The grammar of English-Afrikaans code switching

A feature checking account

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The grammar of English-Afrikaans code switching

A feature checking account

een wetenschappelijke proeve op het gebied van de Letteren

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For Enya and Mia

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LIST OF ABBREVIATIONS

A-P	articulatory-perceptual
Adv	adverb
AgrOP	agreement object phrase
ANOVA	analysis of variance
C_{HL}	computational system for human language
C-I	conceptual-intentional
CP	complementiser phrase
D-structure	deep structure
DIM	diminutive
EL	embedded language
FinP	finiteness phrase
FocP	focus phrase
ForceP	force phrase
GB	Government and Binding
L1	first language
L2	second (or other) language
LF	logical form
LoLT	language of learning and teaching
ML	matrix language
MLF	matrix language frame
ModP	modifying phrase
N	noun, Numeration
Neg	negative
NP	noun phrase
Obj	object
PART	participle
PF	phonetic form
PL	plural
POSS	possessive
Pron	pronoun
PS	phrase structure
QP	question phrase
RO	rights and obligations
S-structure	surface structure
SD	structural description
SMT	strong minimalist thesis
Spec	specifier
Subj	subject

SOV	subject, object, verb
SVO	subject, verb, object
$SVOP_o$	subject, verb, object, prepositional object
TopP	topicalisation phrase
t	trace
TRUNC	truncated
UG	universal grammar
V	verb
VP	verb phrase
λ	logical form
π	phonetic form

CHAPTER 1

INTRODUCTION

Code switching entails the use of two or more languages within the same utterance or conversation. Switching may occur between speaker turns, between utterances in a single turn, or within a single utterance or sentence. Research on code switching generally focuses on either its sociolinguistic or its structural aspects. This dissertation focuses on structural aspects of code switching between English and Afrikaans. Specifically, the main aim of the present study is to investigate the merit of an account of intrasentential code switching (i.e., where languages are switched within a single clause) in terms of feature checking theory, a theory associated with minimalist syntax. The hypothesis is that the assumptions and devices associated with minimalist syntax (specifically, feature checking and related principles and operations) provide an adequate framework within which to characterise and explain the structural aspects of English-Afrikaans intrasentential code switching. In terms of this hypothesis, the same grammatical principles that are proposed to account for monolingual phenomena may also account for intrasentential code switching phenomena. The research seeks to determine whether this hypothesis is true or false.

1.1 The present study

A number of word order differences between English and Afrikaans, specifically involving verb position, were analysed within the framework of feature checking theory, where the movement of lexical items is proposed to be driven by the need to check strong uninterpretable features associated with functional heads. The differences in verb position between the two languages were analysed in terms of differences in the strength of particular features. The constructions in question are constructions with adverbs, focalisation and topicalisation constructions, embedded *that* and *wh* clauses, and *yes-no* questions. On the basis of the feature checking analyses, predictions were made regarding the well-formedness of constructions of these types in which code switching between English and Afrikaans occurs. The merit of these predictions was tested on the basis of data elicited from fluent English-Afrikaans bilingual participants who were required to complete a

number of tests. The tests included (i) judgments of the relative well-formedness of visually-presented sentence pairs, (ii) judgments of the relative well-formedness of auditorily-presented utterance pairs, (iii) sentence construction, (iv) video clip description, and (v) magnitude estimation of the relative well-formedness of visually-presented sentence sets. Examples of the six construction types appear in (1) – (6); in each case the English construction appears in (a), the Afrikaans construction in (b), and corresponding code switched constructions predicted to be well-formed in (c) and (d).[1]

(1) adverb
a The children often buy toys with their pocket money.
b Die kinders koop dikwels speelgoed met hulle sakgeld.
the child-PL buy often toys with their pocket money
c The children *koop dikwels* toys with their pocket money.
d Die kinders *often buy* toys with their pocket money.

(2) focalisation
a Such friendly neighbours she invites to all her parties.
b Sulke vriendelike bure nooi sy na al haar partytjies.
such friendly neighbour-PL invite she to all her party-PL
c Such friendly neighbours *nooi sy* to all her parties.
d Sulke vriendelike bure *she invites* na al haar partytjies.

(3) topicalisation
a My favourite shop is in the old district. That shop I visit every week.
b My gunsteling winkel is in die ou distrik. Daardie winkel besoek ek elke week.
my favourite shop is in the old district that
shop visit I every week
c My favourite shop is in the old district. That shop *besoek ek* every week.
d My gunsteling winkel is in die ou distrik. Daardie winkel *I visit* elke week.

(4) *that* embedding
a My crazy grandmother says that her fish bite her cat.
b My mal ouma sê dat haar vissies haar kat byt.
my crazy grandmother says that her fish-DIM-PL her cat bite
c My crazy grandmother says that her fish *haar kat byt*.

[1] A switch from one language to another will be indicated in this work by a change from regular to italic script, with no implication that one or the other language is in any way dominant.

d My mal ouma sê dat haar vissies *bite her cat*.

(5) *wh* embedding
a The crew ask why their ship stays in the harbour.
b Die bemanning vra waarom hulle skip in die hawe bly.
the crew ask why their ship in the harbour stay
c The crew ask why their ship *in die hawe bly*.
d Die bemanning vra waarom hulle skip *stays in the harbour*.

(6) *yes-no* question
a Do married girls buy much strong alcohol?
b Koop getroude meisies baie sterk drank?
buy married girl-PL much strong alcohol
c Do *getroude meisies* buy much strong alcohol?
d Koop *married girls* baie sterk drank?

1.2 The setting

Regarding the linguistic setting in which the present research was conducted, South Africa has eleven official languages, namely English, Afrikaans, and nine Bantu languages. The official Bantu languages of South Africa include IsiZulu, IsiXhosa, IsiNdebele and SiSwati of the Nguni language family, and Sesotho, Sepedi and Setswana of the Sotho language family, in addition to Tsonga and Tshivenda. These languages are spoken as a first language (L1) by the various groups of black South Africans, who make up approximately 79% of the population (Statistics South Africa, Census 2001). Of these groups, the largest comprises speakers of IsiZulu (approximately 23.9%) and IsiXhosa (approximately 17.6%) (Statistics South Africa, Census 2001). The large majority of the adult black population speak English as a second (or other) language (L2). English was historically the main language used for official purposes, although recent government policy is aimed at furthering the use of the various Bantu languages for purposes such as education and legal matters. English remains the most important language for trade and commerce with the rest of the world. English is the L1 of approximately 40% of white South Africans, where whites make up approximately 10% of the population (Statistics South Africa, Census 2001). English is also spoken as either L1 or L2 by the people of Asian descent in South Africa, who make up approximately 2% of the population (Statistics South Africa, Census 2001). Afrikaans is the L1 of approximately 60% of the white population and the large majority (approximately 80%) of the

coloured population, the coloured people being of mixed white, black and Asian blood, and making up approximately 9% of the population (Statistics South Africa, Census 2001). Afrikaans is also the L2 of the majority of English L1 South Africans. Thus, with regard to English-Afrikaans bilingualism, such bilingualism is widespread among white and coloured South Africans. Webb (2002: 80) reports that the incidence of English-Afrikaans bilingualism in 1980 was 31%, with 74% of white people and 51% of coloured people being bilingual. It is suspected that the incidence of English-Afrikaans bilingualism among the coloured population at present is substantially higher than this figure from some 25 years ago.

The origins of English in South Africa can be traced to the late 1700s and early 1800s, when the British took over the Cape from the Dutch settlers who had established a trading station in 1652 (Mesthrie 2002: 15). Large groups of British settlers arrived at the Cape in 1820, many rising to positions of social, economic and political power, while the poorer sector of the British population moved to the Eastern Cape, so beginning the spread of English through the country (Mesthrie 2002: 15). More British settlers arriving in Natal from the late 1840s further contributed to the spread of English (Mesthrie 2002: 16). The standard South African English of the present does not differ significantly from standard British or American English at the morphosyntactic level. At the phonological level, there are a number of differences affecting the pronunciation of vowels. At the lexical level, there are a number of loanwords from Afrikaans and the Bantu languages which may distinguish the South African English lexicon from other varieties of English. As there are no morphosyntactic differences relevant in the context of the present study, the term "English" will be used here to refer to standard South African English.[2]

The origins of Afrikaans have inspired much research, as well as much ongoing controversy. A number of historical linguists concur that Afrikaans developed from the colloquial Early Modern Dutch spoken at the Cape in the early 1700s, known as "Cape Dutch" (cf. Raidt 1989; Ponelis 1993; Roberge 1993). It has been suggested that Afrikaans arose as a creole, but Roberge (1993: 13, 64) points out that Afrikaans ought not to be regarded as a "true creole", as it does not diverge sufficiently

[2] Cf. Mesthrie (1995; 2002) for work on other South African English varieties.

from Dutch at the syntactic level to be so assigned. Afrikaans was established as the L1 of both white and coloured people in the Cape by the early 1800s, and spread from the Cape Town area due to the enormous territorial expansion which took place as farmers migrated north along the coast and into the interior (Ponelis 1993: 37). By the later 1800s, due to further population redistribution brought about by the growing diamond and gold industries, Afrikaans was firmly established in the multilingual society of South Africa (Ponelis 1993: 52). Roberge (1993: 14, 34) points out the significant influence of Malay, creole Portuguese, and Khoikhoi on the development of Afrikaans, and Ponelis (1993) notes the role of lexical borrowing from German, French, English and various Bantu languages.

With the eleven official languages mentioned above, as well as a large number of social and geographical varieties, code switching is the norm rather than the exception in many communities in South Africa. An illustrative example of code switching involving English (regular lower case), Tswana (*italics*), Afrikaans (***bold italics***), Southern Sotho (UPPER CASE), and Tsotsitaal (*UPPER CASE ITALICS*) appears in (7).

(7) It depends *gore o na le bomang*. For instance, if *ken a le mathoka go ya ka gore ba* ***kry****ile re bua eng* – if *ba fithla ke bua Sezulu, ba tla* join*a* – if *slang* SA MOTHAKA ELE *ONS SAL ALMAL WITHI*. The situation, *gore o na le bo mang*.
(It depends on whom you are with. For instance, if I am with my friends and they find us speaking something – if they arrive and I am speaking Zulu, they will join in – if slang of the friends, then we'll all join in (the slang). The situation depends upon whom you are with.)
(Finlayson and Slabbert 1997: 399)

1.3 Bilingualism and code switching

In terms of language policy in the educational sector, the present Language in Education Policy (Act 27 of 1996) aims, among other things, (i) "to establish additive multilingualism as an approach to language in education"; (ii) "to promote and develop all official languages"; and (iii) "to redress the neglect of the historically disadvantaged languages in education". Furthermore, the policy states that (i) the language of learning and teaching (LoLT) must be an official

language; (ii) the learner (or parent in the case of a minor) must choose the LoLT and a school that offers that LoLT is obligated to admit the learner if there is place in the relevant grade; (iii) if no school in the area offers the desired LoLT, the learner may request the Education Department to make such provision; (iv) the school governing body (comprising representatives of the parent body) must determine the LoLT of a new school, and stipulate how the school will promote multilingualism; and (v) all learners must pass at least two languages as subjects (i.e., a first language and a second language), one of which must be an official language (cf. Department of Education Language in Education Policy 1997 for full details). At present, provincial education departments are aiming at equipping schools to offer mother tongue education during (at least) the so-called "foundation phase", the first three years of schooling. In practice, however, access to such mother tongue education, is often problematic due to the unavailability of teachers who are trained to offer instruction in these languages, decisions by governing bodies to retain (mainly) English as the LoLT, and the desire of parents to have their children taught in English, among other reasons. Furthermore, irrespective of the LoLT of a particular school, learners completing their secondary education can currently write the final examinations only in English or Afrikaans.

Tertiary education institutions were previously free to use the primary language of instruction of their choice, and there were a number of Afrikaans universities in South Africa (including the University of Potchefstroom, the University of the Orange Free State, Stellenbosch University). The abolishment of apartheid in the 1990s, however, paved the way for the admission to these universities of large numbers of students from diverse educational backgrounds, who often lacked the necessary proficiency in Afrikaans as an academic language. Many of the traditionally Afrikaans universities switched to English as the primary language of instruction.

The present study was conducted on the campus of Stellenbosch University, a historically Afrikaans University which has retained Afrikaans as a primary language of instruction, in conjunction with English (cf. Language Policy and Plan, Stellenbosch University, 2002). In the Western Cape, the province where Stellenbosch University is located, most secondary schools use either English or Afrikaans, or both, as the primary language(s) of instruction, with some schools offering Xhosa as

a subject and/or using Xhosa for instruction. The majority of students entering Stellenbosch University therefore have some degree of bilingualism in English and Afrikaans. The present study was conducted among students of the Arts faculty, which has followed a dual language policy since 2002, by which undergraduate instruction is carried out in both English and Afrikaans. (Every lecturer uses both languages in every class, with the aim of adequately covering the work in both languages. Afrikaans is used for at least 50% of the lecture.) In this bilingual campus environment, code switching is a common occurrence in conversation among lecturers and students alike. Typical examples, recorded in spontaneous conversation among fluent English-Afrikaans bilinguals, appear in (8)-(10).[3]

(8) You've got no idea how *vinnig* I've been *slaan*-ing this *bymekaar*.
fast hit together
(You have no idea how quickly I've been throwing this together.)

(9) Dis soos *"Thank you for giving me money"*, hierso's jou geld nou.
it-is(TRUNC) like here-is(TRUNC) your money now
(It's like, thank you for giving me money, now here's your money.)

(10) But it's sort of like '*n bietjie van dit en 'n bietjie van dat.*
a bit of this and a bit of that
(But it's sort of like a bit of this and a bit of that.)

To date, no comprehensive study has been made of the structural aspects of English-Afrikaans intrasentential code switching. This language pair is particularly interesting as an object of code switching research as (i) the two languages have been used side by side (and mixed) in a wide range of sociolinguistic contexts and by a diverse range of population groups since the birth of Afrikaans; and (ii) despite exhibiting many grammatical similarities, the two languages are typologically dissimilar in certain respects, such as word order and the overt (phonological) realisation of grammatical features such as tense and agreement. Such typological differences between the two languages in a

[3] Unless otherwise indicated by means of a reference to other work, English-Afrikaans code switching data given in chapters 1 and 2 were recorded in naturalistic environments in conversations among fluent English-Afrikaans bilinguals during the time the present study was underway.

code switching pair make the analysis of the structural aspects of intrasentential code switching all the more interesting in terms of the hypothesis underlying the present study, namely that feature checking theory can account for the grammatical structure of intrasentential code switching in the same way as it accounts for that of monolingual constructions.

1.4 Structure of the present work

A review of the relevant code switching literature, both in the global context and in the South African context, is given in chapter 2. Chapter 3 provides an exposition of the theoretical point of departure for the study, and sets out the analyses of the six construction types and the associated predictions for code switching. In chapter 4, a number of methodological issues are discussed, and the experimental paradigm applied in the present study is set out. Chapters 5, 6 and 7 report on the results of the data collected, and a discussion of these results is presented in chapter 8.

CHAPTER 2

THE STUDY OF CODE SWITCHING

Research into code switching has traditionally been carried out from one of two perspectives, namely a grammatical perspective or a sociolinguistic perspective. A sociolinguistic approach is concerned with the role of social factors in the occurrence of code switching, the aim being to determine patterns of occurrence of code switching and how these may be affected by social factors such as context and speakers' role relationships. A grammatical approach focuses on the structural aspects of code switching, the aim being to determine the syntactic and morphological characteristics of code-switched constructions.

2.1 Terminology

The terminology relating to language contact phenomena in the literature is less than consistent, and it is essential at the outset to draw clear distinctions between code switching and a number of related phenomena. The term "code switching" refers here to "the alternate use of two [or more – OvD] languages within the same utterance or during the same conversation" (Hoffmann 1991: 110).

Code switching must, firstly, be distinguished from borrowing. Muysken (1995: 189) refers to borrowing as "the incorporation of lexical elements from one language in the lexicon of another language". According to Muysken (1995: 190), three levels may be distinguished in the process. Initially, a fluent bilingual spontaneously inserts lexical element *l* from language A into a sentence in language B. With time, the insertion of *l* becomes a frequent occurrence in a speech community, i.e., so-called "conventionalised code switching" occurs (Muysken 1995: 190). Finally, *l* becomes adapted phonologically, morphologically and syntactically to the rules of language B and is fully integrated into the lexicon, being recognised as a word of language B by monolingual speakers. It is worth noting that the distinction between code switching and borrowing, specifically between single word switches on the one hand, and loanwords on the other, is not always clear-cut. Poplack, Sankoff and Miller (1988), for example, distinguish between two types of borrowing, namely nonce loans and established loans, both of which they suggest

differ from single word code switches. Nonce loans differ from established loans in being restricted to a single speaker in a specific context, and not necessarily recognisable by monolingual speakers (cf. also Sankoff, Poplack and Vanniarajan 1990). According to Poplack et al. (1988: 93), both established and nonce borrowings entail a lexical item from language A occurring in language B, and crucially submitting to the morphological and syntactic rules of language B. Single word code switching, on the other hand, occurs when each monolingual fragment is lexically, morphologically, and syntactically grammatical in that language. Such a distinction, however, may be difficult to apply in certain cases, such as when the morphological and syntactic rules of the two languages overlap. Nonetheless, the assumption that code switching involves two grammars, whereas borrowing only involves one (Poplack et al. 1988: 93), remains a useful distinction.

Regarding borrowing between English and Afrikaans, if one takes borrowing simply to entail the regular use throughout a speech community of a particular word from language A in language B, the South African Concise Oxford Dictionary (2000) confirms that the Afrikaans word *braai* ("barbecue") is an established loanword in South African English, as illustrated in (11). The Handwoordeboek van die Afrikaanse Taal (2000) confirms that *tjek* ("cheque") is an established English loanword in standard Afrikaans, as in (12). With regard to nonce loans, it is generally more common to encounter such ad hoc loans from English into Afrikaans than vice versa, and the practice is generally considered acceptable to all but the language purist.[4]

(11) We had a nice braai on the beach last Sunday.

(12) Hy het gister die tjek gestuur.
he have yesterday the cheque PAST PART-send
(He sent the cheque yesterday.)

A second distinction is that between code switching and so-called "code mixing". Hamers and Blanc (2000: 260) define code mixing as a type of insertional code switching, where a constituent from language A is embedded into an utterance in language B, and where language B is

[4] In this regard, Branford and Claughton (2002: 208) state that "both established and ad hoc borrowings from English abound" in informal Afrikaans.

clearly the dominant language. Such code mixing may involve a single word, as in (13), or a stereotypical expression, as in (14).

(13) Ek bedoel sy *popularity* het gestyg né.
I mean his have PAST PART-rise hey
(I mean his popularity has risen, hey.)

(14) Dit is wanneer hy gesê het *buddies for life* jy weet.
that is when he PAST PART-say have you know
(That's when he said, "Buddies for life", you know.)

It should be noted that not all authors make this same distinction between code switching and code mixing. Muysken (2000), for example, uses the term "code mixing" to refer to what is called "code switching" here. McCormick (1995: 194), on the other hand, suggests that code switching involves the "alternation of elements longer than one word", while code mixing involves "shorter elements, often just single words". Such a definition of code mixing appears to overlap to some extent with the definition of borrowing above, further complicating the issue, and emphasising the importance of defining terminology clearly and applying it consistently.

A third distinction to be made is that between code switching and interference. Many definitions of interference, such as Haugen's (1956: 40) "overlapping of two languages", do not make the distinction clear. Weinreich (1963: 1) defines interference more clearly as "instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language", while Grosjean (1984: 299) suggests that interference entails "the involuntary influence of one language on another". The important point here is that code switching is commonly regarded as a voluntary behaviour, over which the fluent bilingual has control, whereas interference is taken to occur involuntarily, due to the influence of one language on the other. Grosjean (1984: 299) suggests that such interference is particularly observable in conversations between a bilingual and a monolingual, where the bilingual consciously avoids code switching, which may impede communication, but cannot avoid unconscious interference. The distinction between code switching and lexical interference, however, is not always clear, as interference may lead the bilingual speaker to activate his/her bilingual language mode, thereby

simultaneously increasing the occurrence of code switching (cf. Grosjean 1984). An example of interference at the phonological level appears in (15), where Afrikaans phonology affects the pronunciation of some English words.[5] Interference at the syntactic level is illustrated in (16), where the word order in English is affected by that of Afrikaans.[6]

(15) Fank you for de foot.
[faŋk də fut]
(Thank you for the food.)

(16) I know that she the house cleans.
(I know that she cleans the house.)

In what follows, an overview is given of the literature on code switching research. In section 2.1, research on both sociolinguistic and grammatical aspects of code switching in the global context is discussed. Section 2.2 focuses on code switching research carried out in the South African context.

2.2 Sociolinguistic studies of code switching

There is generally little doubt that the phenomenon of code switching is as old as that of language contact leading to bilingualism. Argenter (2001), for example, discusses code switching between Hebrew and Catalan in texts from the 14th and 15th centuries. Formal interest in the phenomenon of code switching can be traced back to the early 20th century, when Espinoza (1917) reported on code switching between English and Spanish in New Mexico and southern Colorado, USA. Espinoza (1917) focused on the influence of English on Spanish, the L1 of the majority of the region's population at the time, suggesting that this was due largely to the perceived superiority of English in the commercial and political spheres (Espinoza 1917: 410). According to Espinoza (1917: 415), such code switching was not governed by any detectable laws or limits. Some five decades later, Weinreich (1963: 73) suggested

[5] The phones [θ] and [ð] do not occur in Afrikaans, and are occasionally substituted by [f] and [v] by less fluent Afrikaans speakers of L2 English. Furthermore, final consonant devoicing is characteristic of Afrikaans, and can be seen here to affect the final consonant of the English *food*.

[6] Subordinate clauses with an overt complementiser in Afrikaans, unlike those of English, are verb-final (cf. chapter 3).

that the "ideal bilingual switches from one language to another according to appropriate changes in the speech situation …, but … certainly not within a single sentence", reflecting the structuralist preoccupation with language integrity. Following this early interest in code switching as one of many language contact phenomena, a number of researchers have presented evidence to the contrary, suggesting that there are indeed rules according to which codes may be switched within sentences. Constraints on code switching in terms of both social factors and grammatical structure have been proposed. What follows is a discussion of a number of these proposals.

Among the first in-depth studies of the role of social factors in code switching was that by Blom and Gumperz (1972). Blom and Gumperz (1972) based their ethnolinguistic study of code switching between Bokmål and Ranamål in Hemnesberget, Norway on Bernstein's (1961: 166, 171) suggestion that social and affective factors play a role in the "speech mode" adopted by speakers. On the basis of their research, Blom and Gumperz (1972: 409) suggest that speakers' code choices are "patterned and predictable on the basis of certain features of the local social system". Blom and Gumperz (1972: 424, 425) go on to distinguish between two types of code switching, namely metaphorical switching, which takes place with a change of topic, and situational switching, in which speakers switch languages due to a change in their perceptions of one another's rights and obligations. Gumperz and Hernandéz-Chavéz (1976) take the study of the social meaning of code switching further in their study of Spanish-English code switching, where they suggest that code switching is a behavioural strategy reflecting notions of ethnic identity and confidentiality (Gumperz and Hernandéz-Chavéz 1976: 163). The distinction between situational and metaphorical code switching is further discussed by Gumperz (1982: 60), who likens situational switching to diglossia, in which one observes functional specialisation of languages or varieties, and a specific language or variety is deemed appropriate in a specific communicative situation. For example, a formal variety is used in educational settings, whereas an informal variety is used to discuss family affairs. Such diglossia differs from metaphorical code switching, in which Gumperz (1982: 61) suggests that the relationship between language and social context is more complex. On the basis of code switching data from three language pairs, namely German-Slovenian, English-Hindi, and Spanish-English, Gumperz (1982: 75-84) goes on to discuss a number of conversational

functions of code switching, namely quotation, addressee specification, interjection, reiteration, message qualification, and personification vs. objectification.

