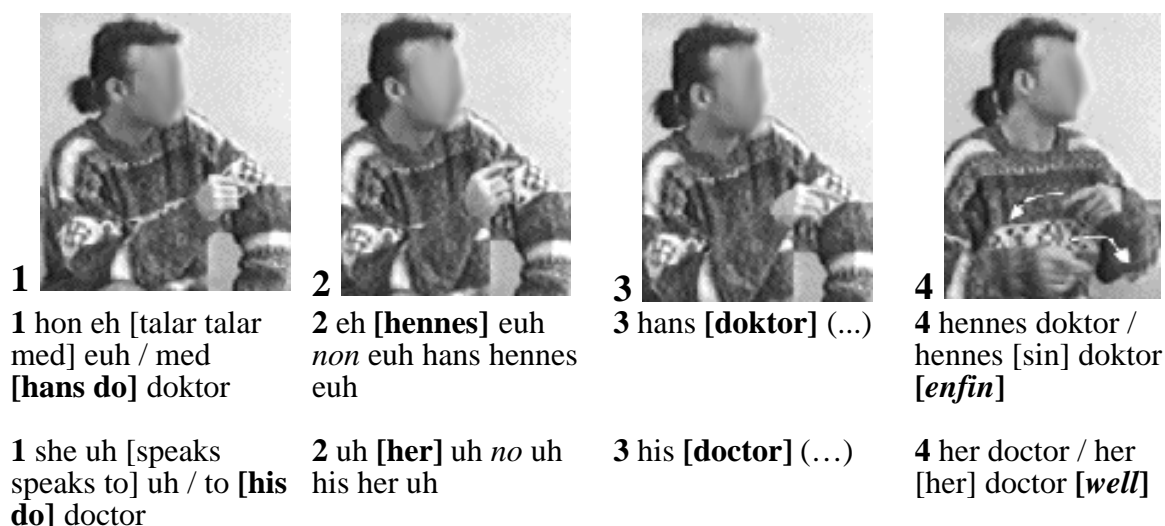

1 hon eh [talar talar med] euh / med **[hans do]** doktor

2 eh **[hennes]** euh *non* euh hans hennes euh

3 hans **[doktor]** (...)

4 hennes doktor / hennes [sin] doktor **[*enfin*]**

1 she uh [speaks speaks to] uh / to **[his do]** doctor

2 uh **[her]** uh *no* uh his her uh

3 his **[doctor]** (…)

4 her doctor / her [her] doctor **[*well*]**

Figure 8:13. Deictics used to maintain reference during metalinguistic negotiation.

The Swedish pronominal system upholds gender and case distinctions, and possessive pronouns are particularly complex, since speakers also have to keep track of whether a particular pronoun refers to the subject or the direct object of the phrase.[9] In the example, the learner aims to refer to the woman's doctor using such a pronoun. He negotiates the gender of the pronoun orally, *hans* vs. *hennes*, 'his' vs. 'hers', while the deictic gestures (1-3) all indicate and maintain the location of the referent. This location is entirely abstract, however, since it does not refer to the narrative location of the doctor. Instead, it is a strictly metalinguistic locus, used specifically for the negotiation of the pronoun. When the gender problem has been solved, the learner remembers the final complication of what part of speech the pronoun is referring to, and offers a *sin*, 'her'.

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[9] When the Swedish possessive pronoun refers to the subject, the form *sin* is used, which is identical across genders, as exemplified in (i) and (ii). When it instead refers to the direct object of a phrase, the form is marked for gender and number, as in (iii) and (iv).

(i) Han$_i$ ger honom$_j$ *sin$_i$* bok.   (ii) Hon$_i$ ger henne$_j$ *sin$_i$* bok.
   he(subj)$_i$ gives him(DO)$_j$ *his$_i$* book.   she(subj)$_i$ gives her(DO)$_j$ *her$_i$* book.

(iii) Han$_i$ ger honom$_j$ *hans$_j$* bok.   (iv) Hon$_i$ ger henne$_j$ *hennes$_j$* bok.
   he(subj)$_i$ gives him(DO)$_j$ *his$_j$* book.   she(subj)$_i$ gives her(DO)$_j$ *her$_j$* book.

However, he abandons the attempt to specify the pronoun. Abstract deictics are thus used to re-calibrate space (Haviland 1996) to indicate a change of perspective or level of commentary. In (4), finally, the subject performs a complex metaphoric/deictic gesture, by pointing at two contrasting loci, and this can be interpreted in several ways. Either the two loci represent entirely abstract locations for the gender distinction of the pronoun, or they represent two more concrete loci for discourse referents, the doctor and the female patient. However, the metaphoric aspect of the gesture is perhaps clearest, expressing two loci for the alternation and confusion resulting from the metalinguistic debate.

8.5.3 Temporality

Space is also exploited to handle temporality and temporal coherence in L2 narratives. Within cognitive semantics it has been suggested that time is metaphorically mapped onto space (e.g. Lakoff 1987; Lakoff & Johnson 1980).[10] Gestural data lend strong support to this contention. The underlying problem in Figure 8:10 is actually temporal, as the learner is trying to indicate the sequence of events by mapping them out spatially and emphasising the different loci. Sequential mapping is one option for handling temporality, but deictic gestures are also exploited to establish axes of reference along which time is placed.

Deictic gestures can be used to refer to a timeline extended in space along a horizontal plane with the speaker serving as the *origo*. The speaker's own location corresponds to the present, whilst the past and future are behind and in front of the speaker, respectively. Sometimes, the axis runs in a left-right direction in front of the speaker instead, with the speaker still as *origo* and present, but with the past and the future to the left and to the right, respectively.[11] These axes, as shown in Figure 8:14, have been observed in other studies of gesture (e.g. Calbris 1985, 1990), and are also mentioned in Sign Language studies (e.g. Engberg-Pedersen 1993).

In Figure 8:15:1-6, the learner can be seen to exploit abstract deictics along the timelines to indicate the temporal points of the pluperfect, a morphologically

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[10] For a suggestion that oral linguistic tense markers are identical to spatial markers, see Pettersson (1994).

[11] It has frequently been observed that the orientation of time is culture-specific, and it is often assumed that the axes described above are influenced both by the direction of walking, and by Western writing systems. An alternative interpretation of the future, for instance, is mentioned in Calame-Griaule (1987), cited in Calbris (1990), where an African culture is said to associate the future with posterity, and thus locates it behind the speaker.
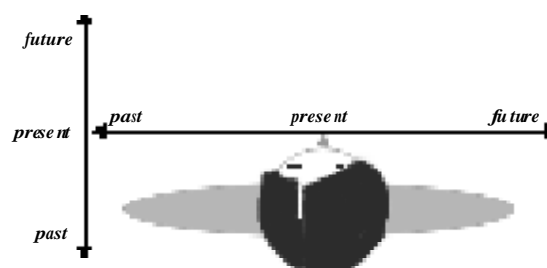
Figure 8:14. Time axes located in discourse space, as seen from above.

1 Fr1C: förstår inte ett papperet (...) som euh **[hade]**

1 Fr1C: doesn't understand a the paper (...) that uh **[had]**

2 [han] euh

2 [he] uh

3 *si* **[hade]**

3 *si* **[had]**

4 [han] euh / [skri skriver] euh

4 [he] uh / [wri writes] uh

5 / en [moment] / **[euh]**

5 / a [moment] / **[uh]**

6 *avant* / **[euh]**

6 *before* / **[uh]**

Figure 8:15. A series of abstract deictics used to indicate anteriority in the past.
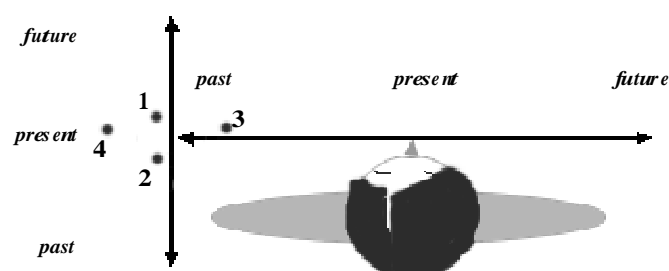
Figure 8:16. The temporal loci on the time axes as indicated by the learner in Figure 8:15.

complex tense not yet mastered. In the example, the learner actually exploits both temporal axes, as indicated schematically in Figure 8:16. First, anteriority is indicated along the front-back oriented axis located to the left of the speaker. Two points (1-2 in Figure 8:16) for the pluperfect 'had written' (coinciding with *hade han*, 'had he') are consecutively indicated twice (Figure 8:15:1-4). The first point (Figure 8:15:1 and 3) indicates a locus close to the present. The second point (Figure 8:15:2 and 4) is located further behind the speaker. The complex notion of anteriority in the past is visually maintained in this manner.

Since the learner is uncertain about the morphological temporal expression, subsequent lexical expressions for anteriority are attempted. With these expressions the learner indicates anteriority on the second, left-right axis (points 3-4 in Figure 8:16) by indicating a point in the present and then another point leftwards, signifying the past. Both lexical expressions, *en moment*, 'a moment' (Figure 8:15:5), and *avant*, 'before' (Figure 8:15:6), are accompanied by such clarifying deictic gestures.

The example illustrates how learners exploit redundancy in all modes, often simultaneously. By accompanying the temporal expression with gestures, the learner tries to ensure clarity. She then adds oral redundancy by providing lexical expressions for the same temporal notion, expressions which are *also* accompanied by clarifying gestures. The example is another illustration of multi-modal over-marking.

The majority of the abstract deictic gestures present in the data thus refer to discourse referents, to discourse itself, or to linguistic units such as time or even linguistic labels. These gestures, which are used to realise most gestural Code strategies, are thus not strategically exploited to address lexical problems, but rather issues of coherence and narrative construction.

8.6 Strategic beats

As strategy is defined here, beats are the gesture category least obviously exploited strategically. Beats often combine with other gesture types, superimposing themselves on the handshape or configuration of another gesture. Their function is thus at times difficult to tease apart from other underlying gestures.

McNeill has suggested that beats serve as discursive 'highlighters'–segmenting enumerations, emphasising, and marking items as important (McNeill 1992). This may explain why beats are so frequent in political rhetoric (e.g. Bull 1987). However, it is not the referential value of the expression they accompany which is highlighted, but instead its relationship to the overall discourse. Speakers

mark the movement between narrative levels, such as from the narrative proper, where actual events are dealt with, to a metalinguistic level by using batonic movements. Deceptively simple in form, beats are thus nonetheless cognitively complex, and their relationship to discourse might explain why they occur late in the linguistic development of children learning their first language (Cassell 1988; Freedman, et al. 1986; McNeill 1986), or not at all in specifically language impaired children (Lundström & Månsson 1995).

Typically, gestures which mark the momentary distancing from the propositional content occur when a speaker corrects him- or herself, and starts over–a frequent phenomenon in non-native speech. In Figure 8:17, a sequence can be seen where the learner starts by using a strategic iconic gesture of the highest mimetic order (C-VPT3 or mime proper, picture 1). With the self-corrections for the lexical suggestion for 'read' follows the superimposition of beats onto the hand shape and the configuration of the mimetic gesture. In other words, the hand shape of the mimetic 'reading' gesture is maintained, and the hand beats up and down with the corrections (2-4). The effect is one of insistence or emphasis, which serves to indicate to the native listener that the learner is metalinguistically aware of a problem and is attempting to correct it.

1 Fr1C: och euh [/ och euh] **[lä]** /

2 [och lä]

3 [han]

4 [läser] / [ehm] [pappret]

1 Fr1C: and uh [/and uh] **[rea]** /

2 [and rea]

3 [he]

4 [reads] / [uhm] [the paper]

Iconic gesture, C-VPT3 or mime proper for reading the paper.

Beat superimposed on the previous iconic gesture.

Beat superimposed.
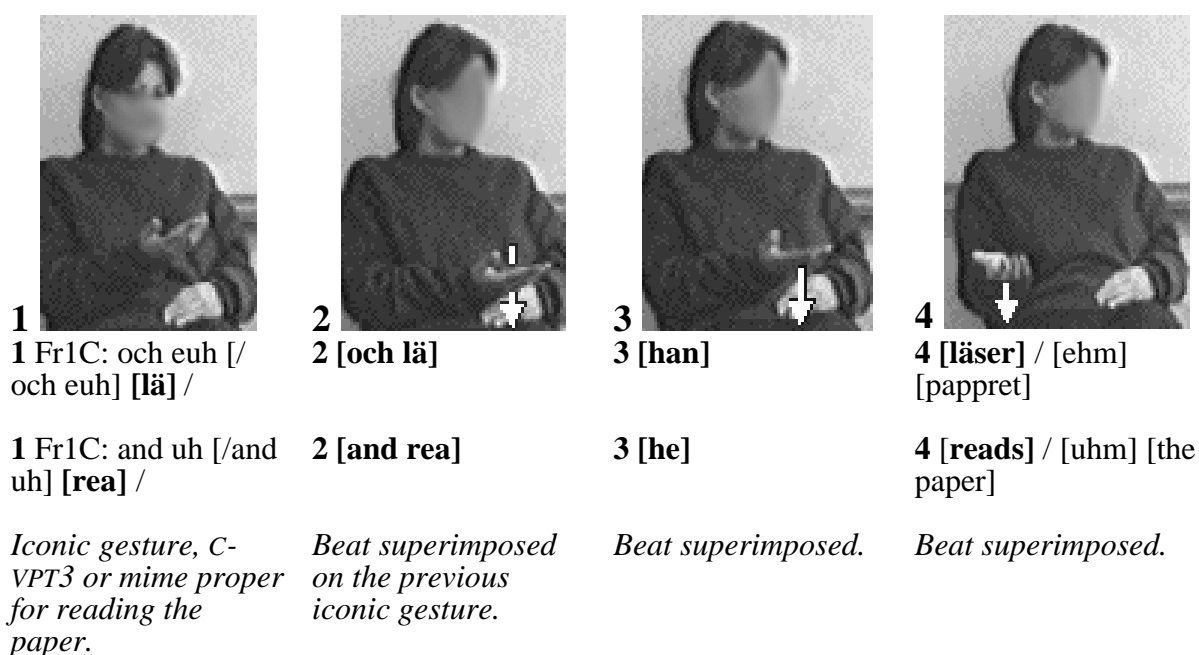
Beat superimposed.

Figure 8:17. Beats superimposed on an iconic C-VPT3 gesture during self-repair.

1 Fr1B: **[vad]**   **2** / **[heter]**   **3** eh **[<click>]** / <laughs>

1 Fr1B **[what]**   **2** / **[is called]**   **3** uh **[<click>]** / <laughs>
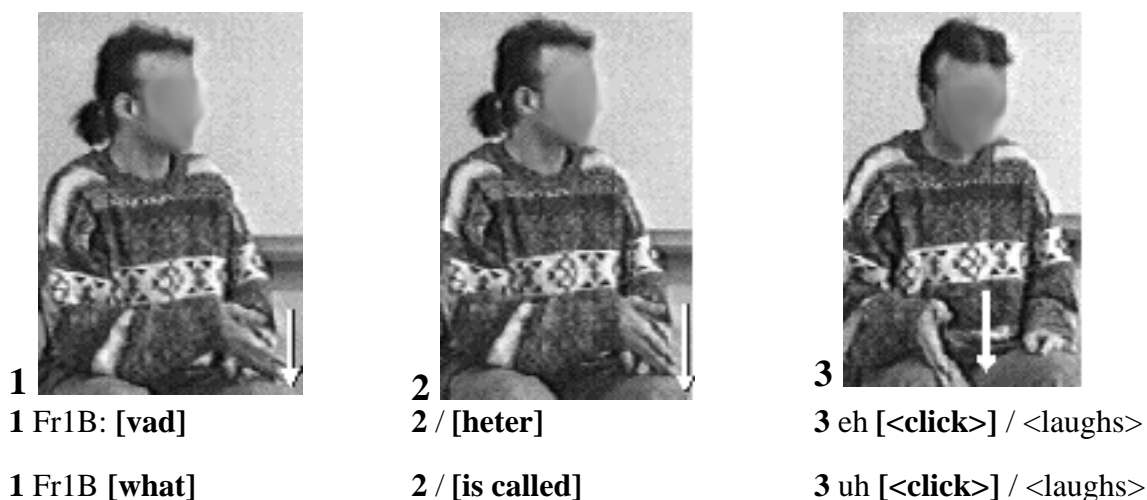
Figure 8:18. A series of beats in an overt appeal.

An interesting aspect of the corrective character of beats is that they can be exploited for other-correction as well as for self-correction. Native listeners exhibit a fair number of beats. The feature of insistence gives an impression of didactic intent in these contexts. Learners sometimes engage in a type of inverted didactic style, meaning that they segment and pronounce their propositions with particular care–often in overt appeals for help, when a specific lexical item is sought. These instances are frequently accompanied by beats, which often highlight almost every word in the clause, as seen in Figure 8:18 (1-3). The insistence they add to the accompanying speech is therefore difficult to ignore on the part of the listener.

The data include very few strategic beats, according to the definition of 'strategic' employed here. It might nevertheless be argued that most beats are strategic in some sense. They are obviously not exploited to elicit lexical help, but often occur in the L2 condition under circumstances where a lexical problem has been detected. Their general co-occurrence with repairs, overt appeals and repetition suggests that they are closely related to the interactive phenomena essential to managing L2 discourse, signalling the ongoing process of communicative effort. They mark metalinguistic awareness on the part of the learner, which might be useful information to the listener, although s/he is not expected to act on it. This is thus a more subtle form of strategy, concerned with covert discourse management rather than with overt lexical problems.

8.7 Summary

Gesture types are exploited strategically in differentiated ways. Learners use iconic and referential metaphoric gestures to elicit lexical help by focusing on properties in the referent which can be depicted. Other metaphoric gestures express the speaker's attitude to what has been said, and as such serve to modify the message. Deictics can either be used to elicit lexical help, or to create redundancy at a discourse level. Specifically, abstract deictics help maintain coherence in learner narratives, by making referent retrieval and co-reference visible on a spatial map of discourse. Learners generally over-mark referents in L2 production, both orally and by abstract deictic gestures, sometimes in combination with iconics. Beats, finally, highlight aspects of speech, notably self-correction, and help signal that the learner is aware of a problem and is trying to remedy it.

The functions enumerated–elicitation, modification, clarification and discourse management–correspond to various CSs. The distribution of gesture categories over strategy types is therefore in part a result of the way the strategy types were defined. Referential gestures thus appear in *Conceptual strategies*, where properties in the referent are manipulated. Metaphoric gestures which serve as meta-comments occur as *Hedging strategies*. Deictics and beats, by default assigned to the *Code* category, are used to handle discourse problems.

9 Gestural Communication Strategies–Quantities and discussion

9.1 Introduction

The quantitative results from the analysis of gestural CSs are in many ways incompatible with the expectations from the field of CS research and from the field of gesture research. Insofar as OCS studies have dealt with gestures, strategic gestures have been assumed to be primarily substitutive mimetic gestures, used to elicit lexical material. They would as such be expected to be primarily Conceptual, or at least referential, in nature. In gesture research, the main issue has instead been whether gestures occur during speech, or whether they appear in silences as the result of speech failure, as described in Chapter 4.

This chapter starts with brief quantitative summaries similar to those presented in Chapter 7 on OCSs–first of overall gestural behaviour to enable comparisons between L1 and L2 production to be made, then specifically of gestural communication strategies (GCSs). The subsequent discussion will address three main issues concerning CSs. Firstly, the effect of proficiency on the frequency of gestures and the use of particular types of GCS will be addressed. Secondly, the efficiency of gestural strategies will be discussed, and finally, oral and gestural strategies will be briefly compared.

9.2 Quantitative summaries
9.2.1 Overall number of gestures in L1 and L2

As in Chapter 7, the basis for calculation in this chapter will be ratios of gestures or gestural strategies per clause,[1] to achieve measures independent of the amount of speech. Similar comparisons between learner groups and proficiency conditions will be made as in the analysis of OCSs.

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[1] Again, it may seem odd to imagine 0.353 gestures per clause, since gestures are usually tangible, concrete entities which cannot be divided. However, the argument is the same as for OCSs (Chapter 7, footnote 4). The point of the exercise is not to indicate a precise number of gestures, but instead to enable reliable comparisons between subjects independently of how much they speak. The reader interested in absolute figures and real quantities is again referred to Appendix C.

Ss	L1 gestures/clause	L2 gestures/clause	L1/L2
Fr1A	1.125	1.237	
Fr1B	1.378	1.648	
Fr1C	0.222	1.410	
Fr1D	0.500	0.911	
Fr1E	0.353	0.052	
	mean 0.716. sd. 0.507	mean 1.052, sd. 0.62	n.s.
Sw1a	0.718	1.525	
Sw1b	0.655	0.886	
Sw1c	0.038	0.415	
Sw1d	0.540	0.861	
Sw1e	0.208	0.418	
	mean 0.432, sd. 0.295	mean 0.821, sd. 0.455	p≤.0431*
total	mean 0.574, sd. 0.419	mean 0.936, sd. 0.527	p≤0218*
Fr1/Sw1	n.s.	n.s.	

Table 9:1. Individual use of gestures/clause in L1 and L2 production, and comparisons between the proficiency conditions.[2]
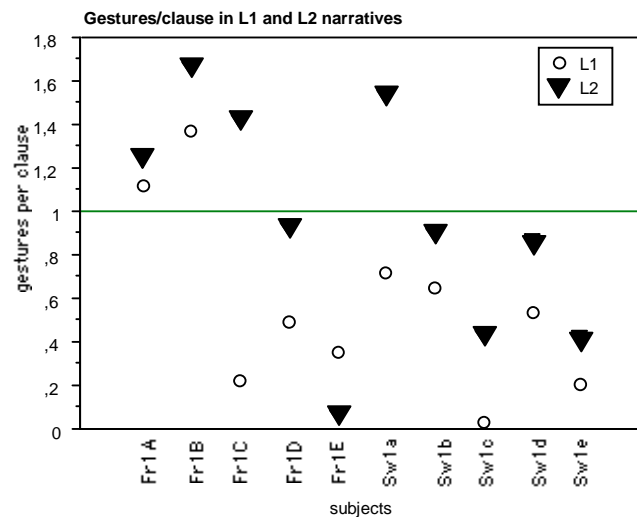
Figure 9:1. Individual use of gestures/clause in L1 and L2 production.

Table 9:1 and Figure 9:1 show the individual total use of gestures per clause across L1 and L2 production. There is substantial individual variation in the use of gesture. In L1 production, the Fr1 group uses slightly more gestures than the Sw1 group, with a mean of 0.716 gestures/clause, compared to the Sw1 group's 0.432 gestures/clause. However, the difference between the groups is not significant (z=-.731, p≤.4647).

Similarly, when the learner groups are compared in L2 production, no significant difference in gesture rate can be found between the groups (z=-.940, p≤.3472), although the Fr1 group as a whole uses more gestures/clause than the Sw1 group, with a mean of 1.052 gestures/clause vs. 0.821 gestures/clause.

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[2] Mann-Whitney U Tests for unpaired comparisons (Fr1 vs. Sw1 production); Wilcoxon Signed Rank Tests for paired comparisons (L1 vs. L2 production).

The most striking observation, however, is the correspondence between gesture use in L1 and L2 production. All individuals save one, Fr1E, increase their overall use of gestures/clause in L2 narratives, irrespective of how inclined they are to gesticulate when speaking their first language. The increase in gesture use in L2 for the group as a whole is significant (z=2.293, p≤.0218). However, when the increase is considered for the separate learner groups, only the Sw1 group increases the use of gestures/clause significantly (z=-2.023, p≤.0431).

The general increase in gesture production in L2 seems to suggest that the use of gesture is indeed related to proficiency and encoding problems. It is a little surprising, however, that only the Sw1 group should show a significant increase, in view of their somewhat higher proficiency. This will be discussed further in section 9.3. The observed difference between the groups in L1 and L2 production corresponds to lay expectations regarding the culturally determined propensity towards gesticulation. The validity of such an explanation, especially in view of the fact that the difference between the groups is not significant, will also be addressed in section 9.3.4.

9.2.2 Overall gesture types

Table 9:2 and Figures 9:2a-b show the use of gestures/clause in L1 and L2 as distributed over the gesture types considered. In L1, the Fr1 group favours beats and deictics, followed by metaphorics and iconics C-VPT1. The Sw1 group instead shows a preference for iconics C-VPT1, followed by beats and deictics. However, no significant differences can be found between the use of any category in the groups. In L2, both groups favour metaphorics and deictics. The Fr1 group also shows a preference for beats. As the third most favoured category, the Sw1 group instead uses iconics C-VPT1. Although not statistically significant, these qualitative differences between the groups may be language-specific, and have not been observed before.

		I-O/clause	I-C1/clause	I-C2/clause	I-C3/clause	M/clause	D/clause	B/clause
L1	*Fr1*	0.010	0.079	0.006	0.013	0.149	0.188	0.271
	Sw1	0.053	0.122	0.007	0.030	0.035	0.088	0.097
	L1/L1	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
L2	*Fr1*	0.080	0.090	0.007	0.014	0.344	0.274	0.262
	Sw1	0.086	0.180	0.005	0.034	0.207	0.201	0.109
	L2/L2	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
L1/L2		p≤.0209*	n.s.	n.s.	n.s.	p≤.0069**	p≤.0093**	n.s.

Table 9:2. Gestures/clause in L1 and L2 over gesture types. Comparisons L1 vs. L1, L2 vs. L2, and L1 vs. L2. I-O = iconic O-VPT; I-C1 = iconic C-VPT1; I-C2 = iconic C-VPT2; I-C3 = iconic C-VPT3 or mime proper; M = metaphoric; D = deictic; B = beat.[3]

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[3] These abbreviations will be used throughout the chapter.
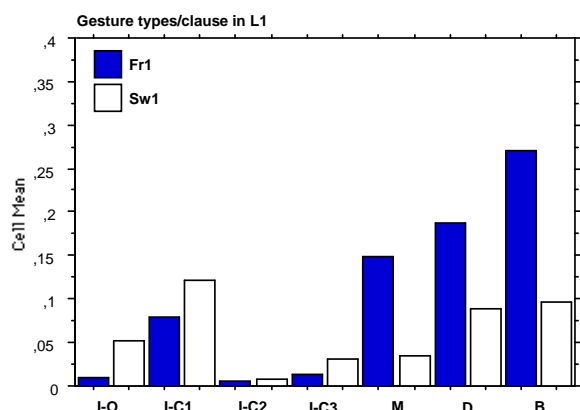
Figure 9:2a. Gesture types/clause in L1 in both learner groups.
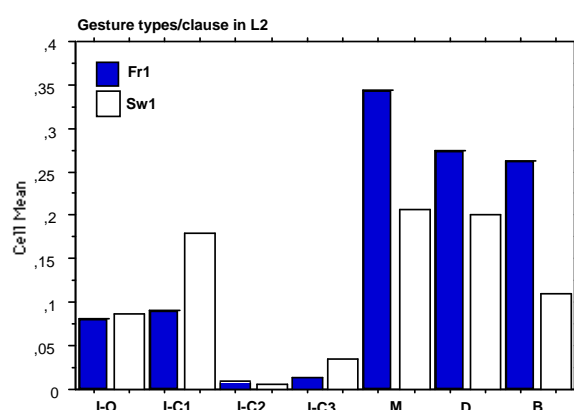
Figure 9:2b. Gesture types/clause in L2 in both learner groups.
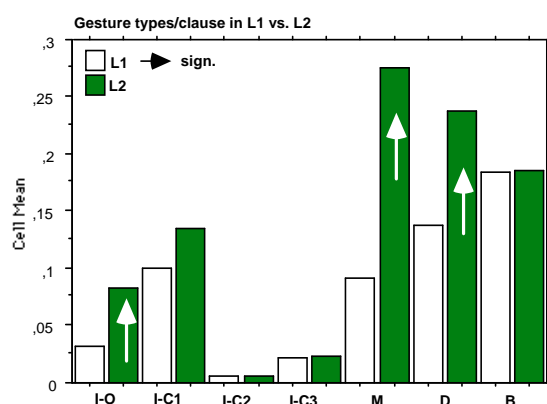
Figure 9:2c. Gesture types/clause in L1 vs. L2 across learner groups.

With respect to the difference between L1 and L2 production, as shown in Table 9:2 and Figure 9:2c, significant increases can be found in three gesture categories: metaphorics ($z=-2.701$, $p \leq .0069$), deictics ($z=-2.599$, $p \leq .0093$), and iconic O-VPT gestures ($z=-2.310$, $p \leq .0209$). Interestingly enough, there is no significant difference in the use of iconics C-VPT3 or mime in L1 and L2. Contrary to expectations from the CS literature, the most typical L2 gestures instead appear to be metaphorics and deictics.

The four types of iconic gestures can be collapsed into two categories: iconics-proper, including O-VPT and C-VPT1 where the mimetic element is minor, and iconics-mime, encompassing C-VPT2 and 3, which are less speech-associated than the first two. The analysis of the distribution of gesture types is affected only in minor ways, as can be seen in Table 9:3 and Figures 9:3a-c.

In L1, the preference in the Fr1 group changes slightly, so that beats and deictics are followed by iconics proper instead of by metaphorics. In the Sw1 group there is no change in the order of preference: iconics, beats and deictics. In L2

		I-proper/clause	I-mime/clause	M/clause	D/clause	B/clause
L1	**Fr1**	0.171	0.021	0.149	0.188	0.271
	Sw1	0.266	0.039	0.035	0.088	0.097
	L1/L1	n.s.	n.s.	n.s.	n.s.	n.s.
L2	**Fr1**	0.080	0.018	0.344	0.274	0.262
	Sw1	0.175	0.042	0.207	0.201	0.109
	L2/L2	n.s.	n.s.	n.s.	n.s.	n.s.
L1/L2		p≤.0051**	n.s.	p≤.0069**	p≤.0093**	n.s.

Table 9:3. Gestures/clause (means) in L1 and L2 across gesture types. Comparisons L1 vs. L1, L2 vs. L2, and L1 vs. L2. I-proper = iconic O-VPT and iconic C-VPT1; I-mime = iconic C-VPT2 and iconic C-VPT3.
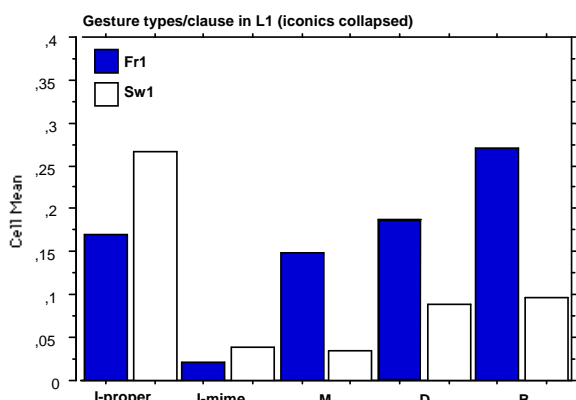
Figure 9:3a. Gesture types/clause in L1 in both groups (iconics collapsed).
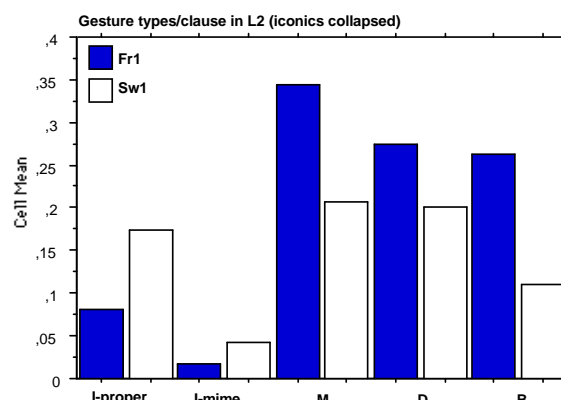
Figure 9:3b. Gesture types/clause in L2 in both groups (iconics collapsed).
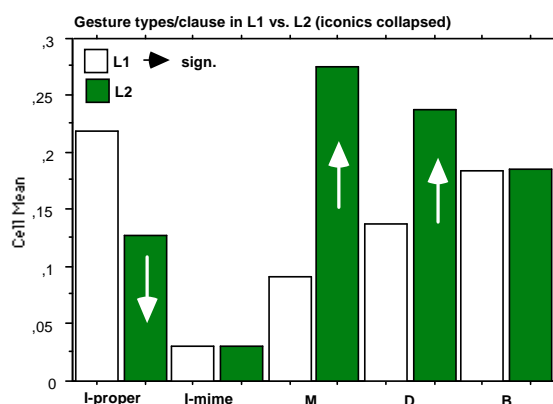
Figure 9:3c. Gesture types/clause in L1 vs. L2 (iconics collapsed).

production, there is no change in the preferences indicated above. It is worth noting that the Sw1 group dominates the production of iconics-proper and mime in both conditions.

When the use of gestures is compared in the L1 and L2 conditions across learner groups, as in Figure 9:3c, L1 production is dominated by iconics, followed by beats, deictics, metaphorics and mime in that order. In L2, on the other hand, metaphorics and deictics are still the most favoured gesture types, followed by beats. The use of iconics proper *decreases* significantly in L2 (z=-2.803, p≤.0051**), whereas mime remains on the same low level of use in L1 and L2.

These results are not entirely in accordance with previous findings. Although the increase in overall gesture use was expected, the increase in gesture types differs from findings in other studies. Both Marcos (1979) and Nobe (1993) observed a significant increase in beats in L2, which is not supported in these data. Similarly, the decrease in iconics is in opposition to Nobe's results, where representational gestures increased in L2. These differences are difficult to account for, but may be a reflection of task differences.

9.2.3 Overall use of Gestural Communication Strategies in L2

Tables 9:4a-b and Figures 9:4a-b summarise the distribution of GCSs across learner groups. Complementary GCSs significantly outnumber substitutive GCSs (z= -2.701, p≤.0069**) in the data, as seen in Table 9:4b and Figure 9:4a. Complementary GCSs constitute 82.5% (or 0.298 GCS/clause) of the data, whilst substitutive gestures constitute only 17.5% (or 0.068 GCS/clause).

With respect to the strategy types considered across substitutive and complementary categories, as seen in Figure 9:4b, Conceptual and Code strategies are roughly equal in frequency (38% or 0.147 vs. 0.131 GCS/clause).

Within the *complementary* GCSs, Code strategies are slightly more numerous than Conceptual strategies (37.3% vs. 33% or 0.129 vs. 0.126 GCS/clause). Of the *substitutive* gestures, Conceptual GCSs, exploiting referent features, constitute only a minor part (5% of the total or 0.021 GCS/clause), whereas the biggest group instead consists of Hedging GCSs (12% of the total, or 0.046 GCS/clause), which are used to signal resignation on the part of the learners. Code and Conceptual GCSs are significantly more frequent as complementary than as substitutive strategies. No difference can be found between substitutive and complementary Hedging.

	He	*Cn*	*Co*	*total*
Substitutive	12.3 (26)	5 (10)	0.5 (1)	17.5 (37)
Complementary	11.8 (25)	33 (71)	37.3 (79)	82.5 (175)
total	24 (51)	38 (81)	38 (80)	100 (212)

Table 9:4a. Substitutive and complementary GCSs across both learner groups in percent (absolute figures in brackets). He=Hedging; Cn=Conceptual; Co=Code.[4]

	He/clause	*Cn/clause*	*Co/clause*	*total/clause*
Substitutive	0.046	0.021	0.002	0.068
Complementary	0.042	0.126	0.129	0.298
total	0.088	0.147	0.131	0.415
Sub/Com	n.s.	p≤.0069**	p≤.0077**	p≤.0069**

Table 9:4b. GCSs/clause across learner groups and comparisons.

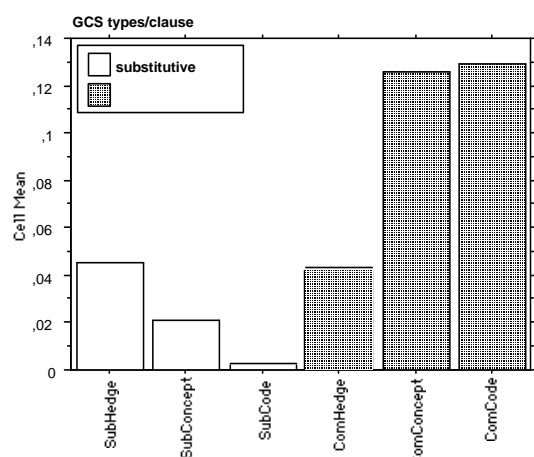[4] These abbreviations will be used throughout the chapter.

Figure 9:4a. Substitutive and complementary GCSs/clause across both learner groups. Sub = substitutive; Com = complementary.[5]
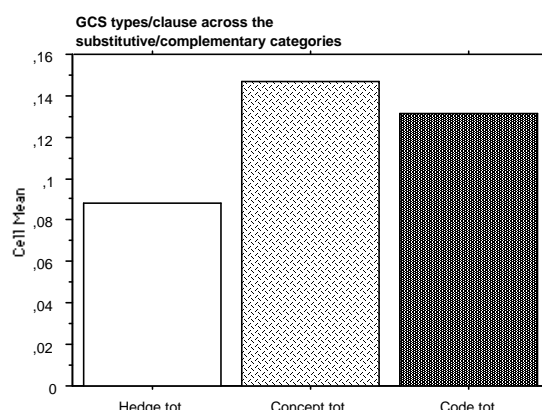
Figure 9:4b. GCS types/clause across the substitutive/complementary distinction.

Gestural strategies thus do not substitute for speech, but accompany it. Moreover, GCSs are not dominated by referential Conceptual strategies to elicit lexicon. Instead, an equal number of gestural strategies are of the Code type, a category hitherto largely ignored in the CS literature.

Finally, Tables 9:5a-b confirm the qualitative analysis regarding the distribution of gesture types over particular strategy types, irrespective of whether they are substitutive or complementary. Iconic gestures (all mimetic levels collapsed) are the most frequent type of gesture exploited in Conceptual strategies, whereas Code strategies primarily consist of deictics. Hedging strategies, finally, are always realised as metaphoric gestures.

	substitutive				*complementary*				
	He	*Cn*	*Co*	*sum*	*He*	*Cn*	*Co*	*sum*	*total*
I	-	**4 (8)**	-	4 (8)	-	**26 (55)**	1 (2)	27 (57)	31 (65)
M	**12 (26)**	1 (2)	-	13 (28)	**12 (25)**	7 (14)	2 (4)	20.3 (43)	33 (71)
D	-	-	0.5 (1)	0.5 (1)	-	0.5 (1)	**31.6 (67)**	32 (68)	32.5 (69)
B	-	-	-	-	-	0.5 (1)	2.8 (6)	3.3 (7)	3.3 (7)
sum	12 (26)	5 (10)	0.5 (1)	17.5 (37)	12 (25)	33 (71)	37 (79)	82.5 (175)	100 (212)

Table 9:5a. GCSs across gesture categories in percent (absolute figures in brackets).

	substitutive/clause				*complementary/clause*				
	He/cl	*Cn/cl*	*Co/cl*	*mean/cl*	*He/cl*	*Cn/cl*	*Co/cl*	*mean/cl*	*total/cl*
I	-	**0.016**	-	0.016	-	**0.108**	0.004	0.111	0.127
M	**0.051**	0.004	-	0.055	**0.049**	0.027	0.008	0.084	0.139
D	-	-	0.002	0.002	-	0.002	**0.131**	0.133	0.135
B	-	-	-	--	-	0.002	0.012	0.014	0.014
sum	0.051	0.020	0.002	0.072	0.049	0.139	0.154	0.342	0.415

Table 9:5b. GCSs/clause across gesture categories.

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[5] These abbreviations will be used throughout the chapter.

9.2.4 GCSs in the Fr1 group vs. the Sw1 group

Tables 9:6a-b summarise the distribution of types of GCSs in the different learner groups. As was the case with OCSs, the Fr1 group produces more GCSs than the Sw1 group (71% vs. 29%, or 0.437 vs. 0.297 GCS/clause). However, the difference between the groups is not significant (z=-1.149, p≤.2506), contrary to what was the case for the use of OCSs. The use of GCSs therefore cannot be assumed to reflect proficiency differences between the learner groups to the same extent as OCS use.

Moreover, no significant difference can be found between the groups with respect to how the strategies they use are distributed across strategy categories– neither with respect to the broad distinction substitutive~complementary, nor regarding categories within these, as shown in Table 9:6b.

| | *substitutive* | | | | *complementary* | | | | |
	He	*Cn*	*Co*	*sum*	*He*	*Cn*	*Co*	*sum*	*total*
Fr1	10 (21)	2.3 (5)	0.5 (1)	13 (27)	7 (14)	23 (49)	28 (60)	58 (123)	71 (150)
Sw1	2.3 (5)	2.3 (5)	-	5 (10)	5 (11)	10 (22)	9 (19)	24 (52)	29 (62)
	12 (26)	5 (10)	0.5 (1)	17.5 (37)	12 (25)	33.5 (71)	37.3 (79)	82.5 (175)	100 (212)

Table 9:6a. GCSs in the two L2 groups in percent (absolute figures in brackets).

| | *substitutive/clause* | | | | *complementary/clause* | | | | | |
	He/cl	*Cn/cl*	*Co/cl*	*sum/cl*	*He/cl*	*Cn/cl*	*Co/cl*	*sum/cl*	*total/ cl*	*Sub/ Com*
Fr1	0.067	0.018	0.003	0.088	0.037	0.146	0.164	0.348	0.437	n.s.
Sw1	0.024	0.023	-	0.048	0.047	0.105	0.095	0.348	0.297	p≤.0431*
Fr1/Sw1	n.s.	n.s.	-	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	

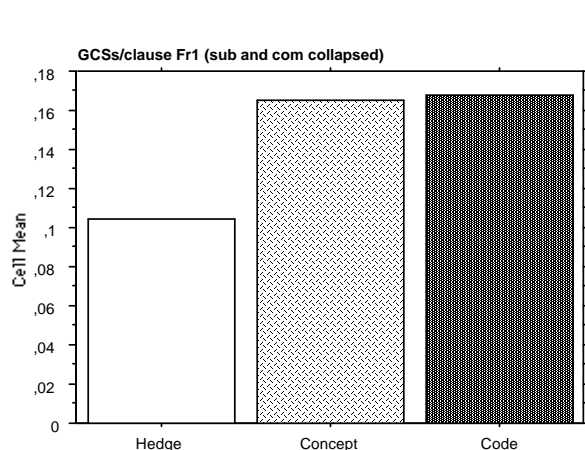*Table 9:6b. GCSs/clause in the two L2 groups and comparisons.*

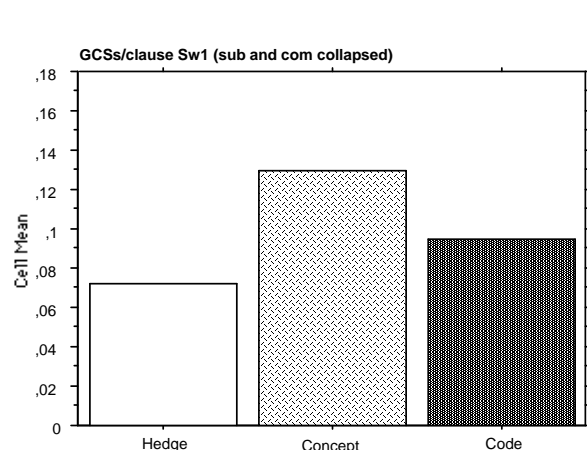*Figure 9:5a. GCSs/clause in the Fr1 group (substitutive and complementary collapsed).*

Figure 9:5b. GCSs/clause in the Sw1 group (substitutive and complementary collapsed).
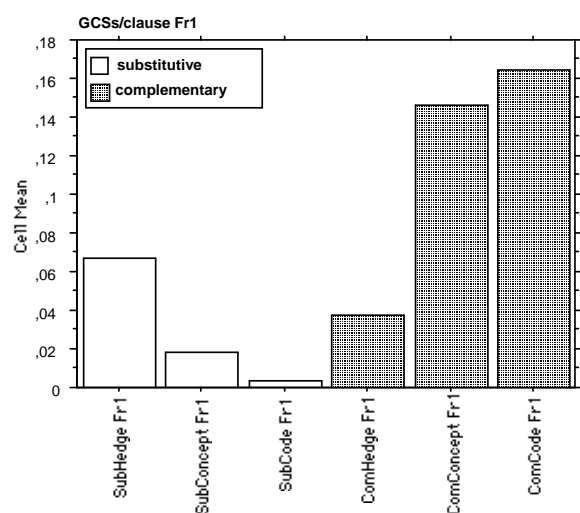
Figure 9:5c. GCSs/clause in the Fr1 group. | *Figure 9:5d. GCSs/clause in the Sw1 group.*
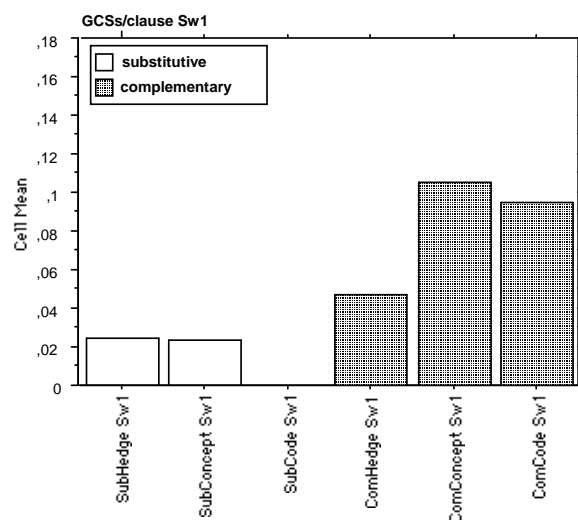
Despite the lack of significant differences, group-specific preferences can be noted, as shown in Figures 9:5a-d. The groups differ somewhat in the overall preference of GCS, as seen in Figures 9:5a-b. The Fr1 group favours Code strategies over Conceptual and Hedging strategies in that order. The Sw1 group, on the other hand, prefers Conceptual strategies over Code and Hedging.

Both groups favour complementary over substitutive strategies, as shown in Figures 9:5c-d, although the difference is only significant for the Sw1 group ($z=-2.023$, $p \le .0431$). Within the *substitutive* category, the Fr1 group relies heavily on Hedging GCSs (14% of French total, or 0.07/clause), whereas the Sw1 group uses an equal proportion of Hedging and Conceptual GCSs (8% each of the Swedish total, or 0.02/clause). With respect to the *complementary* strategies, the Fr1 group favours Code strategies (40% of French total, or 0.164/clause), whilst the Sw1 group uses almost equal numbers of Conceptual and Code strategies (35% and 31% respectively, or 0.105/clause and 0.095/clause). The Sw1 group also uses more complementary Hedging than the Fr1 group (18% of Swedish total vs. 9% of French total, or 0.047/clause vs. 0.37/clause).

The group preferences for Code or Conceptual strategies are intimately related to the distribution of overall gestures in L2, as shown in section 9.2.2 above. Both groups strongly favoured metaphorics and deictics in L2, and these are distributed over Hedging and Code strategies. However, the third most preferred category differed between the groups. The Fr1 group favoured beats, whereas the Sw1 group preferred iconics C-VPT1. The dominance of Code strategies in Fr1 might reflect the general tendency towards gesture categories which are classified as Code when strategic. Similarly, the slight preference for Conceptual strategies in the Sw1 group reflects these subjects' partiality for iconic gestures overall. The distribution of GCSs in the groups can thus be expected to depend both on proficiency and on cultural factors, as was the case for overall gesture.

Similarly to OCSs in L1 production, GCSs do occur in L1, but they are rare. There are seven cases altogether in the data, five of which are complementary. The two cases of substitutive Conceptual strategies in L1 are both produced by the same speaker, Sw1a, at the very beginning of the narrative, and they are 'paper gestures' related to the prescription in the narrative. As in the case of OCSs in L1, these strategies must be assumed to reflect nervousness in the subject, rather than encoding problems due to lexical shortcomings.

9.2.5 Combinations of oral and gestural strategies

Complementary GCSs co-occur with speech–speech which is occasionally strategic in itself or which serves as part of the OCSs. The combination of oral and gestural strategies could be seen in the Individual profiles, as when a learner, looking for the word 'prescription', combined a Code-based transfer strategy, *paper*, with a Conceptual gesture, outlining the shape of a paper. Of the logical possibilities afforded by the combinations of the oral and gestural strategy types employed, not all occur, as is seen in Tables 9:7a-b, and in Figure 9:6.

45% of all combinations of oral and gestural strategies include an oral Code strategy, as shown in Table 9:7a and Figure 9:6. This is hardly surprising in view of how unsuccessful oral Code strategies such as transfer generally are on their own. Their success rate presumably rises when they are combined with a

oral gest	Co Cn	Co Co	Co He	Cn Cn	Cn Co	Cn He	Mi Cn	Mi Co	Mi He	Oa Cn	Oa Co	Oa He	He Cn	He Co	He He	tot
Fr1	27 (16)	7 (4)	1.7 (1)	15 (9)	3 (2)	-	8 (5)	1.7 (1)	3 (2)	1.7 (1)	1.7 (1)	-	-	3 (2)	7 (4)	80 (48)
Sw1	5 (3)	3 (2)	1.7 (1)	3 (2)	1.7 (1)	1.7 (1)	-	-	-	-	-	-	-	1.7 (1)	1.7 (1)	20 (12)
tot	32 (19)	10 (6)	3 (2)	18 (11)	5 (3)	1.7 (1)	8 (5)	1.7 (1)	3 (2)	1.7 (1)	1.7 (1)	-	-	5 (3)	8 (5)	100 (60)
		45			25			13			3.4			13		

Table 9:7a. Combinations of oral and gestural CSs across both learner groups in percent (absolute figures in brackets). Co = Code; Cn = Conceptual; Mi = Mixed; Oa = Overt appeal; He = Hedging. Combinations show oral+gestural strategies.[6]

oral gest	Co Cn	Co Co	Co He	Cn Cn	Cn Co	Cn He	Mi Cn	Mi Co	Mi He	Oa Cn	Oa Co	Oa He	He Cn	He Co	He He	tot
Fr1	0.201	0.011	0.003	0.028	0.005	-	0.012	0.003	0.005	0.004	0.002	-	-	0.005	0.012	0.138
Sw1	0.017	0.009	0.004	0.008	0.005	0.004	-	-	-	-	-	-	-	0.006	0.005	0.056
tot	0.109	0.010	0.004	0.018	0.005	0.002	0.006	0.002	0.002	0.002	0.001	-	-	0.005	0.008	0.097
Fr1/ Sw1		-			-			-			-			-		p≤.1172

Table 9:7b. Combinations/clause across learner groups and types.

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[6] These abbreviations will be used throughout the chapter.
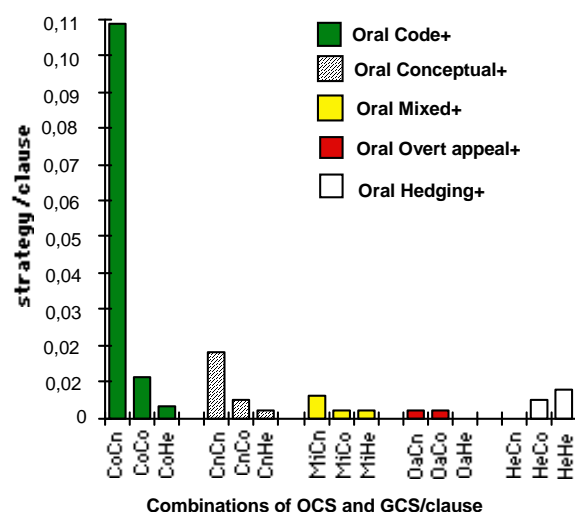
Figure 9:6. The combination of OCSs and GCSs in L2 across both learner groups.
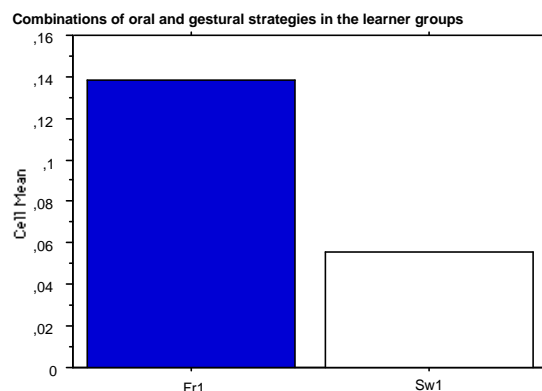
Figure 9:7. The use of combinations of OCSs and GCSs/clause in both learner groups.

gesture. The most frequent combination is that of an oral Code strategy and a gestural Conceptual strategy (CoCn; 32% of the total). Double Conceptual strategies, or Conceptual strategies in both modes (CnCn), are the second most popular combination representing 18% of all combinations.

Figure 9:7 shows that the Fr1 group produces more than twice as many combinations as the Sw1 group, but the difference between the groups with respect to the number of combinations is not significant (z=-1.567, p≤.1172). The dominance of the Fr1 group with regard to combinations of gestural and oral strategies might reflect their relatively low proficiency, and their need for increased redundancy. This issue will be further addressed in section 9.4.

9.2.6 Summary of the gesture and GCS results

The quantitative results from this study reveal a number of facts about the use of gesture in L2, some of which do not correspond to the expectations from the field of CS research.

All learners (with one exception) increase their overall use of gesture when speaking a second language. The increase is significant for the total material, but when the learner groups are considered separately, only the Sw1 group shows a significant increase. Although the Fr1 group uses more gestures overall both in L1 and L2, there is no significant difference between the French and the Swedish subjects.

Nor is there a significant difference between the types of gestures favoured by the groups. In L1 production, both groups show a preference for iconics proper and beats. However, the separate learner groups show language-specific preferences for particular gesture categories, although these differences are not significant. The Fr1 group favours beats and deictics, whereas the Sw1 group instead prefers iconic gestures. In L2 production, the gesture use in both groups, as well as in the total material, is dominated by metaphorics and deictics, which increase significantly. Surprisingly enough, there is a significant *decrease* in the use of iconics proper in L2, and mime is rare in both language conditions. These results are in opposition to expectations form the CS literature. The use of gesture thus appears to be influenced both by cultural and proficiency-related factors.

Strategic gestures in L2 production are complementary significantly more often than they are substitutive. This supports the contention in gesture research that where there is gesture, there is speech (McNeill 1992). It is also in accordance with findings from other studies of gesture use in L2, suggesting that adult learners favour complementary strategies even at relatively early stages of acquisition (e.g. Taranger & Coupier 1984). Complementary Conceptual and Code strategies are the most frequent strategy types, and they are equally common. The most frequent type of substitutive strategy is Hedging, not mime. Although the Fr1 group uses more GCSs than the Sw1 subjects, the difference between the groups is not significant. The groups favour slightly different strategy types, with the Fr1 subjects favouring complementary Code and Conceptual strategies, followed by substitutive Hedging, in that order. The Sw1 group instead prefers complementary Conceptual, Code and Hedging strategies. Gestural strategies also combine with oral strategies. The most common combination is that of an oral Code strategy and a gestural Conceptual strategy. Again, the Fr1 group is responsible for the majority of such combinations. The difference between the learner groups is not significant, however.

9.3 Gestural strategies and proficiency
9.3.1 The frequency of (strategic) gestures in L1 vs. L2

The expectation that language learners will gesticulate more than native speakers was on the whole borne out by the data, and is in accordance both with lay intuitions, and with findings in other studies of gesture use in L2 (e.g. Jungheim 1995b; Marcos 1979; Nobe 1993). Proficiency thus appears to affect the production of gestures overall, both strategic and non-strategic. However, the nature of the influence of proficiency is far from clear, and a number of questions arise from the outcome of the quantitative analyses above. First, when compared to the results from other studies, the general increase found in the present data seems to be smaller than expected. Secondly, the interdependence between

proficiency and overall gesture use as opposed to the use of GCSs appears to be complicated by other factors such as strategic competence.

Starting with the issue of the size of the increase, it has been suggested that there is generally a one gesture:one clause correspondence in normal L1 production (McNeill 1992), and that departures from this rule can be seen as reflections of encoding problems. In aphasia, speakers tend to produce *less* than one gesture per clause (Pedelty 1987). In L2 production, in contrast, learners have been found to produce *more* than one gesture per clause (Kita 1993). However, despite the general increase in gesture production in L2, no such straight-forward correspondence can be found in the present data. The majority of L1 clauses in both groups do not show a one gesture:one clause correspondence, but rather less than one gesture per clause. Even in L2 narratives, most clauses display less than one gesture/clause, although four of six cases of multi-gestural clauses occur in L2 production.

The fact that the data show little agreement with earlier findings with respect to gesture/clause ratios in L1 and L2 could have a number of explanations. The most obvious is that 'clause' has been defined differently. It is by no means straightforward to divide spoken data into clauses. Most authors are remarkably silent regarding these difficulties, however, and do not specify how false starts, for instance, are dealt with. With regard to the correspondence between gestures and clauses, McNeill suggests that 'idea units', as proposed by Kendon (1980) or Chafe (1994), inherently correspond to gestures. Since McNeill defines gestures as image schemata, a one-to-one relationship between gestures and ideas seems to suggest itself. However, it is not self-evident that clauses correspond to ideas. Perhaps a different unit than the clause would make this relationship more apparent, such as Chafe's 'intonation units' (1980, 1994).