A major contribution to the literature on the role of social factors in code switching has been made by Myers-Scotton (cf., among others, Myers-Scotton and Ury 1975; Scotton 1982, 1983, 1988; Myers-Scotton 1993a, 1998). In terms of social motivations for code switching, Myers-Scotton (1993a) proposes the Markedness Model. Modelled on Grice's (1975) co-operative principle, Myers-Scotton (1993a: 113) proposes a so-called "negotiation principle" underlying code choices in code switching contexts. This negotiation principle entails that speakers choose the form of their utterances in accordance with the set of rights and obligations (RO set) which they wish to be in force in a particular communicative exchange (cf. Myers-Scotton 1993a: 113; Myers-Scotton 1998: 21). Myers-Scotton (1998: 22) further proposes that speakers possess a markedness evaluator, which allows them (i) to recognise that there is a continuum of linguistic choices of varying degrees of markedness in terms of discourse type, and (ii) to comprehend that addressees will react differently to marked vs. unmarked choices. All code choices can thus be explained in terms of speaker motivations, these motivations being linked to speakers' perceptions of socially appropriate RO sets. Speakers choose and switch codes in such a manner as to index these RO sets. The Markedness Model proposes to account for four types of code switching. Firstly, speakers may engage in code switching as a sequence of unmarked choices, by which codes are switched in order to index any change in the RO set (Myers-Scotton 1993a: 114). Secondly, code switching itself may be the unmarked choice, as when code switching is the pattern which carries the desired communicative intention (Myers-Scotton 1993a: 117). Thirdly, a speaker may engage in code switching as the marked choice, whereby s/he "disidentifies" with the expected RO set, wishing to establish a new RO set as unmarked for a particular communicative exchange (Myers-Scotton 1993a: 131). Finally, code switching may be an exploratory choice, as when the speaker is unsure of what is expected or optimal, and wishes to find out which code choice will match his/her desired RO set (Myers-Scotton 1993a: 142). In addition to this work on sociolinguistic aspects of code switching, more recent work by Myers-Scotton (cf. Myers-Scotton 1993b; Jake, Myers-Scotton and Gross 2002) focuses on structural aspects of code switching, and will be discussed in section 2.1.2.

A number of other researchers have made significant contributions to the literature on sociolinguistic aspects of code switching. Valdés-Fallis (1976), for example, focuses on Spanish-English code switching, distinguishing types such as situational, metaphorical, and contextual code switching. In later work, Valdés (1981) describes code switching as an interactional strategy, on the basis of a study of direct and indirect requests in which Spanish and English are switched. Kachru (1978; 1983) discusses various social motivations for code switching in India between Indian languages and English, as well as classifying types of code switching on the basis of such Indian-English data. Heller (1988) discusses the strategic use of code switching for stylistic, conversation management and social significance effects, drawing on Canadian French-English code switching data. Appel and Muysken (1987), in discussing various language contact phenomena, propose a number of social functions of code switching, namely referential, directive, expressive, phatic, and metalinguistic functions. Gardner-Chloros (1991) reports on French-Alsatian code switching as marked and unmarked choice in Strasbourg. Treffers-Daller (1992; 1994) focuses on social factors playing a role in French-Dutch code switching in Brussels. Finally, Clyne (2003) considers the role of code switching in the context of a range of language contact phenomena such as language shift and convergence, focusing on Dutch and German in contact with English in Australia. Although insights into the sociolinguistic aspects of code switching are essential, the review of the literature on its grammatical aspects in section 2.1.3 below is of particular relevance in the context of the present study of structural features of English-Afrikaans code switching.

2.3 Grammatical aspects of code switching

2.3.1 Basic distinctions

From a grammatical perspective, various types of code switching can be distinguished on the basis of the length and nature of the juxtaposed units of the two languages. Extrasentential code switching involves attaching a tag from one language to an utterance entirely in the other language (Hamers and Blanc 2000: 259), as in (17).

(17) O nee hier's 'n paar goedjies, *sorry*.
oh no here-are(TRUNC) a few thing-DIM-PL
(Oh no, there are a few things here, sorry.)
(Van Dulm 2002: 64)

Intersentential code switching involves switching at sentential boundaries (MacSwan 1999: 1), where one clause or sentence is in one language and the next clause or sentence is in the other, as in (18), and in (9), repeated here as (19). Thus, the term "intersentential" here subsumes the notion 'interclausal'.

(18) I love Horlicks *maar hier's niks*.
but here-is(TRUNC) nothing
(I love Horlicks but there is nothing here.)
(Van Dulm 2002: 64)

(19) Dis soos *"Thank you for giving me money"*, hierso's jou geld nou.
it-is(TRUNC) like here-is(TRUNC) your money now
(It's like, thank you for giving me money, now here's your money.)

Intrasentential code switching takes place within the clause boundary (Hamers and Blanc 2000: 260), such as in (10), repeated here as (20).

(20) But it's sort of like '*n bietjie van dit en 'n bietjie van dat*.
a bit of this and a bit of that
(But it's sort of like a bit of this and a bit of that.)

The focus of the present study is on intrasentential code switching. This type of switching is problematic for syntactic theory in that the two languages are mixed within such circumscribed linguistic units as the clause or even the word, as in (8), repeated here as (21).

(21) You've got no idea how *vinnig* I've been *slaan*-ing this *bymekaar*.
fast hit together
(You have no idea how quickly I've been throwing this together.)

2.3.2 Structural constraints on code switching

As was mentioned above, early research into structural aspects of code switching reflects divided opinions regarding syntactic constraints on its occurrence. Lance (1975), for example, focuses on switching between Spanish and English, and states that "there are perhaps no syntactic restrictions on where the switching may occur" (Lance 1975: 143). Timm (1975), in contrast, on the basis of Spanish-English data (both naturalistic and sentence judgment data), suggests a number of constraints on code switching. Specifically, Timm (1975: 477-9) proposes constraints preventing switches between a verb and other elements related to it, such as its subject or object noun, its infinitival complement, and an auxiliary. Timm (1975: 480) goes on to suggest the possibility that "the verb is central to the structure of sentences". Further early research, such as that by Lipski (1978), also focusing on Spanish-English data, suggested that "a rather stringent set of sentential constraints" govern code switching (Lipski 1978: 261). Pfaff (1979), in studying code switching and borrowing in Spanish-English contact, also suggested that the two languages in code switching are mixed in accordance with certain constraints. Pfaff (1979: 314) went on to suggest that switches are more likely in certain syntactic environments than in others, stating that "surface structures common to both languages are favoured for switches".

The idea that there are rules which govern where in a sentence a code switch may occur has prompted much research, and various constraints have been proposed regarding where in a sentence codes may be switched. The studies leading to the proposal of such grammatical constraints have typically been carried out within the framework of particular (sometimes implicit) theories of grammar, the theory differing somewhat from one researcher to the next. Thus, in the literature, one finds that researchers apply different theories, or different interpretations of the same theory, furthermore differing in the manner in which the theory is applied. Such proposals have typically been based on a study of a particular code switching corpus, and have later been tested against other corpora of the same or another language pair, often being found to be less than adequate in accounting for the new data. Besides failing cross-linguistic empirical testing, some proposals have also been subject to much debate regarding their theoretical validity. A number of applications of grammatical theory to the analysis of code switching,

including early Government and Binding (GB)-based accounts and more recent analyses within the framework of minimalist syntax, are outlined here.

Poplack (1980) investigated Spanish-English code switching in an attempt to identify structural constraints, while noting, however, that "there is little doubt that functional factors are the strongest constraints on the occurrence of code switching" (Poplack 1980: 585). Specifically, Poplack (1980: 585) proposed the Free Morpheme Constraint, which holds that codes may be switched after any constituent which is not a bound morpheme. Poplack (1980: 586) further proposed the Equivalence Constraint, according to which codes will tend to be switched at points in the discourse where the syntactic rules of neither language are broken by the juxtaposition of the two codes, in other words, where the word-order of both languages remains intact. In support of the Free Morpheme Constraint, consider the data in (22) and (23), while data such as that in (24) are given in support of the Equivalence Constraint.

(22) una buena ex*cuse* [eh'kjuws]
(a good excuse)

(23) *eat-*iendo*
(eating)

(24) I told him that *pa'que la trajera ligero.*
(I told him so that he would bring it fast.)

Poplack (1980: 586)

Theoretically problematic aspects of the Equivalence Constraint are highlighted by Di Sciullo, Muysken and Singh (1986: 3), namely that it requires categorial equivalence between the languages in a pair in order to be applicable, and that it is formulated in terms of linear sequence, and not on the basis of structural relations. A further theoretical problem with the proposal of both the Free Morpheme and Equivalence Constraints as principles of the grammar (the grammar being the mental representation of the code concerned), is the implication that there are rules specific to code switching. According to MacSwan (2000: 38), this suggests that the interaction of the two grammars during code switching is ruled by a so-called "third grammar". In the interests of theoretical

simplicity, the proposal of such a third grammar should be avoided unless forced by the data under analysis (cf. Pfaff (1979: 314) in this regard, who was among the first to argue against the need to posit a third grammar). Both the Equivalence Constraint and the Free Morpheme Constraint have come under empirical scrutiny in various studies, and have been found unable to account for structural patterns in code switching data from various language pairs (cf., among others, Berk-Seligson 1986; Bokamba 1990; Nortier 1990; Kamwangamalu 1994; Halmari 1997; MacSwan 1999; Van Dulm 2002).

Bentahila and Davies (1983) studied the syntactic characteristics of Arabic French code switching, suggesting that such was governed by neither "ad hoc constraints" nor surface structure equivalence (Bentahila and Davies 1983: 328). Bentahila and Davies (1983: 329) went on to propose two constraints on code switching, namely that (i) "code switching is not possible across word-internal morpheme boundaries", although they do note that there may be some exceptions, and (ii) "all items must be used in such a way as to satisfy the (language-particular) subcategorisation restrictions imposed on them". Bentahila and Davies (1983) based their proposal in (i) on data such as those in (25). Their proposal in (ii) was based on data such as those in (26), where they suggest that the subcategorisation rules of the French determiner are satisfied in (26a), while those of the Arabic determiner are not satisfied in (26b).

(25) a *yza: l*ment*
(prettily)

b *essuie*zaza*
(windscreen wiper)

(26) a cette *xubza*
$\text{this}_{\text{French}}$ $\text{loaf}_{\text{Arabic}}$

b had *pain*
$\text{this}_{\text{Arabic}}$ $\text{loaf}_{\text{French}}$

(Bentahila and Davies 1983: 321)

Subsequent research by others has led to some evidence against the proposal in (i) (cf. Nortier 1990; Kamwangamalu 1994; Halmari 1997;

MacSwan 1999; Van Dulm 2002, in which switches between bound morphemes and stems are attested). The proposal in (ii) has theoretical merit, in that it does not represent a code switching-specific mechanism, requiring nothing more in code switching contexts than is required in monolingual language use. Such a proposal may be said to conform to the central (minimalist) idea mentioned above, and to be discussed later in this section, namely that there are no constraints specific to code switching.

Working within the GB framework, Woolford (1983) undertakes to relate English-Spanish code switching phenomena to grammatical theory. According to Woolford (1983: 521), the question regarding the grammatical characteristics of code switching concerns the manner in which two grammars operate at once to generate code switched constructions, i.e., to switch mid-tree. Woolford's (1983: 522) answer lies in the idea that there are no "hybrid rules"; each grammar operates independently to produce only a part of the tree. Woolford (1983: 534) goes on to propose a generative model of code switching, according to which the phrase structure (PS) rules of the two grammars operate jointly to form syntactic trees, without alteration to the rules of either grammar. According to Woolford (1983: 534), lexical items from each language can fill only those terminal nodes created by PS rules of that particular language, while PS rules which are common to both languages create terminal nodes which may be filled by lexical items from either language. Examples offered by Woolford (1983) in support of this proposal appear in (27) and (28).

(27) Todos los Mexicanos *were riled up.*
(All of the Mexicans were riled up.)

(28) El hombre *who saw the accident* es cubano.
(The man who saw the accident is Cuban.)

(Woolford 1983: 524)

Woolford's (1983) model succeeded in relating code switching phenomena to the grammatical theory of the time, although it may be seen as a mere reformulation of Poplack's (1980) Equivalence Constraint. Furthermore, subsequent research has shown the model to be unable to account for certain empirical data (cf. Clyne 1987; Stenson 1990).

In work focusing on the processing of sentences containing intrasentential code switching, Joshi (1985: 194) proposes the Constraint on Closed Class Items, according to which "closed class items cannot be switched". Joshi (1985) bases this proposal on Marathi-English code switching data such as that in (29) and (30), where Marathi postpositions and English prepositions are closed class items and so may not be switched.

(29) * kāhi khucyā *on*
(on some chairs)

(30) *war *some chairs*
(on some chairs)

(Joshi 1985: 195)

A theoretical problem with this constraint is once again its appeal to the existence of special rules pertaining to a particular code switching corpus, or to code switching in general, which defies the trend in linguistic theorising toward a universal explanation for all linguistic phenomena. Muysken (1995: 178), for example, states that "clearly we should aim for universal explanations when looking for grammatical constraints". Thus, the aim should be to provide a single account of both monolingual and bilingual phenomena. The Constraint on Closed Class Items has also been found to fail empirical tests, such as those performed by Clyne (1987), Nortier (1990), MacSwan (1999) and Van Dulm (2002).

Noting the role of structural relations in code switching, Di Sciullo et al. (1986: 6, 7) propose the Government Constraint, by which a governed category must have the same language index (i.e., be of the same language) as its governor. The Government Constraint was based on French-Italian data such as that in (31) and Hindi-English data such as that in (32).

(31) La plupart des canadies *scrivono 'c'*.
(Most Canadians write 'c'.)

(32) a I told him that *rām bahut bimār hai.*
(I told him that Ram was very sick.)

b *I told him *ki rām bahut bimār hai.*
(I told him that Ram was very sick.)
(Di Sciullo et al. 1986: 17)

Stenson (1990) takes research into the role of the government relation in the structure of code switching further in her study of Irish-English code switching. Stenson (1990: 167, 176) seeks code switching constraints which "follow from general principles of grammatical theory", wishing to avoid the positing of additional apparatus to account for the phenomena observed. Specifically, Stenson (1990: 193) proposes an adaptation of the Government Constraint, whereby (i) PS congruence is required for switching at the level of deep structure; and (ii) the Government Constraint is one of the principles that act as a filter for further switching at the level of surface structure. Regarding (i), Stenson (1990: 193) proposes that switching at the level of deep structure is due to lexical items from either language filling structures formed by PS rules shared by the two languages (such as in (33)). Thus, the only structures excluded from the possibility of switching would be those where a node requires a category or categories not available in the other language, such as the cliticised complementiser in Irish which may be proposed to disallow Irish-English switching between complementiser and complement (Stenson 1990: 188). Regarding (ii), Stenson (1990: 193) allows for the possibility that only certain types of government affect code switching by imposing the same-language-index restriction, for example applying to verb-argument relations but not phrase-internally, allowing switches such as that in (34), where the object noun phrase (NP) is no longer governed by the moved verb. Note, however, that much of the data in Stenson's (1990) study entails single word switches, which may potentially be accounted for in terms of borrowing and/or interference.

(33) ag obair do *magazine*
(working for a magazine)

(34) Níor thóg sé ach *split second.*
(It only took a split second.)
(Stenson 1990: 191)

Halmari (1997) further extends the application of the notion of government to code switching research in her account of American

Finnish-English code switching. Halmari (1997: 99) notes the importance of case assignment and agreement relations in accounting for the American Finnish-English data, both of these notions being closely related to that of government. Specifically, Halmari (1997: 103) proposes an addition to and restatement of Di Sciullo et al.'s (1986) Government Constraint, namely that case and agreement morphology can act as language carriers. Halmari's (1997) proposal, based on data such as those in (35) and (36), is that all American Finnish-English code switching which adheres to the syntactic structure of American Finnish may be explained in terms of such a restatement of the Government Constraint. Note, once again, that much of the data in Halmari's (1997) study entails single word switches, which may potentially be accounted for in terms of borrowing and/or interference.

(35) Otan sen *bookmark*in sieltä pois.
(I'll take the bookmark away from there.)

(36) Me on *driver's training*+i+ä enemmän nyt o-otettu.
(We have now taken more driver's training.)
(Halmari 1997: 134)

The Government Constraint comes closer than the previously mentioned constraints to an independently motivated principle to account for code switching, based as it is on the principle of government which was originally proposed to account for monolingual phenomena. However, a theoretical problem with this proposal is that, within the field of minimalist syntax, the government relation no longer plays a role. According to Cook and Newson (1996: 316), the notion of government is abandoned in minimalist syntax, as its effects can be "reduced to more fundamental relations". The Government Constraint, then, becomes a code switching specific mechanism, and has the same theoretical shortcoming as the so-called "third grammar" approaches of Poplack (1980), Joshi (1985), and others. Stenson's (1990) adaptations to the Government Constraint are also problematic in that the notions of deep and surface structure have been abandoned in modern generative (minimalist) syntax (Chomsky 1995a: 186-199). Likewise, Halmari's (1997) adaptations to the Government Constraint in terms of the role of case and agreement morphology are problematic in light of developments within generative syntax, such as the adoption of case checking theory over earlier notions of case assignment. In addition to

the problems with theoretical validity, the Government Constraint has also been found to fail empirical testing, such as that performed by Clyne (1987), Bokamba (1990), Nortier (1990), Pandit (1990), MacSwan (1999), and Van Dulm (2002).

Also working within the field of generative grammar, Belazi, Rubin and Toribio (1994: 228) base their Functional Head Constraint on Abney's (1987) proposal and Chomsky's (1993) assumption of f-selection as one of a group of feature checking processes, proposing that one of the features to be checked is 'language', i.e., which language is being spoken. According to the Functional Head Constraint, "the language feature of the complement f-selected by a functional head … must match the corresponding feature of that functional head" (Belazi et al. 1994: 228). The constraint thus allows switching between a lexical head and its complement, but disallows switching between a functional head and its complement (Belazi et al. 1994: 221). The Functional Head Constraint is held to subsume the Government, Free Morpheme and Equivalence Constraints of Poplack (1980) and Di Sciullo et al. (1986), as well as Joshi's Free Morpheme Constraint (Toribio and Rubin 1996: 203). The Functional Head Constraint was proposed by Belazi et al. (1994) to account for Spanish-English data such as that in (37), where switching is allowed between a verb and its complement, and Tunisian Arabic-French data such as that in (38), where switching is disallowed between the functional head Neg and its complement.

(37) They used to serve *bebidas alcoholicas en ese restaurante.*
drink-PL alcoholic in that restaurant

(38) *Ana ma *l'aime*-š.
I Neg it like- Neg
(I don't like it.)

Belazi et al. (1994: 222)

A theoretical problem with the Functional Head Constraint is that it appeals to a so-called "language feature", such as [+English], [+Afrikaans], or [+Chinese], which has not been independently motivated to apply to any other linguistic phenomenon. Furthermore, the constraint has failed empirical testing (cf. Halmari 1997; MacSwan 1997; Van Dulm 2002).

The search for structural rules according to which codes may be switched in bilingual sentences, as is clear from the research discussed above, reflects the belief that "intra-sentential code alternations are rule-governed and systematic, displaying dependency relations that reflect the operation of underlying syntactic principles" (Toribio 2001: 203). However, as has been noted, proposals of code switching-specific rules tend to instantiate the so-called "third grammar" approach. In the interests of the economy of grammatical theory, the postulation of such a third grammar should, if at all possible, be avoided. Belletti and Rizzi (2002: 31), for example, note that the preference within generative grammar for simpler syntactic analyses over more complex ones, and for the smallest possible number of rules, forms a basis upon which researchers may select among competing analyses of particular syntactic phenomena. Clyne (1987: 762) suggests that code switching may be "governed by the kinds of structural constraints applying to monolingual performance".

A departure from the third grammar approach to structural aspects of intrasentential code switching is instantiated in Mahootian's (1993: 138) proposal of the Null Theory of intrasentential code switching, according to which there are no mechanisms specific to code switching. Mahootian (1993: 139-140) proposes that the two lexicons, with their associated phrase structures, remain separate, and that access to both systems does not lead the speaker to generate utterances anomalous to either one. For example, a head-first language does not lose that parameter when in contact with a head-last language. The Null Theory is expanded in Mahootian and Santorini (1996: 470), where it is proposed that heads determine the syntactic properties of their complements both in code switched and in monolingual constructions. Specifically, Mahootian and Santorini (1996: 472) propose that a head determines the phrase structure position, syntactic category and feature content of its complement, i.e., its subcategorisation features.[7] For example, according to Mahootian and Santorini (1996: 471), a verb (V) (a lexical head) dictates the position of its complement, allowing the switch in (39) between a V-complement language and a complement-V language, but not that in (40).

[7] This proposal appears to amount to a reformulation of that made by Bentahila and Davies (1983) (cf. p. 19).

(39) You'll buy *xune-ye jaedid.*
(You'll buy a new house.)

(Mahootian 1993: 152)

(40) *You'll *xune-ye jaedid* buy.
(You'll buy a new house.)

(Mahootian and Santorini 1996: 472)

A conceptual problem with the approach of Mahootian (1993) concerns the use of a Tree Adjoining Grammar (TAG) formalism in the analysis, in which branching directionality, proposed to be encoded in the head, is realised by so-called "auxiliary trees", representing the complement to the left or to the right of the head (cf. MacSwan 1999: 45). This is in contrast to GB theory, in which branching directionality was not encoded, as well as some current theories of minimalist syntax, which posit right branching across the board (cf., e.g., Kayne 1994; Zwart 1997). A further conceptual problem with the approach of Mahootian and Santorini (1996) concerns the central role proposed for the head-complement relation in code switching. Such a proposal may be said to reflect the idea that operations required by subcategorisation may constrain code switching, whereas adjunction operations allow more freedom, and do not constrain code switching. In the interests of economy, however, as pointed out by MacSwan (1999: 47), there should be no limit on the syntactic relations and operations relevant to code switching; rather, "all syntactic operations and principles will be relevant in defining the class of well-formed code switching constructions". Such would be the basis of a truly "null" theory of code switching.

2.3.3 "Minimalist" approaches[8] to grammatical aspects of code switching

In a continuation of the effort to avoid the proposal of a third grammar, MacSwan (1999: xxv) suggests that fruitful research into structural aspects of intrasentential code switching can be carried out within the framework of minimalist syntax, where the aim is to make use of the minimal theoretical apparatus. As MacSwan (1999: 146) notes, Chomsky's central aim in the minimalist program (cf. Chomsky 1995a; 2000) is to eliminate mechanisms that are not necessary on conceptual

[8] Cf. pp. 46, 47 for a brief discussion of the potential (mis)use of terms such as "minimalist approach".

grounds, to make only the minimal theoretical assumptions to account for linguistic data. MacSwan (1999: 146) further suggests that such assumptions would "favour accounts of code switching which make use of independently motivated principles of grammar over those which posit rules, principles or other constructs specific to it". On the basis of a study of intrasentential code switching between Spanish and Nahuatl, MacSwan (1999: 14) proposes that "nothing constrains code switching apart from the requirements of the mixed grammars". MacSwan (1999: xxv) suggests that his research program is minimalist in two respects, namely (i) the proposal makes use of the minimal theoretical apparatus, corresponding to the so-called "virtual conceptual necessity" that is central to the minimalist program; and (ii) the code switching data are analysed within the minimalist framework.

MacSwan (1999: 66) works within the boundaries of a syntactic theory in which parameters are restricted to the lexicon (cf. Chomsky 1991, 1993, 1995a). This entails that variations in surface word order of languages relate to the movement of lexical items triggered by lexically encoded morphological features (MacSwan 1999: 67). The implication is that distinctions between languages do not feature in syntactic theory, and should play no role in an account of code switching (MacSwan 1999: 146). MacSwan's (1999: 97) main research question concerns the principles that define code switching boundaries within sentences. Specifically, he seeks an "explanation of the code switching facts in terms of conflicts in the lexical requirements of words which are independent of code switching-specific mechanisms" (MacSwan 1999: 151). The strategy in pursuing such a goal is to locate language-specific conflicts in the feature specifications of functional categories in order to explain the code switching data (MacSwan 1999: 156).

A further important aspect of MacSwan's (1999, 2000) approach to the analysis of intrasentential code switching concerns his proposal of the phonological form (PF) Disjunction Theorem, according to which code switching is not possible in the computation from the Numeration (N) to the phonological form representation (π), i.e., in the PF component.[9]

[9] The outline of the central mechanisms and devices of minimalist syntax which appears in section 3.1 clarifies the content of the notions referred to here. The uninformed reader may wish to refer to this chapter in order to fully understand MacSwan's (1999; 2000) proposal.

The ban on code switching in the PF component is due to the nature of this component, which differs from that of the logical form (LF) component, in that the computation from N to π modifies structures, including the internal structure of lexical items, by processes that are different in nature to those of the computation from N to the logical form representation (λ) (Chomsky 1995a: 229). Specifically, the PF component contains phonological rules which build structure on the basis of specific morphological material with its phonetic content (MacSwan 2000: 45). Such rules are necessarily ordered, and such ordering is language-specific. This ordering of rules may not be maintained when the PF components of two languages are mixed. In order to allow for the language-specific nature of the PF component, MacSwan (1999: 187) posits the PF Disjunction Theorem, as an instantiation of Full Interpretation, and predicts that there will be no code switching below the level of an X^0 [10], i.e., no code switching within an X^0, as X^0s are inputs to the PF component (MacSwan 2000: 46). Note that the PF Disjunction Theorem is not a constraint on code switching, of the nature of those proposed by, for example, Di Sciullo et al. (1986) and Belazi et al. (1994). Rather, it is "a theory about the relationship between the phonological components of a bilingual's linguistic system, and is deduced from the nature of phonological rules" (MacSwan 2000: 46). Thus, the assumption that "nothing constrains code switching apart from the requirements of the mixed grammars" (MacSwan 1999: 14) is maintained.

As an illustration of how the predictions of the PF Disjunction Theorem are borne out, MacSwan (2000: 46) considers the data in (41) and (42). According to Poplack (1980: 586), a switch is disallowed between the English stem *eat* and the Spanish bound morpheme *–iendo.*[11] However, MacSwan notes that such switching between an English stem and a Spanish bound morpheme is allowed if the stem takes on Spanish phonology and morphology, as in (42).

[10] X^0 denotes a word level category, which may, for example, be a simple noun like *pen*, or a complex noun like *ballpoint pen*. Examples of verbal X^0s include the simple *mark*, and the complex *marked* and *re-marking*.

[11] Cf. pp. 12-13 with regard to the limitations associated with Poplack's (1980) Free Morpheme Constraint.

(41) *eat-*iendo*

(Poplack 1980: 586)

(42) Juan está parqueando su coche.
(Juan is parking his car.)

(MacSwan 2000: 46)

The assumption is that morphologically complex words like *parqueando* are formed by word formation devices internal to the lexicon (cf. Chomsky 1995a), and that a switch is allowed here if one assumes that the English stem has been borrowed into the speaker's Spanish lexicon.

In response to MacSwan's (1999; 2000) proposals for an account of code switching within the framework of the minimalist program (and those of others who work within the framework of generative grammar), Jake et al. (2002: 69) propose a so-called "modified minimalist approach", in which the notion 'matrix language' plays a central role. The existence of a matrix language (ML) was proposed by Myers-Scotton (1993b) in her account of the grammatical structure of code switching. Specifically, the Matrix Language Frame (MLF) model juxtaposes the ML and the embedded language (EL). According to Myers-Scotton (1993b: 77), the ML determines the morpheme order and contributes the "syntactically relevant system morphemes", thus providing the morphosyntactic frame for the sentence, within which lexical items from the embedded language may occur. Jake et al. (2002) focus on switching between Spanish and English in the NP, proposing that the ML provides the "abstract grammatical frame in bilingual constituents", and that only the recognition of such an ML allows for the "basic asymmetry between the languages participating in code switching" (Jake et al. 2002: 69). Jake et al. (2002: 70) go on to note that all functional elements in a single CP come from a single language, and propose the "bilingual NP hypothesis", which states that all system morphemes in an NP come from the ML (Jake et al. 2002: 78). The main aim of the work by Jake et al. (2002: 72, 89), is to account for single word switches and longer EL islands in NPs. The account offered appears to succeed in this regard, which Jake et al. (2002: 72) propose to be preferable to an account which simply resorts to labelling single word switches as borrowings, such an account being "weaker and less explanatory". Jake et al. (2002: 70, 89) emphasise that accounts of code switching phenomena within the framework of minimalist syntax cannot succeed without incorporating the notion of the ML. Note, however, that the MLF model originated as

a psycholinguistic model, aimed at explaining aspects of bilingual language processing (Myers-Scotton 1993b: 76), and the extension of syntactic theory into the realm of psycholinguistics is problematic at best.

2.3.4 A typology of code switching

On the basis of the findings of some of the research reviewed above, which led to the proposal of constraints (or the lack thereof) on code switching sites, Muysken (2000) proposes a typology of code switching which is also relevant in this overview of the literature.[12] According to Muysken (2000: 2), the aim of this work is to provide a taxonomy, rather than a conclusive account of the relevant data. The first type of code switching described by Muysken (2000: 60-62) is termed "insertion", and is characterised by the insertion of a constituent from language B into a construction in language A, where A is the matrix language. This type of code switching is illustrated in (43), which is taken from Nortier's (1990) Moroccan Arabic-Dutch code switching data.

(43) Žib li-ya *een glas water of zo*.
(Get me a glass of water or something.)
(Nortier 1990: 131 in Muysken 2000: 62)

A second type of code switching described by Muysken (2000: 96) is termed "alternation", and occurs where the two languages "remain relatively separate", for example, when the switch is at the periphery of the clause (Muysken 2000: 121). An example appears in (44), taken from Treffers-Daller's (1994) French-Dutch corpus.

(44) Je dois je dois glisser *daan vinger hier*.
(I have to insert my finger here.)
(Treffers-Daller 1994: 213 in Muysken 2000: 96)

The final type of code switching described by Muysken (2000: 122) is termed "congruent lexicalisation", and occurs where the two languages share the grammatical structure of the sentence, either partially or fully. According to Muysken (2000: 132, 152), this includes instances of

[12] Note that Muysken (2000: 1) uses the term "code mixing" to refer to instances "where lexical items and grammatical features from two languages appear in one sentence".

switching back and forth between the two languages, and is most common between "related languages". Congruent lexicalisation is illustrated by the Sranan-Dutch example in (45), taken from Bolle (1994).

(45) Wan heri *gedeelte* de ondro *beheer* fu *gewapende machten.*
(One whole part is under the control of armed forces.)
(Bolle 1994: 75 in Muysken 2000: 139)

The review presented here of the literature exploring grammatical aspects of code switching makes it clear, as noted by Boumans (2001: 451) that "(s)yntactic relations do play a role in intrasentential code switching, but exactly how is still not fully understood, despite the large number of studies on code switching". It should, however, be noted that the mechanics of syntactic relations in monolingual language use are also still far from being fully understood. It may be suggested that the aim of research into grammatical aspects of code switching should simply be to remain in tune with current grammatical theory. In this way, the two areas of research stand the greatest chance of being able to inform each other.

2.4 Code switching research in the South African context

As has been mentioned, the incidence of code switching between and among the languages of South Africa is high. The incidence of code switching between English and Afrikaans in the Western Cape, for example, is noted by Mesthrie (1993: 49) to be observable in literature dating back to the 1800s. Mesthrie's (1993) survey of documents such as traveller's journals and narratives from the 1800s suggests that people of various socio-economic and racial groups regularly switched between English and Afrikaans, both to accommodate less proficient bilinguals and for stylistic purposes. Slabbert and Finlayson (1999: 60) note, too, the growing interest in research on the indigenous languages of South Africa, where the extensive code switching observed has implications for such issues as language change, language shift and convergence. According to Slabbert and Finlayson (1999: 62), code switching may involve any of the eleven official languages of South Africa, depending on such factors as geographical area and the relative functional value of the languages concerned (cf. the illustrative example of code switching between English, Tswana, Afrikaans, Southern Sotho and Tsotsitaal on p. 5).

Traditionally, research on code switching in South Africa has focused on its sociolinguistic aspects, where types of and reasons for code switching have been identified. Relatively limited research has been undertaken into the syntactic aspects of code switching, specifically of intrasentential code switching. What follows is a brief overview of the relevant literature.

2.4.1 Sociolinguistic studies of code switching

Much of the code switching research carried out in South Africa focuses on code switching in the educational setting. The aim of such research has been to identify the incidence and functions of code switching by teachers and students. Such studies are important in highlighting the possible implications of code switching for education, especially in light of the fact that many children in South Africa are taught in a language that is not their mother tongue, and also in light of the desire of many parents to have their children educated in English, which is regarded as a prestige language, furthering one's chances of upward socio-economic mobility and providing access to the international arena.

Adendorff (1993) reports on the functions and implications of Zulu-English code switching among Zulu-speaking teachers and their students, suggesting that, although both teachers and students may regard code switching as undesirable, consciousness of code switching as a rich and crucial communicative resource in classrooms ought to be raised (Adendorff 1993: 4, 5, 20). Adendorff (1993: 11) states that code switching in the classrooms he studied allowed the teacher to fulfil "his academic and social agendas by enabling him … to clarify information, encourage, provoke and involve his pupils". Teachers and students appear to engage in code switching between Zulu and English (i) in order to fulfil social functions, such as signalling solidarity or authority and building relationships, and (ii) for academic purposes, such as reiteration, to ensure the adequate communication of content. Adendorff (1993: 17) concludes that the development of a sensitivity toward code switching should form part of teacher training, and that teachers should be encouraged to accept code switching as a sign of bilingual competence, affording speakers communicative power, and thus social power (Adendorff 1993: 19).

Further research on code switching which underlines the necessity for teachers to be aware of the phenomenon and its functional aspects is reported by Kieswetter (1995), who considers the patterns of code switching between English, Zulu and Swazi among a particular group of high school students in an urban English-medium school. Kieswetter (1995: 6, 59) notes that code switching is used as a dynamic conversational strategy, and that code switching is the unmarked choice among Zulu L1 students, where it appears to reflect their dual identity. Kieswetter (1995: 96) echoes the sentiments expressed by Adendorff (1993), suggesting that teachers need to recognise the dynamic nature of language and to allow for the influence of context in students' language use.

Teachers' awareness of code switching as a communicative tool is also the focus of Lawrence's (1999; 2001) study at a teacher's training college, carried out within the framework of Myers-Scotton's (1993a) Markedness Model, where English-Afrikaans code switching is regarded as a strategy for effective communication among Afrikaans and Xhosa L1 speakers. According to Lawrence (1999: 269, 270), code switching in this group occurs as a marked choice, successive unmarked choice, and exploratory choice. Lawrence (2001: 3) further suggests that, as predicted by the Markedness Model, speakers in this setting use code switching to identify with aspects of the social context. Lawrence (1999: 274) concludes that the Markedness Model is a suitable framework to account for the social functions of code switching in the context of the college.

The Markedness Model is also applied by Ncoko, Osman and Cockcroft (2000) in their study of Zulu-English code switching in a primary school. Once again, code switching is reported to occur as marked, unmarked, and exploratory choice. The primary school students appear to use code switching to fulfil a variety of social functions, such as expressing solidarity, defiance, desire for inclusion or exclusion, and neutrality (Ncoko et al. 2000: 232, 233, 237). Code switching is further observed to be used for reiteration and to ensure the adequate transfer of meaning (Ncoko et al. 2000: 233, 237). As has been mentioned, much of the code switching research in South Africa has focused on the need to eliminate the idea that code switching is a sign of poor bilingual proficiency, and to highlight its potential benefits in the educational setting. Ncoko et al. (2000: 231) concur, suggesting that a certain level of bilingual proficiency is required in order to allow the type of fluent code switching observed

in their study. Their conclusion is that code switching is the norm among school children, and they point out its potential for use as a teaching strategy (Ncoko et al. 2000: 239). (Cf. also Setati, Adler, Reed and Bapoo (2002) in this regard.)

Further research applying Myers-Scotton's Markedness Model is reported by Rose and Van Dulm (2006), who focused on the functions of code switching between English and Afrikaans in multilingual classrooms (mainly English, Afrikaans and Xhosa L1) in a secondary school. The code switching observed was classified as marked, unmarked and sequential unmarked code switching, and was found to fulfil a variety of specific functions in the educational setting. Firstly, code switching was reported to fulfil a number of academic functions, such as expansion, clarification, and confirmation of the content being taught. Secondly, code switching was reported to fulfil a variety of social functions, such as regulating the level of formality of a conversation, in humorous exchanges between teachers and learners and among learners, and in expressions of identification with a particular in-group. Rose and Van Dulm (2006) conclude that code switching plays a positive role as an effective communicative tool in multilingual and multicultural classrooms.

Studies of code switching in the educational setting have focused not only on schools, but also on the tertiary education level. Research focusing on the role of Zulu-English code switching in the construction of identity by Zulu L1 students on the Westville campus of the University of KwaZulu-Natal is reported by Ramsay-Brijball (2003; 2004). Ramsay-Brijball (2003; 2004) collected spontaneous code switching data and also had students complete questionnaires, aimed at gathering information on such issues as educational orientation and language attitudes. Ramsay-Brijball (2004: 151) concludes that "Zulu L1 speakers use Zulu-English code switching … as a tool to define themselves and to express their aspirations". According to Ramsay-Brijball (2004: 151, 152), code switching in this context exposes the "hybrid nature" of these students' identities, and is an illustration of their adaptation to global demands. An interesting finding mentioned by Ramsay-Brijball (2004: 160) is the increasing incidence of Zulu-English code switching in this context, perhaps reflecting the changes in the demands placed on these students in terms of their linguistic heritage (Zulu), as well as their desire for access to the global arena (via English).

Code switching allows these students to construct the "negotiable identity" that they may feel is necessary (Ramsay-Brijball 2004: 160).

Besides research on code switching in the educational setting, a number of authors have focused on the functions of code switching in wider South African society. Barnes (1994), for example, analyses data from a number of sources in South Africa according to function. According to Barnes (1994: 275-281), code switching between and among South African languages and varieties (including Sotho, Ndebele, Afrikaans, English, and Zulu, among others) is used for direct quotations and idiomatic expressions in the original language, for reiteration, for discourse marking, and generally for dramatic effect and creating intimacy between or among speakers. Gxilishe (1992: 94), focusing on switching between various Nguni languages, adds that bilingual speakers with high levels of proficiency in both languages use code switching as an indicator of their bilingual competence on both a linguistic and a social level.

Finlayson and Slabbert (1995) report on research focusing on code switching in the South African township[13] context. With regard to switching between Southern Sotho and Tswana, Finlayson and Slabbert (1995: 73) note that such code switching does not fulfil the same functions as would code switching into English or Afrikaans, used for interaction with white people. Rather, respondents' reflections indicate that Southern Sotho-Tswana code switching is motivated by a desire to accommodate toward Sotho as the dominant language in the particular geographical area of inquiry. Finlayson and Slabbert (1995: 65, 95) also note that switching between these two languages is so much the norm that it appears to lead to a "merger between the two languages", making it impossible to identify a matrix language in terms of Myers-Scotton's (1993b) MLF model. In this regard, however, it is important to note that Southern Sotho and Tswana were originally regarded as two dialects, and only more recently as "politically separate languages" (Finlayson and Slabbert 1995: 69). Further work by Finlayson and Slabbert (1997) focuses on code switching between and among a wider variety of Bantu languages in the township context, including Zulu and Xhosa, as well as

[13] In the South African context, the term "township" refers to an area located outside a city or town, populated by (mainly black) people of the lower socio-economic sphere living in sub-economic housing.

English and Afrikaans. Code switching is observed in these contexts as playing a role in (i) accommodation, whereby a speaker's use of code switching aids him/her in accommodating the needs of the listener, and (ii) a speaker's display of his/her linguistic versatility (Finlayson and Slabbert 1997: 400, 407), where the ability to switch languages is an integral part of a speaker's identity.

The study of code switching among South African township residents is taken further by Finlayson, Calteaux and Myers-Scotton (1998), who apply Myers-Scotton's (1993b) MLF model to their data. Finlayson et al. (1998: 395) use the term "mixed language" to characterise the pattern of language use among these speakers. The speakers themselves were recorded as using the term "tlhakatlhakano", translated as "mish-mash", for this type of language use (Finlayson et al. 1998: 404). Finlayson et al. (1998: 395, 396) observe that code switching in this urban township environment functions as an index of identity, and fulfils an accommodation function.

2.4.2 Mixed languages

A related area of research relevant in the South African context is that of so-called "mixed varieties". A brief overview of the literature on two such mixed varieties, namely Tsotsitaal and Cape Afrikaans, is given here.

According to Msimang (1987: 82), Tsotsitaal (also known as "Flaaitaal") is a code which developed in the 1940s among urban black males who partook of criminal activities, as an indicator of their shared identity as social outcasts. Msimang (1987: 83) identifies Tsotsitaal as a mixture of mainly Zulu, Xhosa and Afrikaans, with no clear base language, and much meaning shift in lexical borrowings, essential in what the speakers regard as a "secret code". Speakers typically use Tsotsitaal with their peers, thereby indicating their solidarity with the group, and switch to standard Zulu or Xhosa with their elders, or to English or Afrikaans with officials (Msimang 1987: 83). A number of researchers have queried the existence of two distinct codes associated with the criminal element within South Africa, namely Tsotsitaal with Afrikaans as a base language, and Isicamtho with Zulu as a base language. It may be that a number of sub-codes have developed among different groups of speakers from the original Tsotsitaal/Flaaitaal/Isicamtho. Slabbert (1994), for example,

focuses on a variety of Tsotsitaal with a strongly Afrikaans base, suggesting that the appearance of the Afrikaans *taal* ("language") in the name of the code is indicative of the strong influence of Afrikaans (Slabbert 1994: 33). Slabbert (1994: 38) notes, however, that speakers of Tsotsitaal consider it to be a separate language, and not a variety of Afrikaans. Slabbert and Myers-Scotton (1996) investigate the structure of Tsotsitaal and Isicamtho, regarding them as "slang varieties", whose structure conforms to the same type of morphosyntactic constraints as code switching and other language contact phenomena (Slabbert and Myers-Scotton 1996: 317). With regard to the possibility of two distinct codes, Childs (1997: 345) suggests that the two codes were originally geographically distinct varieties, Tsotsitaal being a highly pidginised variety of non-standard Afrikaans, and Isicamtho having developed from so-called "Shalambombo", an Nguni-based variety of the people known as "Tsotsis" (criminals, social outcasts). Childs (1997: 350, 358) further labels Isicamtho as a "mixed or hybrid language", whose main input is from non-standard Zulu, but which cannot be sufficiently isolated from Zulu to be regarded as a separate language. In light of the debate regarding the existence of one or more codes, it is interesting to note one of the Tsotsitaal lexical items cited by Msimang (1987: 85), namely the inflected Zulu word *isiqamtho*, meaning "Tsotsitaal", from the Zulu -*qamutha* or the Xhosa -*qamtha*, meaning to "speak volubly", or "gift of the tongue".

Another mixed code spoken in South Africa is that which is often referred to as "Cape Afrikaans" or "Kaaps". In the Western Cape, amongst those bilingual in English and Afrikaans, a particular group of speakers may be distinguished on the basis of their use of this code. According to Stone (1995: 277), ethnographic research carried out between the 1960s and the 1990s indicates that there is a distinctive dialect spoken by the working-class coloured community in the Cape. This code has both regional and social bounds, being largely restricted to the geographical area of the Western Cape, and to the said working-class coloured community. The code forms part of the community's identity, and is regarded by its speakers as their mother tongue (Stone 1995: 277, 280). The code is characterised by a "deft weaving of English and Afrikaans", and constitutes a "fairly stable, widely used, mixed code" (McCormick 1995: 193, 194). McCormick (2002) focuses on the language use in Cape Town's District Six, which is largely a coloured working class community. McCormick (2002: 90) regards the linguistic repertoire of

this community as a continuum, ranging from standard English at one end to standard Afrikaans at the other, and including the non-standard dialects of both languages, as well as a mixed code entailing switching between (mainly) the non-standard dialects.[14]

This brief overview of the literature on sociolinguistically-oriented code switching research in South Africa reflects the nature of the majority of research on language contact phenomena in the local context. The review of the literature on grammatically-oriented code switching research which is given in section 2.4.3 below is particularly pertinent in the present context, and illustrates that relatively little such research has been undertaken to date.

2.4.3 Grammatical aspects of code switching

As noted by Kamwangamalu (2000: 59), the bulk of research on code switching in South Africa has focused on its pragmatic aspects, aimed at ascertaining why and in what contexts people switch, while research concerning syntactic aspects of code switching has been limited. Although a number of the authors whose work is reviewed above (cf. Lawrence 1999, 2001; Finlayson and Slabbert 1997; Finlayson et al. 1998) apply the MLF model, intended by Myers-Scotton (1993b) to account for the structure of code switching, the majority of the data constitutes either (i) single word switches, which may be more usefully analysed in terms of a borrowing paradigm, or (ii) intersentential switching, which is less interesting in terms of its syntactic characteristics than is intrasentential switching. Furthermore, the identification of the matrix language (or lack thereof) may be said to rest on sociolinguistic (and/or psycholinguistic) factors, rather than on anything purely syntactic. The results of these studies indicate a distinctly sociolinguistic orientation, identifying the role of social factors in code switching and the social role of code switching itself. Gxilishe's (1992) study is possibly the exception in this regard, as switching between Nguni languages is analysed in terms of Poplack's (1980) Free Morpheme and Equivalence Constraints, which are found not to be upheld in all cases (Gxilishe 1992: 94, 95). Likewise, Kamwangamalu (1994) considers the structure of SiSwati-English code switching in terms of the Matrix Language Frame Model, but also offers counter-examples to Poplack's (1980) Free Morpheme and Equivalence

[14] An insightful overview of McCormick's work is given by Deumert (2004).

Constraints. Furthermore, in research on the grammatical aspects of code switching by L1 speakers of a Bantu language between English and the Bantu language, Kamwangamalu (1997) argues against the existence of a third grammar governing code switching, suggesting that such code switching is governed by the structure of the matrix language, which is the Bantu language in these contexts (Kamwangamalu 1997: 45).

Van Dulm (2002) reports on a preliminary research project aiming to evaluate the empirical merit of the above-mentioned "minimalist assumption" regarding intrasentential code switching, namely that there are no code-switching-specific constraints. Naturalistic code switching data were gathered among fluent bilingual students on the campus of Stellenbosch University. In addition, participants were required to judge the well-formedness of sentences constructed to test the validity of a number of the constraints mentioned in section 2.1.2 above, namely Poplack's (1980) Free Morpheme and Equivalence Constraints, Joshi's (1985) Constraint on Closed Class Items, Di Sciullo et al.'s (1986) Government Constraint, and Belazi et al.'s (1994) Functional Head Constraint. On the basis of both the naturalistic data and the acceptability judgments, Van Dulm (2002: 15, 16) argues against the validity of these constraints, and concludes that the data suggest some support for the possibility that nothing constrains code switching apart from the requirements of the mixed grammars. The role of syntactic theory in the analysis of code switching data is further discussed by Van Dulm (2004), and the line of research is expanded in Van Dulm (2006), where preliminary evidence indicates that predictions for the structure of English-Afrikaans code switching, made on the basis of analyses of structural differences between English and Afrikaans in terms of differences in feature checking requirements, may be borne out by experimental data. It is this preliminary work which is taken further in the present study.

CHAPTER 3

THEORETICAL FRAMEWORK

3.1 Theoretical point of departure

As has been mentioned, the aim of the present study is to evaluate the extent to which code switching phenomena may be accounted for within the framework of feature checking theory, a theory associated with minimalist syntax. The term "minimalist syntax" refers here to the theories of grammar that have been developed since the early 1990s within the framework of (i) assumptions associated with the principles and parameters approach (cf., e.g., Chomsky 1981, 1986a) and (ii) linguistic research questions raised by the minimalist program (cf., e.g., Chomsky 1995a, 1999, 2000; Lasnik 1999; Hendricks 2003). As a working hypothesis, it is assumed that minimalist syntax presents a potentially fruitful avenue of research into intrasentential code switching. A brief overview is given below of developments within the framework of generative grammar, relevant issues raised by the minimalist program, and some assumptions and devices of minimalist syntax.

3.1.1 Generative grammar

Research in the generative tradition is carried out against the background of the three levels of adequacy which grammatical descriptions have to meet, as set out by Chomsky (1964: 28, 29). The lowest level of success is that of observational adequacy, attained when the grammar correctly characterises specific observed linguistic data (for example, that in a corpus). The second level is descriptive adequacy, attained when a grammar additionally provides an account of the speaker-hearer's linguistic intuitions and offers meaningful generalisations expressing the underlying regularities of the observed linguistic data. The third level of success is that of explanatory adequacy, attained when the theory associated with the grammar presents an explanation for the linguistic intuitions of the speaker-hearer and, crucially, also for how principles underlying these intuitions could have been acquired. Within the tradition of generative grammar, then, an adequate theory is one which attains all three levels of success.

Much of the early work within the framework of generative grammar led to the postulation of various rules, proposed to account for a multitude of syntactic phenomena in a wide variety of languages. Tension then arose between the needs for descriptive and explanatory adequacy, as it did not appear possible that a single grammar could simultaneously (i) account for the structures observed in individual languages, thereby attaining descriptive adequacy, and (ii) capture the fact that these structures derive from a single universally specified (innate) set of structures, thereby attaining explanatory adequacy. This tension, according to Chomsky (1995a: 5), arose as "the goal of explanatory adequacy receded … into the distance as generative systems were enriched in pursuit of descriptive adequacy". A quest for descriptive adequacy leads to greater and greater complexity and variety in systems of rules accounting for syntactic phenomena, different for each language, while that for explanatory adequacy requires the structure of different languages to be largely invariant (Chomsky 1997a: 5). Questions as to how to resolve this tension led researchers to follow what has become known as the "principles and parameters" approach within generative grammar (cf. Chomsky 1981; 1986a; 1986b).

Within the principles and parameters framework, the multitude of language-specific rules of the early generative tradition are replaced by principles and parameters that are assumed to be universally present, forming the basis of the language faculty. Thus, Chomsky (1995a: 170) proposes that Universal Grammar (UG) provides a "system of principles and a finite array of finitely valued parameters". These principles and parameters comprise the initial state of the language faculty, and each parameter can be set to a particular value, on the basis of the input to which the speaker-hearer is exposed. Each language L is the result of the fixed set of principles and a certain configuration of parameter settings.

The principles and parameters framework provides a research program within which certain questions about the language faculty and languages are asked and answered in a certain way, the ultimate aim being to provide an account in terms of which all syntactic phenomena are shown to be the product of interaction between fixed and universal principles and language-specific parameter settings. Thus, as Chomsky (1997a: 6) notes, "the [principles and parameters – OvD] program suggests how the theory of language might satisfy the conflicting conditions of

descriptive and explanatory adequacy" (cf. also Chomsky 2000:92; Chomsky 2006:2).