On the other hand, the lack of uni-gestural clauses in the data might also reflect the fact that the speakers are particularly unwilling gesticulators, a tendency perhaps exacerbated by the experimental situation.[7]

The second question concerns the more general issue of the interdependence of proficiency, gesture and GCS use. Although overall gesture use increases with low proficiency, the use of GCSs does not appear to follow straightforwardly, but rather to depend on strategic competence. Gestural aspects of learners' communicative or strategic competence have hitherto been largely ignored in the literature. However, Jungheim (1995a, 1995b) has provided a theoretical frame-

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[7] This issue will be re-addressed in Chapter 11, where data from NSs' evaluations of the subjects' use of gesture will be presented.
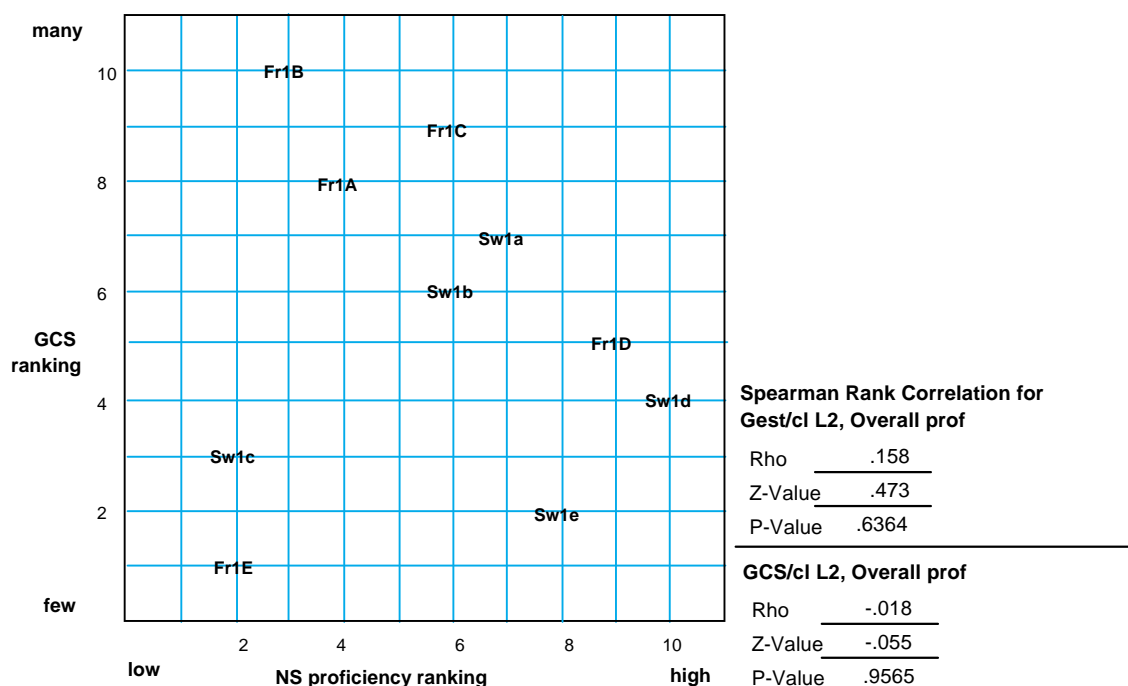
Figure 9:8. Ranking of all subjects based on the use of GCSs/clause vs. NS rankings of subjects' overall proficiency. 1=lowest ranking, 10=highest ranking.

work specifically for 'nonverbal' communicative competence. One of the components, *nonverbal strategic ability*, deals with the appropriate compensatory and supportive use of gesture in L2. This includes the use of mime or manual gestures to compensate for lexical items or to support spoken language in terms of the expression of spatial relationships, and shapes.

Some learners in the data, ranked as non-proficient, consistently refrain from using gestural strategies. Subject Fr1E, for instance, is ranked as low proficient by NSs (second in the ranking plot in Figure 9:8), yet she uses very few gestures overall, and very few GCSs in L2 (ranked as using the lowest number of GCSs). She is thus not exploiting gesture as a means of improving communication. The same was true for her use of OCSs. Similarly, subject Sw1c is ranked as being of low proficiency (shared second lowest), and although she uses more GCSs than Fr1E, her communicative efforts are still fairly limited. Rather than individual proficiency, then, individual capacities for the realisation of strategic competence appear to govern the use of strategic gestures.

In fact, virtually no relationship can be found between the number of overall gestures used and proficiency (Spearman ρ=.158, p≤.6364), as seen in Figure 9:8, nor between the sub-set of *strategic gestures* and proficiency (Spearman ρ=-.018, p≤.9565). As shown in section 7.8, the correlation between proficiency and the use of oral strategies was stronger, even if not significant. However, as in the analysis of OCSs and NS proficiency ranking, a major problem here is to establish what effect the detection of gestural strategies has on NSs' evaluations.

In Chapter 11, the difference between the real use of gesture by learners will be contrasted with what NSs perceive when they look at gesticulating learners.

In conclusion, the proficiency effects regarding the number of GCSs used are not straightforward. Lower proficiency results in more gestures overall, but not necessarily in more strategic gestures. The applications of GCSs are likely to be more sensitive to the individual differences in the exploitation of strategic resources than to proficiency level alone.

9.3.2 The use of particular GCS types

The learner groups in the data were found to favour slightly different GCS types. Since the choice of OCSs has been shown to be in part determined by proficiency, it is tempting to see the differentiated use of GCSs as a similar reflection of proficiency.

As shown in section 4.6, the developmental literature on gesture and L1 acquisition has suggested that substitutive gestures appear earlier and are gradually replaced by complementary gestures. This corresponds well with the assumptions in the OCS literature, where gestures are expected to be substitutive and mimetic when proficiency is low. However, no such development is usually found for adult L2 learners. The results from this study instead support the proposal that adult learners favour complementary gestures and strategies from the beginning. One reason why adults avoid substitutive gestures may be their more acute sense of interactional norms which recommend speech at all times. This is especially true in experimental studies, where the task can be assumed to drive learners to provide the NSs with as much information as possible. However, the dominance for complementary strategies could also be a subtle reflection of proficiency, as will be seen below.

A developmental pattern has also been suggested for the use of more *specific types* of strategy chosen by adult learners of a second language. Taranger & Coupier (1984) have proposed that, with increasing proficiency, learners use more emphatic gestures (beats, in the terminology used here) and less representational gestures (referential or depictive gestures). This is also the developmental pattern found for children acquiring their first language. In the terminology used in this study, this means that learners of low proficiency would be expected to use iconic gestures or Conceptual GCSs, whilst deictics and beats or Code GCSs would be expected in more proficient learners.

However, these predictions are contradicted in the data at hand in two ways. First, iconics proper are in fact the most favoured gesture category overall in L1 production. This means that in the most proficient language condition, representational gestures dominate, contrary to the predictions. In contrast, in L2 production representational gesture is the least favoured category, together with mime.

Depictive gestures are thus *not* more frequent in conditions of lower proficiency, but rather the opposite is the case. Second, when the learner groups are compared, the Fr1 group, whose proficiency is low (cf. the NS evaluations in Chapter 5, and the summary of Fr1 performance in Chapter 6), should be expected to rely primarily on Conceptual strategies. The data show, however, that the Fr1 group in fact shows a higher rate of Code than Conceptual strategies, although the difference between the categories is small (cf. Table 9:6b of GCSs in L2). In contrast, the Sw1 group, rated as more proficient, unexpectedly favours Conceptual strategies over Code. Overall proficiency is thus an unsatisfactory basis for predicting which types of GCSs a learner will use. Instead, other factors have to be considered, such as the type of encoding problem to which GCSs are applied.

9.3.3 Types of encoding problems and types of strategies

From the analysis in Chapter 8 it is clear that the most frequent GCS types are reactions to two essentially different learner problems. In narrative tasks, learners do not exclusively have to identify referents, but also keep track of them to render the story intelligible. Problems are thus both lexical and discursive.

As has been shown, *Conceptual GCSs* consist of referential gestures which exploit concrete or abstract features of a referent. Such strategies essentially co-occur with *lexical* problems in learner language. They serve to elicit lexical help. *Code GCSs*, on the other hand– deictic gestures, and to some extent beats–relate to problems of a different order. The exploitation of space and deictics is a solution to *grammar- and discourse*-related problems connected to co-reference and coherence. Beats can be said to function strategically in L2 to handle problems related to the actual production of discourse, rather than to its internal structure. They serve as overt signals that something is being corrected, or that the interlocutor needs to pay special attention–an overt marker of interactive discourse management. As a phenomenon, such *discourse management* is not far removed from *Hedging*. The non-referential metaphoric gestures used in Hedging function along the same lines as beats. While revealing learners' metalinguistic awareness of their encoding problems, these gestures also serve strategically as overt markers to the interlocutors that they participate actively in the production of discourse by modifying, attenuating or otherwise interpreting the preceding utterances. These GCSs are thus overtly and directly addressed to the interlocutor. NSs generally respond to them by providing backchannel feedback.

A tentative explanation for the unexpected distribution of GCS types in the learner groups, then, is that it is related to differences in proficiency with respect to these particular areas. Although the groups were shown to be essentially comparable in Chapter 5, the minor differences between them with respect to competence in different linguistic areas may still affect their use of GCSs.

The slight preference for Code strategies over Conceptual strategies in the Fr1 group, and the dominance of Conceptual strategies in the Sw1 group (Figures 9:5a-b), suggests that the groups essentially use gestures to cope with different problems, discursive vs. lexical. The Fr1 group has problems in all linguistic areas, with lexicon as well as with grammar. Following the assumptions in the developmental literature, their low proficiency level should lead them to use more Conceptual strategies. How, then, can their heavy reliance on Code strategies be explained?

It might be argued that lexical problems require fewer GCSs per problem to be solved than difficulties concerning overall discourse. Lexical problems receive attention from listeners, and once a lexical label has been provided in response to a GCS, the learner can stop gesticulating and use that label in the following. Problems related to grammar and to discourse, on the other hand, usually receive little overt attention from native listeners, but require constant effort from the learners to ensure overall comprehension. Native listeners rarely help with these efforts. The grammatical problems of the Fr1 group thus receive more attention from the learners themselves through the continuous application of Code strategies. The lexical difficulties, in contrast, are attended to by the native listeners at specific points.

In contrast, the Sw1 group has a slightly better command of the lexicon. The grammatical knowledge in the group is only somewhat better developed, but it appears to be put to better use than in the Fr1 group, such that the subjects suffer less from co-reference and coherence problems. Unexpectedly, the Sw1 group favours Conceptual strategies, however. The lexical problems are not as severe or as numerous as those of the Fr1 group, but they are the most salient problems in the Sw1 group. Paradoxically then, when the Sw1 group subjects have to solve problems, these tend to be overt lexical problems, despite the slightly higher proficiency level in the group. This explains why the Sw1 group appears to favour Conceptual GCSs.

Similarly, the Fr1 preference for *substitutive* Hedging might be due to the fact that the reduced fluency in the group results in more Hedging of an abandonment or resignation type. This type of Hedging occurs in silences when the learners have already given up. The Sw1 group, in contrast, does not use Hedging to

express abandonment. Instead, they use *complementary* Hedging in mid-stride, as it were, during relatively fluent speech. These Hedging gestures signal that what has been said needs to be modified by the listener. The learners do not need to interrupt the stream of speech to deliver these modification signals.

An intermediate answer to the question of what determines the use of a particular GCS type must therefore consider two aspects. On the one hand, the type of problem to be solved influences the choice of gesture strategy, with lexical problems resulting essentially in Conceptual strategies, and grammar- or discourse-related problems leading to Code-based strategies. The CS typologies proposed so far have chiefly attempted to cover lexical problems, which explains why categories for Conceptual GCSs dominate in the proposals. Research on OCSs generally deals with task effects, rather than with types of problems. Tasks such as word descriptions, interviews, etc., are assumed to result in separate sets of strategies. It seems likely that the influence of the problem type coincides to some extent with task effects. Controlled tasks such as word descriptions, for instance, where the problem set is clearly lexical in nature, will essentially generate one type of GCSs (Conceptual). In contrast, narrative tasks or interviews are complex communicative events with multiple problem types present, and are as such bound to result in a greater variety of strategy types.

On the other hand, learners' proficiency levels in different linguistic areas also appear to affect the preference for a particular type of GCS. When learners have both lexical and grammatical problems, Code GCSs may come to dominate, since grammatical difficulties affect the construction of coherent discourse globally. Overall coherence has to be observed and ensured continuously, which leads to frequent Code strategies. Lexical problems, on the other hand, are solved one by one and only at local points of overt difficulty.

9.3.4 A cultural excursion

The relationship between choice of strategy and proficiency may be further complicated by personal or language-specific preferences for particular gesture types.

If the cultural groups differ very little with respect to gesture *rate*, there might still be subtle qualitative differences to uncover regarding the use of gesture *types* (cf. Efron 1941/1972). The differences between the groups with respect to use of GCS types closely follow what appears to be language-specific trends in the preference for particular gesture types in the L1 productions. In L1, the Fr1 group favours deictics and beats–predominantly discourse-oriented gestures. In contrast, the Sw1 group shows a L1 preference for iconic gestures. When overall gesture production in L2 is considered, these tendencies are levelled out.

However, when only strategic gestures in L2 are considered, the tendencies reappear, as shown in section 9.2.4.

Given the relatively small data set, and the impact of individual factors on such a small set, these findings are obviously to be regarded as tendencies at best, but they are nevertheless suggestive. The French inclination towards discourse-related gestures implies that the Fr1 group favours metalinguistic reasoning, whilst the Sw1 group, with its tendency towards the iconic, and even the mimetic, delivers more concrete narratives. No doubt, this is a reflection of different styles for solving the task, which may or may not be culture-specific. In addition, it is interesting to note that the tendency in the Fr1 group is towards those gestures which are smallest and least perceptually salient. In view of this, it is perhaps even more interesting that the French are traditionally considered to be extravagant gesticulators.

It seems pertinent here to comment on the (lack of) observed quantitative difference in gesture use between the learner groups, and the perception of differences. Although the Fr1 group gesticulates more than the Sw1 group overall, both in L1 and L2, the difference between the groups is not significant in either proficiency condition. In addition, the individual variation in the Fr1 group is such that the French subjects gesticulate both more and less than the Swedes. This finding conflicts with firmly rooted popular beliefs about gestural behaviour in each culture. How is this to be regarded, then? Is this result merely an effect of the experimental situation, the definition of gestures, or of the restricted data set? The public view that the French gesticulate more than Scandinavians is obviously not based on an actual quantitative analysis of the gestural behaviour of these groups, but rather on intuitions. It seems feasible that such intuitions are themselves based on the observation of overall nonverbal behaviour, including facial expression, shoulder movements, gaze behaviour and so forth, rather than on manual movements. In fact, even when manual movements are singled out, observers can be assumed to base their opinions on the perception of emblems, rather than of gestures as defined here.

Emblems, which are conventionalised movements replacing speech, are likely to be particularly salient to a foreign observer, who will not understand them. Emblems as a category are not very frequent in Swedish, whereas they appear to be more reliably conventionalised, and more frequently and readily used in French, as is evident from the many manuals of 'French gestures' available (e.g. Calbris & Montredon 1986; Wylie 1977). No such manuals exist for Swedish emblematic gestures. No emblems were found in this study, and therefore any real (or imagined) difference between the cultures in this regard could not be studied. The lack of emblems can be explained by the fact that the task at hand

did not elicit emblems. Another possibility is that the learners are aware of the conventional nature of such movements, and therefore do not consider them to be transferable, much like lexical items (cf. Kellerman 1983). Language learners have been shown to be sensitive to the potential success rate of strategies (Chen 1990; Tarone & Yule 1987), and they tend to avoid transfer of items they deem likely to fail (for counter-evidence, however, see Kumaravadivelu 1988).

The results from this study suggest that proficiency is a better indicator/predictor of gesture frequency than L1 or culture, as far as speech-associated gestures are concerned. However, the qualitative differences which are suggested in the data, should be further investigated. Efron's (1941/1972) observation that Eastern European Jews and Southern Italians prefer different types of gestures could have a parallel in the preference for gesture types in Swedish and French subjects. As indicated above, it is perhaps surprising to find that Swedes in fact favour large and mimetic gestures, whereas the French subjects tend to prefer small deictic gestures and beats. This finding is also in conflict with popular expectations.

9.3.5 Summary and conclusions regarding proficiency effects

The results from this study indicate that speakers' proficiency levels influence the number of gestures used overall. However, proficiency does not affect gesture rate in simple ways, especially when the number of GCSs is considered. Instead, it appears to interact with factors such as the individual realisation of communicative, and specifically strategic, competence.

Similarly, proficiency also affects the use of particular types of GCSs, but in more complex ways than suggested in the literature. Strategy types are related to specific domains of proficiency, as reflected in types of encoding problems. Lexical problems result in Conceptual strategies, whereas grammatical or discourse- and coherence-related problems instead generate Code strategies. Overall uncertainty and need for modification of messages result in Hedging strategies. It was suggested that when learners have problems in all areas, strategies connected to grammar and coherence appear to generate more strategies, resulting in a predominance of Code strategies. This is assumed to follow from the fact that coherence problems are continuous throughout the narratives, and thus demand constant management. In contrast, lexical difficulties are attended to locally on a one-to-one basis, such that each lexical problem receives one solution. However, when learners–even advanced learners– primarily have lexical problems, Conceptual strategies dominate.

Contrary, then, to the findings for the use of compensatory gesture in first language acquisition, it might be proposed that second language learners of low

proficiency will in fact show a preference for Code strategies, rather than Conceptual strategies. This should of course be tested empirically. When more advanced learners have acquired the syntactic means to maintain coherence in a narrative, they may not need to over-mark referents gesturally to ensure coherence. However, they may still have occasional lexical problems, which will lead to a predominance of Conceptual strategies.

The proficiency-related preferences for particular strategy types may also interact in complex ways with individual and/or language-specific tendencies towards particular gesture types. In order to ascertain what the influence of cultural background factors is on learners' use of strategy types, contrastive culture-specific studies on a larger scale have to be conducted to establish if there are indeed qualitative differences with respect to what types of speech-associated gestures (i.e. not emblems) are favoured by speakers of a particular language. Little empirical work has been done in this area.

In addition to the elements already mentioned, factors such as the subjects' personal communicative style can be expected to influence choices. There is individual variation in the data, such that there are French subjects who show a preference for depictive gestures, despite the tendency in the group for deictic gestures. These factors also remain largely uninvestigated. In Chapter 11, an attempt to address the issue of the subjects' communicative styles will be presented.

9.4 The success and efficiency of gestural strategies

The use of GCSs is thus differentiated with respect to the kind of problems and areas of proficiency they address–lexical, grammatical and discursive, or interactive. An interesting side-effect of this differentiation is that GCS types also differ with regard to how explicit they are, and to what extent NSs respond to them. These phenomena are related to the success and efficiency of GCSs.

The strategic value of *Conceptual* GCSs obviously lies in their power for eliciting lexical items. As an elicitation technique they are very successful, and they appear to be effective for two reasons. Firstly, interlocutors appear to recognise such GCSs as strategies, in the sense that they respond to them as if they were overt appeals for help. When and if help is provided depends on the interlocutor, the severity of the problem, and other interaction dynamics. It is rare, however, for NS interlocutors to ignore these GCSs, and the interactional convention for shared responsibility for solving the task is generally accepted (Clark 1996b; Clark & Wilkes-Gibbs 1986; Strömqvist 1983).

Secondly, it is also rare for NSs to not understand the intended referent designated by the Conceptual GCSs, since referents are identifiable on the basis of the

properties depicted, and, presumably, on the general context. Listeners are likely to draw on their background knowledge when inferencing what the depictive gesture stands for (cf. Goodwin & Goodwin 1986). Conceptual GCSs either result in lexical items being provided, or, if the learner proceeds by him- or herself, the NS frequently acknowledges the gesture and the subsequent lexical item by positive backchannel feedback signals. Conceptual GCSs probably have a higher success rate than oral Conceptual strategies, since holism, which seems to be the less costly choice, works better in the gestural than in the oral mode. Since the response to GCSs is normally an adequate lexical suggestion from the NS, additional problems, as those found in the case of oral Conceptual strategies, are avoided.

| **1** Fr1C | [s s som pappret] / [euhm (xx)] / [mycke pappret] =**[//]** | **2** Fr1C | ehm på [/] | **3** Fr1C | **[/ under]** bordet |
| NS | =jaha de ligger [många] papper på | NS
Fr1C | på bordet
[på bordet] **[i euh]** | NS | under bordet ha <laughter> |

| **1** Fr1C | [l l like the paper] / [uhm (xx)] / [much paper] =**[//]** | **2** Fr1C | uhm on [/] | **3** Fr1C | **[/ under]** the table |
| NS | =OK there are many papers on | NS
Fr1C | on the table
[on the table] **[in uh]** | NS | under the table OK <laughter> |

Figure 9:9. Gestural information which is initially merely additional becomes focused for negotiation.

In rare cases, however, Conceptual strategies fail. In the example in Figure 9:9, the learner is attempting to handle the expression 'medical file', and has suggested *le dossier de la patiente* in the L1, then *mycke pappret*, 'much paper' in Swedish. During the NS's first interpretative suggestion, 'there are many papers on' (1), the subject substitutively performs a dipping movement with her right hand. This movement actually indicates that the file is in one of the drawers of the doctor's filing cabinet, and the gesture expresses that the papers are not *on* the table, but inside it, as it were. This additional information is initially expressed only by a substitutive gesture, but the location of the file subsequently becomes the focus of the negotiation. The gesture is repeated and expanded on, and the learner attempts to point the NS in the direction of the correct

interpretation by providing locative prepositions (2-3). However, the NS does not fully understand this information, which is indicated by the laughter at the end of the negotiation. The learner then abandons this line of thought.

As was shown in section 4.3.2, it has been proposed that, because gestures do not have precise and predictable meanings, the interpretation of gestures is unclear in the absence of speech (Feyereisen, et al. 1988b; Krauss, et al. 1991).[8] As a consequence, gestures may not be helpful to understanding. In the example above, there is some supportive oral context, but as the NS listener does not arrive at the right solution to the problem it does not appear to be sufficient. There is simply not enough shared knowledge for the listener to decipher the gesture (cf. Clark 1996b; Goodwin & Goodwin 1986). The filing cabinet and the drawers have not been mentioned, and the listener is therefore not aware of the possible interpretations. The difficulty in interpreting gestures in insufficient oral context may in fact be one of the reasons why substitutive gestures are so rare overall, but specifically as strategic devices. They are simply not successful enough, as is suggested by the example above. This may also be the explanation behind the statement in Haastrup & Phillipson (1983) to the effect that substitutive strategic gestures do more harm than good. In this example they lead to unnecessary negotiation of a point not relevant to the overall comprehension or the punchline.

Although grammatical problems may be overt in themselves, the problems they cause with coherence are more covert than lexical problems, and as such usually go without comment from the NSs. *Code* strategies, related to such problems, are ordinarily not commented on by NSs, except when a learner happens to expose his or her metalinguistic debating overtly. Except in cases of overt disambiguation, then, there is no interactional convention for dealing with problems of this type, and learners are therefore left to themselves to achieve coherence of the narrative. The strategic value of Code strategies thus does not normally reside in the response they elicit from listeners, but instead in the fact that they generate redundancy. The noteworthy lack of substitutive gestures in the data might be explained by the strategic value of redundancy. Learners negotiate to achieve a comprehensible narrative, and in doing so, they assign importance to all communicative channels, gestural and oral alike. By exploiting both simultaneously, they thus create over-marking, which will presumably help solve the task optimally.

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[8] "[…] speech-related movements have no precise signification but can encompass a broad range of possible meanings." Feyereisen, et al. (1988b:19).

Since *Hedging* GCSs normally express a different content from that present in speech, viz. meta-comments, their strategic value lies elsewhere. Modifying Hedging gestures usually do not lead to listener response. However, Hedging GCSs signalling abandon may be seen as a type of indirect elicitation gestures which elicit listener participation, or active collaboration (cf. Clark 1996a; Clark & Wilkes-Gibbs 1986; Goodwin 1995), since such abandonment gestures sometimes result in negotiation, often initiated by the listener.

The tendency towards redundancy can again be seen in the *combinations* of oral and gestural strategies. The use of combinations is presumably also related to proficiency, since the Fr1 group is most keen to solve communicative problems by combining strategies in both modes, as seen in section 9.2.5. By applying an oral strategy of low cognitive cost, such as an oral Code strategy like transfer, and combining it with a Conceptual gestural strategy, such as an iconic gesture for a paper, learners thus achieve maximum effect. Although oral Code strategies such as transfer can be effective if the languages are related (Poulisse 1990), they seldom are when applied by the Fr1 group, since these subjects choose unfortunate source languages. Combining easily accessible, but unsuccessful, oral strategies with effective gestural ones is thus maximally fortuitous for the Fr1 group. The oral strategy shows the listener that the learner is trying to solve the problem, whereas the gestural strategy provides referential information, and elicits lexical help, or at least aligns the listener's expectations towards the right context.

Such combinations are thus very powerful multi-modal messages which, on yet another level, also contribute to the management of interaction. The meta-content of such a multi-modal signal would be to alert the listener that a joint effort is needed to construct the message. Redundancy on such a number of levels is bound to be effective. The extent to which NS listeners actually find gestures to be helpful will be addressed in Chapter 11.

9.5 Comparing oral and gestural strategies

Gestural and oral strategies have been seen to function in similar ways. However, the strategy modes also differ, particularly regarding their relationship to proficiency.

As has been shown, there is no correlation between proficiency as evaluated by NSs and the use of GCSs (Figure 9:8), as opposed to the relationship between proficiency and OCSs, which is relatively strong (Figure 7:3). Although the use of overall gestures increases in a condition of low oral proficiency, the lack of correlation between GCSs and proficiency is hardly surprising.

The fact that the use of oral strategies is more strongly affected by shortcomings in the oral coding system is only natural, since learners presumably are reluctant to go into a completely mimetic mode in the type of experiment designed here. The focus in a narrative, after all, is on oral production, and therefore oral solutions will predominantly be applied to oral problems. Proficiency is a measure of oral capacities, and should as such be expected to primarily affect the use of oral strategies.

It is perhaps more surprising that the correlation between the use of OCSs and GCSs is so weak (Spearman ρ=.309, p≤.3538). However, this in fact confirms that proficiency is not the most determining factor for use of GCS, but rather individual strategic competence.

Another proficiency-related difference between the two strategic modes is that GCSs tend not to be applied cyclically to deal with subsequent problems arising from unsuccessful previous strategies. GCSs are generally efficient, once applied, and especially when combined with oral strategies. Furthermore, their success does not depend on the level of proficiency, as was the case for oral strategies. They are effective for all learners alike.

With regard to the issue of cost, little is known about the cognitive cost of GCSs. However, social interactive cost in terms of fear of losing face, as was suggested in section 7.8, might influence the way speakers choose either to use them or to avoid them. With respect to success in solving communicative problems, GCSs are a better choice than OCSs. Yet some learners avoid them even when communication comes to a complete stop. Cultural aspects may yet again interact with personal preferences or levels of strategic competence (Jungheim 1995a). Since gesticulation is seen as undesirable in many cultures (cf. section 3.5.1), this could affect learners' willingness to use GCSs. Another factor is learners' general desire not to be detected as using CSs.

Oral strategies are thus more closely related to oral proficiency than gestural strategies. In contrast, the use of GCSs appears to be more sensitive to individually and culturally determined differences in strategic competence.

9.6 Summary

The results from this study show that the use of gestures and gestural communication strategies is affected by proficiency, but not in straightforward ways suggested by lay intuitions.

The use of these types of strategies is conditioned by proficiency, such that the type of encoding problem affects what strategy type is applied. *Conceptual GCSs*

are employed to solve lexical problems. *Code GCSs*, on the other hand, are exploited to solve grammar- and discourse-related problems such as coherence and cohesion. *Hedging*, finally, serve metalinguistic purposes. Contrary to expectations, however, Conceptual strategies do not dominate in conditions of low proficiency. Instead, in adult L2 use, low proficiency may result in more Code strategies, related to discourse, whereas learners with a good knowledge of grammar may still have lexical problems which will be solved by the application of Conceptual strategies. In addition, the type of strategy used may also be influenced by culturally determined preferences for specific gesture types.

GCSs are effective because they involve interlocutors in the joint solution of the task, and also because they help create redundancy. This is especially true for combinations of oral and gestural strategies. Despite the effectiveness of GCSs, learners may refrain from using them for cultural reasons. Whether learners use GCSs or not seems therefore to depend as much on individual strategic competence as on proficiency.

10 Native listeners and their gestures

10.1 Introduction

Learners use CSs in the knowledge or hope that their NS interlocutors can be relied upon to help solve communicative problems. However, native listeners engaged in conversational narratives with learners do not merely provide *oral* feedback, such as suggesting lexical items. It will be shown in this chapter that, as listeners start to participate in the interaction and the construction of the narrative, their responses include gestural behaviour–both strategic and non-strategic. Listeners themselves gesticulate as part of their co-operative behaviour towards NNSs.

Listeners' gestural behaviour is therefore relevant for the study of interaction between native and non-native speakers. In addition, it will be seen to shed some light on the relationship between speech and gesture. This chapter will provide an analysis of listeners' gestures in the L2 condition along the same lines as that given for learner gestures. The discussion will bear on the effect of proficiency conditions and culture on listener behaviour, as well as the effects of individual interactional styles.

Readers are reminded that all native listeners in the L1 condition are different, whereas in the L2 condition, there is only one listener in the Fr1 group, and two different listeners in the Sw1 group.