Government and Binding (GB) theory was the most influential theory of grammar within the principles and parameters framework from the late 1970s to the early 1990s (cf. Chomsky 1981; 1986a; 1995a), and has been regarded as "the most fully worked out version of a principles and parameters approach to UG" (Hornstein, Nunes and Grohmann 2005: 19). The government relation and the binding relation are central to this theory. Government entails the relation between a lexical head and its complement(s), while binding is a structural relation governing the co-referencing properties of items in a sentence (Cook and Newson 1996: 252). According to GB theory, there are four levels of grammatical representation, namely (i) deep structure (D-structure), (ii) surface structure (S-structure), (iii) logical form (LF), and (iv) phonetic form (PF). Between D-structure and S-structure, movement of syntactic elements takes place, grammatical functions are expressed in terms of theta roles, and phrase structure rules are applied (Cook and Newson 1996: 153; Hornstein et al. 2005: 20, 21). "Move" is one of the principles of the transformational component of GB theory (Hornstein et al. 2005: 23). Specifically, GB theory proposes a principle called "Move α", according to which anything can be moved anywhere. This principle replaced the (construction-specific) transformational rules of earlier generative grammar, for example, *wh*-movement in questions, NP movement for passives, etc. S-structure links PF and LF, as it is the level at which the derivation splits into two representations, one for the PF component, which determines aspects of the pronunciation of the sentence, and another for the LF component, which computes those aspects of meaning which are associated with syntactic structure (Cook and Newson 1996: 152, 153; Hornstein et al. 2005: 23). Within GB theory, PF and LF are thus interface levels, which provide the grammatical information needed to assign phonetic and semantic interpretations to the sentence (Hornstein et al. 2005: 22).

GB theory has been said to be the most successful theory of grammar within the principles and parameters framework elaborated to date (Hornstein et al. 2005: 13). However, more recent developments within the minimalist program (cf. Chomsky 1995a) have led to a reconsideration of various assumptions and devices of the principles and

parameters framework, one of these considerations being the elimination of the levels of S-structure and D-structure associated with GB theory.

3.1.2 The minimalist program

Throughout the history of research within the framework of generative grammar, there has been a preference for simpler syntactic analyses over more complex ones, for the smallest possible number of rules and the smallest possible number of elements. This preference for simplicity was evident in Chomsky's earliest work, namely his 1951 MA thesis on the morphophonemics of Modern Hebrew, where he emphasised the need for a grammar to meet such requirements as simplicity and economy (Tomalin 2003: 1243, 1244). Such a preference for simplicity and economy remains reflected, for example, in current notions of derivational and representational economy. Derivational economy entails that "the derivation should take as few steps as possible", while representational economy entails that "the resulting representations should have as few symbols as possible" (Zwart 1993: 13). The preference for simplicity can be seen to dominate recent work in the generative tradition. Indeed, according to Chomsky (2002: 95) and Tomalin (2003: 1251), the increasing emphasis on economy and simplicity has led to the development of the minimalist program.

Within the minimalist program, Chomsky (2001a: 1) suggests that the properties of a language L are the result of interaction among three factors. The first of these is the initial state of the language faculty, an instantiation of the fixed set of universal principles. The second is the primary linguistic data (PLD), also known as "language input", i.e., the empirical basis in accordance with which the parameters are set. The third, not addressed by early work within the principles and parameters framework, comprises general properties of organic systems. Chomsky (2001a: 2) explains the need to ask "not only what the properties of language are, but why they are that way". The belief is that, once the tension between descriptive and explanatory adequacy is overcome by work within the principles and parameters framework, one can go beyond explanatory adequacy and focus on questions arising from the third factor above, i.e., the nature of the language faculty as an organic system and the role that this plays in determining the properties that natural language systems must have.

Specifically, Chomsky (1999; 2000; 2002: 108) asks the question: is language optimally designed in terms of the systems with which it must interact? This is the line of questioning taken up in the minimalist program, which provides a framework within which questions can be posed regarding the optimality of language design (Chomsky 1997b: 1; 1999; 2000). The minimalist program seeks to explore the question of whether language is a perfect system, inasmuch as it is a perfect solution to externally imposed constraints (Chomsky 1995a: 1). Such externally imposed constraints arise due to the interaction of the language faculty, as a cognitive system, with other performance systems, such as the sensorimotor and conceptual systems. According to Chomsky (1997b: 4), the language faculty interacts with these performance systems in terms of levels of linguistic representation. The output of the language faculty must satisfy so-called "legibility conditions" imposed by these systems if the systems are to process the output of the language faculty. The strong minimalist thesis (SMT) is that "language is an optimal solution to legibility conditions" (Chomsky 2000: 112). The assumption is that the language faculty (i) provides only the machinery that is necessary to satisfy the minimal requirements of legibility, and (ii) functions in as simple a way as possible.

The performance systems with which the language faculty must interact, according to Chomsky (1995a: 168), are of two general types, namely articulatory-perceptual (A-P) and conceptual-intentional (C-I). These are the systems for which a linguistic expression, the output of the language faculty, must provide instructions. Accordingly, there are assumed to be two interface representations, PF at the A-P interface and LF at the C-I interface (Chomsky 1995a: 2), which provide instructions for the A-P and C-I systems, respectively. Chomsky (1995a: 169) proposes that these two levels are the only conceptually necessary levels, and so assumes that they can be taken to be the only levels. As Hornstein et al. (2005: 25) note, natural language pairs form and meaning. As PF and LF comprise the inputs to the A-P and C-I systems, they are conceptually necessary. The GB levels of S-structure and D-structure, in contrast, are theory-internal levels, being theoretically motivated rather than conceptually motivated. Research within minimalist syntax has suggested that the empirical burden of these two levels of representation can be more adequately carried by mechanisms operating between the lexicon and PF and LF (cf. Hornstein et al. 2005: 25-72). Thus, the conceptually unnecessary levels of D- and S-structure are eliminated in the spirit of

economy, according to which two levels of representation are better than four. The assumption of PF and LF as the only levels of representation, based on the notion of virtual conceptual necessity, is central to the minimalist program.

The above-mentioned SMT holds that all states of the language faculty (initial and attained) must satisfy the interface legibility conditions, and so puts aside the distinction between descriptive adequacy (for a theory of an attained state of the language faculty) and explanatory adequacy (for a theory of the initial state) (Chomsky 2002: 131). This assumption that all states of the language faculty satisfy legibility conditions in an optimal manner is central to questions posed by the minimalist program. The task of the minimalist program, according to Chomsky (2001a: 3), is to examine the devices employed to characterise language and determine the extent to which such devices can be eliminated in favour of a principled account in terms of general conditions of computational efficiency and interface conditions that the organ – in this case, the language faculty – must satisfy in order to function. The goal of research within the minimalist program is to determine which aspects of the structure and use of language are specific to the language faculty.

It is important to note that the minimalist program is a research program, not a theory. Specifically, it is a research program which assumes the framework of the principles and parameters approach, and which provides leading questions about the optimality of language design, specifically questions about the legibility conditions which the language faculty has to meet in order to interact with other systems of the mind/brain. In an interview with Cheng and Sybesma (1995: 32), Chomsky notes that one cannot speak of a minimalist approach to something, as "there is no specific minimalist approach. There is a set of minimalist questions", and in this sense the minimalist program is a "set of questions that guide inquiry" (cf. also Chomsky 2000:92; Chomsky 2002:96). The theories of grammar developed within the framework of such inquiry may be referred to as "minimalist syntax" (cf. the definition on p. 41).

With regard to theories of minimalist syntax, thematic role assignment and feature checking are examples of such theories. Indeed, there may be more than one theory for a specific phenomenon, in which case the minimalist criteria of simplicity, naturalness and elegance may be useful

in selecting the "best" theoretical account. Hornstein et al. (2005: 6) posit that "minimalism must address how to concretise these evaluative notions – simplicity, naturalness, elegance, parsimony, etc. – in the research setting that currently obtains". It is thus not clear at present precisely what criteria such as elegance and naturalness entail, nor how theories are to be evaluated in terms of such criteria. The various mechanisms associated with theories such as those mentioned above, for example, "Move" and "Agree" in the case of feature checking, are mechanisms of minimalist syntax, rather than properties or components (or some such) of the minimalist program. Misconceptions of what the minimalist program entails and what it is intended to achieve abound in the literature at present, as does the lack of a distinction between the minimalist program and minimalist syntax. In light of these issues, the use of terms such as "minimalist program-style syntax", "minimalist account" and "minimalist approach" may need to be reconsidered.

3.1.3 Some assumptions and devices of minimalist syntax[15]

Chomsky (1995a: 168) proposes that a language consists of two components, namely a lexicon and a computational system for human language (C_{HL}). The lexicon specifies the lexical items with their idiosyncratic features. C_{HL} derives a linguistic expression, also termed a "structural description" (SD), on the basis of a selection of lexical items, the Numeration N[16] (Chomsky 1995a: 169). Chomsky (1995a: 228) proposes the Inclusiveness Condition, whereby the devices of C_{HL} have access to only the items in the Numeration. The derivation proceeds as the operation Merge strings the lexical items together in binary fashion, and the operation Move[17] carries out the necessary movement of lexical items in C_{HL}, the so-called "narrow syntax". A linguistic expression of L

[15] The assumptions and devices of minimalist syntax set out here are based on proposals made by Chomsky (1995a). Minimalist syntax must necessarily be seen as a "work in progress" (cf. Chomsky's observations referred to in the text), and the present study rests on a well-established version elaborated upon in the text. Reference is made to more recent developments and changes in terminology by means of footnotes.

[16] The Numeration is currently commonly referred to as the "Lexical Array" (LA) (cf., amongst others, Chomsky 2000; 2001a; 2001b).

[17] In more recent work, Move is defined as "internal Merge", i.e., as a combination of Copy and Merge (cf. Adger 2003; Hornstein et al. 2005: 201-203; Chomsky 2006). The term "Move" is used here for purposes of simplicity. Note further that Chomsky (2006: 5) proposes a constraint on the operation performed by Merge, namely the No Tampering Condition, whereby each of the two elements merged remains unchanged.

is then a pair (π, λ), where π is a PF representation, containing elements relevant to PF (at the A-P interface), and λ an LF representation, containing elements relevant to LF (at the C-I interface) (Chomsky 1995a: 169; Chomsky 1995b: 390). Chomsky (1995b: 394) posits that π and λ are "differently constituted", implying that elements interpretable at the PF interface are not interpretable at the LF interface, and vice versa. The computation must split at some point, into a part forming π and a part forming λ. This point is known as "Spell-Out" (Chomsky 1995b: 394). At Spell-Out, the elements relevant only to PF are stripped away and mapped onto π, while the remainder continue in the computation to LF to be mapped onto λ. A distinction is made between the so-called "overt syntactic component", operating before Spell-Out, and the "covert syntactic component", operating after Spell-Out. Thus, for instance, movement that occurs in overt syntax will be visible (spelled out) at PF, while movement that occurs in covert syntax will not be reflected in the structure produced.

On the basis of universal and invariant principles and fixed parameter settings, a language L determines an infinite set of SDs, each a (π, λ) pair. A derivation is said to "converge" if it produces a legitimate SD, and to "crash" if it does not (Chomsky 1995a: 171). A derivation can converge or crash at either PF or LF, and must converge at both PF and LF if it is to converge at all (Chomsky 1995a: 171). Within the principles and parameters framework, there exists what may be referred to as a "convergence[18] framework", in that the checking of uninterpretable features occurs in order that a convergent derivation may be reached, i.e., in order that features which cannot be interpreted at the relevant interface are deleted in the course of the derivation, thereby satisfying the principle of Full Interpretation (Hornstein et al. 2006: 15, 292). With regard to feature checking, Move is the operation whereby lexical items can move in order that feature checking can take place. Specifically, elements are moved in order that the uninterpretable features of

[18] Note that the term "convergence" has been used in chapter 2 to refer to a sociolinguistic phenomenon whereby languages in contact become more similar to each other, for example on a syntactic or phonological level (cf. Clyne 2003:79). The term will be used again in such a sense in chapters 7 and 8, where possible syntactic convergence between English and Afrikaans is discussed. Within the theoretical framework of minimalist syntax, however, the term refers to the end result of a derivation which is legible at the interfaces.

functional categories may be checked. A central notion is that of feature strength. Chomsky (1995b:395) proposes that a strong uninterpretable feature necessitates movement in the narrow syntax (overt movement, visible at PF), whereas a weak uninterpretable feature does not. In the case of a weak feature, the principle of Procrastinate is proposed to postpone checking until the covert syntactic component (covert movement, not visible at PF).

The parameters of the principles and parameters framework are proposed to lie in the strength of uninterpretable features, as movement occurs in order that strong features may be checked. To illustrate, language A may differ from language B in terms of the strength of feature *x*; this parametrical difference between the two languages will be reflected by a difference in movement requirements, i.e., language A with strong feature *x* on functional head X will require movement of a lexical item to the specifier (Spec) or head position of the XP, while language B with weak feature *x* requires no such movement. Thus, a difference in the strength of feature *x* results in a difference in surface word order between languages A and B. Movement for the purposes of feature checking is said to be triggered by the need to eliminate strong uninterpretable features[19] from the computation (Hornstein et al. 2005: 286, 293).

3.2 The present study: A proposal for code switching

The present study of English-Afrikaans intrasentential code switching focuses on the linguistic principles which define code switching boundaries within sentences. The aim, in line with that of the minimalist program, is to make use of minimal theoretical apparatus. In other words, the aim is to use the same mechanisms and devices which account for monolingual phenomena to account for code switching phenomena. The study adopts the principles and parameters and

[19] As noted by Chomsky (2000:119), the presence of uninterpretable features in the derivation appears to be an imperfection in terms of minimalist inquiry. Hornstein et al. (2005: 293) note that the existence of uninterpretable features remains a puzzle, but emphasise that movement is the device by which this lack of optimality is overcome – the language faculty uses movement to eliminate these uninterpretable features. This builds on Chomsky's (2000:139) suggestion that uninterpretable features perhaps act "as the mechanism to induce structural properties required by interpretive systems at the interface".

convergence frameworks discussed in section 3.1.3, according to which feature checking is the device which brings about convergence, and parametric differences between languages lie in differences in feature strength. Feature checking theory is thus the core theory.

In terms of its application to code switching data, feature checking theory as set out in 3.1.3 would predict that the functional category is the sole determinant of well-formedness in code switched constructions, in that the feature checking requirements of each functional category must be met in order for the derivation to converge. Note that, for each individual language, functional categories are specified so as to ensure the production of only well-formed constructions. The implication in the case of code switching, where the functional category systems of two languages are involved, is that a functional category carries a language index which plays a role in code switching. The suggestion is not that there is a language feature associated with a functional category, rather simply that a functional category possesses a language-specific identity. Each functional category has certain language-specific (feature checking) requirements which must be met. An Afrikaans Finiteness phrase (FinP), for example, may be proposed to possess a strong finiteness feature requiring checking, whereas an English FinP does not. An English Tense phrase (TP), as a further example, may be proposed to possess a weak tense feature, and so a verb moving to T would cause the derivation to crash.

The theory proposes that a strong feature of a functional category requires checking by the overt movement of a lexical item, and that parametric differences between languages lie in relative feature strength. In the case of code switching, a strong feature associated with a functional category could be checked by the movement of a lexical item from either of the languages involved. Thus, it would appear that the theory makes no prediction at all (or a prediction of "anything goes") for the structure of code switched constructions – a functional structure of Afrikaans, for example, could be filled with lexical items from both Afrikaans and English, with one or more strong features being checked by English lexical items. Applying this (lack of a) prediction to constructions in which word order differs between English and Afrikaans, consider the implications for code switched constructions with adverbs (analysed in detail in section 3.3.2), and for code switched focalisation constructions (analysed in detail in section 3.3.3). In both

cases (as well as in the remaining four cases analysed in sections 3.3.4. to 3.3.7), the position of the verb differs between English and Afrikaans, due to proposed differences in the strength of features associated with functional categories. However, the prediction for code switching would be that the adverb and focalisation constructions in (46) and (47), respectively, would be deemed well-formed in terms of their functional structure, despite the fact that the position of the verb is ill-formed in terms of its language.

(46) a My children *gewoonlik kies* green bananas.
usually choose

b My kinders *choose usually* groen piesangs.
my child-PL green banana-PL

(47) a Those friendly people *sy nooi* to all her parties.
she invite

b Daardie vriendelike mense *invites she* na al haar partytjies.
those friendly person-PL to all her party- PL

These predictions of well-formedness are contrary to intuition, as confirmed by the results of the present study (cf. chapters 5 to 7). It would appear that the theoretical framework as outlined in 3.1.3 does not account for the ill-formedness of the constructions in (46) and (47), and the question arises as to the locus of the problem with such constructions. The answer proposed here lies in the assumption that a lexical item consists of a set of phonological, semantic, and formal (syntactic) features (Hornstein et al. 2005:291), with the implication that languages may exhibit parametric differences in terms of formal features associated with lexical items. Thus, language A may differ from language B in terms of the ability of a particular lexical category to carry out a checking operation. For the code switched constructions under investigation here, the proposal is that an Afrikaans verb differs from an English verb in terms of its formal feature make-up, such that the verbs of the two languages differ in their ability to carry out particular checking operations.[20]

[20] The proposal that the verb (and the features associated with it) plays such a role need not be seen as a divergence from or an ad hoc addition to the core theory, namely feature checking theory. Consider the recent developments in minimalist syntax which suggest that transfer from narrow syntax to the C-I interface occurs in phases,

The analyses of the six constructions presented in section 3.3 below lead in each case to predictions for such constructions in which code switching occurs between English and Afrikaans. The predictions for each of the constructions in question suggest what would constitute well-formed and ill-formed code switched structures. In each case, a prediction of well-formedness corresponds to a structure in which the necessary feature checking has taken place, while a prediction of ill-formedness corresponds to a structure in which the requisite feature checking has not taken place. The features involved in the analyses and predictions include the finiteness feature of the head of FinP, the tense feature of the head of TP, and the Q feature of the head of QP. These features, all associated with functional categories, may be checked, if necessary (i.e., if strong), by the movement of a lexical item capable of carrying out the checking operation (i.e., a lexical item of the appropriate language, in the case of verbs). The movement of a lexical item may entail the movement of an XP into the Spec position, or the movement of a head into the Head position, of the functional projection. Within this model, a strong feature remaining unchecked will cause the derivation to crash, as will the movement of a lexical item not driven by the need to check a feature. Such a crash implies a code switched structure predicted here to be ill-formed.

3.3 Structural differences between English and Afrikaans and predictions for code switching

In order to make predictions regarding the structure of sentences in which English and Afrikaans are switched, a number of structural differences between the two languages are to be analysed. The analyses cover six constructions in which there are word order differences between English and Afrikaans, namely constructions with adverbs, focalisation and topicalisation constructions, embedded *that* and *wh* clauses, and *yes-no* questions. The purpose of the analyses is to explain the structural differences between the two languages in terms of differences in the strength of features associated with particular

specifically at *v*P and CP (cf. Chomsky 2006:16; Hornstein et al. 2005: 347; Lasnik and Uriagereka 2005: 239). The initial hypothesis on which the present study is based therefore remains, i.e. that the assumptions and devices associated with minimalist syntax (specifically, feature checking and related principles and operations) provide an adequate framework within which to characterise and explain the structural aspects of English-Afrikaans intrasentential code switching.

functional categories. These differences in the strength of particular features lead to differences in movement requirements, and thereby to differences in surface word order. The focus lies specifically on verb movement. Following each analysis, the relevant predictions for structures in which English and Afrikaans are switched are discussed.

3.3.1 Underlying assumptions

A number of assumptions which underlie the analyses presented in 3.3.2 to 3.3.7 below, are explicated here. Firstly, it is assumed that the complementiser system, the CP, may be split into various subcategories (cf. Rizzi's (1997) analysis of the CP into a Force phrase (ForceP, potentially recursive), Topic phrase(s) (TopP), Focus phrase (FocP), and FinP). The *wh* or Q phrase (QP) is assumed to be one of the projections in this left periphery (cf. Hoekstra and Zwart 1994; Rizzi 2001). Secondly, the head of each of these categories in the Afrikaans CP is assumed to possess strong tense and finiteness features, while the head of each of these categories in the English CP is assumed to possess weak tense and finiteness features. Thirdly, it is assumed that adverbial phrases (AdvPs) are adjuncts, subject to the operation Adjoin, rather than Merge, and that AdvPs adjoin to the verb phrase (VP) (cf. Adger 2003 for an exposition of this view).[21] A fourth assumption is that the subject originates in Spec of VP, in accordance with the VP-internal subject hypothesis (cf. Koopman and Sportiche 1991; Radford 1997; Adger 2003; Hornstein et al. 2005).

A final assumption central to the analyses in 3.3.2 to 3.3.7 concerns the underlying word order of Afrikaans. It is assumed here that Afrikaans is, like English, an SVO language[22] (cf. Kayne 1994, who argues that all languages are underlyingly SVO[23]). Zwart (1997) offers an analysis of

[21] As mentioned by Adger (2003: 111), the status and the manner of incorporation into the sentence of AdvPs and of adjuncts in general remains an issue of some debate. Regarding AdvPs, alternative analyses are presented by, amongst others, Cinque 2004 (the so-called "functional specifier" approach to adverbs) and Radford 1997.

[22] An alternative to this view is that Afrikaans is underlyingly SOV, based on its structural similarity to Dutch, which Koster (1975) argues to be an SOV language (cf. also Den Besten 1989; Haider 1998; Barbiers 2000).

[23] Specifically, Kayne (1994) proposes that all languages are underlyingly Spec-Head-Comp; the characterisation SVO reflects a more surface-orientated interpretation of Kayne's (1994) work.

Dutch as SVO, on the basis of which Afrikaans may also be argued to be SVO (cf. also Oosthuizen 1998, who presents an analysis of Afrikaans as SVO). Specifically, Zwart (1997) suggests that the object NP raises to Spec of AgrOP in both main and embedded clauses (cf. (48) and (49), respectively), leaving the verb in its base-generated position, and yielding an SOV structure. This movement of the object NP is triggered by the presence of a strong N-feature in AgrO.[24] The parametric difference between English and Afrikaans, in this case, is that English possesses a weak AgrO feature (cf. also Koster and Zwart 2000).

(48) Die man sal die groen piesang eet.
the man will the green banana eat

(49) … dat die man die groen piesang eet.
that the man the green banana eat

3.3.2 Verb movement in constructions with adverbs

The position of the verb differs between English and Afrikaans in constructions with adverbs, where the verb moves to the left in Afrikaans but not in English, as exemplified in (50) and (51).

(50) He often buys sweets.

(51) Hy koop dikwels lekkers.
he buy often sweet-PL

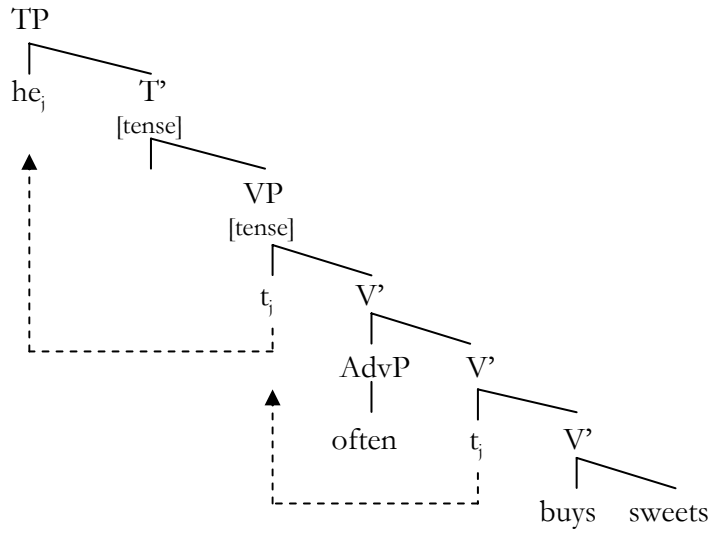
This difference in verb position between English and Afrikaans can be accounted for in terms of the assumptions in 3.3.1. The derivation of the English adverbial construction is illustrated by the tree diagram in (52). It is proposed that, in Afrikaans adverbial constructions, the main verb raises to check the strong tense and finiteness features of the heads of TP and FinP, as illustrated in the tree diagram in (53).[25] Note that in the

[24] The notion of AgrO as a functional projection no longer features in current minimalist syntax, but is retained here for purposes of clear exposition. In an analysis without AgrO as a functional projection, the object may be assumed to move to (inner) Spec of *v*P (outer Spec of *v*P being the merge-site for the external argument).

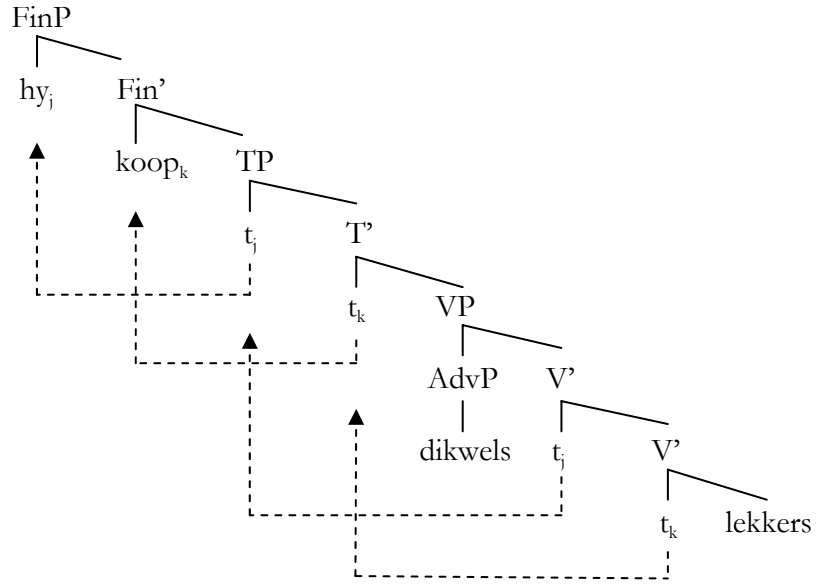
[25] In the tree diagrams given here, the movement of lexical material is shown to leave a co-indexed trace (t) in its original position. As noted by Chomsky (2000: 114), however, the copy theory of movement is simpler and therefore conceptually more desirable than the trace theory. The terminology of traces is used here for purposes of clear

derivation proposed in (53), the subject raises first to TP (in accordance with the VP-internal subject hypothesis of Koopman and Sportiche (1991)) and then to Spec FinP. In both the English and the Afrikaans structures, there is left adjunction of the AdvP to the VP.

(52)



(53)



exposition. Furthermore, the tree diagrams presented here include only the functional projections central to the proposed analysis. Functional projections which do not feature in a particular analysis are omitted, such as FocP and FinP when only TopP is relevant.

Regarding constructions with adverbs in which there is code switching between English and Afrikaans, the prediction is that an Afrikaans verb must raise to the left of the adverb to check the strong tense and finiteness features of TP and FinP, respectively, whereas an English verb must remain in situ to the right of the adverb, and may not raise to the left. Thus the position of the verb in code switched constructions with adverbs is determined in the same manner as in monolingual constructions, namely by the strength of the tense and finiteness features of the TP and FinP, respectively, and by the ability of the verb to check these features. The relevant predictions are reflected in (54) and (55), where the verb must be in its language-appropriate position in order for the construction to be well-formed.[26]

(54) a My elderly grandfather *kies gewoonlik* the soft white meat.
choose usually
b *My elderly grandfather *gewoonlik kies* the soft white meat.

(55) a Daardie prokureur *clearly hates* sy lui sekretaresse.
that lawyer his lazy secretary
b* Daardie prokureur *hates clearly* sy lui sekretaresse.

The predictions for well-formedness reflected by (54) and (55) are basic in the sense that the sentences contain a minimum of switched material (only the verb and the adverb are switched), and the prediction is that these two elements must be in their language-appropriate order to be considered well-formed. These predictions were tested by means of the elicitation of judgments of the relative well-formedness of sentence and utterance pairs, and by sentence construction. A number of further switching permutations for adverbial constructions, associated with more tentative predictions of well-formedness, were tested by means of

[26] An asterisk (*) indicates a construction predicted here to be considered ill-formed. A further note concerning the predictions in the present work concerns the relative acceptability of English elements embedded in Afrikaans structures. Due to the perceived social prestige and power of English over Afrikaans, it may be that some bilingual speakers consider the embedding of English elements in Afrikaans structures to be more acceptable than the embedding of Afrikaans elements into English structures. This tendency may have implications for the relative strength of the predictions and for the effectiveness with which they can be tested, and is to be borne in mind when considering the results in later chapters.

magnitude estimation[27] (cf. chapter 4 for full details of the testing procedures). Firstly, the form of the subject was varied between a full NP and a pronoun (labelled $Subj_{NP}$ and $Subj_{Pron}$ in (56)). A full NP provides a longer sentence element preceding the switch point than does a pronominal subject, at the same as time as being more perceptually salient than a pronoun. Secondly, it was considered interesting to investigate the effect of switching between the verb and the adverb, which entails that the adverb varies between English and Afrikaans (labelled variously V_A Adv_E, V_A Adv_A, Adv_E V_A, Adv_A V_A in (56)). Finally, the language of the object NP was varied between English and Afrikaans, thereby varying the amount of switched material (labelled Obj_E or Obj_A in (56).[28]

(56) a **$Subj_{NP}$; V_A Adv_E; Obj_E**
The guy with the strange vehicles *wen* often the big races.
win

b **$Subj_{NP}$; V_A Adv_E; Obj_A**
The guy with the strange vehicles *wen* often *die groot resies*.
the big race-PL

c **$Subj_{Pron}$; V_A Adv_E; Obj_E**
He *wen* often the big races.

d **$Subj_{Pron}$; V_A Adv_E; Obj_A**
He *wen* often *die groot resies*.

e **$Subj_{NP}$; Adv_E V_A; Obj_E**
?The guy with the strange vehicles often *wen* the big races.

f **$Subj_{NP}$; Adv_E V_A; Obj_A**
?The guy with the strange vehicles often *wen die groot resies*.

g **$Subj_{Pron}$; Adv_E V_A; Obj_E**
?He often *wen* the big races.

h **$Subj_{Pron}$; Adv_E V_A; Obj_A**
?He often *wen die groot resies*.

[27] The predictions for the magnitude estimation sentences are tentative in the sense that the magnitude estimation tests aimed to investigate the effect on participants' perceptions of well- or ill-formedness of variations to the sentence other than just the language and position of the verb (cf. section 4.2.8 for a full explanation of the procedure).

[28] A question mark (?) indicates a construction predicted to be judged ill-formed, but not necessarily to the same degree of ill-formedness as other constructions thus marked (cf. the explanation of the magnitude estimation technique in section 4.2.8).

i **Subj$_{NP}$; V$_A$ Adv$_A$; Obj$_E$**
The guy with the strange vehicles *wen gereeld* the big races.
often

j **Subj$_{NP}$; V$_A$ Adv$_A$; Obj$_A$**
The guy with the strange vehicles *wen gereeld die groot resies*.

k **Subj$_{Pron}$; V$_A$ Adv$_A$; Obj$_E$**
He *wen gereeld* the big races.

l **Subj$_{Pron}$; V$_A$ Adv$_A$; Obj$_A$**
He *wen gereeld die groot resies*.

m **Subj$_{NP}$; Adv$_A$ V$_A$; Obj$_E$**
?The guy with the strange vehicles *gereeld wen* the big races.

n **Subj$_{NP}$; AdvA V$_A$; Obj$_A$**
?The guy with the strange vehicles *gereeld wen die groot resies*.

o **Subj$_{Pron}$; Adv$_A$ V$_A$; Obj$_E$**
?He *gereeld wen* the big races.

p **Subj$_{Pron}$; Adv$_A$ V$_A$; Obj$_A$**
?He *gereeld wen die groot resies*.

3.3.3 Verb movement in focalisation structures

Focalisation entails the preposing of a constituent expressing new information, pronounced with focal stress, followed by constituents expressing shared information in the open sentence (cf. Crystal 1991: 139; Rizzi 1997: 285). English and Afrikaans differ with regard to the position of the verb in focalisation structures, as exemplified in (57) and (58) below.

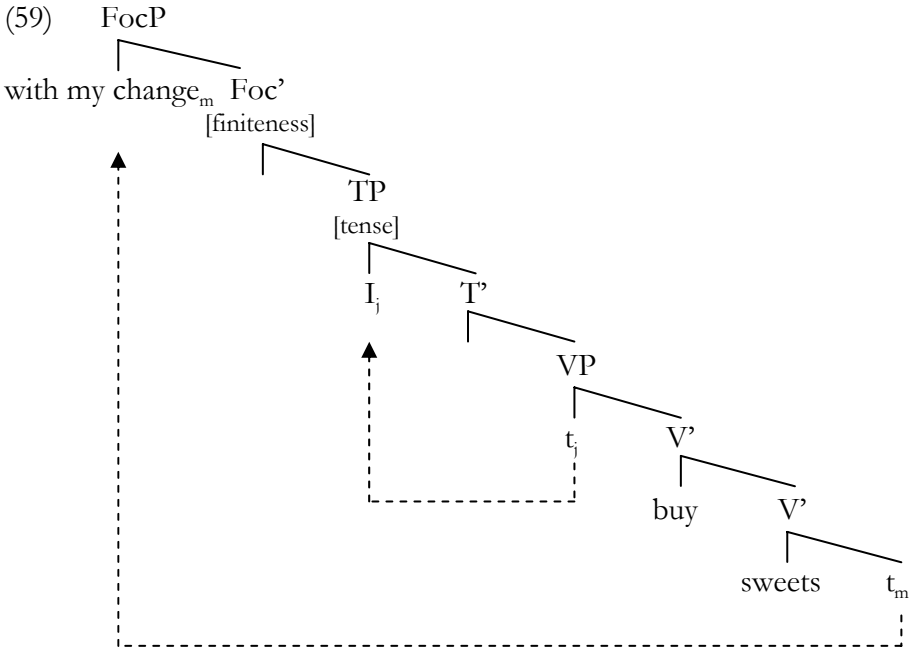
(57) With my change I buy sweets.

(58) Met my kleingeld koop ek lekkers.
with my change buy I sweet-PL

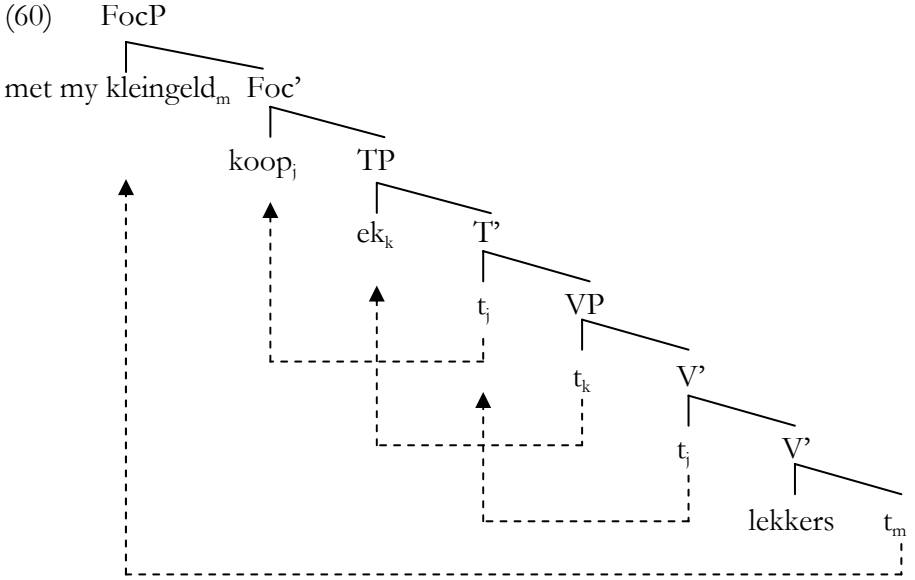
The difference in verb position between English and Afrikaans in these constructions is proposed to arise from the same differences in feature strength as apply in the adverb constructions discussed above, in accordance with the assumptions outlined in section 3.3.1. Specifically, it is proposed that, in Afrikaans focalisation structures, the main verb moves leftward to check the strong tense and finiteness features of the heads of TP and FinP, respectively, finally landing in the head of FocP. The heads of English TP and FinP, on the other hand, possess no such

strong features, and hence no movement of the English verb occurs. The relevant derivations are illustrated by the tree diagrams in (59) and (60).

(59)



(60)



Turning to focalisation structures in which there is code switching between English and Afrikaans, the prediction is that an Afrikaans verb must raise first to TP and then to FocP to check their strong tense and finiteness features, respectively, whereas an English verb must remain in situ as the TP and FocP possess no strong tense and finiteness features. Thus the position of the verb in code switched focalisation structures is once again determined in the same manner as in monolingual constructions, namely by the strength of the tense and finiteness features of the CP heads, in addition to the ability of the verb to check these features. The relevant predictions are reflected in (61) and (62), where the verb must be in its language-appropriate position in order for the construction to be well-formed.

(61) a The tall plastic containers *gebruik daardie kok* for brown sugar.
use that chef
b *The tall plastic containers *daardie kok gebruik* for brown sugar.

(62) a Die helder rooi blomme *she grows* onder in haar tuin.
the bright red flower-PL below in her garden
b *Die helder rooi blomme *grows she* onder in haar tuin.

The switches in (61) and (62) once again involve the minimum of material, i.e., only the verb and subject, with the prediction that these two elements must be in their language-appropriate order for the construction to be considered well-formed. Whereas these basic predictions were tested by means of judgment and sentence construction tests, further switching permutations for focalisation constructions were tested by means of magnitude estimation. The switched constructions in (63), associated with more tentative predictions in terms of well-formedness, reflect a number of variations. Firstly, the form of the subject was varied between a full NP and a pronoun (labelled $Subj_{NP}$ and $Subj_{Pron}$ in (63)). As has been mentioned, a full NP provides a longer sentence element preceding the switch point than does a pronominal subject, as well as being more perceptually salient than a pronoun. Secondly, the effect of switching between the subject and verb was investigated, entailing that the language of the verb was varied between English and Afrikaans (labelled $Subj_E$ V_E, $Subj_E$ V_A, V_E $Subj_E$, V_A $Subj_E$ in (63)). Finally, the effect of a modifying phrase (labelled ModP in (63)) was investigated.

(63) a **$Subj_{NP}$; $Subj_A$ V_E; ModP**
Exciting new novels *gretige lesers* buy every month.
eager reader-PL

b **$Subj_{NP}$; $Subj_A$ V_E**
Exciting new novels *gretige lesers* buy.

c **$Subj_{Pron}$; $Subj_A$ V_E; ModP**
Exciting new novels *hulle* buy every month.

d **$Subj_{Pron}$; $Subj_A$ V_E**
Exciting new novels *hulle* buy.

e **$Subj_{NP}$; V_E $Subj_A$; ModP**
?Exciting new novels buy *gretige lesers* every month.

f **$Subj_{NP}$; V_E $Subj_A$**
?Exciting new novels buy *gretige lesers*.

g **$Subj_{Pron}$; V_E $Subj_A$; ModP**
?Exciting new novels buy *hulle* every month.

h **$Subj_{Pron}$; V_E $Subj_E$**
?Exciting new novels buy *hulle*.

i **$Subj_{NP}$; V_A $Subj_A$; ModP**
Exciting new novels *koop gretige lesers* every month.
buy

j **$Subj_{NP}$; V_A $Subj_A$**
Exciting new novels *koop gretige lesers*.

k **$Subj_{Pron}$; V_A $Subj_A$; ModP**
Exciting new novels *koop hulle* every month.

l **$Subj_{Pron}$; V_A $Subj_A$**
Exciting new novels *koop hulle*.

m **$Subj_{NP}$; $Subj_A$ V_A; ModP**
?Exciting new novels *gretige lesers koop* every month.

n **$Subj_{NP}$; $Subj_A$ V_A**
?Exciting new novels *gretige lesers koop*.

o **$Subj_{Pron}$; $Subj_A$ V_A; ModP**
?Exciting new novels *hulle koop* every month.

p **$Subj_{Pron}$; $Subj_A$ V_A**
?Exciting new novels *hulle koop*.

3.3.4 Verb movement in topicalisation structures

Topicalisation involves the preposing of a constituent which expresses so-called "old information", i.e., information which is somehow known to the speaker-hearers involved, in order that it functions as the topic of

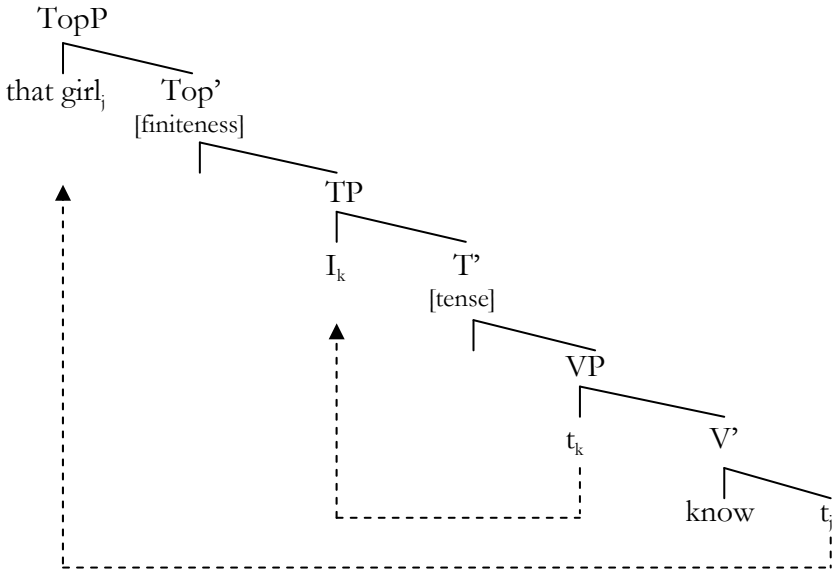
the sentence (cf. Crystal 1991: 355; Rizzi 1997: 285). For purposes of the present study, the topicalisation constructions generated for testing consisted of two sentences; the first sentence introduced a piece of information, the second topicalised this information. The position of the verb in topicalisation structures differs between English and Afrikaans, as exemplified in (64) and (65).

(64) Do you see the girl with the glasses? That girl I know.

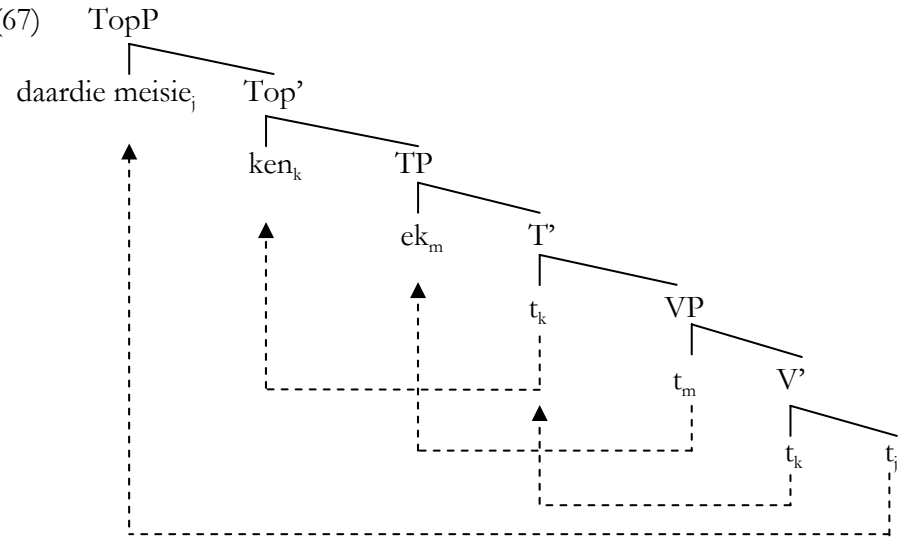
(65) Sien jy die meisie met die bril? Daardie meisie ken ek.
see you the girl with the glasses that girl know I

This difference in verb position in topicalisation structures is proposed to arise in the same way as in the focalisation structures discussed above. Specifically, it is proposed that, in Afrikaans topicalisation structures, the main verb moves to check the strong tense and finiteness features of the heads of TP and TopP. English, on the other hand, requires no such verb movement in topicalisation structures, as the tense and finiteness features of the heads of the CP functional categories are weak. The relevant derivations are illustrated by the tree diagrams in (66) and (67).

(66)



(67)



Concerning verb position in topicalisation structures containing English-Afrikaans code switching, the relevant predictions appear in (68) and (69), where once again the surface word order is derived from movement for purposes of feature checking. Specifically, the Afrikaans verb moves to check the strong tense and finiteness features of the CP projections, whereas the English verb does not.

(68) a My favourite shop is in the old district. That shop *besoek ek*
visit I
every week.

b *My favourite shop is in the old district. That shop *ek besoek* every week.

(69) a Die soldate het die grenspos aangeval. Daardie noodlottige
the soldier-PL have the border post on-PAST PART-fall that fatal
aanval *the leaders regret* elke dag.
attack every day

b *Die soldate het die grenspos aangeval. Daardie noodlottige aanval *regret the leaders* elke dag.

In (68) and (69), the code switch involves only the verb and subject, with the prediction that these two elements must be in their language-appropriate order for the construction to be considered well-formed. These predictions were tested by judgment and sentence construction

tests, and further switching permutations for topicalisation constructions, as in (70), were tested by means of magnitude estimation. The code switched constructions in (70), associated with more tentative predictions in terms of well-formedness, reflect the same variations as in the case of focalisation in 3.3.3. Firstly, the form of the subject was varied between a full NP and a pronoun (labelled $Subj_{NP}$ or $Subj_{Pron}$ in (70)). Secondly, the language of the verb was varied between English and Afrikaans, altering the switch point and the amount of switched material (labelled $Subj_A$ V_A, $Subj_A$ V_E, V_E $Subj_A$, V_A $Subj_A$ in (70)). Finally, the effect of a modifying phrase (labelled ModP in (70)) was investigated.

(70) a **$Subj_{NP}$; V_A $Subj_E$; ModP**
Daar lê sakke vleis op die rak. Daardie vleis sny *the cooks* vir die sop.

b **$Subj_{NP}$; V_A $Subj_E$**
Daar lê sakke vleis op die rak. Daardie vleis sny *the cooks*.

c **$Subj_{Pron}$; V_A $Subj_E$; ModP**
Daar lê sakke vleis op die rak. Daardie vleis sny *they* vir die sop.

d **$Subj_{Pron}$; V_A $Subj_E$**
Daar lê sakke vleis op die rak. Daardie vleis sny *they*.

e **$Subj_{NP}$; $Subj_E$ V_A; ModP**
?Daar lê sakke vleis op die rak. Daardie vleis *the cooks* sny vir die sop.

f **$Subj_{NP}$; $Subj_E$ V_A**
?Daar lê sakke vleis op die rak. Daardie vleis *the cooks* sny.

g **$Subj_{Pron}$; $Subj_E$ V_A; ModP**
?Daar lê sakke vleis op die rak. Daardie vleis *they* sny vir die sop.

h **$Subj_{Pron}$; $Subj_E$ V_A**
?Daar lê sakke vleis op die rak. Daardie vleis *they* sny.

i **$Subj_{NP}$; $Subj_E$ V_E; ModP**
Daar lê sakke vleis op die rak. Daardie vleis *the cooks cut* vir die sop.

j **$Subj_{NP}$; $Subj_E$ V_E**
Daar lê sakke vleis op die rak. Daardie vleis *the cooks cut*.

k **$Subj_{Pron}$; $Subj_E$ V_E; ModP**
Daar lê sakke vleis op die rak. Daardie vleis *they cut* vir die sop.

l **$Subj_{Pron}$; $Subj_E$ V_E**
Daar lê sakke vleis op die rak. Daardie vleis *they cut*.

m **$Subj_{NP}$; V_E $Subj_E$; ModP**
Daar lê sakke vleis op die rak. Daardie vleis *cut the cooks* vir die sop.

n **$Subj_{NP}$; V_E $Subj_E$**
Daar lê sakke vleis op die rak. Daardie vleis *cut the cooks*.

o **$Subj_{Pron}$; V_E $Subj_E$; ModP**
Daar lê sakke vleis op die rak. Daardie vleis *cut they* vir die sop.

p **$Subj_{Pron}$; V_E $Subj_E$**
Daar lê sakke vleis op die rak. Daardie vleis *cut they*.

3.3.5 Verb movement in embedded *that* clauses

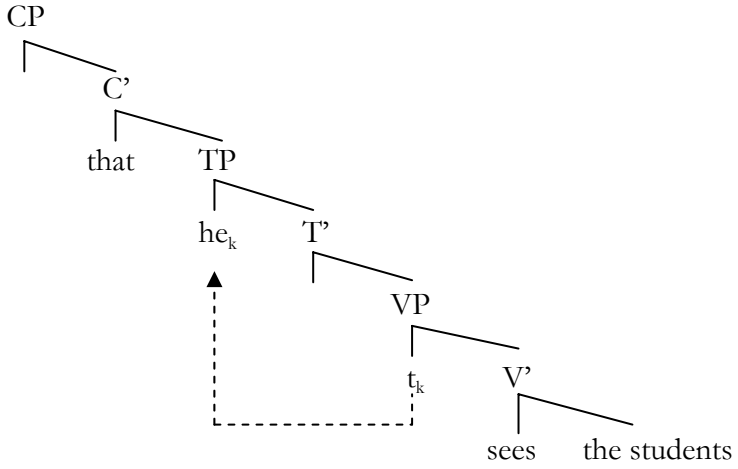
The position of the verb in an Afrikaans embedded *dat* ("that") clause differs from that in an English embedded *that* clause, as exemplified in (71) and (72).