10.2 Iconic listener gestures

There are very few listener iconics in the data, but these few examples are clear cases of strategic Conceptual gestures. In Figure 10:1, a native listener performs an iconic gesture during a lexical negotiation initiated by the learner. The learner is looking for the word 'pen'. The native listener first performs a beat with the first suggestion (1). When the learner does not appear to accept this lexical suggestion despite its many repetitions but continues her iconic gesture for writing (2), the native listener proceeds to perform a strategic iconic gesture

1 NS   **[en]** en penna /   **2** Fr1D   **[/]**   **3** NS   nej / [en] penna [en] en penna / **[att skriva me]**

1 NS   **[a]** a pen /   **2** Fr1D   **[/]**   **3** NS   no / [a] pen [a] a pen / **[to write with]**
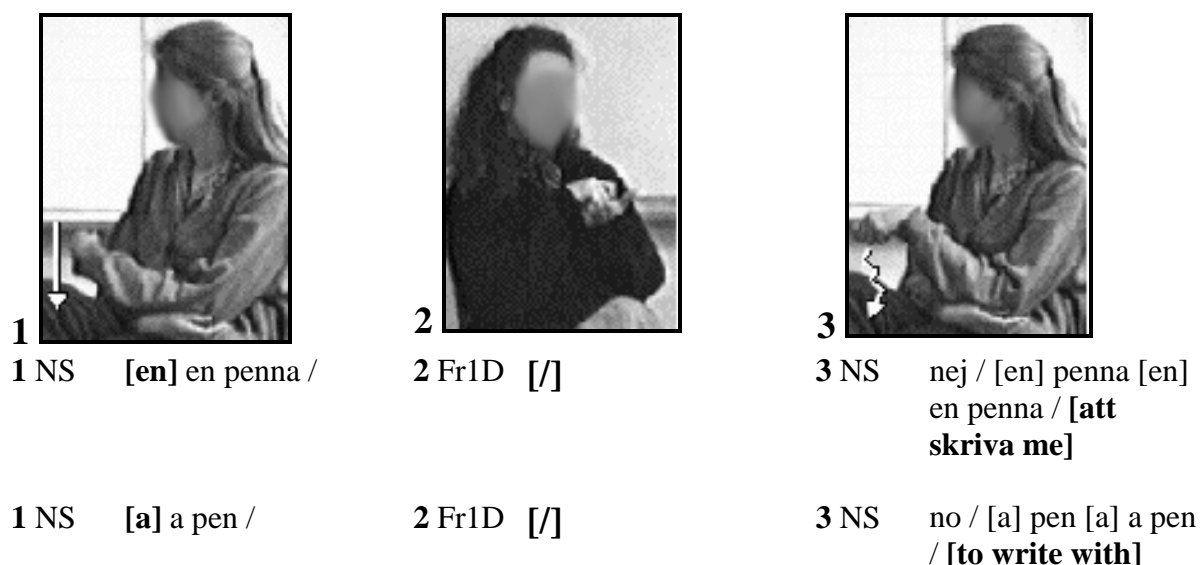
Figure 10:1. A native listener performing a strategic iconic gesture with the lexical suggestion in response to the learner's strategic iconic gesture (3).

of the first mimetic level (C-VPT1) for writing (3)[1], accompanying the elucidating expression 'to write with'.

The listener's strategic iconic gesture is performed in response to the learner's strategic iconic gesture, such that a strategy is replied to by another strategy. However, the native listener's strategy is not meant to elicit speech from the learner, but rather to ensure that the learner understands the word suggested by the NS, so that s/he can accept it or reject it as the word sought.

10.3 Metaphoric listener gestures

Metaphoric gestures are frequently performed by listeners in both language conditions. Almost all are non-referential, and instead function as metalinguistic comments. They also generally appear in response to learner GCSs. These gestures show hesitation or non-understanding on the part of the listener, or serve as signals to the speaker to develop what has been proposed, to continue.

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[1] Note that the writing is done with the left hand and leftwards, although the listener is right-handed.

Sw1e alors la / pharmacien /   Sw1e and then the / the
      elle peut / comprendre   male pharmacist / she
                                             can / understand
NS   <t> **[euh]** je vois pas
      tout à fait la   NS   <t> **[uh]** I don't quite
                                             follow

Figure 10:2a. Attitudinal metaphorical listener gesture.

Fr1A [går] / till / *pharmacia*   Fr1A [goes] / to / *pharmacy*

NS   aa **[/]** va va vad är de   NS   yeah **[/]** what what
      <carefully   what is that <carefully
      pronounced>   pronounced>

Figure 10:2b. Attitudinal metaphorical listener gesture.

Fr1A du *kannst* euh / du   Fr1A you *can* uh / you can
      kan [ha] euhm /   [have] uhm /
      [*Medikamenten*]   [*medication*]
      [medikament]   [medication]

NS   me <laughter> **[/]**   NS   me <laughter> **[/]**
      medicin medicin   medication
                                             medication

Figures 10:2c. Attitudinal metaphorical listener gesture (listener to the right).

Fr1D engelska] [now]   Fr1D English] [now]
      [now]   **[now]**

NS   <laughter> **[men**   NS   <laughter> **[but but**
      men på svenska   **in Swedish can**
      kan du]   **you]**

Figures 10:2d. Attitudinal metaphorical listener gesture (listener to the right).

In Figures 10:2a-b, the native listeners are seen to signal hesitation and non-understanding by using typical attitudinal metaphorics, with circling movements of the wrist. In 10:2a, the native listener stops the learner narrative by raising his hand and adding an explicit statement regarding his non-comprehension. In 10:2b, the metaphoric hesitation gesture is followed by an overt appeal for clarification, which is carefully pronounced.

The native listener in 10:2c uses a metaphoric gesture to show that the learner's suggestion, which is a case of an oral Code strategy in the form of transfer from

German, is not accepted, and the native listener proceeds to provide a more appropriate alternative.

At other times, native listeners do not directly provide the sought lexeme, but instead use metaphoric gestures to encourage the learner to proceed. In 10:2d, the native listener explicitly bids the learner propose another word or to apply an OCSs, and this prompt is accompanied by a metaphorical gesture which seems to exploit a metaphor of development where something is rolling forward. These listener gestures generally appear in response to learner strategies or overt problems, and usually lead to negotiation.

10.4 Deictic listener gestures

Native listeners also display a few deictic gestures. These appear to be exploited specifically to disambiguate or renegotiate movements, directions and referents mentioned previously. Native listeners do not always perform these gestures in response to learners' GCSs, but initiate this type of disambiguation on their own. Moreover, disambiguation does not always appear in direct conjunction with the confusion, but only at the end of the narrative, as part of the narrative coda (Labov & Waletzky 1967).

A specific characteristic of listener use of deictics in this respect is that listeners refer to a common gesture or discourse space between the interlocutors, as seen in Figure 10:3. The map of discourse created by the speakers/learners is accepted as such, and is referred to geographically. This means that the locations indicated by the learners have become *absolute*, and are mirrored by the listeners. A learner location which is to the left of the learner, will be referred to by the listener to his or her right, as will be seen in the examples.
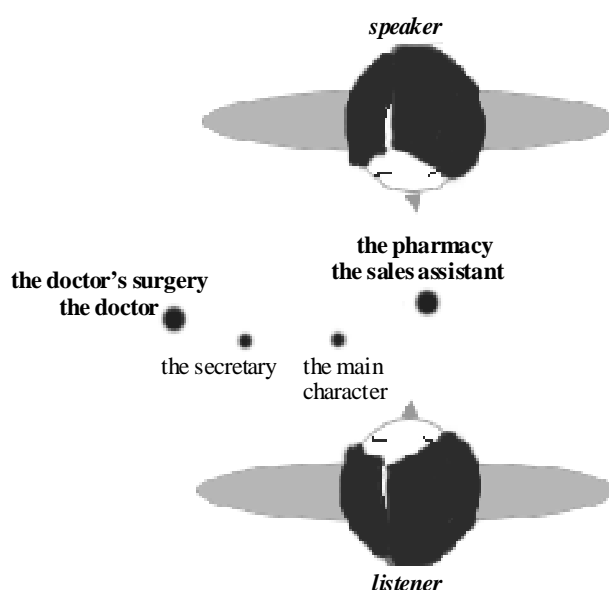

Figure 10:3. Schematic representation of common narrative or discourse space for both interlocutors, as seen from above.

Fr1B	och går till [doktor] / och han går [ändra] **[/]**=
NS	=**[tibaks]** [igen]
Fr1B	and he goes to [doctor] / and he goes [change] **[/]**=
NS	=**[back]** [again]
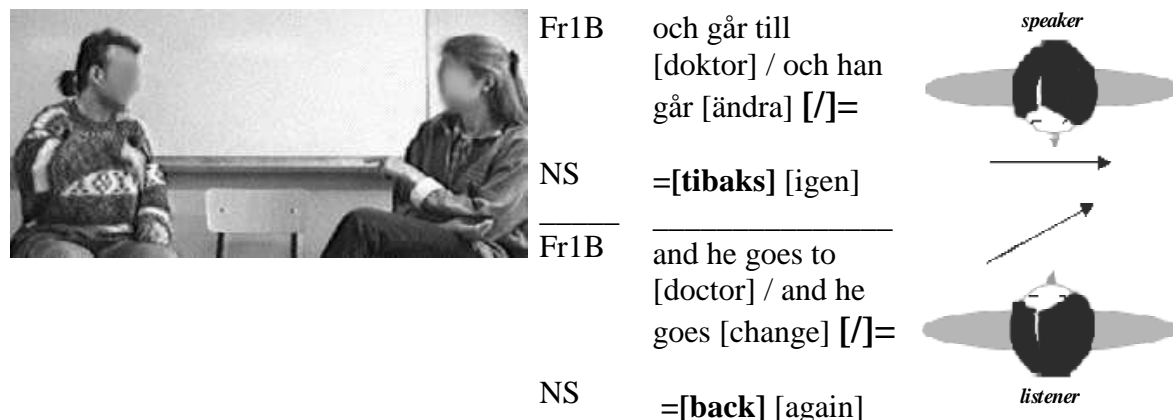
Figure 10:4a. Native listener confirming the direction of a movement deictically (listener to the right).

In Figure 10:4a, the native listener confirms a direction indicated by the learner immediately upon being presented with the gesture. The native listener points towards the same part of gesture or discourse space as indicated by the learner, i.e. in the direction of the moving discourse referent.

1 Fr1B: eh **[hennes]** euh *non* euh hans hennes euh

2 hans **[doktor]** (...)

3 NS: hennes **[de e en kvinna]**

4 Fr1B: eh [*yes*]

Common abstract meta-linguistic locus

1 Fr1B: uh **[her]** uh *no* uh his her uh

2 his **[doctor]** (…)

3 NS: her [**it's a woman**]

4 Fr1B: uh [*yes*]
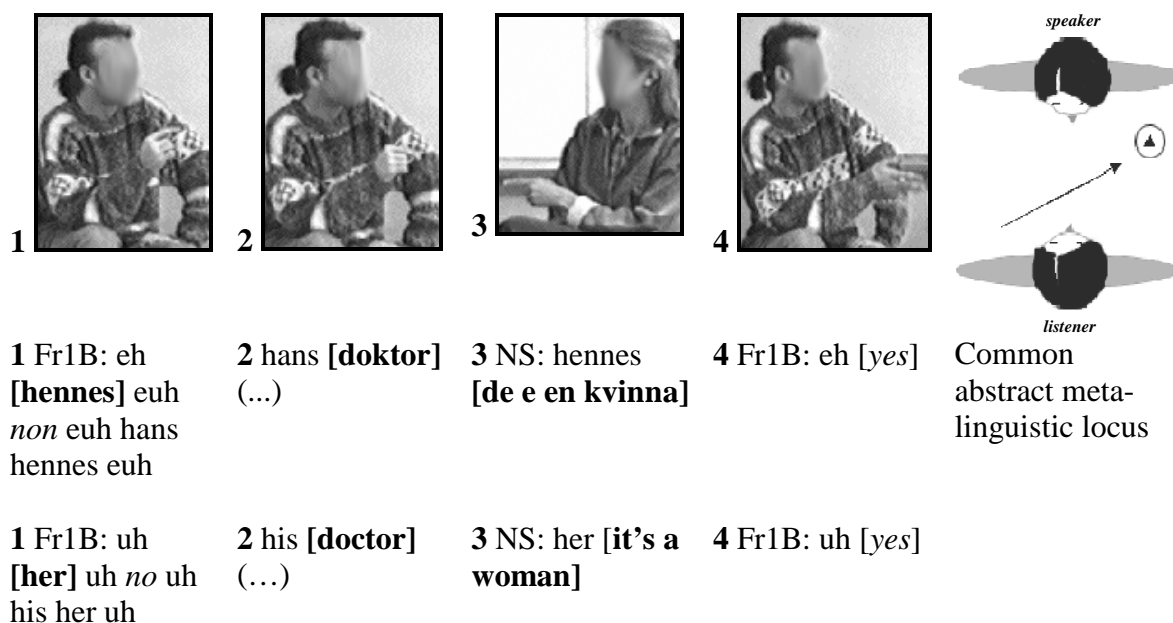
Figure 10:4b. Native listener confirming an abstract locus deictically .

The mirroring of gesture space is observed even when the loci are very abstract. In Figure 10:4b, a learner is seen negotiating a possessive pronoun while keeping the reference constant using deictic gestures indicating an abstract locus to his left for the linguistic label (1-2). The locus indicated is thus not that of the main character, who was last shown to the right in the learner's gesture space, where the doctor's location is. In this sequence, the native listener provides the pronoun with the correct gender. While confirming that the referent is female, the native listener points to the abstract locus in space indicated by the learner (3). Since the listener is referring to the main character, she might have been expected to point to the learner's right, the location where

the main character was last indicated. Instead, the listener accepts the abstract metalinguistic locus as the point of negotiation, and mirrors the NNS's discourse space. The negotiation sequence typically ends with the learner indicating the native listener deictically to acknowledge that he is satisfied (4).

In sections where the punchline is being negotiated, the possibility of referring to the common gesture space is often exploited by listeners to ensure total disambiguation and comprehension. The reference to the learners' loci thus appears some time *after* the localisation has occurred.

1 Sw1a: et la **[femme]**

2 eh [donné] la *script* eh de le **[*supervisé*]** (…)

3 NS: et à [ce] [moment-là] **[tout]** le monde comprend

1 Sw1a: and the **[woman]**

2 uh [give] the *prescription* uh of the **[*pharmacist*]** (…)

3 NS: and at [that] [point] **[everybody]** understands
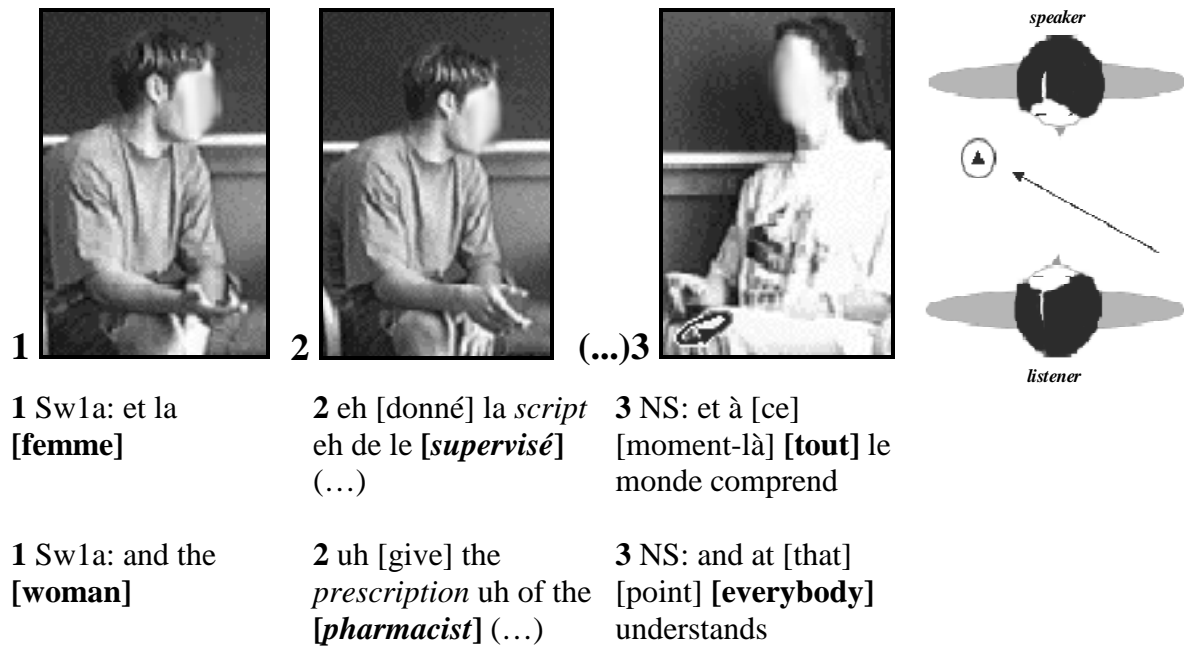
Figure 10:4c. The female native listener referring deictically to the loci indicated previously by the male learner in his *gesture space.*

In Figure 10:4c, two loci are indicated by the learner as representing the sales assistant at the pharmacy (1) and the chief pharmacist (2). Later, at the end of the narrative, the native listener recapitulates some of the events to check that the punchline has been correctly understood. In doing so, she encircles and indicates the loci in space where the learner presented the characters, i.e. on the left side of her own gesture space, but to the right of the learner (3).

Other types of mirroring have been observed in other studies. Heath (1992) has suggested that listeners will echo or mimic a speaker's gestures as a comment to ongoing talk. Fornel (1992) has proposed that gestures are echoed to show agreement or co-operation. However, these types of mirroring are examples of behavioural congruence. The exploitation of a mirrored gesture space for disambiguation, as seen in the present data, has not been mentioned before.

10.5 Listener beats

Beats are the most common listener gestures in the L2 data, and they are performed in connection with other-repair. It was shown in Chapter 8 that

learners use beats when engaged in self-repair. Native listeners, on the other hand, frequently perform beats when they correct learners or suggest a lexical item. As was the case with learners, the batonic insistence assumes a didactic quality, such that the word proposed is given extra prominence, presumably so that the learner will notice it more readily.

1 NS: / [hon går] till [a]-**[po]**   **2** -**[te]**-   **3** -**[ket]**
                                                          Fr1E: =apotek

1 NS: / [she goes] to the   **2** -[ma]-   **3** -[cy]
[phar]-   Fr1E: =pharmacy

4 NS: =**[a]**-   **5** -**[po]**-   **6** -**[tek]**

4 NS: = **[phar]**-   **5** -**[ma]**-   **6** -**[cy]**
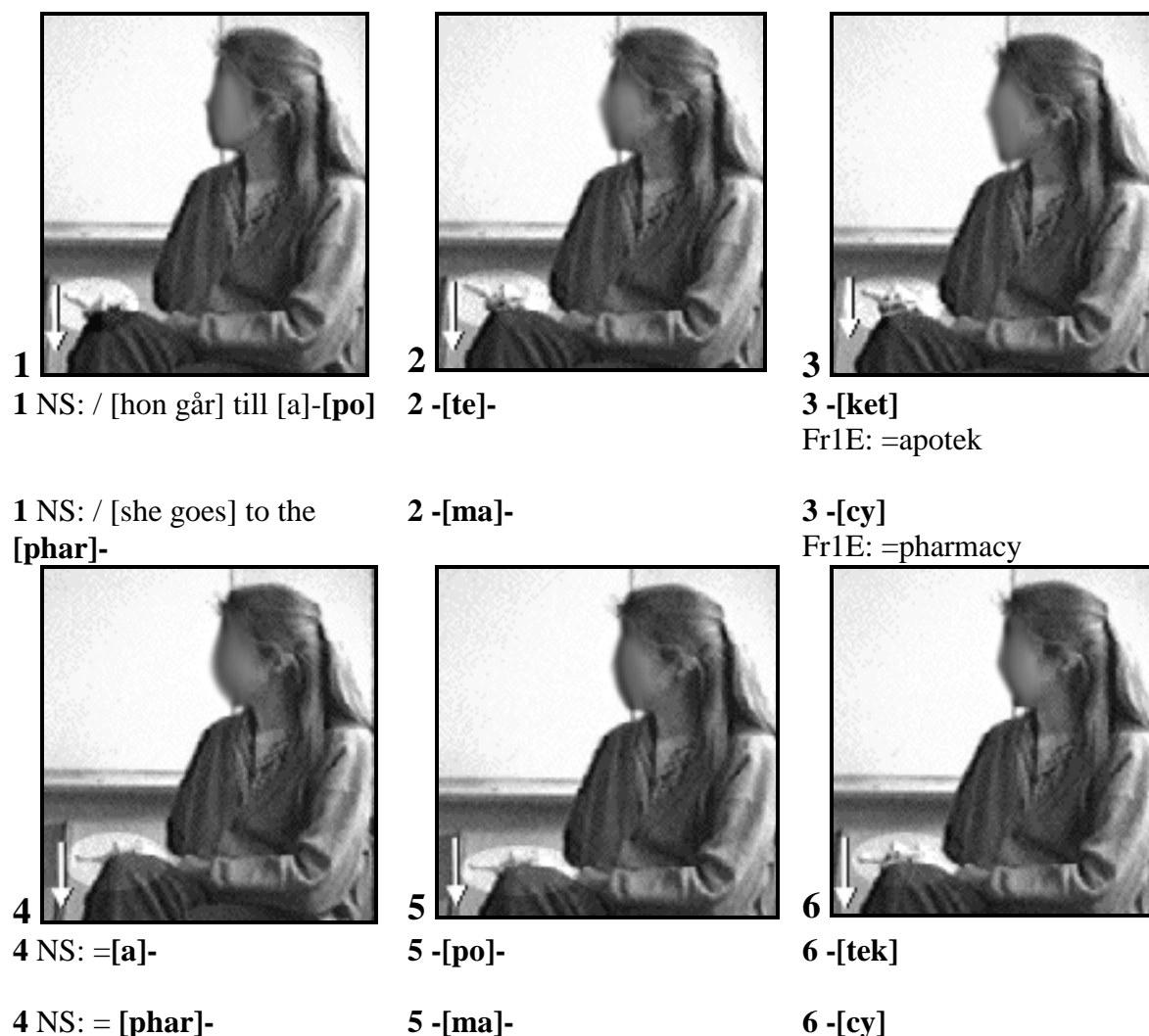
Figure 10:5. Native listener accompanying a lexical suggestion with beats on every syllable.

In Figure 10:5, the Swedish native listener is providing the learner with the word for 'pharmacy', while emphasising every syllable of the word with a beat (1-3). The didactic quality is obvious, since the native listener is not content with the learner's first repetition of the word, but actually goes on to repeat the word, still emphasising every syllable (4-6). It is a lexical lesson, and marked as such.

In the SLA literature, the term *foreigner talk*, is used to describe the typical modifications of speech made by NSs when addressing foreigners or language

learners.[2] The characteristics of such *foreigner talk* include the use of basic vocabulary and lack of idiomatic expressions, simplified syntax and morphology, slower speech rate, careful pronunciation,[3] etc. (e.g. Hatch, Shapira, & Gough 1978; Long 1983). The results from this study suggest that the use of beats is another such characteristic, since these gestures clearly serve to signal *foreigner talk*.

10.6 Listeners' gestures

Listeners' gestures in interaction are of interest since their distribution confirms the proposals made regarding the distribution of gesture types over utterance types in discourse (e.g. McNeill 1992), which were presented in section 8.2.

The general lack of iconic gestures on the part of the listeners is explained by the fact that listeners do not actually contribute narrative utterances to the story, i.e. they do not relate events or actions performed by the characters in the story. Instead, listeners' frequent use of non-referential metaphoric gestures reflect the fact that their comments are of a meta-narrative nature. By using metaphoric gestures, listeners signal non-understanding and hesitation, or indicate that they want the NNS to develop and elaborate what has been said. Similarly, the frequent use of beats is highly metalinguistic in nature, as it often coincides with utterances of an other-corrective nature, and actually marks *foreigner talk* in the data. The few deictics used are all examples of negotiation of referents or directions, and are as such not narrative, but meta- or extra-narrative.

The interactive listener behaviour in the data can be said to suggest a set of response gestures typical for the interaction between native and non-native speakers (NS/NNS interaction), i.e. attitudinal metaphorics and beats.

10.7 A non-summary of quantities

The listener data from this study are unfortunately not suitable for quantitative study. As seen in Table 10:1, in the L1 condition all the native listeners (I-VIII) are different, except in the dyads with Fr1B and C, and with Sw1c and d. In contrast, in the L2 condition, there is only one listener in the Fr1 group (α), and two different listeners in the Sw1 group (β and γ). This design is not ideal, especially with regard to statistical analyses. Since more than half of the L2 data concern only one listener, α, any statistical result would amount to nonsense. In

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[2] The term was first used by Ferguson (1971) to refer specifically to the ungrammatical utterances NSs sometimes use when addressing foreigners. It us now used as a blanket term to refer to the particular register described above. Similarly, *Baby Talk* refers to the type of register used when talking to infants and small children (for an overview, see Pine 1994). Both notions are covered by the more neutral term *modified input*.

[3] And quite frequently higher volume, as if the language learners were simply hard of hearing.

addition, technically, an analysis of significance would involve both paired and unpaired analyses simultaneously.

To nevertheless give a crude overview of the listener behaviour in the present data, Table 10:1 summarises the number of gestures produced by the listeners in the native and the non-native conditions.[4]

dyad	listener	L1 gest/clause	listener	L2 gest/clause
Fr1A	I	-	α	1.045
Fr1B	II	0.529	α	0.550
Fr1C	II	-	α	0.125
Fr1D	III	1	α	0.741
Fr1E	IV	-	α	0.774
Sw1a	V	-	β	1.167
Sw1b	VI	-	γ	0.833
Sw1c	VII	0.200	γ	0.171
Sw1d	VII	0.667	γ	-
Sw1e	VIII	-	γ	-

Table 10:1. Listeners' number of clauses, gestures, and gestures/clause in the NS and NNS condition.

A general observation is that listener contributions are few in the L1 condition. The L2 condition generates more speech in number of clauses from the listeners, as well as more gestures/clause. The individual variation between listeners may be important. Already the intra-individual variation is substantial in the Swedish native listener, α, in the L2 condition with gesture rates ranging from 0.125 to 1.045 gestures per clause.

10.8 Listeners and proficiency, culture, and interaction

Since the listener data from this study hardly permit generalisation, only a few observations based on individual performance will be made.

The distribution of listener gestures in the overall data appears to be related to listeners' status as passive or more active listeners. Although the interactive functions of gestures in face-to-face interaction are well-known (see section 3.7), listeners' gestures in interaction have often been ignored (see Fornel 1992; Goodwin & Goodwin 1986; Heath 1992 for exceptions), since it has been observed that listeners do not gesticulate when silent. It is often overlooked that in normal conversation the speaker and listener roles are assumed alternatively by both interlocutors, such that listeners become speakers in a bakhtinian sense

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[4] Note that 'clause' here excludes backchannel feedback signals, such as 'mm', 'uhuh', but includes minimal clause fragments which can serve as turns. Feedback signals are also excluded because they do not generate gestures. Their importance in NS/NNS dialogue (e.g. Allwood 1993) and for the construction of comprehensible dialogue and coherence (e.g. Anderson 1995; Clark 1996b) is otherwise recognised.

at different points in the interaction, and therefore display different gestural behaviours throughout an exchange.[5]

The listeners in this particular task were expected to interact with the narrator to ensure comprehension. While listening passively to the narrative, listeners refrained from gesticulating, and no gestures occurred with backchannel feedback signals. However, as soon as listeners participated actively to ensure comprehension, they also gesticulated frequently as they had, in effect, become speakers. The more active listeners are, the more they speak, and where there is speech, there is gesture.

Fr1B	donc euh [/] voilà et l' histoire se [termine] comme ça		Fr1B	so uh [/] there you are and the story [ends] like that
NS	la moralité euh **[/]=**		NS	and the point uh **[/]=**
Fr1B	**=[mm non]** euh enfin la moralité c'est que		Fr1B	**=[mm no]** uh well the point is that

Figure 10:6. Negotiation of the punchline in the NS/NS condition. Both interlocutors display metaphoric gestures (speaker to the left, listener to the right).

The proficiency conditions favoured different types and degrees of listener participation. Listeners are essentially passive in the *native/native* (NS/NS) condition. There are few listener clauses, and few listener gestures. Listener contributions primarily occur in particular sections of the narrative in the L1 dyads. An example from the dialogue with subject Fr1B can be seen in Figure 10:6. This narrative is characterised by a long coda or response section (Sacks 1974) in which both interlocutors are involved, and in which the native listener in particular participates very actively, discussing the punchline, and recapitulating the story. The listener acts as speaker and gesticulates freely. The passage in Figure 10:6 shows the listener to the right performing a metaphoric hesitation gesture in accompaniment to an unfinished question regarding the punchline. The speaker to the left simultaneously initiates a similar metaphoric gesture with his answer.

Two observations can thus be made regarding listener gestures in L1 production. First, the strict occurrence of listener gestures in coda sections of the narrative is explained by the fact that such codas are examples of true *dialogue*. When interlocutors engage in normal 'dialogical interaction', they

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[5] "Any understanding of live speech, a live utterance, is inherently responsive, although the degree of its activity varies extremely. Any understanding is imbued with response and necessarily elicits it in one form or another: the listener becomes the speaker."

Bakhtin (1986:68)

both assume turns as speakers, and speakers gesticulate (Bakhtin 1986; Marková & Foppa 1990; Marková, Graumann, & Foppa 1995).

Second, listener gesticulation in L1 conversational narratives is therefore to some extent a reflection of individual listener style. Active listeners will engage in the dialogical type of interaction which appears in codas, and gesticulate, whereas predominately passive listeners will not. On the basis of these observations, culture seems to be less of a determining factor for listener gesticulation.

In the *non-native/native* (NNS/NS) condition, the single Swedish listener, α, facing the Fr1 NNSs performs more gestures than the two French listeners engaged in narratives with the Sw1 NNSs. This could be a reflection of the fact that the Swedish listener is a particularly lively gesticulator. Since the listeners were not asked to perform the narrative task themselves, their normal gesticulatory rate could unfortunately not be determined.