(71) I know that he sees the students.

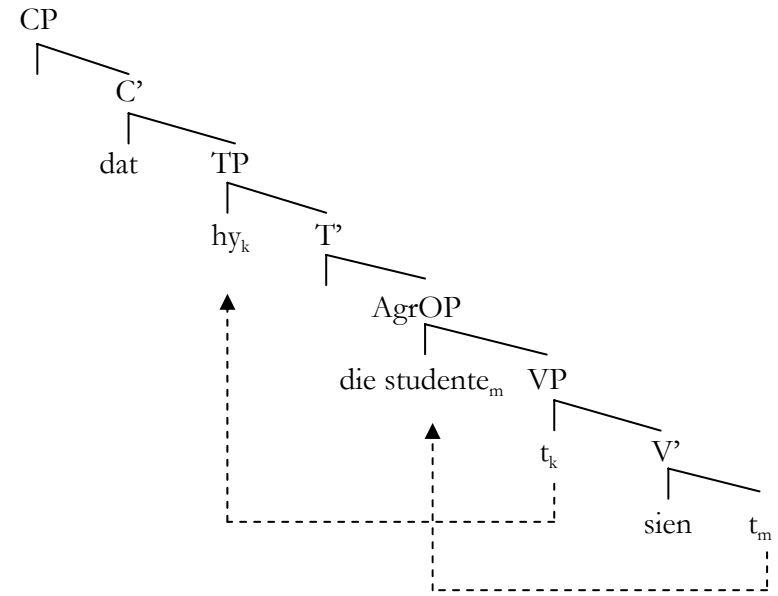
(72) Ek weet dat hy die studente sien.
I know that he the student-PL see

In accordance with the assumption outlined in 3.3.1, Afrikaans patterns like Dutch in terms of its underlying SVO structure and the movement of objects to AgrOP due to the presence of a strong N feature in AgrO. The difference between English and Afrikaans, in this instance, is that English AgrO has a weak N feature. The tree diagram in (73) illustrates the derivation of the English construction in (71), and the Afrikaans construction in (72) is represented by the tree diagram in (74). Note that the strong tense and finiteness features of the heads of the Afrikaans CP projections are in this case checked by *dat*.

(73)



(74)



In embedded *that* and *dat* clauses where English and Afrikaans are switched, it is predicted that both English and Afrikaans verbs must remain in situ. Furthermore, the Afrikaans object NP must move to the left of an Afrikaans verb, while the English object NP may not move. The predictions appear in (75) and (76).

(75) a The author said that the youngster *die boeke lees*.
the book-PL read

b *The author said that the youngster *lees die boeke*.

(76) a Die uitslae dui aan dat die mense *like the sympathetic president*.
the result-PL indicate that the person- PL

b *Die uitslae dui aan dat die mense *the sympathetic president like*.

The switches in (75) and (76) involve the minimum of lexical material, as only the verb and the object are switched. The prediction is that these two elements must be in their language-appropriate order to be considered well-formed. The perceptions of well-formedness of such switches were tested by means of judgment and sentence construction tests, while further switching permutations for embedded *that* clauses were tested by means of magnitude estimation. The code switched constructions in (77), associated with more tentative predictions in terms of well-formedness, reflect a number of variations. Firstly, the form of

the object was varied between a full NP and a pronoun (labelled Obj_{NP} and Obj_{Pron} in (77)). Secondly, the language of the verb was varied between English and Afrikaans, altering the switch point and the amount of switched material (labelled Obj_A V_A, Obj_A V_E, V_E Obj_A, V_A Obj_A in (77)). Finally, the effect of a modifying phrase (labelled ModP in (77)) was investigated.

(77) a **Obj_{NP}; V_E Obj_A; ModP**
The author said that the youngster reads *die boeke oor naweke*.
the book-PL over weekend-PL

b **Obj_{NP}; V_E Obj_A**
The author said that the youngster reads *die boeke*.

c **Obj_{Pron}; V_E Obj_A; ModP**
The author said that the youngster reads *hulle oor naweke*.
them

d **Obj_{Pron}; V_E Obj_A**
The author said that the youngster reads *hulle*.

e **Obj_{NP}; Obj_A V_E; ModP**
?The author said that the youngster *die boeke* reads *oor naweke*.

f **Obj_{NP}; Obj_A V_E**
?The author said that the youngster *die boeke* reads.

g **Obj_{Pron}; Obj_A V_E; ModP**
?The author said that the youngster *hulle* reads *oor naweke*.

h **Obj_{Pron}; Obj_A V_E**
?The author said that the youngster *hulle* reads.

i **Obj_{NP}; Obj_A V_A; ModP**
The author said that the youngster *die boeke lees oor naweke*.
read

j **Obj_{NP}; Obj_A V_A**
The author said that the youngster *die boeke lees*.

k **Obj_{Pron}; Obj_A V_A; ModP**
The author said that the youngster *hulle lees oor naweke*.

l **Obj_{Pron}; Obj_A V_A**
The author said that the youngster *hulle lees*.

m **Obj_{NP}; V_A Obj_A; ModP**
?The author said that the youngster *lees die boeke oor naweke*.

n **Obj_{NP}; V_A Obj_A**
?The author said that the youngster *lees die boeke*.

o **Obj_{Pron}; V_A Obj_A; ModP**
?The author said that the youngster *lees hulle oor naweke*.

p **Obj_{Pron}; V_A Obj_A**
?The author said that the youngster *lees hulle.*

3.3.6 Verb movement in embedded *wh* clauses

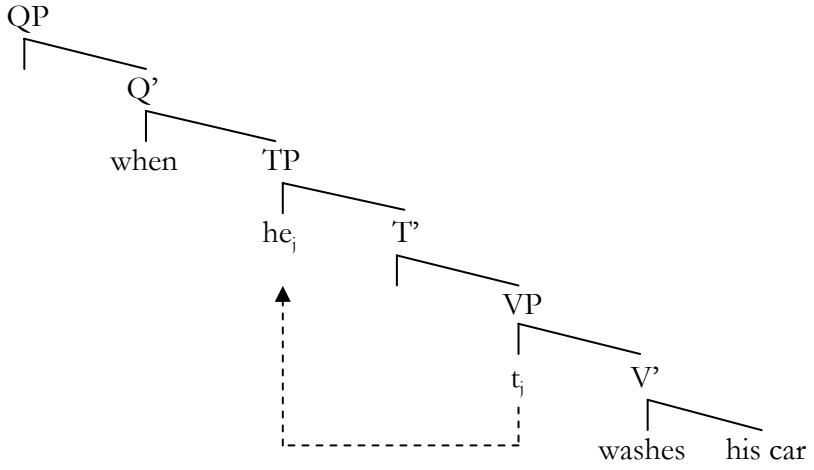
Embedded *wh* clauses also reflect the different verb positions in English and Afrikaans, as can be seen in (78) and (79).

(78) I wonder when he washes his car.

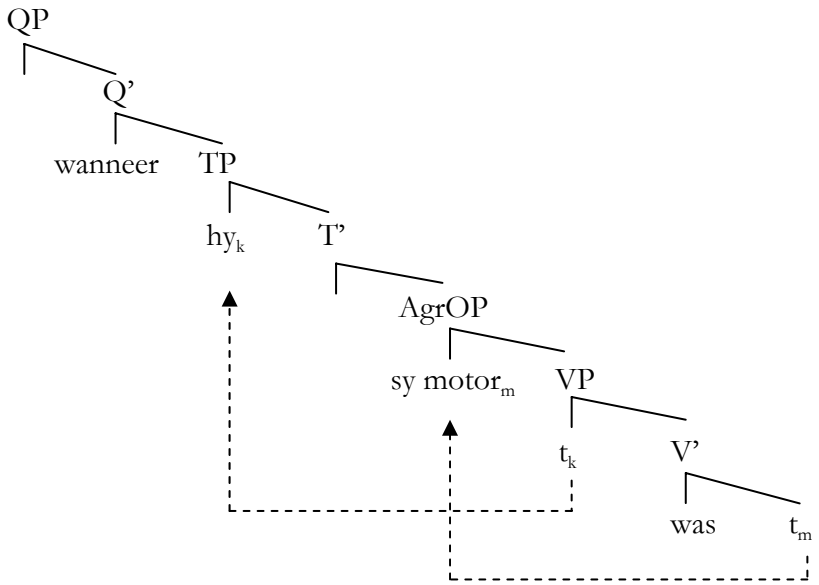
(79) Ek wonder wanneer hy sy motor was.
I wonder when he his car wash

The case of embedded *wh* clauses is the same as that of embedded *that* clauses discussed above, in accordance with the assumption that Afrikaans is underlyingly SVO and objects move to AgrOP due to the presence of a strong N feature in AgrO, whereas English objects remain in situ to the right of the verb. The tree diagram in (80) illustrates the derivation of the Afrikaans construction in (78), and the English construction in (79) is represented by the tree diagram in (81). Note that the strong tense and finiteness features of the heads of the Afrikaans CP projections are in this case checked by *wanneer*. The derivation for the English embedded *wh* clause is illustrated by the tree diagram in (80), that for the Afrikaans in (81).

(80)



(81)



It is important to note at this point that an alternative embedded *wh* structure occurs commonly in spoken Afrikaans, as reflected by the sentences in (82). The acceptability of such V2 constructions in spoken Afrikaans is attested in Oosthuizen (1996) and Biberauer (2002; 2003). Such constructions have also been found to occur in Belfast English (cf. Henry 1995) and Hiberno English (cf. McCloskey 2005). The predictions below, however, are based on the standard Afrikaans structure reflected by (79) and (81), while the occurrence of the alternative construction (cf. 82) was borne in mind when analyzing the results of the study (cf. sections 5.4, 6.4, and 7.4).

(82) a Ek wonder wanneer was hy sy motor.

b Sy vra waarom sit hy op die vloer.
she ask why sit he on the floor
(She asks why he is sitting on the floor.)

The predictions for embedded *wh* clauses in which English and Afrikaans are switched are similar to those for *that* embeddings, in that both English and Afrikaans verbs must remain in situ, and the Afrikaans object NP must move to the left of the Afrikaans verb, while the English object NP may not move. The predictions appear in (83) and (84).

(83) a His divorce lawyer asks him why he *daardie tipe kontrak verkies*.
that type contract prefer
b *His divorce lawyer asks him why he *verkies daardie tipe kontrak*.

(84) a Die gaste vra wanneer die restaurante *close in the evening*.
the guest-PL ask when the restaurant-PL
b *Die gaste vra wanneer die restaurante *in the evening close*.

The code switches in (83) and (84) involve only the verb and the object , the prediction being that these two elements must be in their language-appropriate order to be considered well-formed. The perceptions of well-formedness of such switches were tested by means of judgment and sentence construction tests, while further switching permutations for embedded *that* clauses were tested by means of magnitude estimation. These further permutations, as in the constructions in (85), are associated with more tentative predictions in terms of well-formedness, and reflect the same variations as in the case of embedded *that* clauses discussed in section 3.3.5. Firstly, the form of the object was varied between a full NP and a pronoun (labelled Obj_{NP} and Obj_{Pron} in (85)). Secondly, the language of the verb was varied between English and Afrikaans, altering the switch point and the amount of switched material (labelled Obj_A V_A, Obj_A V_E, V_E Obj_A, V_A Obj_A in (85)). Finally, the effect of a modifying phrase (labelled ModP in (85)) was investigated.

(85) a **Obj_{NP}; Obj_E V_A; ModP**
My niggies vra waarom hulle ouma *a small portion* skep *at the table.*
b **Obj_{NP}; Obj_E V_A**
My niggies vra waarom hulle ouma *a small portion* skep.
c **Obj_{Pron}; Obj_E V_A; ModP**
My niggies vra waarom hulle ouma *it* skep *at the table.*
d **Obj_{Pron}; Obj_E V_A**
My niggies vra waarom hulle ouma *it* skep.
e **Obj_{NP}; V_A Obj_E; ModP**
?My niggies vra waarom hulle ouma skep *a small portion at the table.*
f **Obj_{NP}; V_A Obj_E**
?My niggies vra waarom hulle ouma skep *a small portion.*
g **Obj_{Pron}; V_A Obj_E; ModP**
?My niggies vra waarom hulle ouma skep *it at the table.*
h **Obj_{Pron}; V_A Obj_E**
?My niggies vra waarom hulle ouma skep *it.*

i **Obj_{NP}; V_E Obj_E; ModP**
My niggies vra waarom hulle ouma *serves a small portion at the table.*

j **Obj_{NP}; V_E Obj_E**
My niggies vra waarom hulle ouma *serves a small portion.*

k **Obj_{Pron}; V_E Obj_E; ModP**
My niggies vra waarom hulle ouma *serves it at the table.*

l **Obj_{Pron}; V_E Obj_E**
My niggies vra waarom hulle ouma *serves it.*

m **Obj_{NP}; Obj_E V_E; ModP**
?My niggies vra waarom hulle ouma *a small portion serves at the table.*

n **Obj_{NP}; Obj_E V_E**
?My niggies vra waarom hulle ouma *a small portion serves.*

o **Obj_{Pron}; Obj_E V_E; ModP**
?My niggies vra waarom hulle ouma *it serves at the table.*

p **Obj_{Pron}; Obj_E V_E**
?My niggies vra waarom hulle ouma *it serves.*

3.3.7 Verb movement in *yes-no* questions

Verb position in *yes-no* questions also differs between English and Afrikaans. An Afrikaans *yes-no* question is formed by movement of the main verb to the sentence-initial position, whereas an English *yes-no* question is formed by *do*-insertion[29] (cf. Adger 2003 for an exposition of *do*-insertion). This difference is exemplified in (86) and (87).

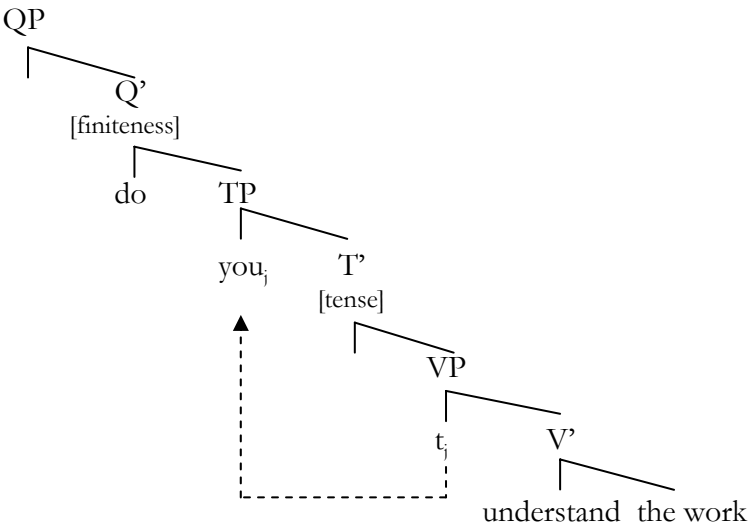
(86) Do you understand the work?

(87) Verstaan jy die werk?
understand you the work

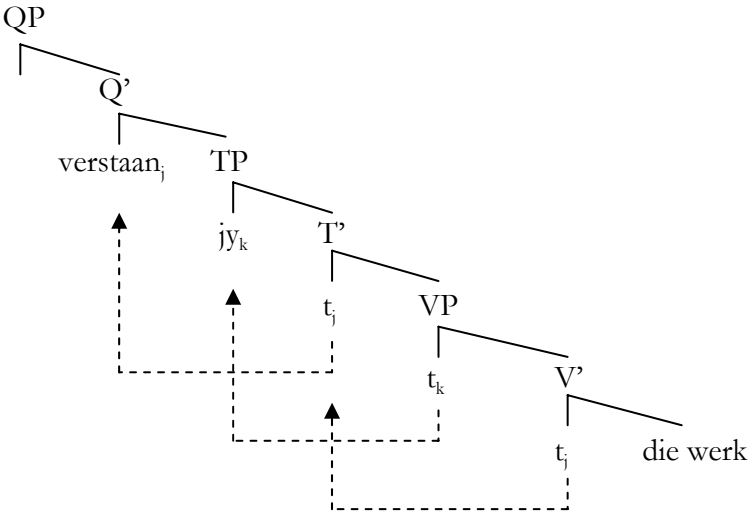
The difference between the English and Afrikaans *yes-no* question constructions is proposed to follow from a difference in the manner in which the strong Q feature of the QP is checked – by *do* insertion in Eng and by verb movement in Afrikaans – the verb moves leftward in Afrikaans in order to check the strong tense and finiteness features of the heads of the CP projections, as well as the strong Q feature of the QP. The relevant derivations are illustrated in (88) and (89).

[29] Other *yes-no* question constructions in English include those with auxiliary verbs such as *Is he going to the shop?* and subject questions like *Who eats that bread?*

(88)



(89)



Concerning *yes-no* questions in which switching occurs between English and Afrikaans, it is predicted that the strong Q feature of the English QP must be checked by the insertion of *do*; movement of an English verb into this position is predicted to be ill-formed.[30] Furthermore, the strong

[30] Note that there is no Afrikaans equivalent to this English auxiliary *do*, although the Afrikaans main transitive verb *doen* is equivalent to the English main transitive verb *do*, as in *Ek doen die werk* and *I do the work*. The use of *doen* as an intransitive verb also occurs increasingly in modern spoken Afrikaans, as in the answer *Hy doen* ("He does") to the question *Hou hy van appels?* ("Does he like apples?"). For the purposes of

tense and finiteness features of the Afrikaans TP and FinP, and the strong Q feature of an Afrikaans QP, may only be checked by an Afrikaans verb, and not by an English verb. The relevant predictions appear in (90) and (91).

(90) a Do *daardie inwoners* drive the same small vehicles?
those resident- PL
b *Drive *daardie inwoners* the same small vehicles?

(91) a Verduidelik *the book on animals* hulle kommunikasiesisteme?
explain their communication system-PL
b *Does the book on animals *verduidelik hulle kommunikasiesisteme*?

In the code switched constructions in (90b) and (91b), both the English and the Afrikaans verb occur with *do* or *does*, as there is no equivalent in Afrikaans. The only other switched material in these constructions is the subject NP. The basic predictions reflected by these constructions were tested by means of judgments and sentence construction, while the more tentative predictions associated with the constructions in (92) were tested by means of magnitude estimation. These constructions reflect a number of variations altering the switch point and the amount and nature of the switched material. Firstly, the verb varied in terms of its language, its position, and the presence of *do*-support (labelled variously $V_{E\ initial}$, $V_{A\ initial}$, $V_{E\ do}$, $V_{A\ do}$ in (92)). Secondly, the form of the object was varied between a full NP and a pronoun (labelled Obj_{NP} and Obj_{Pron} in (92)). Finally, the effect of a modifying phrase (labelled ModP in (92)) was investigated.

(92) a **$V_{E\ do}$; Obj_{NP}; ModP**
Do those young girls prefer *souterige botter op hulle brood*?
b **$V_{E\ do}$; Obj_{NP}**
Do those young girls prefer *souterige botter*?

---

generating items to test the predictions, as discussed in detail in chapter 4, the English auxiliary *do* was used in all *yes-no* items in combination with either the English main verb (predicted well-formed) and the Afrikaans main verb (predicted ill-formed). Using the Afrikaans main verb *doen* as an auxiliary would produce an ungrammatical construction, such as *Doen jou getroude vriende geniet harde musiek?* ("Do your married friends enjoy loud music?") which would then be judged ill-formed for this reason and be unable to inform the predictions.

c **$V_{E\ do}$; Obj_{Pron}; ModP**
Do those young girls prefer *dit op hulle brood*?

d **$V_{E\ do}$; Obj_{Pron}**
Do those young girls prefer *dit*?

e **$V_{E\ initial}$; Obj_{NP}; ModP**
?Prefer those young girls *souterige botter op hulle brood*?
salty butter on their bread

f **$V_{E\ initial}$; Obj_{NP}**
?Prefer those young girls *souterige botter*?

g **$V_{E\ initial}$; Obj_{Pron}; ModP**
?Prefer those young girls *dit op hulle brood*?
it

h **$V_{E\ initial}$; Obj_{Pron}**
?Prefer those young girls *dit*?

i **$V_{A\ initial}$; Obj_{NP}; ModP**
Verkies those young girls *souterige botter op hulle brood*?
prefer

j **$V_{A\ initial}$; Obj_{NP}**
Verkies those young girls *souterige botter*?

k **$V_{A\ initial}$; Obj_{Pron}; ModP**
Verkies those young girls *dit op hulle brood*?

l **$V_{A\ initial}$; Obj_{Pron}**
Verkies those young girls *dit*?

m **$V_{A\ do}$; Obj_{NP}; ModP**
?Do those young girls *verkies souterige botter op hulle brood*?

n **$V_{A\ do}$; Obj_{NP}**
?Do those young girls *verkies souterige botter*?

o **$V_{A\ do}$; Obj_{Pron}; ModP**
?Do those young girls *verkies dit op hulle brood*?

p **$V_{A\ do}$; Obj_{Pron}**
?Do those young girls *verkies dit*?

3.4 Summary

The predictions outlined above, based on the analyses of the word order differences between English and Afrikaans as arising from differences in the strength of features associated with functional categories and the ability of the verbs of either language to check these features, were tested on the basis of data gathered from fluent English-Afrikaans bilinguals.

The experimental paradigm is set out in chapter 4, and the results are presented in chapters 5 to 7.

CHAPTER 4

EXPERIMENTAL PARADIGM

4.1 Naturalistic vs. experimental data

Research on code switching traditionally makes use of spontaneously occurring naturalistic data (cf. Halmari 1997; Myers-Scotton 1993; Nortier 1995; Treffers-Daller 1994, among many others). However, the ability of such data to inform questions or predictions regarding specific constructions such as those discussed in chapter 3 is limited, in that large amounts of spontaneous data may yield very few, if any, utterances containing the target constructions. The motivation for code switching research targeting such specific constructions lies in the possibility of applying syntactic theories developed to account for monolingual phenomena to code switching phenomena. Such research is essential to the extent that any theory accounting for monolingual language use must account for bilingual language use as well. For the purposes of such research, focused on particular code-switched constructions, it is necessary to turn to experimental techniques in order to generate data on the basis of which the merit of specific predictions may be evaluated.

The Chomskyan distinction between competence and performance (cf. Chomsky 1965: 4) leads to a restriction related to naturalistic data mentioned by Toribio (2001: 406), in that the linguistic performance of a speaker does not necessarily accurately reflect his/her underlying knowledge. There is also the problem of variability among speakers and communities, where corpora of naturalistic data often contain code switched constructions which other speakers in the same language community may regard as ill-formed. These limitations of naturalistic data, for the purposes of inquiry into the syntactic aspects of code switching, necessitate the use of experimental methodologies. In its most basic form, such an experimental methodology involves judgments of well-formedness (or "acceptability"), similar to the grammaticality judgments often applied in the field of syntax to monolingual structures (cf. Schütze (1996) for an informative exposition of the use of grammaticality and well-formedness judgments in linguistic research). A typical grammaticality judgment task may, for example, require a participant to consider the sentence *I likes dogs* and label it as either

"grammatical" or "ungrammatical". As noted by Cornips and Poletto (2005: 941), "questions about the (un)grammaticality of syntactic features may provide insight into a speaker's competence far more readily than spontaneous speech data do". Furthermore, the elicitation of well-formedness judgments opens a window on participants' reactions to sentence types that do not readily occur in corpora of naturalistic data (Cornips and Poletto 2005: 941). The use of intuitive data such as that generated by grammaticality or well-formedness judgments has a long history in linguistic research (cf., for example, Chomsky 1965: 20). Botha (1973: 174) discusses the use of linguistic intuitions as empirical evidence against which predictions of linguistic hypotheses may be tested. As noted by Henry (2005: 1617), it is ideal if intuition-based data in linguistic research can be supported by corpus data as far as this is possible.

With regard to the use of well-formedness judgments, Sorace (1993) discusses the various types of responses that may be required in a well-formedness judgment task. Much linguistic research is based on absolute judgments, where participants are required to assign a category to a given construction, typically choosing one of two categories, for example, "acceptable" or "unacceptable". A shortcoming of such absolute judgments is that the informant's response is constrained by the categories available, and possible differences among members of a particular category cannot be indicated. For example, in terms of well-formedness, a sentence which seems to the informant to be vaguely problematic but almost acceptable is placed in the same category (i.e., "ill-formed" or "unacceptable") as one which is grossly ungrammatical in the informant's opinion. The use of relative judgments overcomes this problem, where a participant is required to judge the relative well-formedness of a sentence in relation to one or more other sentences (Sorace 1993: 398). For example, a participant may be required to rank a set of three or more sentences in terms of relative well-formedness. In any such well-formedness judgment task, it is also possible to guide participants by giving them prototypical examples of the structures to be judged (cf. MacSwan (1999: 103), who gave participants examples of what he considered to be an "extremely bad" code-switched construction which they could use as a prototypical ill-formed sentence).