1		**2**		**3**	
1 Fr1E	euh eh hur kan man säga eh *ordonnance* / eh	2 NS	/ [damen] kommer till apoteket	3 NS	<laughs> **[försök]**
NS	<laughs> **[du får förklara]** vad [vad det är] på [svenska] [vad eh]	Fr1E	ja	Fr1E	/ ehm / den bilden eh / som man [euhm] / mm / <giggles> mm //
		NS	**[med eh /]**		
		Fr1E	[hur kan man eh säga] eh [på svenska] euh *ordonnance* [//]	NS	försök [hitta] ett annat ord / kan du det
				Fr1E	<shakes head>

1 Fr1E	uh uh how can you say uh *prescription* / uh	2 NS	/ [the lady] comes to the pharmacy	3 NS	<laughs> **[try]**
NS	<laughs> **[you must explain]** what [what it is] in [Swedish] [what uh]	Fr1E	yes	Fr1E	/ uhm / the picture uh / that you [uhm] / mm / <giggles> mm //
		NS	**[with uh /]**		
		Fr1E	[how can you uh say] uh [in Swedish] uh *prescription* [//]	NS	try to [find] another word / can you do that
				Fr1E	<shakes head>

Figure 10:7. Native listener negotiating with a learner, trying to elicit new lexical items, and accompanying her efforts with metaphorical gestures.

In Figure 10:7, the Swedish native listener makes numerous attempts to encourage a learner to apply CSs, attempts which are accompanied by metaphorical gestures (1-3). However, the listener does not limit this type of participation to a particular part of the narrative in L2. Instead, listener contributions like these occur as a direct result of communicative failure on the part of the speaker. Conversational narratives in L2 can be assumed to be prototypically more like dialogues in general than are L1 narratives, due to the co-operative work listeners have to engage in to keep the communication going and the narrative proceeding. Native listener behaviour in the NNS/NS condition is therefore be expected to be more active throughout.

It may be surmised, in fact, that the rate of listener gesticulation in NNS/NS dyads is more affected by speakers' proficiency than by listeners' personal interactional style, contrary to what was the case in NS/NS interaction. The characteristic of NNS/NS interaction is the strong influence of the interactional norm which says that listeners must help narrators in need. The effect of this norm, which is obviously a version of the Gricean co-operation principle (Grice 1975), is so strong under normal conditions, that it overrides personal interactional style.[6] The lower the speaker proficiency, the more listener participation. The varying number of gestures performed by the native Swedish listener towards the Fr1 group may thus be a reflection of the fact that the Fr1 subjects are non-fluent, and require varying degrees of help.

The NS judges who evaluated the language learners (see the results on the Native Speaker Evaluation Test, the NSET, in Chapter 11) sometimes commented on the listeners as being 'good' or 'bad', referring to their level of co-operation. In the L1 condition, the native judges had no comments regarding the listeners, whilst in the L2 condition, most native judges found the native listeners to be helpful. However, there were a few exceptions. In one case, a native French listener is consistently evaluated as not co-operating with a Sw1 subject struggling to find a word. In Figure 10:8, the native listener remains inactive during the learner's laborious search for a word equivalent to 'illegible' (1-2). Instead of providing a lexeme, he recapitulates the narrative, and in doing so gesticulates freely himself. In this disambiguating control passage, the native listener exploits deictics as seen in section 10.4. He deictically indicates the main character's movement towards the doctor's location (3) and back towards the pharmacy (4). He adheres to the narrative locations indicated previously by the learner and mirrors her gesture space. His deictics are performed with the head, however, since his hands are clasped together over his knee. In addition,

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[6] Outside of these data there are of course cases of un-cooperative and unpragmatic listeners who might violate this principle. However, the experimental design seems to exclude such interlocutors, since they are unlikely to participate voluntarily in this type of experiment.

he succeeds in expressing referential content without unlocking his hands, as he iconically indicates the foot writing by moving his foot (5). The native listener's breach of 'the interactional contract' (cf. Long 1983; Strömqvist 1983) appears to be a reflection of personal mood rather than of general unwillingness to help, since the same listener is co-operative in other dialogues, and even later in the same dialogue.

1 Sw1c   parce que [le euh signature] est / est [si eh // ehm] / **[palpitant eh]** / *eller* palpitant *e de* (xx) / crochu /

NS   euh là je / suis pas très bien / la signature est tellement /

2 Sw1c   ehm **[//]** // // <inhales>

1 Sw1c   because [the uh signature] is / is [so uh // uhm] / **[trembling uh]** / *or* trembling *is that* (xx) / hooked /

NS   uh I / don't follow very well / the signature is so very /

2 Sw1c   uhm **[//]** // // <inhales>

3 NS   (...) donc elle **[retourne]** chez le / médecin

Sw1c   ouais

4 NS   il signe **[avec le pied]**
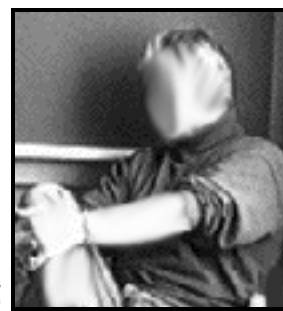
5 NS   et elle **[revient]**

Sw1c   mm [avec le pied]

3 NS   (...) so she **[goes back]** to the / doctor

Sw1c   yeah

4 NS   he signs **[with the foot]**

5 NS   and she **[comes back]**

Sw1c   mm [with the foot]

Figure 10:8. Native listener recapitulating a learner's story, performing deictic and iconic gestures.

10.8.1 Listeners in strategic interaction

The responsibility for achieving both the narrative and understanding thereof rests heavily on the listeners. This being the case, it is not surprising that listeners should perform *strategic gestures*, as they are defined in this study, as part of their co-operative behaviour. The Swedish native listeners' strategic gestures are essentially similar to those performed by the learners in the NNS/NS dyads, but the distribution over strategy categories is slightly different, as are the objectives. The Swedish listener hardly performs any Conceptual strategies, but instead strategies of the Hedging type, and Code strategies. Gestures *are* strategically used to elicit lexical items, but not by being referential and Conceptual, as was the case for the learners. Instead, the three native listeners use metaphorical attitudinal gestures to elicit more speech from the learners, and to encourage the use of CSs.

The few cases of strategic listener gestures are thus examples of GCSs in native speech. A particular branch of SLA research–separate from the domain of CS research, strangely enough–is dedicated to the study of the phenomena typical of NS/NNS interaction. It focuses not only on the efforts made by the learner, but also, and perhaps specifically in recent years, on those of the NS. NS accommodation towards the learner is treated in terms of so called modified speech, and modified interaction.[7] Examples of modified speech or *foreigner talk* have already been seen. The study of modified or adjusted interaction, on the other hand, deals with such things as the negotiation of meaning and repair behaviour typical of NS/NNS dialogue, the collaborative efforts of the NS, which include the increase of clarification requests, of repetitions, the acceptance of topic changes, etc. (e.g. Long 1983, 1985; Py 1986; Varonis & Gass 1985a; Wesche 1997). In SLA research these phenomena have been studied with the ultimate objective of ascertaining what the effect of comprehensible input might be on the language acquisition of individual learners.[8]

All these NS/NNS phenomena could be considered to be instances of NS CSs, as has been suggested by Dörnyei & Scott (1997) as well as by Yule & Tarone (1991). For instance, other-facilitation (Py 1986) in the form of *foreigner talk*, is a type of co-operative behaviour which aims to facilitate understanding, if not acquisition. However, this type of behaviour is usually not labelled as a CS.

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[7] The term 'accomodation' is used here loosely, and not strictly in the sense it has in *accommodation theory* (Giles & Smith 1979), although it might be argued that the fundamentals of accommodation theory should apply to the efforts of NSs and NNSs alike.

[8] The debate concerning *the comprehensible input hypothesis* is far-reaching, but some of the more important contributions include Krashen (1982, 1985), Long (1981, 1983), and Sharwood Smith (1986) . The discussion is conveniently summarised in Ellis (1994) and Wesche (1997).

When modification of output is detected in learner language, on the other hand, it is readily assigned strategic status. However, attempts to facilitate understanding must surely be examples of CSs independently of who makes the attempt. This is why gestural strategies as performed by the native listeners can be identified in the data. If, however, NS oral co-operative behaviour is to be included in CSs, then the question of how dialogue is to be treated by the researcher arises. For instance, are all questions asked by NSs in conversation with NNSs clarification requests, and to be regarded as CSs? Are all NNS questions CSs? These are issues which will have to be dealt with in future, more expanded and encompassing theories of CSs, both oral and gestural.

10.9 Summary

The analysis of listener behaviour indicates that native listeners gesticulate when participating actively in the interaction, such that they assume their turn and become speakers.

In the L1 condition, this means that listeners usually gesticulate during the coda of the narrative, which is dialogical in nature. However, the extent to which listeners engage in such codas is a matter of personal interactional style.

Narratives in the L2 condition, on the other hand, are often dialogical in their entirety, since native listeners often have to engage in continued co-operative behaviour towards NNS narrators, thus producing a fair amount of speech. As a result, listener gestures occur throughout the narratives, and not just in codas. Listeners' gestures thus reflect the *speakers'* proficiency level, rather than the listeners' own interactional styles, since listeners rarely violate the co-operative principle. Sometimes such listener gestures are strategic.

The gesture types used by listeners are moreover related to the content or discourse level at which their comments belong. Since most of their contributions are of a metalinguistic character, their gestures are chiefly metaphoric, to indicate hesitation or desire to clarify. These gestures also serve to elicit more speech from the learner so that the narrative can continue, or in order to disambiguate discourse and ensure comprehension. Listeners also perform beats as part of their didactic effort signalling other-corrections or lexical suggestions.

11 The evaluation study–Assessments of gestures and performance

Nor do not saw the air too much with your hand, thus. But use all gently.
Shakespeare, W. *Hamlet*, III.2.

11.1 Introduction

In SLA research, NSs are sometimes asked to assess learners' performance as a means of establishing proficiency or communicative competence. NS assessments have also been used to evaluate the efficiency of CSs. However, the literature–both the SLA and the gesture literature–is conspicuously free of studies of assessments of speakers' and learners' use of gesture, despite the many preconceived ideas regarding gestures and second language learners, not to mention gestures in speakers from other cultures.

This chapter will report on an exploratory evaluation study where native speakers evaluated the narrator subjects' performance, both oral and gestural, based on stimuli presented either in a VIDEO or an AUDIO mode. In particular, the study intended to examine the extent to which NSs found that gestures improved comprehension of the L2 narratives. This issue is important for the question of how effective GCS can be said to be. Moreover, the study aimed to investigate whether the presence of gestures affects evaluations of overall proficiency, and what effect the stimulus modality has on assessments. It will be argued that general judgements of learner performance and proficiency are in fact based on combinations of interrelated factors, one of which is the personal communicative style of the subjects.

11.2 The Native Speaker Evaluation Test (NSET)
11.2.1 Design

In order to achieve NS evaluation scores of learner performance, a questionnaire was devised which permitted judges to assess learner performance along such dimensions as overall proficiency, lexical and grammatical knowledge.

In addition to overall L2 proficiency, the test aimed to allow comparisons to be made between individual L2 and L1 performance on the task. The underlying rationale is the assumption that L1 and L2 performance are interdependent. In a survey of a number of studies comparing students' performance on the same tasks in L1 and L2, Cummins concludes that linguistic performance on specific tasks in the L2 is influenced by how well such tasks are performed in the L1 (Cummins

1991). With respect to the present study, narration can be said to be a highly skilled task (e.g. Berman 1988), requiring linguistic competence as well as more specific narrative expertise. The ability to tell a story really well includes such elements as dramatic sense, a talent a learner does not necessarily have even in his or her L1. If these skills are not present in the L1, subjects can hardly be expected to perform well on a face-to-face narrative task in the L2, where additional constraints are imposed. An underlying assumption is therefore that narrative skills will influence the assessment of linguistic ability.

The test also aimed to enable assessment of both gestural performance along the same lines as for oral linguistic performance, and also the effect of stimulus medium on the evaluation. The dimensions covered by the test can be summarised thus:

- the subjects' oral linguistic performance in L2, and as NSs in L1

- the subjects' gestural performance in L2, and as NSs in L1

- the subjects' narrative abilities in L2, and as NSs in L1

- differences in overall evaluation depending on the stimulus medium: visual and auditory vs. auditory only

These multiple objectives resulted in a particular set of stimuli, and in a questionnaire covering the various areas of interest. Part of the results from the NSET regarding general proficiency have already been briefly presented in Chapter 5, and rankings of the narrator subjects have been discussed elsewhere. The results from the study are numerous and complex, and only a sub-set will be presented here, viz. the results pertaining to gesture.

Three main questions were addressed as part of the evaluation study on gestures:

- how do listeners evaluate the gestures performed by the narrator subjects with respect to rate and range?

- does the presence of gestures affect NSs' evaluation of learners' proficiency?

- are gestures beneficial to comprehension, as speakers/language learners and evaluators appear to believe? Are gestures effective as strategies? What determines their efficiency?

11.2.2 Materials and procedure

Two sets of stimulus tapes were designed, containing French and Swedish data, for French and Swedish native judges, respectively, to evaluate. Each stimulus tape was intended to contain five native and five non-native narratives in each language group. Native judges were asked to assess five language learners and five native speakers each. The native French judges thus evaluated the Sw1 group's performance in (learner) French and the Fr1 group's native performance;

the native Swedish judges correspondingly evaluated the Fr1 group's performance in (learner) Swedish, and the Sw1 group's native performance.

Within the respective language group, recordings of the subjects' narratives in both L1 and L2 production were randomised twice, such that two sets of stimulus tapes resulted for the two groups respectively. The two versions for each group of narrators thus contained narratives presented in two different orders. In addition, every set of narrative sequences was recorded both on video (visual + auditory) and on audio only (auditory only). This procedure generated four different stimulus tapes for each language: two video versions and two audio versions.

Ten judges from each language were then randomly assigned to either the VIDEO or the AUDIO condition, with five judges in each condition. Within each condition, judges were then given one of the two randomised stimulus versions, such that these versions were evenly distributed across judges:[1]

- **VIDEO mode:**

  every native French judge: 5 Sw1 speakers of Fr2 + 5 Fr1 speakers = 10 speakers
  every native Swedish judge: 5 Fr1 speakers of Sw2 + 5 Sw1 speakers = 10 speakers.

- **AUDIO mode:**

  every native French judge: 5 Sw1 speakers of Fr2 + 5 Fr1 speakers = 10 speakers
  every native Swedish judge: 5 Fr1 speakers of Sw2 + 5 Sw1 speakers = 10 speakers.

A questionnaire was devised both for the VIDEO and AUDIO conditions, consisting of instructions, a copy of the cartoon, and ten separate answer sheets for the ten subjects. The questions were of three types, as seen in Figure 11:1. There were open-ended questions (e.g. question 2), permitting the judges to verbalise freely. There were also two types of multiple-choice questions, one with a scale provided with verbal labels, which were then converted to numerical values (e.g. question 1); the second type provided scales of numerical values directly (e.g. question 4). Markham (1997) has argued convincingly for the need to define units in as absolute terms as possible in order to minimise individual interpretations and avoid judge-specific definitions of the scoring system. However, in this study, a fairly simple and traditional scoring system

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[1] In fact, in each language group, the two VIDEO versions were distributed to 3+2 judges, and the two AUDIO versions to 2+3 judges.

① As a narrator, is the subject
◯good, highly skilled   ◯averagely skilled   ◯bad?

② How well does the narrator succeed with respect to the following narrative components:
• characters
• events
• temporal sequence
• punchline

④ Assess the narrator's overall linguistic level (i.e. how well s/he manages linguistically) using the scale below, where 1=lowest level and 5=highest level:
◯1   ◯2   ◯3   ◯4   ◯5

Figure 11:1. Examples of question types in the NSET.

was used, with scores ranging from 3- to 5-point scales. Needless to say, sys-tems like these cannot be expected to be equal-interval, but the resulting scores can be assumed to minimally reflect relationships between levels. The questions were the same for both native and non-native narrators. Some judges chose not to answer the question about linguistic proficiency for the native narrators.

The test was conducted at the judges' homes, and the instructions were therefore detailed. Judges were asked to familiarise themselves with the cartoon and with the questions. They were also encouraged to contact the experiment leader in cases of uncertainty. Judges were then asked to listen to/watch the stimulus tape, stop the tape after each narrator subject's story and answer the questions pertinent to that particular subject. Judges were furthermore instructed not to spend more than 15 minutes on each answer sheet, not to play the stimulus more than once, and not to alter the answers once given. In the AUDIO condition, judges were also warned about the relatively poor sound quality of the recording.

Both the materials and the procedure were tested on a minimal set of judges (one for each condition, i.e. four judges), and a few alterations were made to the final version of the questionnaires. Question 2 was altered such that the specific narrative elements *characters, events, temporal sequence*, and *punchline* were listed and could be assessed separately. In Question 6 in the VIDEO material, the potentially helpful role of gestures was specified to concern either the context in general or specific words. No changes were made to the procedure.

11.2.3 The NS judges

The native judges (Table 11:1) were recruited informally and on a voluntary basis from among acquaintances. All judges were required to be NSs of the languages in question and to be resident in the country where the language is spoken (Sweden and France, respectively). No particular consideration was given to the judges' knowledge of other languages, but the judges were required to be naive in terms of knowledge of linguistics, and not to be language teachers, in order to avoid potential effects of professional bias (cf. Ervin 1979). One native Swedish judge is a teacher at the intermediate level of primary school (*mellanstadium,* covering ages 10-13 years), where some of the children have immigrant backgrounds. She is obviously more experienced than the other judges in evaluating performance, including overall linguistic proficiency. However, as she has little formal training in linguistics or SLA research, it was not necessary to exclude her from the study.

FRENCH1		SWEDISH1	
VIDEO	*AUDIO*	*VIDEO*	*AUDIO*
jdg1	jdg6	jdg11	jdg16
jdg2	jdg7	jdg12	jdg17
jdg3	jdg8	jdg13	jdg18
jdg4	jdg9	jdg14	jdg19
jdg5	jdg10	jdg15	jdg20

Table 11:1. NS judges in the NSET.

11.2.4 Analysis

Analyses of statistical correlation were performed on the resulting data. All the correlation figures given in this chapter are based on the nonparametric Spearman Rank Correlation Test. Given the small sample, the statistical results must be treated with caution, and these analyses are complemented by examinations of individual performance. In the case of scores for use of gestures or CSs, the data have been transformed to ranks using the function in the statistical software StatView 4.1.

11.3 Rate and range of gestures

Both cultural assumptions regarding gestures, and the anticipated increase in gesture use in L2 production were expected to affect the assessments regarding rate and range of gestures.
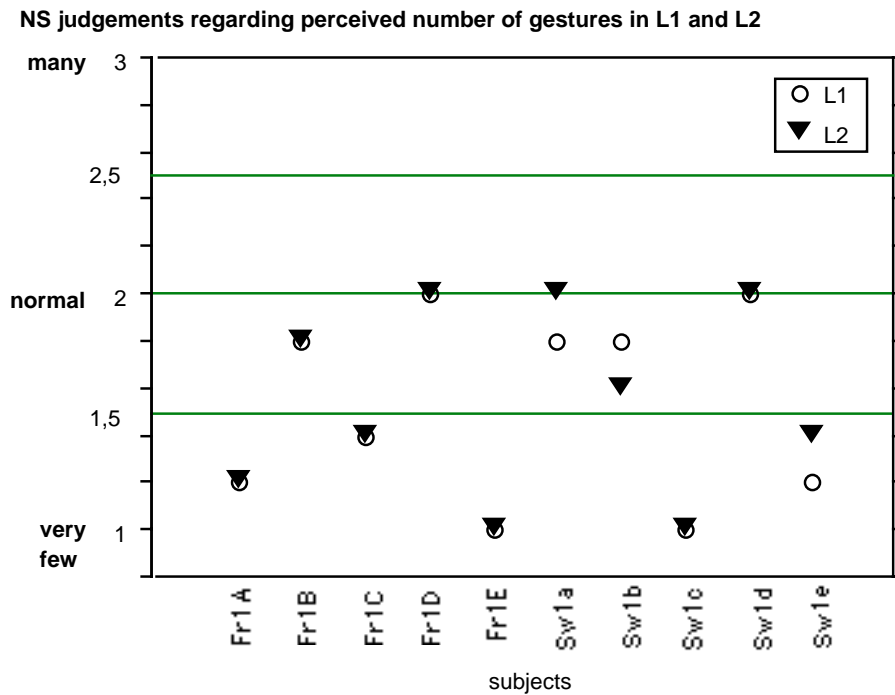
NS judgements regarding perceived number of gestures in L1 and L2

Figure 11:2a. NS evaluations regarding perceived number of gestures in L1 and L2.

With respect to the perceived number of gestures, the results, displayed in Figure 11:2a, show two things. First, all subjects are considered to be moderate gesticulators. Half of the subjects are rated as using a normal number of gestures, and are located in the range *few to normal* number of gestures (scores 1.5-2). The other five subjects are considered to use *very few* gestures (scores 1-1.5). There is no significant difference between the learner groups in this regard.

Second, the scores for the L2 condition are almost identical to the L1 scores, with which they correlate strongly (ρ=.958, p≤.0041). In other words, different judges have assessed the subjects' individual gestural styles in a very similar manner independently of language condition. Native Swedish judges evaluate the Fr1 learners as 'normal' gesticulators when they perform in learner Swedish, and native French judges assess Sw1 learners as 'normal' when performing in learner French. Learners are thus not evaluated differently in L2, with the exception of Sw1a, b and e. Sw1a is ranked by NSs of French as closer to normal in the L2 condition than by NSs of Swedish in the L1 condition, where he is assessed as using fewer gestures. In contrast, Sw1b is evaluated as using few gestures in L2, and is closer to normal in the L1 condition.

It is somewhat surprising that no learner is assessed as over-gesticulating in the L2 condition. Cultural expectations in the NSs as well as the learners' linguistic shortcomings might have been expected to work together to result in high L2 scores, especially for the Fr1 group. However, NSs' tolerance for gestures in L2 seems to be considerable. Furthermore, more subjects from the Fr1 group (Fr1A, C and E) than from the Sw1 group (Sw1c and e) are in fact assessed as using
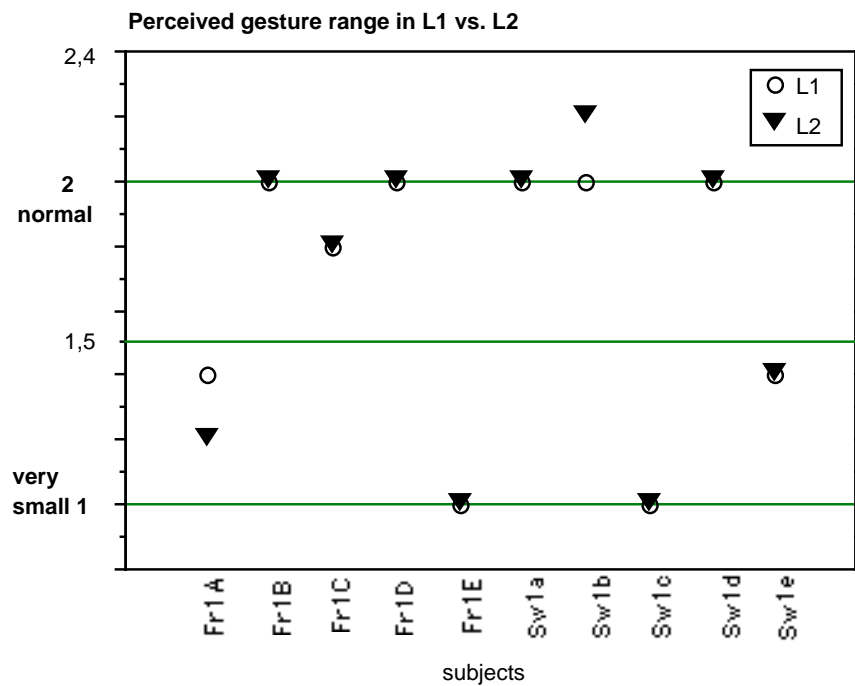
Figure 11:2b. NS evaluations regarding perceived spatial range of gestures in L1 and L2.

very few gestures in the L1 condition. In the L2 condition, the same subjects are regarded as minimal gesticulators.

With respect to the evaluations of the perceived spatial expanse or range of learners' gestures, the results are similar to those for the perceived number of gestures, as seen in Figure 11:2b. In the L1 condition, subjects Fr1A and E, and Sw1c and e are assessed as using very small or insignificant gestures. All other subjects are within the normal range. The rankings are the same in the L2 condition, and the scores in the two conditions show a strong correlation (ρ=.967, p≤.0037). Moreover, the scores for perceived number of gestures and perceived range also correlate strongly in both language conditions (ρ=.955, p≤.0042 in L1, vs. ρ=.858, p≤.0101 in L2). Table 11:2 summarises the correlations between the evaluations of rate and range of gestures across conditions.

	L2 rate	*range (spatial)*	*rate/range*
L1 rate	ρ=.958, p≤.0041**		ρ=.955, p≤.0042**
range (spatial)		ρ=.967≤.0037**	
rate/range	ρ=.858, p≤.0101*		

Table 11:2. Summary of correlations between evaluations of rate and spatial range of gestures in L1 vs. L2.

Culturally based expectations regarding the rate and spatial range of gestures used by members of the other culture are therefore *doubly* refuted by the data. Not only is there no significant difference between how many gestures Swedish and French speakers actually use (cf. Chapter 9). There is not even any percep-tual support for the assumption that Swedish and French speakers differ in gesti-culation. NSs of French do not consider Swedish learners to be particularly restrained with

respect to gesture, nor do NSs of Swedish consider French learners to use excessively numerous or extravagant gestures. All learners are regarded as using normal to reduced numbers of gestures, and normally sized or somewhat small gestures, irrespective of culture and proficiency level. Even if this is partly an effect of the experimental situation, it influences all the narrators in the same manner. In addition, this result confirms that when emblems are excluded from study, speakers of French and Swedish are not assessed as differing noticeably with respect to gesture use.

However, the issue of the difference between real and perceived gesture use deserves some comment. The results from the evaluations show that speakers' actual use of gesture seems to have little to do with how many gestures listeners perceive. Figure 11:2c shows that there is a rather striking discrepancy, and a weak correlation, between perceived and actual number of gestures ($\rho=.545$, $p \leq .1018$). The discrepancy can be illustrated at the individual level by subject Fr1B, who in the L1 condition is ranked as using a little less than a normal number of gestures, as seen in Figure 11:2 a above. Fr1D, on the other hand, is ranked as using a normal amount (i.e. a little more gestures than Fr1B), although she *de facto* uses fewer gestures than Fr1B in the L1 condition.
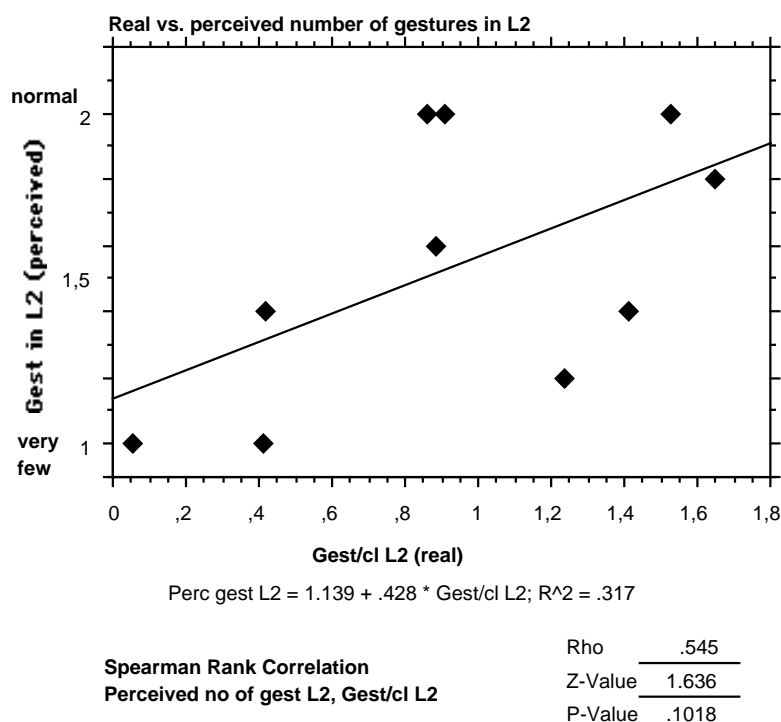

Figure 11:2c. Correlation between real number of gestures/clause and perceived number of gestures in L2.

When Hamlet in the quotation advised the actors to use their hands with moderation, he did not take into account the fact that listeners are tolerant, nor that they only appear to take notice of some gestures. Some subjects who gesticulate quite liberally are nevertheless ranked as using fewer gestures than other subjects who actually perform fewer gestures. In other words, what listeners/viewers see and what they notice is not the same thing. What constitutes 'many' gestures must therefore be assumed to reflect qualitative differences between gestures, or gesture types, with respect to how perceptually *salient* they are, in a broad sense.

Salience is of course a complex concept. One feature which renders gestures salient has already been suggested in section 9.3.4. Gestures which replace speech, such as emblems, are salient in themselves. This is particularly true when their content is not understood, such as for emblems in another culture. However, for speech-associated gestures, other elements will affect salience. An example is the physical properties of gestures. Fr1B, for instance, who was ranked as using fewer gestures than Fr1D in both conditions, favours deictics and beats. These gestures are relatively small and unobtrusive. In addition, the referential value of gestures might interact with physical properties to determine their salience. The deictics and beats favoured by Fr1B have abstract reference–a combination of properties which makes them less noticeable, and more difficult to recall. Fr1B is therefore probably ranked by listeners as using few gestures, simply because the gestures are not salient and therefore not noticed by listeners. Fr1D, on the other hand, favours iconic gestures, which are larger, but which also have a clear referential content. This presumably makes them more salient, both because they are noticeable visually, and because they are easier to remember. A speaker such as Fr1D who performs predominantly salient gestures would thus be ranked as using more gestures.

11.4 Gestures and evaluations of oral proficiency

It was suggested in section 7.8 that learners' reluctance to overtly use CSs stems from their belief that detected CSs will result in negative evaluations, both in test situations and in ordinary communication. The same fear may exist regarding the use of strategic gestures. However, as gestures are nonetheless believed to help understanding, it seems all the more important to determine what effect gestures have on the evaluation of proficiency.

Different positions can be found in the few existing studies in the literature. Al-Shabbi (1993) warns against the overuse of compensatory gestures but without defining them, nor explaining why they should be avoided. Neu (1990) has shown that learners' nonverbal behaviour can have both positive and negative effects on the assessment of learner performance. She studied two subjects who were evaluated on objective grounds as being on different oral proficiency levels.

The subjects nevertheless received similar NS assessments, supposedly as a result of their nonverbal behaviour. The less proficient learner was favoured for using content-related gestures, i.e. what from the descriptions in the study appears to be iconics and deictics. The more proficient learner is claimed to have suffered from the over-use of a gesture type resembling beats. However, the results from this study are difficult to assess, partly because the data are very restricted, but primarily due to the lack of definitions of gestures. It is also debatable whether the effect of nonverbal behaviour can be said to have been isolated as a variable, since there are important differences between the subjects with regard to interactional independence, and topic management.

The most obvious factor influencing proficiency assessments to investigate is the *number* of gestures used. Figure 11:3a shows the relationship between proficiency evaluations in the video mode and the number of gestures (overall gestures/clause, GCSs/clause, and perceived or noticed number of gestures). The

Gestures and the assessments of overall proficiency in the video mode

Overall prof video = .373 + 1.277 * Perc no of gestures L2; R^2 = .566
Overall prof video = 2.134 + .22 * Gest/cl L2; R^2 = .029
Overall prof video = 2.386 - .125 * GCS/cl L2; R^2 = .002

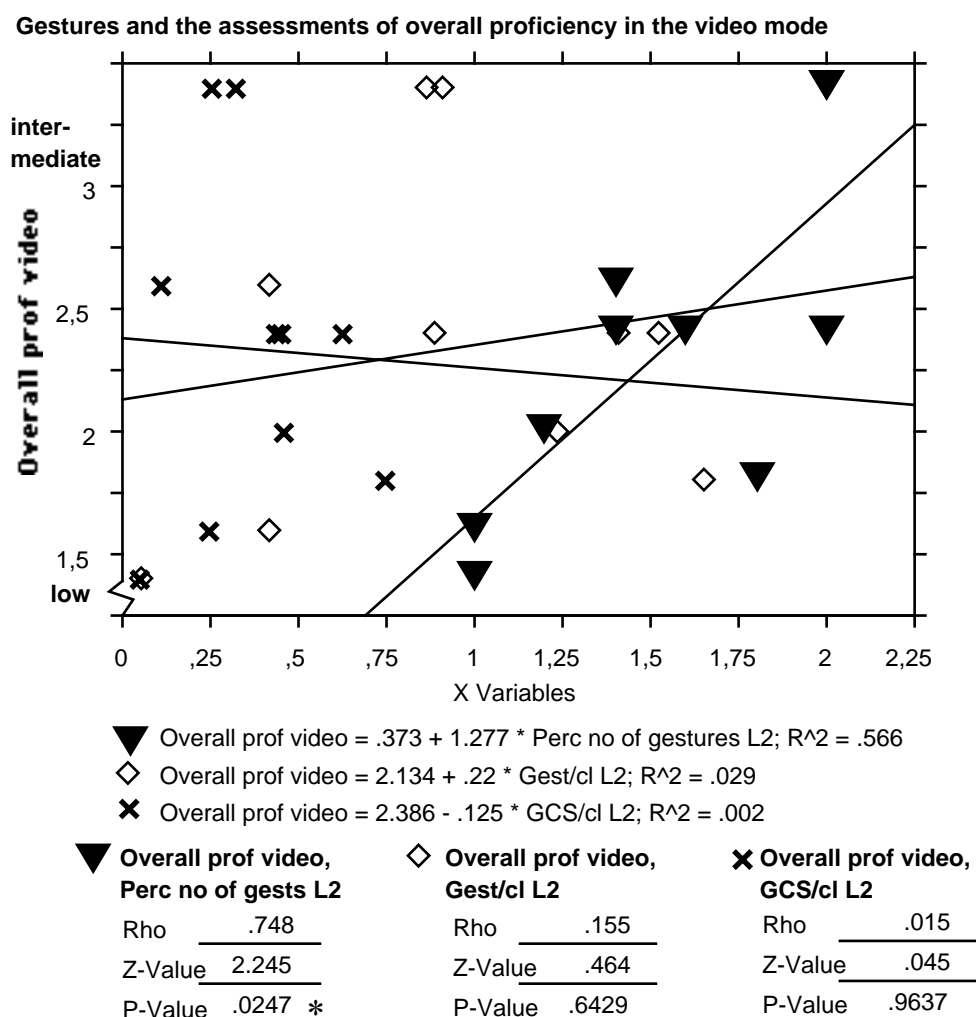| ▼ Overall prof video, Perc no of gests L2		◇ Overall prof video, Gest/cl L2		✕ Overall prof video, GCS/cl L2	
Rho	.748	Rho	.155	Rho	.015
Z-Value	2.245	Z-Value	.464	Z-Value	.045
P-Value	.0247 ∗	P-Value	.6429	P-Value	.9637

Figure 11:3a. Correlations between overall proficiency assessments and number of perceived gestures, gestures/clause, and GCSs/clause.

results indicate that only the number of gestures which NSs notice, i.e. perceived number of gestures, correlates with proficiency evaluations (ρ=.748, p$\leq$.0247).

Moreover, the correlation is positive, such that the more gestures noticed, the better the proficiency evaluations. In contrast, the number of overall gestures and GCSs per clause has very little effect on NSs' assessments of proficiency.

Note, then, that the use of GCSs does not in itself appear to affect proficiency assessments either positively or negatively. This is in contrast to the use of OCSs, which showed a moderate negative correlation with proficiency (ρ= -.624, p≤.0611) in section 7.8 (Figure 7:3). The more OCSs learners use, the less favourably evaluated they tend to be.

The *type* of GCS or gesture used is another potential influence on evaluations. Tables 11:3a-b summarise the correlation figures for GCS types and gesture types vs. proficiency as assessed in the video mode respectively.

	Conceptual	*Code*	*Hedging*
proficiency	ρ=.394 p≤.2373	ρ=-.106 p≤.7503	ρ=-.421 p≤.2064

Table 11:3a. Correlations between overall proficiency and GCS types.

	I-O	*I-C1*	*I-C2*	*I-C3*	*M*	*D*	*B*
profi-ciency	ρ=.455 p≤.1727	**ρ=.758** **p≤.0230***	ρ=.564 p≤.0909	ρ=.433 p≤.1936	ρ=-.255 p≤.4451	ρ=.112 p≤.7366	ρ=.264 p≤.7910

Table 11:3b. Correlations between overall proficiency and gesture types.

The GCS types do not display any notable correlation with proficiency evaluations, although it is interesting to note that there is a negative tendency for Hedging GCSs. Similarly, the majority of gesture types show no correlation with proficiency, with one exception. Interestingly enough, the use of iconics C-VPT1 appears to affect proficiency assessments *favourably* (ρ=.758, p≤.0230).

These results thus suggest two things. Learners have reason to avoid getting caught using OCSs, as it will affect their assessments negatively. In contrast, they need not avoid using gestures, strategic or non-strategic. In fact, the use of particular types of gestures may actually lead to better proficiency evaluations than if they are not used. Iconic gestures appear to influence assessments positively. This is consistent with Neu's (1990) finding that the learner using content-oriented gestures was evaluated as better. However, her result indicating that the use of beats would affect assessments negatively do not receive any support.[2] In addition, noticed or 'perceived' gestures also affect evaluations

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[2] It seems feasible that the learner did not in fact receive *lower* scores as a result of using beats. Instead, the performance of content-related gestures may have *raised* the scores for the other, low proficient learner, such that the subjects received similar scores.

positively. Little is as yet known about which gestures are noticed. The structured study of how gestures are perceived appears all the more urgent.

These results are partially unexpected. They contradict the general cultural belief that it is undesirable and vulgar to gesticulate. If gestures have the capacity to improve both comprehension and assessments of oral proficiency, then their use should be encouraged.

11.4.1 Modality effects

If the number of perceived gestures affects proficiency assessments positively, it may be assumed that the medium or mode in which the stimuli are presented will have an impact on NSs' evaluations. Figures 11:4a-c illustrate the advantage of the VIDEO mode for assessments of proficiency and narrative skills.

With respect to proficiency judgements, all subjects but one receive higher scores in the VIDEO mode (Figure 11:4a). Surprisingly enough, the modality benefits are differentiated such that more proficient learners seem to profit more from the VIDEO mode advantage than less proficient learners. In fact, one of the two lowest ranked subjects, Fr1E, does not benefit at all from this modality, rather the opposite. Fr1E receives a lower score in the VIDEO mode. In contrast, the scores for Fr1D and Sw1d, the two most proficient learners, are much higher in the VIDEO mode (just above intermediate level), and Fr1C and Sw1b also receive noticeably higher scores in the VIDEO mode compared to the AUDIO mode.

In the same vein, listeners consistently find the proficiency level to be more detrimental to comprehension in the AUDIO mode than in the VIDEO mode (Figure 11:4b). Only Sw1c receives identical scores in both conditions. Learners of low proficiency hardly ever reach the level of indeterminate scores, even in the VIDEO mode, whereas the intermediate and advanced learners generally move into the upper region, where proficiency level is not considered to be detrimental to comprehension. An exception is again Fr1B, who is considered to be clearly difficult to understand in the AUDIO mode, but receives indeterminate scores in the VIDEO mode.
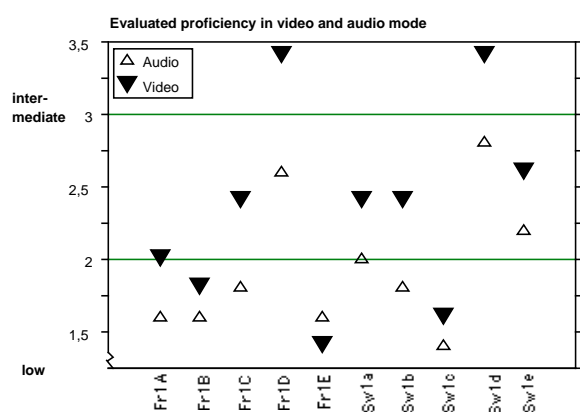
Figure 11:4a. NS evaluations of overall proficiency in L2 in the VIDEO and AUDIO modes.
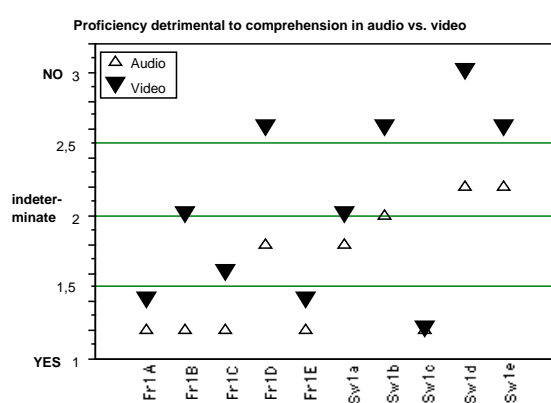
Figure 11:4b. NS evaluations of the degree to which learners' proficiency level was detrimental to comprehension in the VIDEO and AUDIO modes.
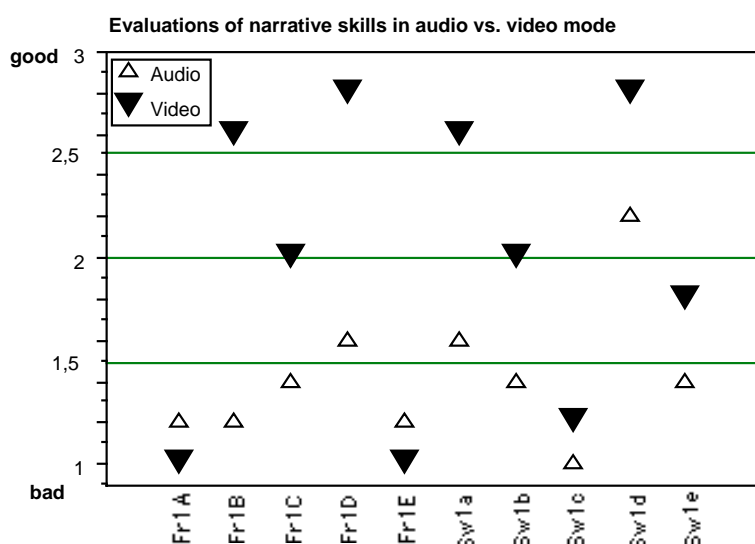

Figure 11:4c. NS evaluations of L2 narrative skills in the VIDEO and AUDIO modes.

Similarly, scores for L2 narrative skills are radically improved for all subjects in the VIDEO mode, except for Fr1A and E, and Sw1c (Figure 11:4c). The most striking improvement is perhaps that of subject Fr1B, who receives one of the lowest scores in the AUDIO mode, but is considered to be almost as good an L2 narrator in the VIDEO mode as the best subjects, Fr1D and Sw1d. Fr1D and Sw1a also increase their scores in the VIDEO mode as compared to AUDIO. The trend is otherwise the same as for proficiency rankings. Subjects of low proficiency do not benefit from the modality change, whereas the intermediate or advanced learners do.

The VIDEO mode in general appears to be more favourable for all subjects than the AUDIO mode, leading to higher scores on all accounts. Sources of irritation in the AUDIO mode were long pauses, silences, and repetitions, as described by listeners (cf. Nambiar & Goon 1993), although there is no significant correlation between speech rate and proficiency in this mode. Similarly to the way in which

some speakers' gestures are regarded as being more helpful to comprehension than those of others, the fact that judgements made in the VIDEO mode are more favourable in general, and for some learners more than for others, again appears to be related to issues of personal communicative style. The mode advantage for intermediate and advanced learners is also similar to the observation for OCSs that all strategies are more effective when applied by proficient learners (cf. Bialystok 1983).

11.5 Gestures and (improved) understanding

A central issue for the question of whether or not gestures are effective as strategies concerns the real or imagined impact of gestures on the comprehension of L2 narratives. In the NSET, overall gesture had to be considered, since NS judges could not be expected to identify and evaluate strategic gestures only. Judges/viewers in the VIDEO mode were therefore asked to evaluate whether the gestures they saw helped them understand the learner narrative, both globally and with regard to single lexical items. Similarly, the judges/listeners in the AUDIO mode were asked to determine whether they thought gestures *would* have helped, had they seen any.[3] The results are displayed in Figure 11:5a.
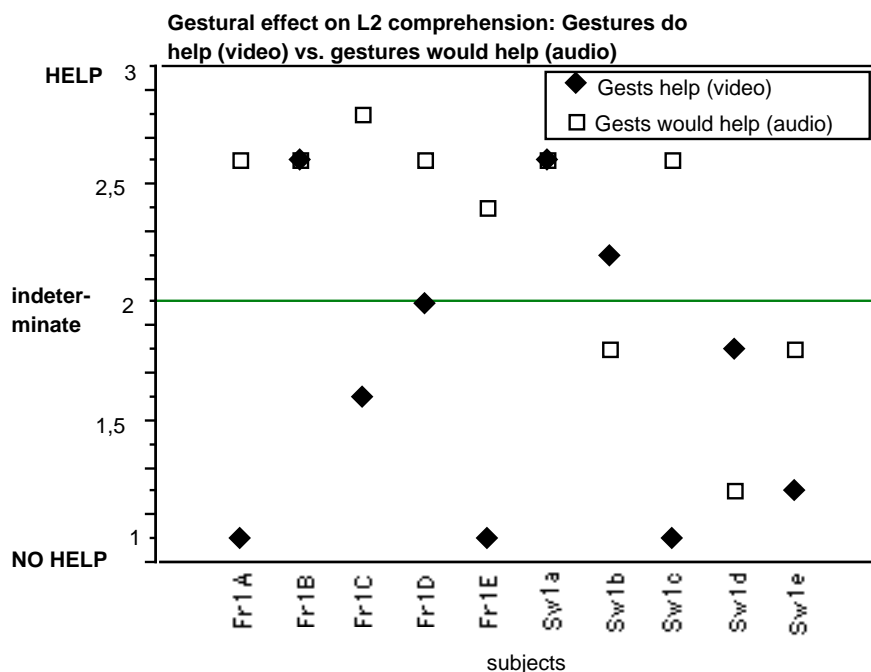

Figure 11:5a. NS evaluations regarding the comprehension-enhancing properties of gestures in L2.

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[3] The reason why only L2 narratives are considered is twofold. The majority of judges did not answer the question in the L1 VIDEO condition. Secondly, all judges in the L1 AUDIO condition replied that seeing the gestures would *not* have affected comprehension.

Rather surprisingly, in the VIDEO mode, judges who were exposed to gestures usually did not consider them to be helpful, except in the case of subjects Fr1B and Sw1a. For subjects Fr1C and D, Sw1b, and d, indeterminate answers were given. In the case of four subjects, Fr1A and E, Sw1c and e, judges deemed the gestures clearly not to have been helpful.

In contrast, in the AUDIO mode, where no gestures could be seen, judges believed that seeing gestures would have improved their comprehension of the narratives. This holds for all the narratives produced by the Fr1 subjects, and for two of the narratives produced by the Sw1 subjects, Sw1a and c, as shown in Figure 11:5a. In two cases, the assessments were indeterminate, for Sw1b and e. Only for Sw1d, the subject with the highest proficiency ranking, did judges think that seeing the gestures would have made no difference. However, the correlation between proficiency as assessed in the AUDIO mode and the belief that gestures would have improved understanding is weak ($\rho=-.294$, $p \leq .3779$). In other words, the belief that gestures would improve comprehension of a particular subject's narrative is not affected by that subject's assessed proficiency level.

Gestures as helpful to comprehension video vs. audio

Would Gs help L2? = 2.309 - .005 * Gests help L2?; R^2 = 4.467E-5

Spearman Rank Correlation
Gests help L2?, Would Gs help L2?

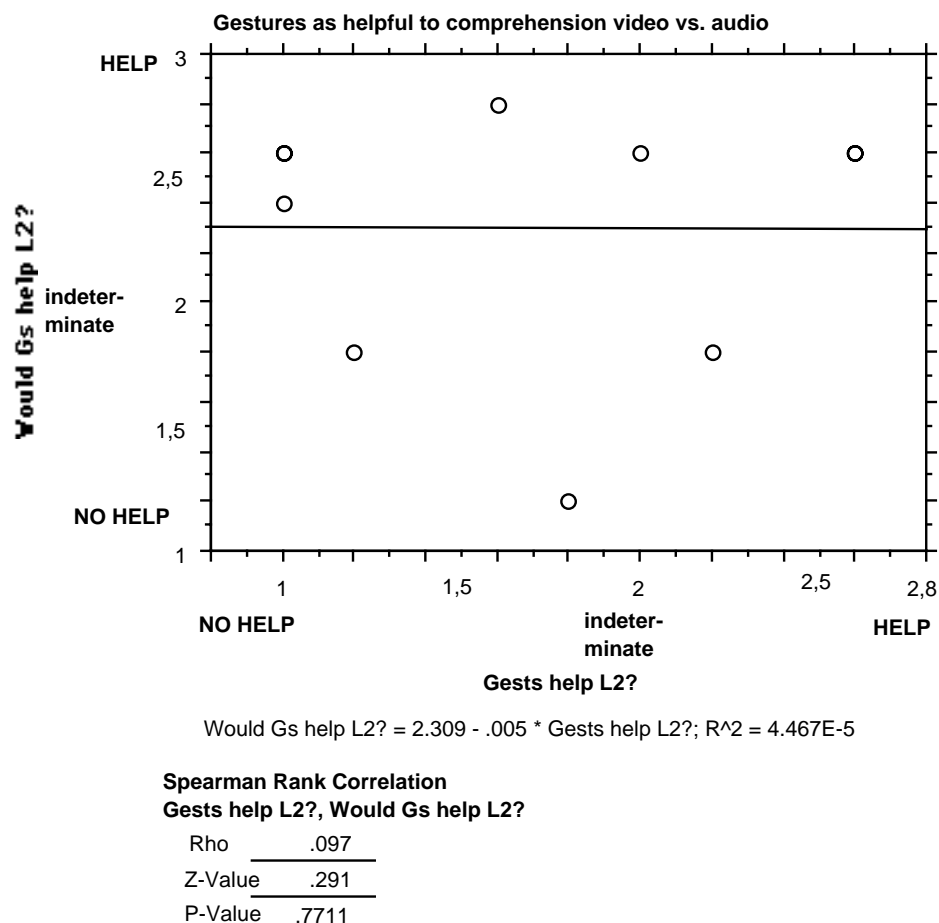|	
Rho	.097
Z-Value	.291
P-Value	.7711

Figure 11:5b. Correlation between assessments of gestures as helpful (VIDEO) and beliefs that gestures would be helpful (AUDIO) to understanding in L2.

There is thus a substantial discrepancy between how helpful viewers actually consider gestures to be, and their beliefs regarding the enhancing value of gestures, were they to see them. There is no correlation between the assessments in the two modes (ρ=.097, p$\leq$.7711), as seen in Figure 11:5b. Why, then, were only Fr1B's and Sw1a's gestures considered helpful to comprehension? And how can the indeterminate answers be interpreted?
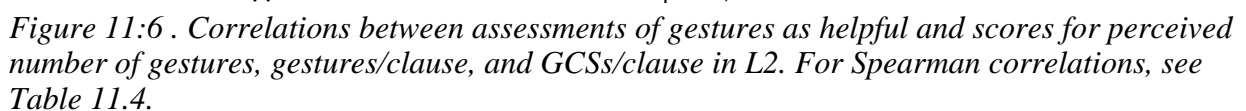
11.5.1 Determining factors

When considering what factors determined the gestures of Fr1B and Sw1a as helpful, an obvious candidate is *proficiency*. Whilst the proficiency level had some influence on the assessments of gestures in the AUDIO mode, the effect of proficiency in the VIDEO mode is less clear. Although both subjects receive low rankings of proficiency, neither is among the very least proficient. The correlation between speakers' proficiency (as evaluated in the VIDEO mode) and the helpfulness of their gestures is very weak (ρ=.4, p$\leq$.2301). All correlations are summarised in Table 11:4.

	proficiency	*rate*			*narrative skills*
		GCS/clause	*gest/clause*	*perceived number*	
helpfulness	ρ=.400, p$\leq$.2301	ρ=.536, p$\leq$.1076	ρ=.694, p$\leq$.0374*	ρ=.845, p$\leq$.0112*	ρ=.791, p$\leq$.0177*

Table 11:4. Summary of correlations between evaluations of gestures as helpful and proficiency, gesture rate, and narrative skills.

Gesture *rate* may also have affected the evaluation of gestures as helpful. The gestures of subjects Fr1A and E, and Sw1c and e were not regarded as helpful, presumably because these subjects gesticulate very little. The two subjects whose gestures were assessed as helpful both use the greatest number of gestures/clause overall, and GCSs/clause, in their respective groups. They also both actively try to solve their severe linguistic problems by relying on gestures. However, the helpfulness of subjects' gestures only correlates moderately with the rate of GCSs/clause (ρ=.536, p$\leq$.1076), as seen in Figure 11:6 and Table 11:4. Instead, the scores for the number of overall gestures/clause (ρ=.694, p$\leq$.0374) and for the *perceived* number of gestures (ρ=.845, p$\leq$.0112) show the only significant correlations with the helpfulness score .

However, the quantitative aspects are insufficient as a basis of explanation. First of all, the correlation with overall gesture simply means that if a speaker performs enough gestures, then some of them are bound to be considered helpful. The scores for perceived gestures are more interesting. The importance of the

Helpfulness of gestures vs. number of gestures

▼ Perceived no of gests L2 = .649 + .524 * Gests help L2?; R^2 = .704
◇ Gest/cl L2 = -.036 + .572 * Gests help L2?; R^2 = .484
✖ GCS/cl L2 = .013 + .208 * Gests help L2?; R^2 = .375

Figure 11:6 . Correlations between assessments of gestures as helpful and scores for perceived number of gestures, gestures/clause, and GCSs/clause in L2. For Spearman correlations, see Table 11.4.

perceived number of gestures is again illustrated by the fact that in the Sw1 group, subject Sw1b uses more gestures/clause than Sw1a, and almost as many GCSs/clause, but Sw1b's gestures were not evaluated as helpful. Only gestures which are perceived, in a vague sense, are thus likely to be ranked as helpful. In view of how little is known about the perception of gesture, qualitative aspects also have to be examined, such as the *gesture types* involved.

Both Fr1B and Sw1a perform more deictics than the other learners (0.59/clause for Fr1B and 0.40/clause for Sw1a). Deictics, as seen above, help create coherence and cohesion. A tentative answer to why the gestures of those learners are singled out as helpful would thus be that such cohesive gestures are more important for improving comprehension of the overall narrative than are other gestures. However, Sw1a also uses more iconic gestures than the other learners in the Sw1 group, including five cases of mime proper in L2. On the other hand, in view of the finding that deictic gestures appear to be less conspicuous, this result seems paradoxical.

The scores on another parameter also show a significant correlation with the helpfulness rankings, viz. assessments of *narrative skills* ($\rho=.791$, $p\leq.0177$). Assessments of narrative skills are interesting because they introduce personal interactional style as a variable. The relatively strong correlation suggests that,

just as was the case for OCSs, gestures may be evaluated as more or less helpful depending on who performs them. The properties that give a narrator high scores for narrative skills may be the same properties which cause the narrator's gestures to be assessed as helpful.

11.5.2 Narratives, and interactional skills

Although individuals vary with respect to how good they are as story-tellers, as seen in Figure 11:7, narrative skills are assessed in remarkably similar ways in L1 and L2, and the correlation is very strong (ρ=.927, p$\leq$.0054 for the total). Although the L2 condition generates somewhat lower scores, the individual differences between subjects are maintained across proficiency conditions. In other words, although they are assessed by different judges, subjects who are successful narrators in their L1 are assessed as being relatively good narrators in the L2 as well, and their individual skills are recognised. However, due to their oral linguistic shortcomings in the L2, the subjects' scores are adjusted downwards in that condition. This is in accordance with Cummins' (1991) assumption that performance on an L2 task is influenced, if not conditioned, by how well it is accomplished in the L1.

This strong recognition of individual skills begs the question of what characterises a good narrator in the eyes of a listener–both in the native and the non-native condition. This is of course a major issue in itself, and only a tentative answer can be suggested here. With respect to the formal aspects of the narrati-
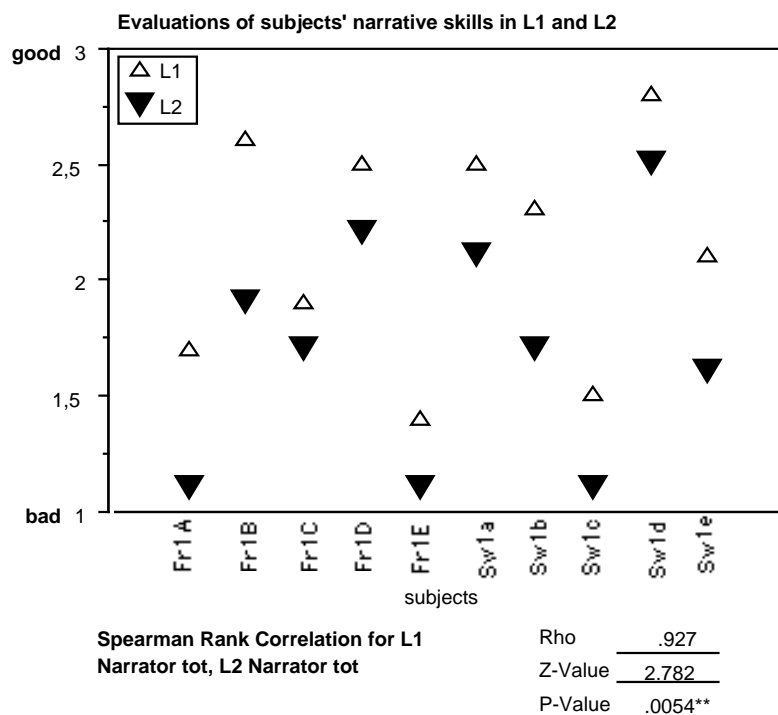

Spearman Rank Correlation for L1	Rho	.927
Narrator tot, L2 Narrator tot	Z-Value	2.782
	P-Value	.0054**

Figure 11:7. NS evaluation of subjects' narrative skills in L1 and L2.

ves, such as enumerating the characters and the events, they appear to play only a minor role for assessments of narrative skills. Although the omission of the punchline will obviously result in low narrator scores, the punchline does not appear to be essential for good evaluations. Instead, the addition of details regarding the characters' emotional reactions gains favour with the judges.