Schütze (1996: 2) notes the advantages of well-formedness judgments such as those outlined above, for example that they allow one to

examine sentences that seldom occur in spontaneous speech, and that they allow one to gather negative evidence. However, Schütze (1996: 4) also notes the lack of standard experimental control techniques in many linguistic studies utilising judgments of grammaticality or well-formedness. In the absence of such control, the conclusions that can legitimately be based on the results obtained are limited, as are the statistical analyses that can be applied to the results.

A technique that improves the situation is that of magnitude estimation, by which a participant associates a numerical value with a stimulus, i.e., the sentence to be judged, which reflects its level of well-formedness. By means of the magnitude estimation technique, the researcher obtains information on degrees of well-formedness. Chomsky (1975: 131) suggests that an adequate linguistic theory has to recognise "degrees of grammaticalness". As linguistic theories tend to be based on linguists' opinions regarding the grammaticality or well-formedness of particular constructions, a formal theory of gradience in well-formedness judgments is desirable (Keller 2000: 19). The use of magnitude estimation in linguistic experimentation addresses this issue, by making it possible to treat well-formedness as a continuum, and to measure directly the differences in terms of well-formedness between or among a number of constructions (Keller 2000: 38).

The technique of magnitude estimation is traditionally used in the field of psychophysics in the measurement of people's perception of sensory stimuli, for example, the relative brightness of each light stimulus in a series of light stimuli, or the relative loudness of each sound stimulus in a series of sound stimuli (cf. Stevens 1975). The technique of magnitude estimation was introduced to the realm of the social sciences by Lodge (1981). Magnitude estimation requires a participant to assign a numerical value to a given stimulus. This initial stimulus acts as the reference, and the informant assigns numerical values to subsequent stimuli in relation to that of the reference. A relative scaling of the stimuli is thus achieved. Besides the assigning of numerical values, other response modalities may also be used, such as varying the pressure of hand grip on a rubber handle, adjusting the sound pressure level of a tone, or drawing lines of varying lengths in response to stimuli (cf. Stevens 1975; Lodge 1981). By utilising more than one response modality for a particular set of stimuli, it is possible to validate the scales obtained by cross-modality matching (cf. Lodge 1981). A number of studies in the field of linguistics have

successfully applied the magnitude estimation technique in gathering data to inform questions on both monolingual phenomena (cf. Bard, Robertson and Sorace 1996; Keller 2000) and bilingual phenomena (cf. Sorace 1993; Pandur 2004).

Besides judgments of well-formedness, there are a number of other techniques which may tap bilingual speakers' linguistic intuitions about code-switched constructions. In her study of the syntactic regularities underlying Spanish-English code switching, Toribio (2001) used, firstly, a reading task. In the reading task, participants were required to read aloud one fairytale containing what the researcher considered "grammatically unacceptable" code switching, and a second fairytale containing what the researcher considered "well-formed code-switched sentences" (Toribio 2001: 408). Participants were then required to answer questions relating to the "readability, comprehension, enjoyability, and grammatical form" of the passages (Toribio 2001: 408). A further task in Toribio's (2001) study was a verbal recounting task, where participants were required to retell the ending of one of the stories that had been read. In a final task, participants wrote the story of a third fairytale, depicted by a series of pictures, having been instructed to mix Spanish and English in their writing of the narrative (Toribio 2001: 408). Toribio (2001: 433) concludes that these methodologies are "valid and informative" techniques in the study of the linguistic competence underlying code switching.

On the basis of the issues identified in the literature briefly reviewed above, an experimental paradigm was formulated for the present study. The following sections give an exposition of the various tests participants were required to complete in order to generate data on the structural aspects of English-Afrikaans intrasentential code switching. The tests included judgments of the relative well-formedness of visually presented sentence pairs, judgments of the relative well-formedness of auditorily presented utterance pairs, a sentence construction test, a video clip description test, and magnitude estimation of the relative well-formedness of visually presented sentence sets. There was also a pre-test on the basis of which potential participants who qualified to act as participants in the study were identified, and a post-test questionnaire aimed at gathering information on participants' perceptions regarding the tests and items.

4.2 The Test Battery

4.2.1 The participants

The participants were 30 students in the Arts faculty at Stellenbosch University, varying in age between 18 and 26 years, with an average age of 20.2 years. All participants were fluent in standard South African English and standard Afrikaans. Their bilingual proficiency was evaluated by means of (i) self-evaluation, (ii) the researcher's informal evaluation during class interactions and information sessions, (iii) idiom completion items in the pre-test, and (iv) grammaticality judgment items in the pre-test (cf. section 4.2.3 and Appendix A). It was assumed that such adequate levels of proficiency in both languages are required in order for code switching to occur on a regular basis and in accordance with regular patterns. Speakers of the mixed code often referred to as "Cape Afrikaans" or "Kaaps" (cf. section 2.2.1), in which there is convergence between English and Afrikaans, were excluded from consideration as participants. It was assumed that code switched utterances and well-formedness judgments of speakers of this variety may differ considerably from those of speakers bilingual in standard South African English and standard Afrikaans, due to the influence of lexical and structural aspects of the mixed code. Of the 30 participants, 9 were English mother-tongue speakers and 21 Afrikaans. Participants were required to exhibit a neutral or positive attitude toward code switching, as a negative attitude may confound the validity of results (cf. Pfaff 1979, according to which speakers have been known to reject as impossible the sentences they themselves have uttered). Attitude toward code switching was evaluated by means of items in the pre-test (cf. section 4.2.3 and Appendix A). Finally, participants had followed at least one year of General Linguistics, and/or Applied English Language Studies, and/or English Studies (with an English Linguistics module), and so had some knowledge of bilingual phenomena such as code switching. Further instruction as to the nature of the study and the specific tests was given to all potential participants during a training session preceding the pre-test.

4.2.2 Test format

The judgment tests (of relative well-formedness and magnitude estimation), as well as the pre-test and the post-test questionnaire, were

carried out on Web-CT. All students on the Stellenbosch University campus are registered users of Web-CT, the e-learning environment upon which all academic departments are required to maintain at least a minimum presence. In the Arts faculty, most departments require students to use Web-CT on a regular basis to access content and/or to complete tutorials and assignments. In the case of the present study, a new module with the title "Code Switching" was created, and potential participants were registered as auditors. The researcher controlled the appearance and availability of the various tests, and had students registered and de-registered by the Web-CT support team as required. Students were notified by e-mail when a new test was available for completion, and for how long it would remain available. Follow-up e-mails were sent as necessary to remind students to complete the relevant test(s). Students could log in at any time to complete a test, but each test remained available only for a certain period, after which access was blocked, so that only one test could be completed at a time. The dates of each participant's test completion could be monitored, as could the time taken to complete a test.

The sentence construction test was presented in the form of a drag-and-drop activity in a Microsoft Word document sent to each participant as an e-mail attachment. Participants were required to complete the test, save the changes to the document, and send it back as an e-mail attachment. The video clip description test was presented in the form of a Microsoft Power Point presentation. Participants completed the test on a laptop computer with the researcher present, and their responses were audio-recorded.

4.2.3 The pre-test

The pre-test (cf. Appendix A) was designed to screen potential participants in terms of the criteria mentioned in 4.2.1 above. The first three questions were aimed at gathering biographical information, namely name, age, and place of birth. The next five questions aimed to gather information regarding mother tongue, second language, age and context of second language acquisition, and current primary language of use, as this information could potentially play a role in accounting for differences in participants' responses to later tests. A further two questions screened participants' attitude toward English-Afrikaans code switching, by asking whether they viewed the language use reflected by

sentences in which English and Afrikaans were switched as acceptable or unacceptable in informal conversation among fluent English-Afrikaans bilinguals. The next 12 questions required grammaticality judgments of monolingual sentence pairs, six English pairs and six Afrikaans pairs. Each pair contained a grammatical and an ungrammatical sentence, and each targeted one of the six constructions to be tested in the later tests (cf. section 3.2). The final four questions required participants to complete well-known idioms, two in English and two in Afrikaans. The idioms were selected from high school second language text books. In order to qualify as a participant, a student was required to answer "acceptable" to both attitude questions, to get 100% of the grammaticality judgments correct, and at least one English and one Afrikaans idiom completion correct. A total of 81 students completed the pre-test, and 30 qualified as participants.

4.2.4 Judgments of well-formedness: Visual stimuli

The visual well-formedness test consisted of 52 items. The first two items presented the instructions for the test. Participants were required to read either the English or the Afrikaans instructions, or both, and had to indicate that they had read and understood the instructions (cf. Appendix B for the instructions). The importance of understanding the instructions and carrying them out meticulously had been emphasised during a training session preceding the pre-test. Following the two instruction questions, 50 sentence pairs were presented. The first two sentence pairs were practice items, and did not target any of the predictions. The following 48 pairs consisted of eight pairs for each of the six predictions,[31] presented in a randomised order. Of the eight pairs for each prediction, four contained Afrikaans verbs and four contained English verbs. In each pair, one was the code switched structure predicted to be judged well-formed and the other the code switched structure predicted to be judged ill-formed. The order of well- and ill-formed structures was also randomised, and no indication was given of the predictions. Each sentence pair was presented individually and could

[31] No distracters were included, as it was assumed that the wide range of structures being tested would prevent participants from identifying particular structures and developing set responses to these. This was apparently a correct assumption, as no participant, upon being asked in the post-test questionnaire to identify structures which were tested, correctly identified any of these. Twelve of the 30 participants did note that "word order" or "verb position" were being tested.

not be re-visited. For each pair, participants had to select which sentence was in their opinion "more well-formed". Participants were instructed to ignore what they thought might be "right" or "wrong", and to make their selection on the basis of which sentence/utterance they would be more likely to consider acceptable in informal conversation between fluent bilinguals. In this way, the attention was shifted away from the notion of grammaticality, often a confounding factor in well-formedness judgments (cf. Schütze 1996). Content lexical items in all test items were selected from the middle range of the lemmatised frequency list generated by Kilgarriff (1998) on the basis of the British National Corpus. Homonyms and cognate pairs were avoided. The composition of the test items was varied to the extent possible without affecting the target structure. For example, within each set of eight items per target structure, some items contained a pronominal subject and others a full NP, some items contained an adverbial phrase and others a direct object, and still others a prepositional phrase. This variation in item composition was considered necessary so as not to restrict the judgments elicited to a specific instantiation of each target structure. The length of items, in terms of number of lexical items, was kept as constant as possible. Example pairs for each of the six predictions appear in (93) to (98) below, with the predicted well-formed structure first in each case[32] (cf. Appendix C for the full list of test items).

(93) adverbs
a The crazy policeman *gryp skielik* his partner's gun.
grab suddenly
b The crazy policeman *skielik gryp* his partner's gun.

(94) focalisation
a Such friendly neighbours *nooi sy* to all her
invite she
parties.
b Such friendly neighbours *sy nooi* to all her parties.

(95) topicalisation
a Die gebou veroorsaak probleme. Daardie
the building cause problem-PL those

[32] In all example items given in the text, italics are used to indicate the switch point and English glosses are given where necessary for Afrikaans lexical material. In the actual test items, which appear in the appendices, no italics or glosses appeared. Furthermore, in all examples given in the text, the predicted well-formed version of the construction appears first. The order of appearance in the tests themselves was randomised.

probleme *the developer handles* tydens vergaderings.
problem-PL during meeting-PL

b Die gebou veroorsaak probleme. Daardie probleme *handles the developer* tydens vergaderings.

(96) *that* embeddings a The auctioneer reports that the sculptures *teen 'n hoë spoed verkoop*.
at a high rate sell

b The auctioneer reports that the sculptures *verkoop teen 'n hoë spoed.*

(97) *wh* embeddings a The crew ask why their vessel *in die hawe bly*.
in the harbour stay

b The crew ask why their vessel *bly in die hawe.*

(98) *yes-no* questions a Do *jou getroude vriende* enjoy such old music?
your married friend-PL

b Enjoy *jou getroude vriende* such old music?

4.2.5 Judgments of well-formedness: Auditory stimuli

The auditory well-formedness test also consisted of 52 items. The first two items once again presented the instructions for the test in English and Afrikaans, requiring participants to confirm that they had read and understood the instructions (cf. Appendix D). Following the two instruction items, there were 2 practice and 48 test items, each consisting of a pair of links labelled "sentence 1" and "sentence 2". Participants were instructed to click on each link in order to hear the utterance played via Windows Media Player through the speakers or earphones connected to the PC. Participants could listen to the utterances as many times as they wished, and then had to select which of the two in each pair they considered "more well-formed". Again, each pair was presented individually and could not be re-visited. As with the visual sentence items, the middle range of Kilgarriff's (1998) lemmatised frequency list was used in the construction of the auditory utterance items, and homophones and cognate pairs were avoided. The composition of items was varied as described above for the visual items (cf. section 4.2.4). Example pairs for each of the six predictions appear in (99) to (104)

below, with the predicted well-formed structure presented first in each case (cf. Appendix E for the full list of test items).

(99) adverbs
a Die interessante kunstenaar *usually prefers*
the interesting artist
colourful oil paint.
kleurvolle olieverf
b Die interessante kunstenaar *prefers usually*
kleurvolle olieverf.

(100) focalisation
a Hot tomato soup *bestel ons* at our favourite restaurant.
order we
b Hot tomato soup *ons bestel* at our favourite restaurant.

(101) topicalisation
a The banks lend money to anyone. High interest *verdien hulle* from big loans.
earn they
b The banks lend money to anyone. High interest *hulle verdien* from big loans.

(102) *that* embeddings
a Die uitslae dui aan dat die mense *like the sympathetic*
the result-PL indicate that the person-PL
president.
b Die uitslae dui aan dat die mense *the sympathetic president like.*

(103) *wh* embeddings
a The girl asks her mother why her grandmother *sulke sterk drankies meng.*
such strong drink-PL mix
b The girl asks her mother why her grandmother *meng sulke sterk drankies.*

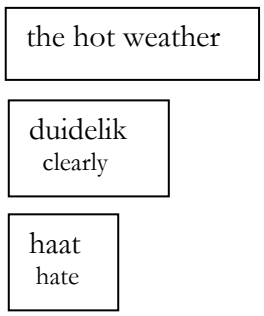
(104) *yes-no* questions
a Woon *much of the population* op die kus?
live on the coast
b Does much of the population *woon op die kus*?

4.2.6 Sentence construction

The sentence construction test was presented in the form of a Microsoft Word document which was sent to each participant as an e-mail attachment. The instructions for the test appeared on the first two pages

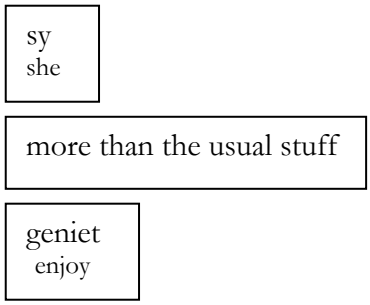
of the document, with an example of the drag-and-drop activity to be performed (cf. Appendix F). Participants were required to confirm (by typing "yes") that they had read and understood the instructions. The test consisted of 50 items, two practice items and eight items per prediction, four containing English verbs and four containing Afrikaans verbs. Each item consisted of the beginning of a sentence, and three further sentence fragments in text boxes. Participants were required to complete the test by arranging the sentence fragments in the order which they considered to render the most well-formed sentence possible with the available sentence fragments. The sentence construction test thus aimed at recording participants' production of code switched sentences, from a closed set of sentence fragments, to supplement the judgment data from the tests described in 4.2.4 and 4.2.5 above. The order of items was randomised in terms of the predictions targeted, and the order of sentence fragment presentation was randomised in terms of the predicted well-formed fragment order for each construction. Content lexical items in all items were again selected from the middle range of Kilgarriff's (1998) lemmatised frequency list. Homonyms and cognate pairs were avoided. Item composition was varied in order to elicit judgments on a wide range of instantiations of each structure (cf. section 4.2.4). Example items appear in (105) to (109)[33] (cf. Appendix G for the full list of items).

(105) adverbs The gentleman with the cap

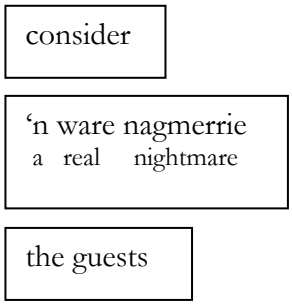


[33] Note that no example item targeting a *yes-no* question is given for the sentence construction test. The eight items which were included in the test to target *yes-no* questions failed to elicit these from participants, due to a lack of clarity in the instructions (cf. section 5.6).

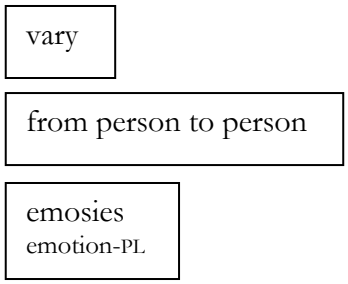
(106) focalisation Old horror movies



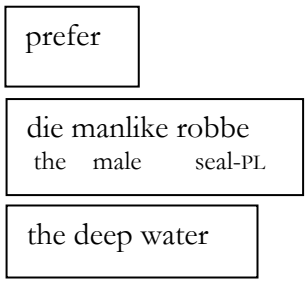
(107) topicalisation Die ontwerper het die woonstel versier. Daardie
the designer have the apartment decorate those
versierings
decoration-PL



(108) *that* embeddings Die verskillende opinies dui aan dat
the different opinion-PL indicate that



(109) *wh* embeddings Die toeriste vra hoekom
the tourist-PL ask why



4.2.7 Video clip description

In the video clip description test, participants were required to view a series of 50 video clips depicting everyday events. Each clip was five to ten seconds in length. The clips were presented via a Microsoft Power Point presentation on a laptop computer, and participants clicked on each video clip to let it play, viewing the event as many times as they wished. Beneath each video clip appeared an introductory text, describing the event, in which a number of sentences containing inter- and intrasentential code switching between English and Afrikaans provided the background to lead the participant into producing the target utterance, the final sentence being incomplete. After reading the introductory text aloud, the participant was required to complete the description of the event by completing the final sentence in either English or Afrikaans, or both, as per the instruction provided. This test allowed the least researcher control of all the tests, as participants were free to use any lexical items and any sentence structure they wished in their completion of each item. The researcher did, however, control the switch point (cf. the items in (110) to (115)). The use of a video clip rather than a static picture was in an effort to depict the scene to be described as vividly as possible. The use of the lengthy introductory text containing code switching aimed to lead the participant as closely as possible to producing a target-like form. Once again there were two practice items and eight items per prediction for six predictions; of the eight, four targeted Afrikaans verbs and four targeted English verbs. Example introductory texts for each targeted structure appear in (110) to (115), with the target structure in upper case letters following the

completion instruction. (The remaining texts and targets appear in Appendix H.)

(110) adverb

Die meisie is gesê om skoon te vee *around the*
the girl is PAST PART-tell clean to wipe
basin. She has been combing her fluffy toys' hair in plaas
instead
daarvan om te werk. Sy hoor haar ma se
thereof to work she hear her mother POSS
voetstappe en sy … (complete in English)
footstep-PL and she

QUICKLY WETS THE CLOTH

(111) focalisation

Die vrou het die wasgoed gesorteer. Die skoon
the woman have the washing PAST PART-sort the clean
klere het sy in die *cupboards* gesit, *and now she*
clothing-PL have she in the PAST PART-put
comes into the kitchen with the washing basket full of dirty washing. Die vuil wasgoed … (complete in English)
the dirty washing

SHE PUTS IN THE WASHING MACHINE

(112) topicalisation

The girl has been told to finish up in the bath. *Sy*
she
het twee face- cloths in the bath, *een is pienk en een*
have two one is pink and one
wit. Die pienk face-cloth *gebruik sy vir haar gesig*, and
white the pink use she for her face
with the white face-cloth … (voltooi in Afrikaans)

WAS SY HAAR NEK
wash he her neck

(113) *that* embedding

Die meisiekinders speel met die nuwe *air freshener*
the girl-PL play with the new
which their mom has just bought. Die ouer sussie *sprays*
the older sister
and smells, en sy sê vir haar sussie dat sy …
and she say for her sister that she

(complete in English)

LIKES THE NEW AIR FRESHENER

(114) *wh* embedding

Everybody has drunken their tea and eaten their snacks, *en daar bly een koekie oor* on the plate. The
and there remain one biscuit over
grandmother offers the plate around *en vra wie* …
and ask who
(complete in English)

WANTS THE LAST BISCUIT

(115) *yes-no* questions

Die vrou en haar vriendin *are chatting in the kitchen*
the woman and her friend
terwyl sy tee maak. Sy het lank laas vir die
while she tea make she have long last for the
vriendin tee gemaak, *and doesn't know whether she*
friend tea PAST PART-make
takes sugar, so she asks "…?"
(complete in English and Afrikaans)[34]

NEEM JY SUGAR IN YOUR TEA? /
DO YOU TAKE SUIKER IN JOU TEE?

4.2.8 Magnitude estimation

The magnitude estimation test was presented as two separate subtests, to be completed on two separate occasions, as the task is somewhat taxing. In each subtest, the first two items once again presented the instructions in English and Afrikaans (cf. Appendix I for the instructions) and students were required to indicate that they had read and understood the instructions. The following 11 items of each subtest required line length estimation. Participants were instructed to assign a number to a reference line representing its length, and then to assign numbers to ten further test lines, each representing the length of the test line relative to the length of the reference line. Each test item presented both the reference

[34] Participants were instructed to give a direct question containing both languages in the cases where a *yes-no* question was required, as indicated by the quotation marks and the instruction to complete in English and Afrikaans.

line and the new test line to be judged. Items were presented individually and could not be revisited. It has been found that, in such line length estimation tasks, people produce a 1:1 response; in other words, a 45° angle is obtained if one plots the logs of the mean of responses against those of the actual line lengths (cf. Stevens 1975). This makes line length estimation a good training exercise in experiments which apply magnitude estimation to social stimuli (Lodge 1981: 8), and establishes a baseline for each participant.

Following the line length section of the test, the remaining 96 items consisted of one set of 16 items for each of the six predictions. Each prediction was thus tested by one set in each of the two magnitude estimation subtests. In each set, the first sentence was presented as the reference sentence. To this reference sentence, the participant was required to assign a number which represented its level of well-formedness; the higher the number, the higher the level of well-formedness, the lower the number, the lower the level of well-formedness. To each subsequent sentence in that set, the participant was then required to assign a number which represented its level of well-formedness in relation to that of the reference sentence. Each item presented both the reference sentence and the new sentence to be assigned a number; items were presented individually and could not be revisited. At the beginning of each new set of items, targeting a different prediction, the participant's attention was focused on the new reference sentence, and on the fact that the following 15 sentences were to be judged in comparison to this reference sentence. In the construction of the items, the middle range of Kilgarriff's (1998) lemmatised frequency lists was once again used, and homonyms and cognate pairs were avoided. The two sets of sentences for each construction were also kept as similar as possible in terms of lexicalisation. For example, the lexicalisation of topicalisation set 1 refers to bottles of tomato sitting on a shelf, the tomato being tasted by girls, where the girls are referred to as either *die meisies* ("the girls") or *hulle* ("they"). The lexicalisation of topicalisation set 2 refers to bags of meat lying on a shelf, the meat being cut by cooks, where the cooks are referred to as either *the cooks* or *they*.

The magnitude estimation test was aimed at yielding more detailed information on the perceived levels of well-formedness of various permutations of each construction. Specifically, sentences were varied not only in terms of the language and position of the verb, but also in

terms of the language (English or Afrikaans) and/or the nature (full NP or pronoun) of other sentence elements, including the adverb, the subject, and the object, as well as in terms of the presence or absence of a modifying phrase. The magnitude estimation test therefore further aimed to identify linguistic factors other than verb position which may play a role in judgments of well- and ill-formedness. The predictions regarding the stimulus sentences in the magnitude estimation tests are therefore of a different nature to those for the sentence pairs in the visual and auditory relative judgment tests discussed in sections 4.2.4 and 4.2.5 above. The predictions are tentative, as the aim of the magnitude estimation tests was exploratory in nature, rather than prediction-testing. In the case of constructions with adverbs, sentences varied in terms of (i) the language of the adverb (English or Afrikaans), (ii) the position of the verb (pre- or post-adverb), (iii) the form of the subject (NP or pronominal), and (iv) the language of the object (English or Afrikaans) (cf. section 3.3.2). One of the test sets appears in (116)[35]. (The other test set was given in (56) in section 3.3.2).

(116) a **$Subj_{NP}$; Adv_E V_E; Obj_E**
Die seun met die eienaardige tande *often phones the pretty girl.*
the boy with the strange tooth-PL

b **$Subj_{NP}$; Adv_E V_E; Obj_A**
Die seun met die eienaardige tande *often phones* die mooi meisie.
the pretty girl

c **$Subj_{Pron}$; Adv_E V_E; Obj_E**
Hy *often phones the pretty girl.*

d **$Subj_{Pron}$; Adv_E V_E; Obj_A**
Hy *often phones* die mooi meisie.

e **$Subj_{NP}$; V_E Adv_E; Obj_E**
?Die seun met die eienaardige tande *phones often the pretty girl.*

f **$Subj_{NP}$; V_E Adv_E; Obj_A**
?Die seun met die eienaardige tande *phones often* die mooi meisie.

g **$Subj_{Pron}$; V_E Adv_E; Obj_E**
?Hy *phones often the pretty girl.*

h **$Subj_{Pron}$; V_E Adv_E; Obj_A**
?Hy *phones often* die mooi meisie.