In fact, despite the detailed questions in the questionnaire regarding characters, events, etc., none of the NS judges refer to formal properties in the narrative to explain their rankings of narrators. Instead, they consistently refer to personal properties in the narrator or in the narrator's *communicative style*. Narrators assessed as good are said to 'have a dramatic sense', or to be 'lively', 'engaging', or 'communicative'. Interestingly enough, there is no mention of the use of gestures as part of good narrative skills, and narrative assessments do not correlate particularly well with the overall use of gestures/clause in either condition (ρ=.464, p≤.1643 in L1, vs. ρ=.512, p≤.1244 in L2). In view of this, it is interesting to note that the subject with the best evaluation scores in both conditions, Sw1d, who is considered lively, engaging and with a good sense of the punchline, in fact frequently uses direct speech and enactment. She receives high scores on all the proficiency-related rankings, and thus has good linguistic resources to apply to her narrative skills in both conditions. Fr1B, on the other hand, receives good scores for narrative skills in L2, because he is regarded as lively, engaging and communicative, but low proficiency scores due to the fundamental *lacunae* in his L2 lexicon and syntax.

A good narrator thus appears to be synonymous with a good communicator. The issue of what constitutes (good) communicative behaviour will be addressed in section 11.6 below.

11.5.3 Gestures, effectiveness, and assessments

Although some gestures are obviously considered to be helpful to comprehension, the results are inconclusive, and it would be premature to identify a sub-set of gestures which are particularly helpful. A combination of factors, related both to quantitative and qualitative aspects of gesture may influence assessments. However, gestures appear to be evaluated as helpful largely on the basis of who performs them, as was the case with OCSs. In contrast to OCSs, however, proficiency does not seem to be the determining factor. Instead, the number of perceived gestures, and speakers' narrative skills are the best candidates. This suggests that speakers' overall individual communicative styles may be the most powerful decisive element when listeners assess how helpful gestures are to comprehension.

However, most assessments of the improvement value of gestures were indeterminate. The vagueness in the responses by judges regarding this issue suggests that they find it difficult to assess *post factum* which gestures helped them understand what, as they consciously consider their own comprehension process. It seems plausible that noticeable gestures, such as iconics and metaphorics with physical expanse and referential content, will be remembered and assessed. It is less likely that essentially redundancy-creating gestures, such as deictics, will be consciously noticed as improving comprehension–even if they in fact do.

The paradox regarding subject Fr1B's gestures may then reside in the fact that judges reply to different questions when assessing how helpful gestures are to comprehension. If judges consider their own overall comprehension holistically, then the redundancy created by deictic gestures may be included as a helpful feature which, although not noticed consciously, could still have contributed to the global comprehension. If, on the other hand, judges consider individual gestures analytically and try to determine their individual improvement value, then redundancy-related gestures will presumably not be considered. Judges deeming Fr1B's gestures to have helped may essentially have answered the question using the first process, whereas all the indeterminate answers could reflect the opposite circumstance. Consciousness and attention thus complicate the evaluation process regarding gestures, and this factor illustrates the difficulty in assessing the effectiveness of gestural strategies. A more subtle test tool will have to be developed to provide reliable answers. This is yet another area of gesture perception which has to be studied further.

11.6 The effect of individual communicative style on evaluations

Subject Fr1B constitutes an interesting test case for a number of issues raised by the results of the NSET. He is an exception to the tendency whereby narrative skills and L2 proficiency tend to be ranked in the same manner, since his L2 narrative skills are scored as better than his L2 proficiency. He also profits from being seen more than other subjects, since he is evaluated as much more proficient in the VIDEO mode than in the AUDIO mode. Moreover, his gestures are judged to improve understanding, in contrast to the gestures of other subjects, although they are not regarded as particularly numerous. All four areas of judgement–proficiency, narrative skills, helpfulness of gestures, and stimulus modality–seem to be inter-related and affected by a property which could be labelled as the individual's 'communicative style'. The basis for Fr1B's results seems to be that he has chosen a successful communicative style.

Being 'communicative' usually implies extroversion. Extroversion can in itself be defined by as speaker behaviour with a high level of activity–oral, gestural, and interactive–reflecting the communicative effort invested in solving the task. As

such, it also concerns the extent to which the speaker/learner draws on his or her communicative or strategic competence to handle a communicative situation. Specifically, how communicative a speaker is judged to be seems to depend on the degree to which the s/he engages and activates the listener in the construction of the narrative. If Fr1B is ranked as a good narrator in L2 despite his severe linguistic problems, it is because he exploits his strategic competence and applies CSs, but also because in doing so, he involves his listeners actively in solving the problems, rather than relying on his own internal metalinguistic debating. When listeners are left out, either because they don't understand or because they do not feel involved, they get bored; when listeners are bored, the narrator is assessed as bad on all accounts, proficiency, narrative skills and comprehensibility. Fr1B receives better scores on narrative skills than on linguistic proficiency, but one might guess that his linguistic level would have been ranked even lower had he been less 'communicative'.

The realisation of communicative competence entails the exploitation of all strategic resources. Fr1B exploits both oral and gestural strategies freely. In contrast, learners who are less communicative in this respect tend to be evaluated as poorer performers. Subject Fr1E, for instance, has lexical problems, but her grammatical problems are less severe than those of Fr1B. In spite of this, she is assigned poorer evaluations than Fr1B on all accounts. In contrast to Fr1B, however, she does not exploit the opportunities afforded either by OCSs or GCSs–not even when explicitly encouraged to do so by the NS listener. Fr1E thus displays poor communicative or strategic competence in all areas, oral as well as gestural (cf. Jungheim 1995a, 1995b). This can be compared to the finding that aphasic subjects can be successful communicators independently of their linguistic abilities when using compensatory gesture (e.g. Anderson, et al. 1997; Simmons-Mackie & Damico 1997). Although the figures in this study for use of OCSs and GCSs in isolation do not correlate with positive evaluation scores, the combination of all strategic resources may actually generate a favourable impression, since it shows that the speaker is trying.

The results from Neu's study of how assessments are affected by learners' gestures (Neu 1990) in fact lends some support to the contention that it is the realisation of strategic competence in all modes which affects NS assessments positively, rather than a particular type of gesture. The learners in that study differed in the level of interactive activity they engaged in. The subject proposed to have benefited from using content-related gestures, was also more active in other respects. This corresponds to the differences between Fr1B and Fr1E in this

study. The more active the learners are in *all* respects, the more positive the NS judgements are likely to be.[4]

The application and use of strategies–even detected strategies–is thus not necessarily detrimental to evaluations of proficiency. In fact, for intermediate and advanced learners, the moderate application of CSs instead appears to enhance evaluations, particularly if the strategies engage and involve the listener. Learners with good strategic competence therefore receive higher ratings. This is in accordance with the findings in Labarca & Khanji (1986), where students trained in strategic interaction were judged as better L2 speakers (cf. section 2.6).

If Fr1B is more favourably evaluated in general due to his good communicative skills–i.e. the exploitation of strategic competence in a highly interactive manner– then it is hardly surprising that he should benefit from being seen rather than only being listened to. Even an observing listener who is not directly involved in the face-to-face interaction will be sensitive to the interactive dynamics of such a communicative style. This assumption seems to be confirmed by the findings presented by Nambiar & Goon (1993), where learners were consistently assigned higher scores in face-to-face evaluation than for audio recordings. Sources of irritation in the AUDIO modes were the long pauses and repetitions, just as in this study. The VIDEO mode appears to be located somewhere between the AUDIO and the face-to-face mode, providing both learners and listeners with an advantage.

Finally, the proposal that learners' communicative styles affect NS assessments of their performance is in accordance with arguments in favour of viewing strategic or communicative competence as essentially the same in L1 and L2 (cf. Bongaerts & Poulisse 1989; Cummins 1991). For instance, the communicative shortcomings of Fr1E appear to be the same in both the native and the non-native condition, given her low scores even in L1. An individual's style is fundamentally the same irrespective of what language s/he has chosen, and, in itself, contains all the elements for evaluation: linguistic level, comprehensibility and task-specific skills.

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[4] Factors such as general (physical) attractiveness, charm, etc., presumably also play a role. A more controlled socio-psychological experiment would have to be designed to ascertain the effect of such factors.

11.7 Summary

The results from this exploratory study provide tentative answers to the three questions asked at the outset. Firstly, with regard to the evaluation of gestures, the results show that all subjects are evaluated as moderate gesticulators, both with respect to *rate* and *range* of gestures, irrespective of their first language and whether they are performing as native or non-native speakers.

An additional finding is that not all gestures receive the same amount of atten-ion. This is illustrated by the fact that listeners'/viewers' perception of the amount of speech-associated gestures used is only moderately influenced by the actual amount. Instead, factors related to perceptual salience, such as physical properties and referential qualities of gestures, appear to affect which gestures are noticed.

Secondly, in contrast to OCSs, neither the use of gestural strategies nor of overall number of gestures appears to influence proficiency assessments. However, assessments are positively correlated with the number of perceived gestures, such that an elevated number of noticed gestures corresponds to positive proficiency evaluations. Potential candidates for perceived gestures are iconic gestures, which appear to affect assessments of oral proficiency positively.

Thirdly, the results regarding the issue of how helpful gestures are to compre-ension, and how effective they are as strategies remain inconclusive. Listeners in an AUDIO mode generally believe gestures to be helpful to comprehension, especially in the case of learners of low proficiency. However, viewers who actually see gestures in a VIDEO mode are generally vague regarding their im-rovement value. Factors influencing how useful gestures are actually considered to be include the perceived number of gestures, and speakers' narrative skills, rather than proficiency. However, all learners, but especially intermediate and advanced learners, benefit from being assessed in the VIDEO mode rather than in the AUDIO mode. It was argued that the test tool was too blunt to probe judges' assessments of their own comprehension processes.

The broad results from the test in fact suggest that personal communicative style plays a major role in the assessments–both of proficiency and of how gestures are perceived. The realisation of strategic competence in all modes can be assumed to influence NSs positively, especially in terms of how engaged they are in the construction of the message. Communicative style presumably also influences which gestures are attended to. Since very little is known about the perception of gestures, this study has opened up a number of possible further fields of inquiry.

Part Three
12 Gestures as communication (strategies)

Sometimes a gesture is used because the speaker does not have another mode of expression available, but as often it is because a way is being sought to make the expression more complete or more vivid and more attractive to others, among other possibilities.

Kendon (1994:194)

12.1 Introduction

Throughout this work gestures have been shown to function as compensatory devices at multiple levels, and for speakers and listeners alike. Some of the facilitative aspects, such as redundancy, have rarely been addressed in the literature concerning oral Communication Strategies (CSs), although redundancy is an important variation on the gestural compensatory theme. In addition to complicating categorisation issues, redundancy entails a listener perspective which is not ordinarily considered in discussions of strategic behaviour. Both psycholinguistic and interactive perspectives thus seem to be required in order to be able to give a full account of the compensatory functions of gestures. As a consequence of the multifunctionality of gestures, the issue of what strategic behaviour consists of also needs to be re-addressed.

12.2 Gesture as a Communication Strategy–an evaluation

This study has endeavoured to provide a method for studying gestures within a framework for CSs. The process-oriented theories of CSs are a suitable starting point, since they share basic tenets with the cognitive theory of gestures developed by McNeill. Oral and gestural output modes, speech and gestures, are regarded as equivalent and dependent on the same underlying representations and cognitive processes. These processes rather than surface phenomena determine strategy classification. The framework proposed in the present study thus combines these two theoretical traditions. As a result, the same classification and analysis can be applied to both information modes given that oral and gestural strategies are part of the same communicative effort. This is an improvement on the interactionist proposals, which view gestures as an entirely different type of solution from oral strategies.

The empirical results from this investigation indicate that gestures can success-fully be studied as strategies within the proposed framework. Although the quantitative results must be treated with caution, since they are based on restricted data, the qualitative analyses clearly show that gestures function in essentially similar ways to oral Conceptual strategies in the face of lexical difficulties. The supposition that compensatory gestures substitute for speech and are primarily mimetic has also been disproved. The analysis has instead revealed that gestural strategies co-occur with speech, and that learners exploit two other types of gestural strategies in addition to Conceptual mimetic gestures: Code-based gestures to handle discourse-related problems, an area hitherto ignored by CS research, and metalinguistic Hedging to modify messages.

The cognitive CS framework applied to gestures works best for Conceptual strategies at a lexical level. This is to be expected, given that the process-oriented frameworks were designed to investigate lexical difficulties. Although the system has proved flexible enough to reveal the importance of gestural Code strategies, it is unsatisfactory that such Code strategies are defined by default. 'Ostensive definition', as mentioned in the process-oriented frameworks, includes concrete pointing, where attention is directed to a different mode of expression to solve lexical problems. However, abstract deictic gestures which are exploited strategically differ in function from both gestural Code strategies based on concrete deictics, and oral Code strategies. The output of these two types of Code strategies is lexical in nature. Code strategies based on abstract deictics, on the other hand, direct attention not only to another mode of expression, but also to a different linguistic level, discourse. The principal strategic function at discourse level is to create redundancy, a very different function from that of oral Code strategies. In fact, redundancy is never regarded as a strategy in the oral accounts. In view of these differences, using the Code label as a blanket term for both types of behaviour appears inappropriate.

Similarly, the important Hedging strategies, which are so dominant in learners' gesture production, are not easily dealt with in the process-oriented frameworks. When strict criteria for the classification of cognitive strategy types are applied, gestural Hedging should be seen as a Code strategy, again by default, since a change of mode is involved to express the message. However, in terms of func-tion and effect, gestural Hedging is entirely different from oral Code strategies. Gestural Hedging is interactive by nature as it makes sense only in the presence of an interpreter. In fact, for *any* gesture to work as a strategy, it needs to be seen and interpreted by an interlocutor. This difference seems to call for a functional approach to strategies in addition to the psycholinguistic perspective, where the interlocutor could be taken into account. Rather surprisingly, however, not even the interactionist theories have considered the full range of functional aspects of
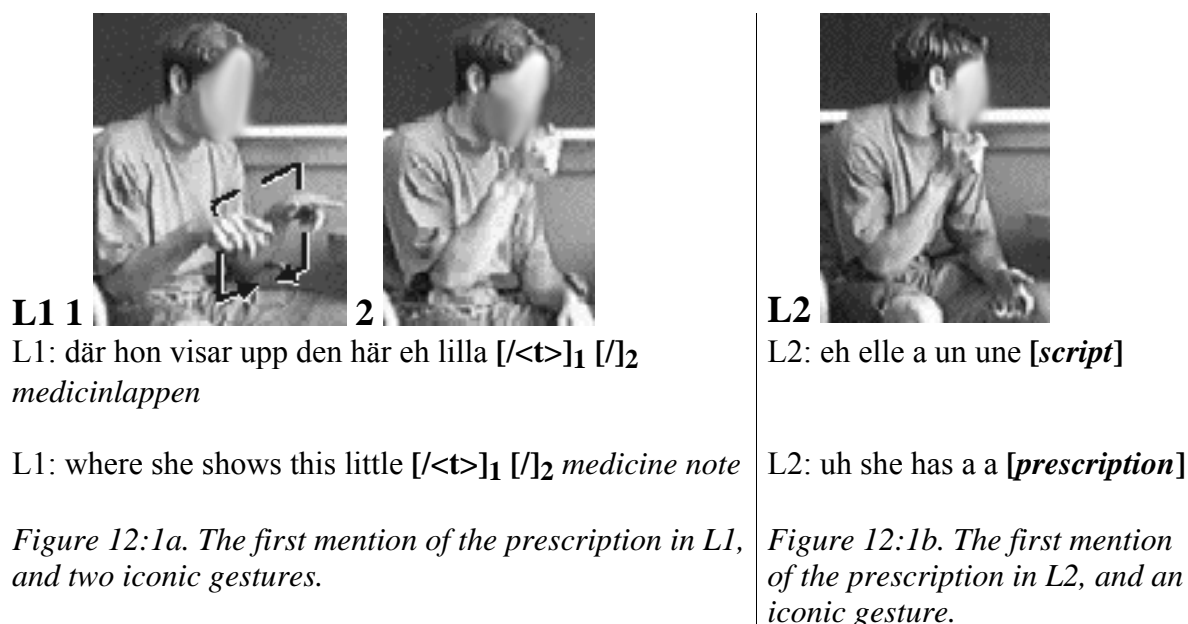
gestural strategies. Instead, these theories have focused on the erroneous assumption that gestures serve only as replacements for lexical items (e.g. Glahn & Holmen 1985; Haastrup & Phillipson 1983; Tarone 1977). Some of the earlier frameworks regarded gesture as a means of appeal (e.g. Corder 1983; Faerch & Kasper 1983b; Paribakht 1985), but the analyses are insufficiently detailed with regard to the complexities of these functions.

Although gestures are compatible with fundamental tenets both of the cognitive and the interactionist traditions for CS study, both frameworks suffer from the inability to handle the full range of facilitative properties in gestures, some of which have hitherto not been regarded as strategic in either field, such as redundancy (cf. Kasper & Kellerman 1997; Yule & Tarone 1997). An adequate framework must be both broad and flexible enough to consider the fact that oral and gestural strategies are reflections of the same underlying processes within the individual, *and* that (strategic) gestures are interactive phenomena.

12.3 Definition dilemmas revisited–what is strategic behaviour?

A central problem for both frameworks when applied to gestures is the issue of how strategic behaviour is to be defined and what it encompasses. Intentionality and consciousness are just as problematic as defining criteria for gestural strategic behaviour as they were for oral strategies (cf. sections 2.3.2-4). The problem of controlling for strategic intentions is in fact what led to the application of behavioural evidence (Bialystok 1990) or 'performance features' (Faerch & Kasper 1983a) as a means of identifying strategies. Since this technique has been used in this study, 'strategy' has technically not been defined at all. Given this *modus operandi*, an obvious question is how the gestures singled out as being strategic differ from other gestures in the material. One answer might be that strategic gestures are given prominence as a complementary medium for information by the surrounding linguistic context. Another answer could be that the gestures singled out as strategic are *not* different from other gestures. The fact that they co-occur with performance features does not imply that they are underlyingly different from other gestures. In fact, if the creation of gestural redundancy is regarded as strategic behaviour, then *all* gestures should be included. This latter view compromises the very dichotomy of strategic~non-strategic behaviour.

The *interactionist* theories of CSs emphasise the differences between strategic and non-strategic behaviour by comparing behaviour in L1 and L2 (Yule & Tarone 1997). NSs are recognised as using strategies, but these are claimed to differ qualitatively from L2 strategies. NS strategies include more specific vocabulary

L1 1   2

L1: där hon visar upp den här eh lilla [/<t>]₁ [/]₂ *medicinlappen*

L1: where she shows this little [/<t>]₁ [/]₂ *medicine note*

Figure 12:1a. The first mention of the prescription in L1, and two iconic gestures.

L2: eh elle a un une [*script*]

L2: uh she has a a [*prescription*]

Figure 12:1b. The first mention of the prescription in L2, and an iconic gesture.

than learner strategies, and also more analytic constructions (Tarone & Yule 1987, 1990). The study of gestures can be said to support the proposal that there are qualitative differences between strategies in L1 and L2. As shown in this study, gesture production in L2 is dominated by a different set of gesture types than L1 production. In L2, metaphoric and deictic gestures are favoured, whilst L1 production is dominated by iconics and beats. Moreover, the quantitative differences between strategic gesture use in L1 and L2 are of such a magnitude that discourse can be said to be qualitatively different in the two conditions. The increased redundancy and over-marking sets L2 discourse apart from L1 discourse.

In contrast, a key contention in the *process-oriented* tradition is that strategic behaviour is similar in L1 and L2, since it reflects identical underlying processes irrespective of output. The difference between strategic behaviour in L1 and L2 is therefore a matter of degree rather than of kind (Bialystok 1990; Bongaerts, Kellerman, & Bentlage 1987; Bongaerts & Poulisse 1989; Hol 1996; Kellerman, et al. 1990; Poulisse 1990). Compensatory behaviour in aphasia has also been characterised as the quantitative expansion of communicative behaviour already present pre-morbidly (Simmons-Mackie & Damico 1997), i.e. behaviour regarded as 'normal' communicative performance. The study of gesture lends support also to these proposals, as exemplified in Figures 12:1a and b.

In Figure 12:1a:1-2, a L1 speaker is seen using two iconic gestures to depict the prescription. The first gesture outlines the paper, and the second gesture shows the subject gripping the paper firmly in one hand. The same grasping gesture is seen in L2 production in Figure 12:1b. In the L1 narrative, the speaker uses both oral (Conceptual) and gestural (Conceptual) strategies to illustrate the prescription (1-2). In the L2, the iconic gesture occurs with an oral Code strategy. In addition to highlighting the similarity in strategic behaviour in L1 and L2, the examples also

illustrate the mechanism by which speakers gesturally mark the introduction of a new referent in discourse, adding to redundancy, irrespective of language condition. The behaviour in the two conditions is virtually identical, and no qualitative differences can be seen. Seen from this perspective, strategic gestures in L2 production are not qualitatively different from strategic gestures in L1, but simply more frequent.[1]

12.4 Broadening the strategic view

Given that the study of gesture supports opposing contentions that strategic behaviour is different from vs. similar to non-strategic behaviour, a more flexible approach to defining 'strategy' than hitherto proposed must be sought. A theory is needed which allows for both functional-interactionist and psycholinguistic perspectives. Ideally, it should be possible to treat various compensatory measures terminologically in a unified manner, and to handle varying degrees of 'strategicality'. With respect to the first issue, a functional descriptive system may take as its point of departure the question of who stands to gain from the relevant behaviour. The perspectives outlined are summarised in Table 12:1.

Most accounts of CSs assume that strategies are primarily beneficial for the speaker, as opposed to for the listener or for overall interaction. In a *speaker*-oriented perspective, strategies are typically applied in order to elicit help. A *response* criterion is therefore often implicit in such perspectives. However, it is not clear just how overt help has to be for a particular behaviour to qualify as strategic. As has been demonstrated in this study, only Conceptual gestural strategies and Code strategies with concrete deictics result in overt, explicit help in the form of lexical responses from the listeners. The application of the majority of Code strategies instead leads to gestural redundancy, which results in a less overt type of listener response. This response takes the form of delayed negotiation regarding referent disambiguation, or recapitulation. If gestural Hedging strategies are responded to, the responses are essentially covert, since the modifications made to the interpretation are performed without external signs of processing. A definition based on a response criterion would therefore have to consider that there are degrees of responsiveness, and that speakers can exploit strategic potentials although responses are covert.

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[1] In this particular example, the L1 condition actually generates *more* strategic behaviour than the L2 condition.

	beneficiary	purpose	strategy type			
↑	speaker	elicit help (auto-, other-) avoid help or detection	achievement, lexical, Conceptual	prototypical strategy compensa-tion	more conscious	↑
	listener	improve comprehension	redundancy, coherence, gestural Code-strategies			
↓	speaker/ listener	sustain communication	co-operative work, modified speech/ interaction, all gestures	helpful behaviour	less conscious	↓

Table 12:1. Perspectives on beneficiaries, purposes, and prototypical strategies.

Moreover, elicitation from the self, auto-elicitation, would also have to be consi-dered. It has been proposed in gesture theory and studies of aphasia that gestures help activate encoding processes in the speaker, or facilitate lexical access (cf. section 4.3.1). Such behaviour should qualify as a highly cognitive, speaker-oriented strategy. However, speakers also apply strategies without the intention of eliciting responses when they want strategies to go undetected, and this is presumably the preferred alternative. This more covert purpose should also be taken into account.

A second, and more clearly *listener*-oriented perspective, regards CSs as aimed at improving or enhancing comprehension (cf. Canale 1983). Such improvement entails minimising uncertainty, and reducing the risk of misunderstandings (cf. Bremer, Broeder, Roberts, Simonot, & Vasseur 1993; Linell 1995, 1996; Varonis & Gass 1985b). It can be achieved in open negotiation or more implicitly by ensuring redundancy. Again, gestural redundancy serves as a test case. Its strategic value for speakers/learners is not likely to reside in the immediate communicative help it generates. Instead, redundancy is more directly advantageous for listeners as it facilitates comprehension. A listener-oriented perspective will thus include all gestural strategies, i.e. discourse-related and Hedging strategies, as well as the ones eliciting overt response.

A third, even broader purpose of CSs is to sustain communication. This per-spective is more *interactional* in a bilateral sense, since sustaining communica-tion is the responsibility of both parties (Clark & Wilkes-Gibbs 1986; Wilkes-Gibbs 1997). From this perspective, CSs are beneficial to both interlocutors, and should therefore include all phenomena mentioned as being typical of collabo-rative interaction (cf. Dörnyei & Scott 1997). Specifically, the typical NS beha-viour in NNS/NS interactions labelled as co-operative work, modified interaction, Foreigner Talk, etc. (Giacomi & de Hérédia 1986; Larsen-Freeman & Long 1991; Long 1983) should be included, along with listener gestures, as suggested in Chapter 10. From such a perspective *all* gestures should be included, not just the ones considered to be strategic on the basis of performance features. Gestural redundancy thus promotes communication and helps both speakers and listeners by providing listeners with a better position from which to understand and follow,

such that speakers/learners in turn benefit *indirectly* from their own redundancy-creating devices.

The different levels outlined in Table 12:1 can be said to represent cases of strategic behaviour of varying prototypicality. Dörnyei & Scott (1997) have proposed a similar continuum for communicative facilitation. At one end, specific communicative 'first-aid' measures can be found, and at the other more general mechanisms for communication enhancement.

Consciousness or intentionality may tentatively be superimposed on this scale as indicated in the table. The degree to which a speaker is conscious of his or her communicative problem and of the compensatory device used to solve it differs with the severity of the problem, and the accessibility of solutions. Similarly, the degree to which speakers are aware of their gesture production and the potential exploitation of gestures as CSs must depend on factors such as the level of fluency, and the didactic ambition. When oral communication breaks down completely, learners are likely to be aware of the problem, and can perform substitutive gestures intentionally to elicit help. In more hesitant phases, the performance of gestures, strategic or otherwise, is likely to be less conscious.

A prototypical case of strategic behaviour thus consists of local speaker-oriented measures of the 'first-aid' type, applied to handle conscious, immediate problems which jeopardise continued communication. Less prototypical strategies, which may still be characterised as *compensatory* devices, include the type of measures taken to improve broader comprehension. The least prototypical type of strategy encompasses behaviour which is *helpful* in general to the maintenance of global communication, and which is probably performed with the least conscious effort.

A gesture occurring in interaction may consequently be labelled as helpful, compensatory, or strategic, depending on the perspective adopted. Since gestures function strategically at all levels, the widest definition of a 'strategic gesture' would be a speech-related gesture performed consciously by a speaker with encoding problems in the hope of eliciting lexical help from the interlocutor, or activating encoding procedures within him or herself; the gesture would also be performed to improve comprehension for the listener and sustain communication. By specifying the focus of study or the level at which a potential strategy operates according to the suggestion in Table 12:1, a range of facilitative behaviours could be treated in a more unified manner.

12.5 Probabilistic strategies–an outline

A more cognitive account of all the levels at which gesture is facilitative–as a strategy and as general communication enhancement–requires a framework which is not bound by either/or solutions, but which can integrate both local and global, cognitive and social perspectives. By placing the study of gesture and strategic language use within a probabilistic framework of communication, such a flexible account may be achieved.

Probabilistic models typically consider linguistic behaviour to be the result of cognitive weighting or ranking of information to achieve optimal certainty in language processing. The operative word is optimal. No solution is considered to be 100% certain. Language use is not seen as being predetermined, rule-based and invariable. Instead, when linguistic behaviour is regarded as the outcome of continuous weighting to achieve the most probable solutions, variability can be accounted for.

Reference identification, for instance, has been treated within the *Competition Model* (for overviews, see Bates & MacWhinney 1989; MacWhinney 1987) in terms of cognitive or psycholinguistic weighting of information *cues* in order to arrive at the best or *most likely* solution given these cues. Information cues constitute associations between form and meaning, in a loose sense. Cues also carry different weights, which means that they exercise an influence of varying strength on the final interpretation depending on the importance assigned to them. Moreover, cues interact, combining or competing, to determine a referent, and the heaviest combination of cues will single out the best interpretation. An example of how cues work is the way in which cues such as word order, agentivity and animacy combine to determine the most likely subject in a clause.

> (1)　　The boy threw the toy.
> (2)　　The toy threw the boy.

A subject which is pre-verbal, animate and also an agent is a highly likely subject, as in (1). If a referent is pre-verbal but inanimate, as in (2), it is less likely to be chosen as the subject, but the interpreter has to rank the cues in order to arrive at the most likely choice. Different languages have been found to assign different weight to cues such as animacy or word order. The variability in the language use of first and second language learners, as well as of aphasic patients has been investigated in terms of different cue weight assignment (for a collection of papers, see MacWhinney & Bates 1989).

The central assumptions underlying the Competition Model could also be exploited to account for variation in speech *production,* in addition to interpretation

(Gullberg 1995). If listeners evaluate cue weights in the decoding process when deciding on the most likely speaker intention, then speakers presumably also have to consider cue weights in encoding. When referring, speakers can be assumed to weight encoding cues such that the resulting expression has a maximal chance of identifying the intended referent. Consideration is thus given to the listener/interpreter, in the sense that encoding is made to enable listeners to identify a given referent. Communicative intent becomes central.

The weights assigned to cues in production are by necessity influenced by 'world knowledge' and context.[2] Given the loose definition of 'cue', the notion may be expanded to include such information sources. Kleifgen & Saville-Troike (1992) investigated the effect of world knowledge, situational, and language skills on learner production. They found that although all levels work in unison to achieve coherence, world knowledge was the most powerful level for solving learner problems in discourse, since this is where common expectations are treated (cf. Minsky 1975; Schank & Abelson 1977). An expansion of the cue concept means that not just linguistic processing but also global pragmatic behaviour is regarded as cue-driven. Similar approaches have already been suggested in other frameworks for communication, such as Givón's proposal for coherence (Givón 1995), Gumperz's 'contextualisation cues' (Gumperz 1982; 1992), and even in the context of language evolution (Armstrong, et al. 1995).

Gesture makes an excellent candidate for an information cue. Gestures have the capacity to express 'world knowledge' from the referential domain (size, shape, action, etc.), linguistic knowledge from the discourse domain (tracking referents, mapping temporality onto space, etc.), and pragmatic knowledge (expressing metalinguistic comment). Gesture thus serves as a cue in its own right. It can also be regarded as a particular cue mode, given McNeill's notion of one underlying representation with two output channels (e.g. McNeill & Duncan 1996).[3] Linguistic processing can therefore be said to have two modes in which cues are weighted against each other–the oral and the manual modes (cf. Cassell, et al. in press; McNeill, et al. 1994).

A probabilistic account of strategic behaviour could integrate these two modes. Gestural and oral cues are generally not in competition, but depending on the

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[2] Agentivity and animacy are in fact examples of particular types of world knowledge.

[3] McNeill's model of an underlying representation at the conceptual level, which is then coded either holistically as gesture, or analytically in linear form as speech, can be compared to Levelt's model of speech production (Levelt 1989) . Levelt includes kinaesthetic representational systems in the conceptualiser which can interact with a propositional or spatial representational system. These systems are connected to the formulator for linguistic representation (preverbal messages). However, Levelt does not seem to have considered output modes other than the oral channel for the preverbal messages.

conditions, the cue modes can be assigned different weights. When oral linguistic cues for reference retrieval are incomplete or less than optimal, gestural cues complement the cluster to provide *en*coders with options for additional clarity or redundancy, and *de*coders with a better chance of successfully interpreting the message. For instance, if the cluster of oral linguistic cues used to designate 'prescription' is incomplete, defective, or simply not available to the (L2) speaker, more weight is assigned to the gestural cue mode, which may also assume more consciousness. The weight assignment leads to a complementary gesture being produced which provides additional information on the intended referent.

Prototypical strategies on the surface therefore reflect cases where *several* cues are attributed considerable weight, and no single cue wins out and dominates the production. In 'strategic' production, encoded information is then distributed over several cues or cue modes. The numerous combinations of transfer and 'paper gestures' in the data are typical examples. The more strategic the behaviour, the more dispersed the information; the less 'strategic' the behaviour, the more concentrated the information.

This proposal resembles some of the suggestions in the process-oriented frameworks (Bialystok 1990; Poulisse 1993, 1996), especially Bialystok's model, where strategic behaviour is seen as the imbalance between the two processes 'analysis' and 'control', with one dominating the other (Kellerman & Bialystok 1997). Bialystok makes no distinction between strategic and non-strategic language use but sees the difference between the conditions as a matter of degree. Similarly, the weighting of informational resources in a cue-driven probabilistic framework suggests a scale of 'strategicality' rather than a clear dichotomy. The different facilitative levels at which gestures operate, as suggested by the quotation from Kendon, can thus be accounted for as cases where varying informational weight is carried by gestures. Gestures are strategic, compensatory or just helpful, depending on the weight assigned to the cue mode.

Communicative and strategic competence can then be regarded as the capacity to trigger appropriate cue clusters in the interlocutor. This is achieved by negotiating and co-ordinating expectations (Clark 1996a, 1996b; Kleifgen & Saville-Troike 1992), and by exploiting cue weights accordingly. Speakers are not equally skilled at assigning cue weights to different modes to maximise interactional effectiveness. This is shown by the fact that some learners in the data do not exploit the gestural mode as an informational channel despite their oral linguistic problems.

What distinguishes this approach from the process-oriented proposals is the suggestion that even cognitive processes such as cue weighting take place in social contexts. No 'conduit metaphor sin' is committed when cue weighting is seen as a bilateral process affecting both encoders and decoders. The purpose of achieving mutual understanding results in interactive phenomena influencing the weight assigned to different cues. If meaning, in a broad sense, is seen as the result of interactive and collaborative negotiation, it must consist of reciprocal and continuous weighting, with both interlocutors manipulating cues from different sources to achieve a common 'best fit' (e.g. Clark & Wilkes-Gibbs 1986). Relevant information therefore includes cues and signals from interlocutors in ongoing interaction as well as linguistic cues internal to the encoding. As suggested by Wilkes-Gibbs (1997), cognitive processes must work in tandem with dynamic, social factors to achieve overall language processing.

The present section is no more than an outline of how strategic language use, compensatory devices, and global communication could be treated in a probabilistic model. A range of issues have to be thoroughly addressed before this sketch can be developed into a model, such as the notion of 'cues', their status, and the weights assigned to different types of cues in interaction. The strength of the probabilistic approach, however, is that it allows variability to be included as a normal aspect of language use, including varying levels of strategic behaviour, varying degrees of speaker- and listener-orientedness in communication, perhaps even varying levels of consciousness. Specifically, by seeing CSs as the manipulation of competing sources of information, the same descriptive and theoretical framework can be applied to both production and perception. CSs can be said to be beneficial to speakers and listeners, learners and native speakers alike, and gestures can be seen both as strategies and as a normal part of communication enhancement.

Irrespective of which perspective is preferred for handling strategic behaviour, speech-associated gestures represent a challenge for anyone dealing with L2 or L1 performance, strategic or non-strategic, since these are powerful communication enhancers and perform communicative work at several levels simultaneously. They concretise the abstract, they help create and refer to context, they can be beneficial to speakers and listeners simultaneously, and they relate both to the real world and to language. This communicative versatility should afford speech-associated gestures a privileged status in any theory of communication.

12.6 Final overview

The results from this study have provided some initial answers to the questions posed in the introduction. The empirical findings can be summarised as follows:[4]

• Language learners use more speech-associated gestures in L2 than in L1 production (9.2.1). The *number of gestures* used is subject to individual variation, but at group level no significant difference can be found between the two cultural groups, in neither the L1 nor the L2 condition. In fact, all subjects are evaluated by NSs as being moderate or minimal gesticulators (11.3). Surprisingly enough, subjects are assessed as using moderate numbers of gestures even in the L2 condition, where NS judges were expected to evaluate learners as over-gesticulating.

• Individual variation can also be found in the *type of gestures* preferred (9.2.2). However, typical learner (L2) gestures are metaphorics and deictics, as opposed to the expected iconic gestures. Mime proper is rare in the data for both proficiency conditions. Cultural differences may influence the group preferences for certain gesture types (9.2.2, 9.3.4). The Swedish group appears to prefer referential gestures, whilst the French group favours discourse-related gestures. NS judges evaluated all subjects as using gestures of a normal range and size in both proficiency conditions (11.3).

• The empirical results concerning *Oral Communication Strategies* (OCSs) confirm prior findings to the effect that proficiency influences both the number and the type of strategies favoured, as well as the success of the strategy (Chapter 7). The type of oral strategy is also influenced by the task and cognitive cost. The French subjects use significantly more strategies than the Swedish subjects. All learners in this study favour Code strategies, especially transfer.

• *Gestural Communication Strategies* (GCSs) have been classified according to an expanded taxonomy based on one of the cognitive frameworks proposed for CSs (5.2). Conceptual and Code strategies have been defined, along with a third category, Hedging. Strategies have been identified by their co-occurrence with so-called performance features such as pause, and hesitation.

–Iconic and referential metaphoric gestures are used to solve *lexically* related problems by exploiting conceptual features in referents (8.3). These gestures constitute *Conceptual* strategies. Concrete deictics are also used to solve lexical problems, but are examples of *Code* strategies (8.5). These gestures are often used to elicit lexical help from the interlocutor.

–Attitudinal metaphoric gestures, in contrast, are exploited to modify messages at a *metalinguistic* level, in the form of strategic *Hedging* (8.4).

–Abstract deictic gestures serve as *Code* strategies to overcome grammatical or *discourse*-related difficulties by the creation of redundancy (8.5). By referring to a spatial 'map of discourse', speakers can ensure visual co-reference and coherence, mapping temporal aspects onto space. Referents are typically over-marked both orally and gesturally in L2 production.

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[4] Figures within brackets refer to the sections where the results are presented.

–Beats mark a type of discourse management with which speakers can indicate self-correction (8.6). Beats are rarely exploited strategically.

• Gestural CSs are overwhelmingly *complementary* to speech in adult L2 learners, whereas *substitutive* strategies are rare (9.2.3-4). Conceptual and Code strategies are also equally frequent, suggesting that lexical and grammatical problems are of equal importance to learners (9.3). Complementary strategic gestures serve both to elicit responses from listeners and to create redundancy. Moreover, gestural CSs are sometimes *combined* with oral CSs, especially in the learner group of lower proficiency (9.2.5). Gestural strategies are chiefly combined with oral Code strategies such as transfer, since the latter tend to be unsuccessful.

• The influence of *proficiency* primarily concerns the type of gestural CSs used (9.3). Different encoding problems–lexical vs. grammatical–result in different strategy types. Contrary to expectations, learners of low proficiency appear to favour Code strategies related to grammar and discourse, rather than Conceptual strategies concerned with lexical problems. The individual preference for gesture types also affects the strategy type favoured. However, proficiency does not affect the success of gestural CSs, in contrast to what was the case for oral CSs (9.4-5).

• *Native listeners* gesticulate when they contribute actively to the interaction, which in the case of NNS/NS dyads means throughout the interaction, as part of their co-operative behaviour (Chapter 10). The rate of native listener gestures is therefore assumed to reflect the *speaker's* proficiency level rather than the listener's own interactional style. Native listeners also use gestural CSs. Metaphoric gestures are used to encourage learners and elicit more speech from them. Beats are typically exploited to mark Foreigner Talk or other-correction.

• NSs' *assessments* of learner proficiency tend to be negatively influenced by learners' use of numerous oral CSs. No such effect can be found for the use of gestural CSs (9.5, 11.4). Instead, the use of gestures, and especially iconic gestures, appears to influence assessments favourably. It is argued that individual communicative style is the most influential factor for evaluations (11.6). Moreover, NSs believe gestures to be *helpful* when they cannot see them, but do not, in fact, generally judge them to be beneficial when present (11.5). Similarly, the number of gestures noticed by NS judges when assessing learners does not correspond to the real number of gestures produced (11.3).

The results from this exploratory study show that gestures can successfully be studied within existing process-oriented theories of CSs which share central prerequisites with a cognitive theory of gesture use. Both sets of theories are concerned with underlying processes or representations at the expense of surface phenomena, and consider oral and gestural output modes to be equivalent. By combining the two, a useful framework for the study of gestures in L2 production is achieved. Although the CS frameworks were developed for lexical problems, the integrated proposal is flexible enough to cover many aspects of gestural use, including discourse-related phenomena such as coherence.

Since gestures are facilitative at multiple levels, however, a broader and more flexible framework may be needed to account for the fact that gestures reflect both

psycholinguistic and social phenomena. It was suggested that strategic behaviour and strategic gestures may be treated within a probabilistic framework, where variability in communication and in levels of 'strategicality' can be taken into account.

A number of areas for future study have also been suggested in this work. For instance, the effect of particular types of oral strategies on NS assessments remains to be investigated. With regard to gestures, culture-specific differences between favoured types of speech-associated gesture may affect which gestural strategies are preferred by learners. Baseline data are needed to establish what the cultural specifics are. Moreover, hardly any studies have been performed on the perception of gestures, although this issue is relevant to evaluations of learner performance. Similarly, subtle test tools will have to be developed to assess how helpful gestures are to listeners' understanding in face-to-face interaction.

Appendices

Appendix A. Stimulus cartoon
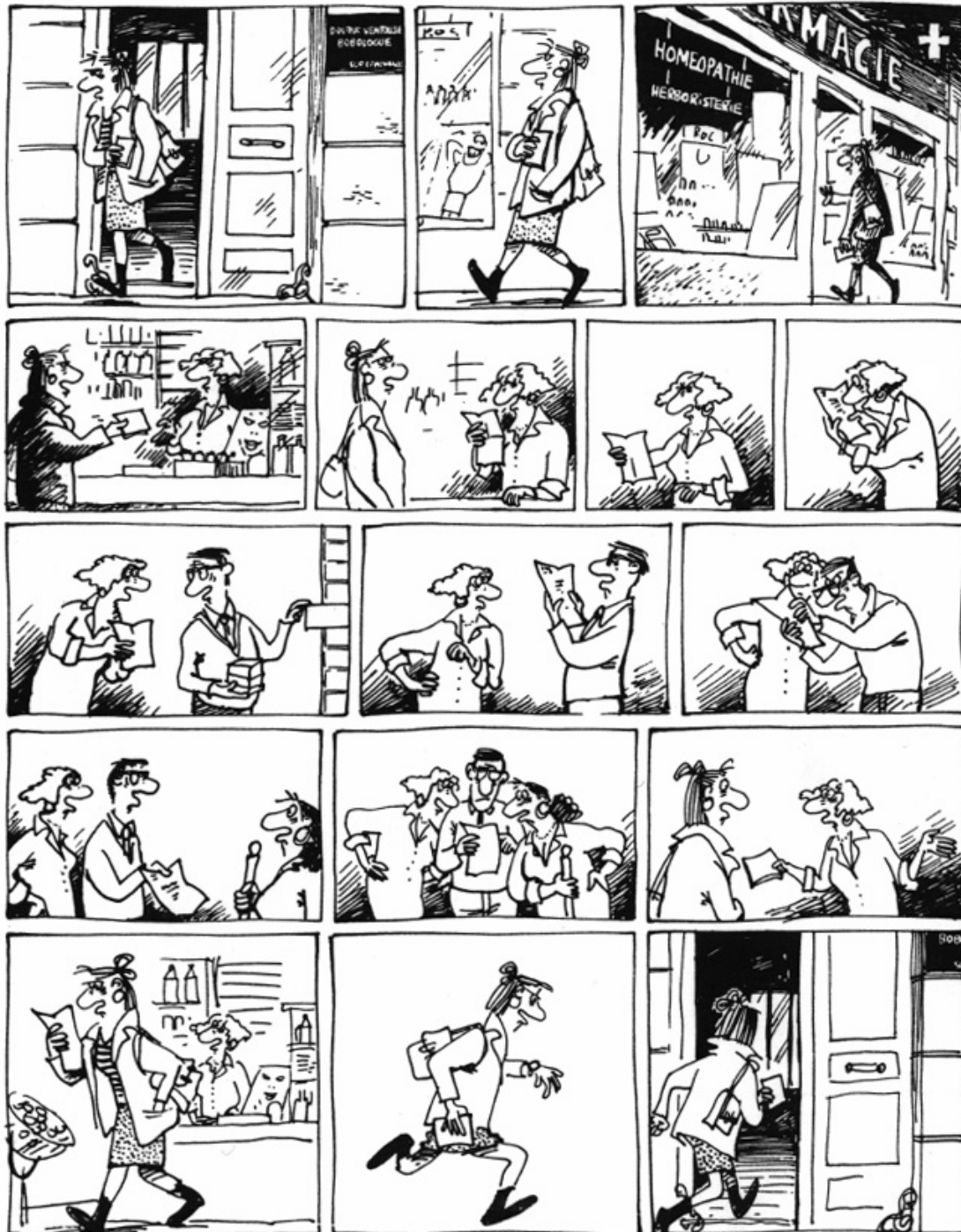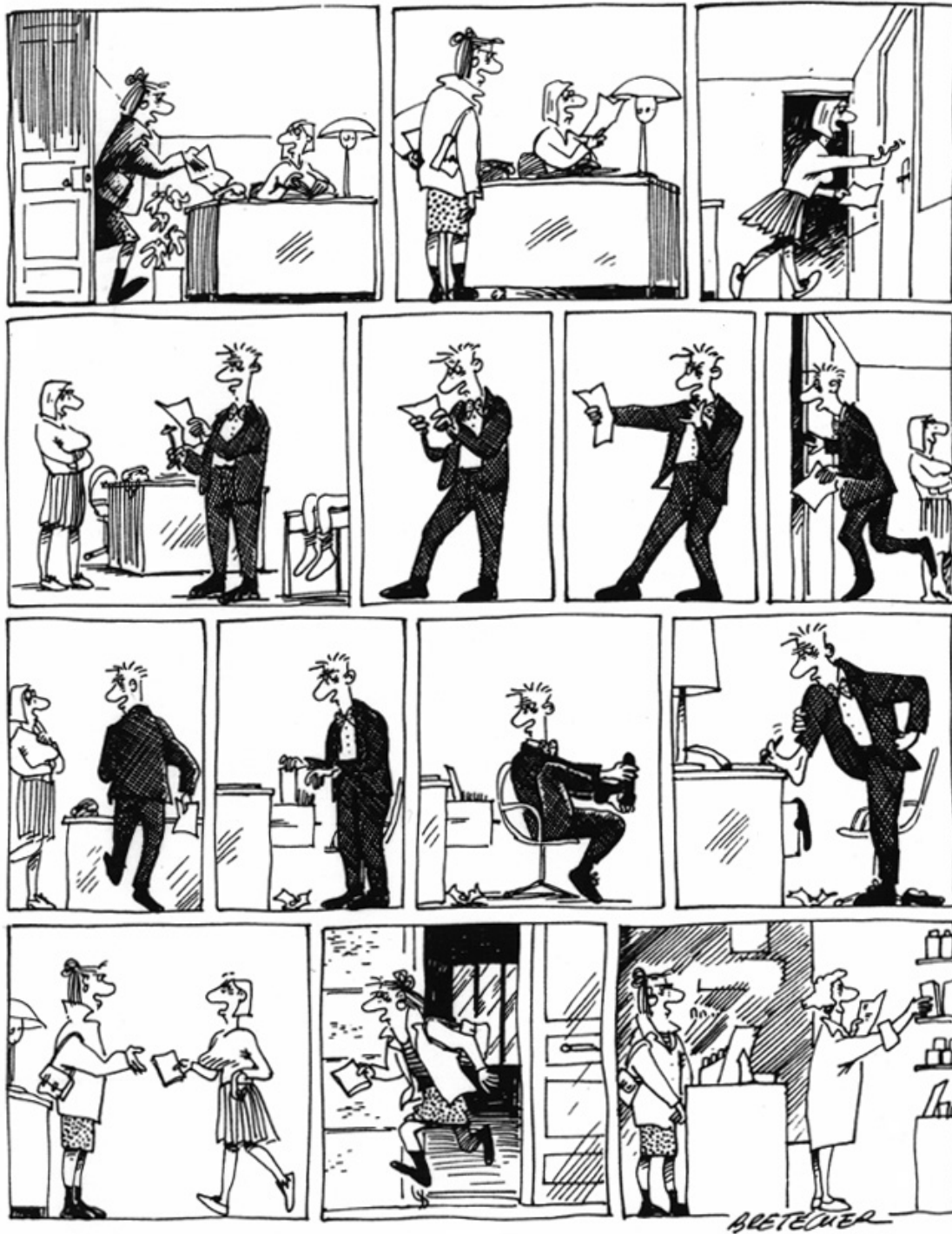
Reprinted with kind permission of /Avec l'aimable autorisation de/ Claire Bretécher.
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Appendix B. Transcription conventions and sample of transcription

[plain]	segment during which gesture occurs
[bold]	illustrated gesture
=	overlapping speech/gesture
/ //	pause (not measured) longer pause (not measured)
mm, euh...	filled pauses
italic	not target language word, translated to nearest equivalent
xx	inaudible, uninterpretable
\<plain>	extralinguistic element, e.g. \<cough>, \<inhales>

18:003	Sw1d	c'est c'est une femme	18:003	Sw1d	it's it's a woman
18:004	Sw1d	qui vient d'un docteur /	18:004	Sw1d	who comes from the doctor /
18:005	Sw1d	et eh elle a un [*prescription*] /	18:005	Sw1d	and uh she has a [*prescription*] /
18:006	Sw1d	elle [va au pharmacie]	18:006	Sw1d	she [goes to the chemist's]
18:007	NS	mhm	18:007	NS	mhm
18:008	Sw1d	pour [aller chercher] le *médecin* /	18:008	Sw1d	to fetch the *drugs* /
18:009	NS	le médicament	18:009	NS	the drugs
18:010	Sw1d	ah oui /	18:010	Sw1d	oh yes /
(...)			(...)		
18:041	Sw1d	[eh] / parce qu'il eh / écrit avec eh le =pied	18:041	Sw1d	[uh] / because he uh / writes with uh the =foot
18:042	NS	=mhm \<giggles>	18:042	NS	=mhm \<giggles>

Appendix C. Tables–Absolute figures

1. Oral Communication Strategies

Ss	Avoid	Code	Concept Holistic	Analytic	Mix	Overt appeal	Hedge	Total
Fr1A	2	8	3	2	5	1	2	23
Fr1B	4	12	1	4	10	3	4	38
Fr1C	1	9	3	4	2	-	1	20
Fr1D	3	9	3	1	-	2	-	18
Fr1E	3	5	1	1	6	1	1	18
sum	13	43	11	12	23	7	8	117
Sw1a	-	3	2	-	-	-	-	5
Sw1b	-	2	4	1	1	-	3	11
Sw1c	2	5	3	-	4	1	1	16
Sw1d	-	3	-	2	-	-	1	6
Sw1e	2	2	-	-	-	-	-	4
sum	4	15	9	3	5	1	5	42
total	17	58	20	15	28	8	13	159

Table C:1. OCSs in the two L2 groups.

2. Gestures (overall)

			L1								L2						
Ss	I-O	I-C1	I-C2	I-C3	M	D	B	∑	I-O	I-C1	I-C2	I-C3	M	D	B	∑	tot
Fr1A	-	2	-	-	8	5	12	27	4	2	-	-	40	15	12	73	100
Fr1B	-	4	-	-	9	16	22	51	8	8	-	-	29	52	48	145	196
Fr1C	1	1	1	-	-	5	-	8	8	9	-	2	30	19	18	86	94
Fr1D	1	8	-	3	1	6	4	23	5	10	2	2	5	12	15	51	74
Fr1E	-	-	-	-	5	1	6	12	1	-	-	-	6	-	-	7	19
tot	2	15	1	3	23	33	44	121	26	29	2	4	110	98	93	362	483

Table C:2a. Fr1 individual overall gesture use in L1 and L2 across gesture categories. I-O = iconic O-VPT; I-C1 = iconic C-VPT1; I-C2 = iconic C-VPT2; I-C3 = iconic C-VPT3 or mime proper; M = metaphoric; D = deictic; B = beat.

			L1								L2						
Ss	I-O	I-C1	I-C2	I-C3	M	D	B	∑	I-O	I-C1	I-C2	I-C3	M	D	B	∑	tot
Sw1a	4	6	-	-	1	6	11	28	6	13	1	5	10	16	10	61	89
Sw1b	3	2	1	2	2	6	3	19	5	4	-	2	11	10	7	39	58
Sw1c	1	-	-	-	-	-	-	1	-	6	-	-	11	4	1	22	23
Sw1d	1	11	-	2	4	4	5	27	6	7	-	-	8	7	3	31	58
Sw1e	-	4	-	1	-	-	-	5	-	5	-	-	3	3	1	12	17
tot	9	23	1	5	7	16	19	80	17	35	1	7	43	40	22	165	245

Table C:2b. Sw1 individual overall gesture use in L1 and L2 across gesture categories.

3. Gestural Communication Strategies

| | substitutive | | | | complementary | | | | |
	He	Cn	Co	sum	He	Cn	Co	sum	total
Fr1A	10	-	1	11	3	3	10	16	27
Fr1B	4	-	-	4	9	18	34	61	65
Fr1C	6	1	-	7	2	16	13	31	38
Fr1D	-	3	-	3	-	12	3	15	18
Fr1E	1	1	-	2	-	-	-	-	2
total	21	5	1	27	14	49	60	123	150

Table C:3a. Individual use of GCSs in the Fr1 group.

| | substitutive | | | | complementary | | | | |
	He	Cn	Co	sum	He	Cn	Co	sum	total
Sw1a	1	3	-	4	2	4	8	14	18
Sw1b	3	-	-	3	3	9	4	16	19
Sw1c	-	1	-	1	5	4	3	12	13
Sw1d	1	1	-	2	1	4	2	7	9
Sw1e	-	-	-	-	-	1	2	3	3
total	5	5	-	10	11	22	19	52	62

Table C:3b. Individual use of GCSs in the Sw1 group.

4. Listener gestures

| | L1 | | | | | | | | L2 | | | | | | | |
	I-O	I-C1	I-C2	I-C3	M	D	B	Σ	I-O	I-C1	I-C2	I-C3	M	D	B	Σ	tot
Fr1A	-	-	-	-	-	-	-	-	-	-	-	-	7	1	15	23	23
Fr1B	-	-	-	-	6	1	2	9	-	-	-	-	2	5	18	25	34
Fr1C	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	3	3
Fr1D	-	-	-	-	1	-	-	1	-	1	-	-	10	-	9	20	21
Fr1E	-	-	-	-	-	-	-	-	-	1	-	-	18	3	2	24	24
tot	-	-	-	-	7	1	2	10	-	2	-	-	39	9	45	95	105

Table C:4a. NS listener gestures in the Fr1 dyads in L1 and L2 across gesture categories.
I-O = iconic O-VPT; I-C1 = iconic C-VPT1; I-C2 = iconic C-VPT2; I-C3 = iconic C-VPT3 or mime proper; M = metaphoric; D = deictic; B = beat.

| | L1 | | | | | | | | L2 | | | | | | | |
	I-O	I-C1	I-C2	I-C3	M	D	B	Σ	I-O	I-C1	I-C2	I-C3	M	D	B	Σ	tot
Sw1a	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3	7	7
Sw1b	-	-	-	-	-	-	-	-	-	-	-	-	4	-	1	5	5
Sw1c	-	-	-	-	1	-	-	1	-	1	1	-	1	2	1	6	7
Sw1d	-	-	-	-	-	1	1	2	-	-	-	-	-	-	-	-	2
Sw1e	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
tot	-	-	-	-	1	1	1	3	-	1	1	-	6	6	5	19	22

Table C:4b. NS listener gestures in the Sw1 dyads in L1 and L2 across gesture categories.

Appendix D. Samples of questionnaires

1. Recruiting questionnaire

Sex: F O   M O   Handedness: Left O   Right O

② What is your first language, i.e. what language did you speak first (if several, list them)?

④ Indicate the level of knowledge of your other languages according to the following scale:
1 = hardly any knowledge   2 = some knowledge   3 = average knowledge
4 = functional (can 'get by')   5 = good knowledge   6 = very good knowledge
7 = native knowledge

	Language	Speech	Reading	Writing	Understanding
ex.	German	4	5	5	6
1.					
2.					

2. Post-questionnaire
① What did you find most difficult about the test you have just completed?
② What do you think the objective of the test was?

3. NSET

① As a narrator, is the subject
O good, highly skilled   O averagely skilled   O bad?

② How well does the narrator succeed with respect to the following narrative components:
• characters
• events
• temporal sequence
• punch line

④ Assess the narrator's overall linguistic level (i.e. how well s/he manages linguistically) using the scale below, where 1=lowest level and 5=highest level:
O 1   O 2   O 3   O 4   O 5

⑦ Evaluate the subject's gestures according to the following:
<u>**amount**</u>   <u>**size and form**</u>
O numerous   O big, expansive
O average   O average
O few   O small, insignificant, restrained
Comments:

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Marianne Gullberg
Gesture as a Communication Strategy in Second Language Discourse
A Study of Learners of French and Swedish

Gestures are often regarded as the most typical compensatory device used by language learners in communicative trouble. Yet gestural solutions to communicative problems have rarely been studied within any theory of second language use. The work presented in this volume aims to account for second language learners' strategic use of speech-associated gestures by combining a process-oriented framework for communication strategies with a cognitive theory of gesture.

Two empirical studies are presented. The production study investigates Swedish learners of French and French learners of Swedish and their use of strategic gestures. The results, which are based on analyses of both individual and group behaviour, contradict popular opinion as well as theoretical assumptions from both fields. Gestures are not primarily used to replace speech, nor are they chiefly mimetic. Instead, learners use gestures *with* speech, and although they do exploit mimetic gestures to solve lexical problems, they also use more abstract gestures to handle discourse-related difficulties and metalinguistic commentary. The influence of factors such as proficiency, task, culture, and strategic competence on gesture use is discussed, and the oral and gestural strategic modes are compared. In the evaluation study, native speakers' assessments of learners' gestures, and the potential effect of gestures on evaluations of proficiency are analysed and discussed in terms of individual communicative style.

Compensatory gestures function at multiple communicative levels. This has implications for theories of communication strategies, and an expansion of the existing frameworks is discussed taking both cognitive and interactive aspects into account.