[35] Note that the asterisks in these item lists did not appear in the test items, of which the order was reandomised, and in which there was no indication of the predictions.

i **$Subj_{NP}$; Adv_A V_E; Obj_E**
Die seun met die eienaardige tande dikwels *phones the pretty girl.*
often

j **$Subj_{NP}$; Adv_A V_E; Obj_A**
Die seun met die eienaardige tande dikwels *phones* die mooi meisie.

k **$Subj_{Pron}$; Adv_A V_E; Obj_E**
Hy dikwels *phones the pretty girl.*

l **$Subj_{Pron}$; Adv_A V_E; Obj_A**
Hy dikwels *phones* die mooi meisie.

m **$Subj_{NP}$; V_E Adv_A; Obj_E**
?Die seun met die eienaardige tande *phones* dikwels *the pretty girl.*

n **$Subj_{NP}$; V_E Adv_A; Obj_A**
?Die seun met die eienaardige tande *phones* dikwels die mooi meisie.

o **$Subj_{Pron}$; V_E Adv_A; Obj_E**
?Hy *phones* dikwels *the pretty girl.*

p **$Subj_{Pron}$; V_E Adv_A; Obj_A**
?Hy *phones* dikwels die mooi meisie.

In the case of focalisation and topicalisation structures, and of *that* and *wh* embeddings, sentences varied in terms of (i) the language of the verb (English or Afrikaans), (ii) the position of the verb (pre- or post-subject), (iii) the form of the object (NP or pronominal), and (iv) the presence or absence of a modifying phrase (cf. sections 3.3.3 to 3.3.6). By way of illustration, a set of items for focalisation appears in (117). (The other set for focalisation was given in (63) in section 3.3.3; the remaining sets for topicalisation constructions and for that and wh embeddings appear in chapter 7, where the results for each item are discussed.)

(117) a **$Subj_{NP}$; $Subj_E$ V_E; ModP**
Die bekende ou modetydskrif *young girls order* op 'n gereelde basis.

b **$Subj_{NP}$; $Subj_E$ V_E**
Die bekende ou modetydskrif *young girls order*.

c **$Subj_{Pron}$; $Subj_E$ V_E; ModP**
Dit *young girls order* op 'n gereelde basis.

d **$Subj_{Pron}$; $Subj_E$ V_E**
Dit *young girls order*.

e **$Subj_{NP}$; V_E $Subj_E$; ModP**
?Die bekende ou modetydskrif *order young girls* op 'n gereelde basis.

f **$Subj_{NP}$; V_E $Subj_E$**
?Die bekende ou modetydskrif *order young girls*.

g **$Subj_{Pron}$; V_E $Subj_E$; ModP**
?Dit *order young girls* op 'n gereelde basis.

h **$Subj_{Pron}$; V_E $Subj_E$**
?Dit *order young girls*.

i **$Subj_{NP}$; V_A $Subj_E$; ModP**
Die bekende ou modetydskrif bestel *young girls* op 'n gereelde basis.

j **$Subj_{NP}$; V_A $Subj_E$**
Die bekende ou modetydskrif bestel *young girls*.

k **$Subj_{Pron}$; V_A $Subj_E$; ModP**
Dit bestel *young girls* op 'n gereelde basis.

l **$Subj_{Pron}$; V_A $Subj_E$**
Dit bestel *young girls*.

m **$Subj_{NP}$; $Subj_E$ V_A; ModP**
?Die bekende ou modetydskrif *young girls* bestel op 'n gereelde basis.

n **$Subj_{NP}$; $Subj_E$ V_A**
?Die bekende ou modetydskrif *young girls* bestel.

o **$Subj_{Pron}$; $Subj_E$ V_A; ModP**
?Dit *young girls* bestel op 'n gereelde basis.

p **$Subj_{Pron}$; $Subj_E$ V_A**
?Dit *young girls* bestel.

Finally, in the case of *yes-no* questions, items again varied in terms of (i) the language of the verb (English or Afrikaans), (ii) the position of the verb (pre- or post-subject), (iii) the form of the object (NP or pronominal), and (iv) the presence or absence of a modifying phrase (cf. section 3.3.7). In the *yes-no* items, the presence or absence of *do*-support combined with verb position, i.e., *do*-support occurred only when the verb, either English or Afrikaans, was not in sentence-initial position. One of the test sets appears in (118). (The other test set was given in (92) in section 3.3.7).

(118) a **$V_{E\ do}$; Obj_{NP}; ModP**
Do *daardie gawe ouens* enjoy brown sugar in their tea?
those nice guy-PL

b **$V_{E\ do}$; Obj_{NP}**
Do *daardie gawe ouens* enjoy brown sugar?

c **$V_{E\ do}$; Obj_{Pron}; ModP**
Do *daardie gawe ouens* enjoy it in their tea?

d **$V_{E\ do}$; Obj_{Pron}**
Do *daardie gawe ouens* enjoy it?

e **$V_{E\ initial}$; Obj_{NP}; ModP**
?Enjoy *daardie gawe ouens* brown sugar in their tea?

f **$V_{E\ initial}$; Obj_{NP}**
?Enjoy *daardie gawe ouens* brown sugar?

g **$V_{E\ initial}$; Obj_{Pron}; ModP**
?Enjoy *daardie gawe ouens* it in their tea?

h **$V_{E\ initial}$; Obj_{Pron}**
?Enjoy *daardie gawe ouens* it?

i **$V_{A\ initial}$; Obj_{NP}; ModP**
Geniet daardie gawe ouens *brown sugar in their tea*?
enjoy

j **$V_{A\ initial}$; Obj_{NP}**
Geniet daardie gawe ouens *brown sugar*?

k **$V_{A\ initial}$; Obj_{Pron}; ModP**
Geniet daardie gawe ouens *it in their tea*?

l **$V_{A\ initial}$; Obj_{Pron}**
Geniet daardie gawe ouens *it*?

m **$V_{A\ do}$; Obj_{NP}; ModP**
?Do *daardie gawe ouens geniet* brown sugar in their tea?

n **$V_{A\ do}$; Obj_{NP}**
?Do *daardie gawe ouens geniet* brown sugar?

o **$V_{A\ do}$; Obj_{Pron}; ModP**
?Do *daardie gawe ouens geniet* it in their tea?

p **$V_{A\ do}$; Obj_{Pron}**
?Do *daardie gawe ouens geniet* it?

4.2.9 The post-test questionnaire

The post-test questionnaire aimed at gathering information on participants' experience of the various tests (cf. Appendix J). The questionnaire was presented on WebCT, and participants were required to rank the level of difficulty of each of the tests as "difficult", "neutral" or "easy". They were further required to rank the level of naturalness of the items in each of the tests as "natural", "neutral", or "unnatural". A further open-ended question asked participants whether there were any particular syntactic structures regarding which they were aware of having been tested. A final open-ended question asked for comments on any aspect(s) of the study. This information was considered important in

terms of implications for future research, in that tasks that seemed "difficult" to many participants should possibly be carefully considered, in case such a level of difficulty affects the reliability of results. Furthermore, the participants' perceptions of the level of naturalness of items were considered important in light of the fact that test items were generated specifically to test the predictions, and were not naturally-occurring recorded constructions. The results of the post-test did not indicate any complications of these kinds. The results of the tests described in section 4.2.4 to 4.2.8 are presented in chapters 5 to 7.

CHAPTER 5

RESULTS OF RELATIVE JUDGMENTS AND SENTENCE CONSTRUCTION

This chapter presents the results of the two judgment tests, namely of the relative well-formedness of visual and auditory stimuli, as well as the results of the sentence construction test. These results were coded in terms of whether or not the predictions were borne out. A score of 1 was allocated to a predicted well-formed response, and a score of 0 to a predicted ill-formed response. In other words, a mean score of 1.0 for an item indicates that responses for that item corresponded with the relevant prediction across all participants. Thus a mean score of 1.0 indicates a perfect result in terms of support for the prediction and relevant analysis. A mean score of .50 may indicate one of a number of things. Firstly, it may imply the possibility that participants behaved randomly in terms of their judgments or sentence construction. On the other hand, a mean score of .50 may indicate that participants were genuinely divided in their opinions as to which structure was well-formed. A mean score of 0 for an item indicates that responses for that item did not correspond with the relevant prediction in the case of any single participant, in other words all participants made the opposite-to-predicted choice or construction. For purposes of using the data to inform the predictions, .80 was taken as a borderline – as long as an item had a mean score of .80 or higher, this result was taken to be a straightforward confirmation of the relevant prediction and analysis. A mean score between .60 and .80 was taken as a weak confirmation of the relevant prediction and analysis. A mean of .40 to .60 was taken to reflect performance at chance level, offering no support for the predictions, but not refuting the predictions either. A mean of .20 to .40 was considered to provide weak evidence against the predictions, and a mean below .20 as providing strong evidence against the predictions.

The results for the three tests are set out in sections 5.1 to 5.6 below. Each construction type is covered in a separate section, revealing the clustering of results for each construction across the three tests. In each section, the percentage support for the predictions regarding the particular construction offered by each test item, as well as the mean for each item, are presented in a table. Items whose performance is vastly

different to that of the other items in the particular set are discussed individually, and the rationale for omitting particular items from further analysis is discussed. The results are then discussed on the basis of the means. Following this, the statistical analyses for each of the three tests, as well as across tests, are discussed. For each test, a two-way analysis of variance (ANOVA) (split-plot design) was carried out, with the language of the verb (English or Afrikaans) as the within-subjects factor, and the language of the participant (English or Afrikaans) as the between-subjects factor. The dependent variable was the number of ill-formed scores (0s). A further ANOVA was carried out for the three tests together, with the test modality as an additional factor. Finally, the results across participants are compared on the basis of their total number of responses in each category, i.e., well- and ill-formed, in order to ascertain whether there are any clear differences between individual participants.

Note that one participant did not confirm that she had read and understood the instructions for the sentence construction test, and her performance in the sentence construction test was vastly different to her performance in the other four tests, as well as from the performance of the other participants in the sentence construction test. The results for this participant for this test were excluded from the analysis of results, and so N=29 for the sentence construction test.

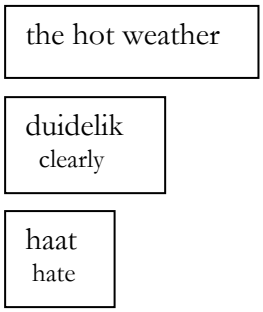
5.1 Constructions with adverbs

The example test items for constructions with adverbs for the visual, auditory, and sentence construction tests, given in (93), (99), and (105), are repeated here for purposes of clear exposition as (119) to (121).

(119) a The crazy policeman *gryp skielik* his partner's gun.
grab suddenly
b The crazy policeman *skielik gryp* his partner's gun.

(120) a Die interessante kunstenaar *usually prefers* kleurvolle olieverf.
the interesting artist colourful oil paint
b Die interessante kunstenaar *prefers usually* kleurvolle olieverf.

(121) The gentleman with the cap



The item-specific results for constructions with adverbs are presented in Table 5.1, where it is clear that the support for the predictions across items and across tests is almost perfect, ranging from 86.2% to 100%, with one exception, namely English item 2 in the visual test.[36] The results for this item, *Daardie sterk spelers clearly challenge mekaar* ("Those strong players clearly challenge each other"), may have been influenced by the status of the English word *challenge* in colloquial Afrikaans, which, according to an informal post-test survey,[37] is considered a loanword by bilingual speakers of English and Afrikaans. As such, it may be that some participants considered both V-Adv order (*challenge clearly*) and Adv-V order (*clearly challenge*) to be well-formed. This would suggest that this particular item did not appropriately test the relevant prediction, and so the results for this item have been excluded from further analysis.[38]

[36] The terms "English item" and "Afrikaans item" refer to test items containing or targeting an English and an Afrikaans verb, respectively.

[37] The status of four English verbs, suspected on the basis of the results for particular items of having the potential to be regarded as loanwords, was independently assessed by means of an informal survey after the test results had been tallied. Six trained linguists fluently bilingual in English and Afrikaans were asked to rate the likelihood of each word being regarded as a loanword in standard Afrikaans (cf. Appendix K). The results of the survey indicated that all four of the items tested were indeed likely to be regarded as loanwords. The items involved were considered to have been inappropriate in testing the relevant prediction, and so were excluded from further analysis.

[38] The results for outlying items which are discussed in the text and excluded from further analysis appear in parentheses in the tables in this chapter.

Test	Item	Well-formed	Ill-formed	Missing	Support %	Mean values	Overall means
visual	1 Eng	29	1	0	96.7	.97	
	2 Eng	(8)	(21)	(1)	(27.6)	(.28)	.93
	3 Eng	29	1	0	96.7	.97	
	4 Eng	25	4	1	86.2	.86	
	1 Afr	30	0	0	100	1.00	
	2 Afr	28	1	1	96.6	.97	.99
	3 Afr	29	1	0	96.7	.97	
	4 Afr	30	0	0	100	1.00	
auditory	1 Eng	26	4	0	86.7	.87	
	2 Eng	28	1	1	96.6	.97	.90
	3 Eng	27	3	0	90.0	.90	
	4 Eng	26	4	0	86.7	.87	
	1 Afr	28	2	0	93.3	.93	
	2 Afr	29	0	1	100	1.00	.97
	3 Afr	28	2	0	93.3	.93	
	4 Afr	30	0	0	100	1.00	
sentence	1 Eng	28	1	0	96.6	.97	
	2 Eng	24	4	1	85.7	.86	.94
	3 Eng	26	2	1	92.9	.93	
	4 Eng	29	0	0	100	1.00	
	1 Afr	26	0	3	100	1.00	
	2 Afr	27	0	2	100	1.00	.98
	3 Afr	26	1	2	96.3	.96	
	4 Afr	28	1	0	96.6	.97	

Table 5.1 Percentage support and means for constructions with adverbs: visual judgments, auditory judgments, sentence construction

With regard to the missing[39] responses for the visual and auditory judgment tests, there is no detectable systematicity in these non-responses, in that each was only for a single participant, and a different participant in each case. These missing responses, being so few, are more likely due simply to participant error than to indecision on the part of the participant as to which construction to select as more well-formed. In the sentence construction test, the majority of the missing responses, i.e., alternative constructions, entailed constructions with the adverb in sentence-final position, which is an alternative well-formed structure in

[39] For the visual and auditory judgment tests, a participant's response was considered "missing" if s/he did not select either of the stimuli as more well-formed. For the sentence construction test, "missing" indicates that a participant constructed a non-target-like sentence which did not correspond to either the predicted well-formed or the predicted ill-formed structure. These responses are given in Appendix L.

English, as in (122) for English item 2, and in Afrikaans, as in (123) for Afrikaans item 3, where the adverb appears to have been right-adjoined to the sentence. The remaining alternative responses are listed in appendix L.

(122) Die meisie in die slaapkamer *jumps* op haar sagte bed *often*.
the girl in the bedroom on her soft bed

(123) The man with the cap *haat* the hot weather *duidelik*.
hate clearly

For the visual judgment test, the mean values for English items range from .86 to .97, with an overall mean of .93. The mean values for Afrikaans items range from .97 to 1.00, with an overall mean of .99. These means are well above the .80 borderline, the indication that the results confirm the relevant predictions and analyses. For the auditory judgment test, the mean range for English items is .87 to .97, and the overall mean is .90. For Afrikaans items the mean range is .93 to 1.00 and the overall mean .97. Once again, these means are well above the .80 borderline. The sentence construction test also yielded means well above the .80 borderline for constructions with adverbs. For English items, the mean range is .86 to 1.00 and the overall mean .94. For Afrikaans items, the mean range is .96 to 1.00 and the overall mean .98.

In the ANOVA, English item 2 of the visual test was excluded, and the number of ill-formed scores was therefore multiplied by the correction factor 4/3. The ANOVA for the visual test revealed no significant effects, not for the language of the verb ($F=2.359$, $df=1,28$, $p=.136$), neither for the language of the participant ($F=.007$, $df=1,28$, $p=.934$), nor the interaction of these two factors ($F=.007$, $df=1,28$, $p=.934$). The ANOVA for the auditory test also revealed no significant effects for the language of the verb ($F=1.967$, $df=1,28$, $p=.171$), for the language of the participant ($F=.275$, $df=1,28$, $p=.604$), or for the interaction of the two ($F=1.976$, $df=1,28$, $p=.171$). The ANOVA for the sentence construction test revealed a significant effect for the language of the verb, with $F=5.697$, $df=1,28$, $p=.024$. There was no significant effect, however, for either language of participant ($F=.080$, $df=1,28$, $p=.779$), or the interaction of language of verb and language of participant ($F=.269$, $df=1,28$, $p=.608$). Finally, the ANOVA for the three tests together revealed only one significant effect, for the language of the verb

(F=4.787, df=1,27, p=.038). The fact that there is only this single effect indicates that the three tests delivered similar results. The low number of significant effects (for language of verb for sentence construction and for the three tests overall) is not surprising, given the low number of ill-formed responses. The analysis across participants reveals no outlying participants. The possible range of ill-formed responses across all three tests is zero to 23 (there are 23 items). The most frequent number of ill-formed responses is 0 (N=13). The uniformity of the results for constructions with adverbs across the three tests is striking. The predictions are supported throughout, with the means for Afrikaans items very slightly higher than those for English items.

5.2 Focalisation constructions

The example test items for focalisation constructions for the visual, auditory, and sentence construction tests, given in (94), (100), and (106), are repeated here for purposes of clear exposition as (124) to (126).

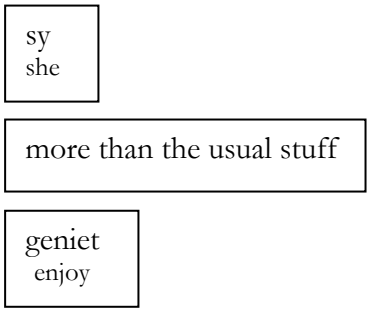
(124) a Such friendly neighbours *nooi sy* to all her parties.
invite she

b Such friendly neighbours *sy nooi* to all her parties.

(125) a Hot tomato soup *bestel ons* at our favourite restaurant.
order we

b Hot tomato soup *ons bestel* at our favourite restaurant.

(126) Old horror movies



The item-specific results for focalisation constructions are presented in Table 5.2, where the support for the predictions as tested by Afrikaans items is high, ranging from 69.0% to 100%. The English items yielded

less consistent results, with support for the predictions ranging from 41.4% to 93.3%. These large ranges were affected by a number of individual items which delivered outlying results, in the sense that participants' performance on these items differed substantially from that for the items in the particular subset, namely English item 3 in the visual test, English items 1 and 3 in the auditory test, English item 4 in the sentence test, and Afrikaans item 3 in the sentence test. Item analysis was undertaken in an attempt to discover possible reasons for this different performance, as discussed further below.

Test	Item	Well-formed	Ill-formed	Missing	Support %	Mean values	Overall means
visual	1 Eng	26	3	1	89.7	.90	
	2 Eng	26	4	0	86.7	.87	.80
	3 Eng	18	12	0	60.0	.60	
	4 Eng	25	5	0	83.3	.83	
	1 Afr	26	2	2	92.9	.93	
	2 Afr	28	2	0	93.3	.93	.95
	3 Afr	28	2	0	93.3	.93	
	4 Afr	29	0	1	100	1.00	
auditory	1 Eng	(12)	(17)	(1)	(41.4)	(.41)	
	2 Eng	28	2	0	93.3	.93	.86
	3 Eng	(14)	(16)	(0)	(46.7)	(.47)	
	4 Eng	23	6	1	79.3	.79	
	1 Afr	29	1	0	96.7	.97	
	2 Afr	29	1	0	96.7	.97	.93
	3 Afr	28	2	0	93.3	.93	
	4 Afr	25	5	0	83.3	.83	
sentence	1 Eng	26	2	1	92.9	.93	
	2 Eng	24	5	0	82.8	.83	.83
	3 Eng	22	4	3	84.6	.85	
	4 Eng	20	9	0	69.0	.69	
	1 Afr	29	0	0	100	1.00	
	2 Afr	27	2	0	93.1	.93	.94
	3 Afr	(18)	(2)	(9)	(69.0)	(.69)	
	4 Afr	25	3	1	89.3	.89	

Table 5.2 Percentage support and means for focalisation constructions: visual judgments, auditory judgments, sentence construction

In the case of English item 3 in the visual test (cf. (127)), note that there is an alternative interpretation for the predicted ill-formed structure (cf. (127b)), in which a television advertisement, for example, depicts a meticulous selection process by which a particular artist is selected from

a group. This alternative interpretation may partially explain why 40% of the participants selected the predicted ill-formed structure. However, this item has not been excluded from further analysis on these grounds.

(127) a Die seep advertensie *the artist selects* met sorgvuldige noukeurigheid.
the soap advertisement with careful consideration
b Die seep advertensie *selects the artist* met sorgvuldige noukeurigheid.

In the case of English item 1 in the auditory test (cf. (128)), the alternative interpretation of the predicted ill-formed structure is far more obvious, and may well have influenced participants' performance. Note that the structure in (128b) could be interpreted as a simple SVO construction in which no element is focalised (in which a certain contract, which has been broken, refers to a certain movie star as being unfair). This item was excluded from further analysis, due to both the alternative interpretation and the large discrepancy between the scores for this item compared to the general profile for English focalisation items across the three tests.

(128) a Die gebreekte kontrak *the movie star names* uiters onbillik.
the broken contract extremely unfair
b Die gebreekte kontrak *names the movie star* uiters onbillik.

English item 3 in the auditory test (cf. (129)) is problematic as the verb *wander* may have been perceived by listening participants as homophonous with its Afrikaans counterpart, *wandel*, in which case there would be an equal chance of participants selecting the predicted ill-formed structure. This item was also therefore excluded from further analysis.

(129) a Op die lang wit strand *his uncles wander* heel naweek.
on the long with beach whole weekend
b Op die lang wit strand *wander his uncles* heel naweek.

English item 4 in the sentence test yielded a number of ill-formed responses, which may be at least partly due to fact that a boat can conceivably be "handled" by a strong wind. The predicted ill-formed version of the sentence, *Die sterk winde handles his boat sonder probleme*, has

the potential to be interpreted in this manner.[40] It may be that this alternative partially explains the 31% of participants who produced this predicted ill-formed structure in the sentence test. This item, however, was not excluded from further analysis.

Finally, the results for Afrikaans item 3 in the sentence test differ substantially from the results across the tests, in that there is a large number (nine) of missing responses. The majority of these responses constituted the seemingly ungrammatical *Their round-trip tickets on the big red bus koop daardie reisigers.* It is possible that the participants who produced this form regarded the *round-trip tickets on the big red bus* as a single unit, in that one may buy a ticket for a round-trip journey to be undertaken on a particular single bus. On the basis of this plausible alternative, and the substantially different performance of this item compared to the other Afrikaans items in all three tests, this item was excluded from further analysis.

With regard to the missing responses for the visual and auditory judgment tests, there is no detectable systematicity in these non-responses. Being so few, these missing responses are more likely due simply to participant error than to actual indecision on the part of the participant as to which construction to select as more well-formed.

Turning to the means for items targeting focalisation constructions, for the visual judgments test, the mean range for English verb focalisation items is .60 to .90, and the overall mean is .80. The means for Afrikaans items are higher, ranging from .83 to 1.00, with an overall mean of .95. Turning to the auditory test, the mean range for English items is .79 to .93, with an overall mean of .86, but these scores represent the results of only two of the four items. The mean range for the Afrikaans items is .83 to .97, with an overall mean of .93. Finally, in the sentence construction test, the mean range for English items is .69 to .93, with an overall mean of .83, while the mean range for Afrikaans items is .89 to 1.00, with an overall mean of .94. The means for Afrikaans items are thus somewhat higher than those for English items, and indicate strong support for the

[40] Note that there is no overt marking of number agreement between subjects and verbs in Afrikaans, and errors involving the absence of agreement are common in Afrikaans speakers' L2 English, as in *The ladies handles the food preparation.* The agreement violation between *winde* ("winds") and *handles* would therefore not necessarily stop participants from considering this structure to be well-formed.

predictions. The means for English items are closer to the lower border of strong support for the predictions.

The two-way ANOVA for the visual test revealed a significant effect for the language of the verb (F=9.632, df=1,28, p=.004), but no significant effect for either the language of the participant (F=.124, df=1,28, p=.727) or the interaction of the two factors (F=.880, df=1,28, p=.356). The ANOVA for the auditory test revealed no significant effects, not for the language of the verb (F=1.120, df=1,28, p=.299), nor for the language of the participant (F=.335, df=1,28, p=.567), nor for the interaction of the two factors (F=.001, df=1,28, p=.971). The ANOVA for the sentence construction test revealed a significant effect for the language of the verb (F=5.001, df=1,28, p=.033), but no significant effect for either the language of the participant (F=.181, df=1,28, p=.674) or for the interaction of the two factors (F=.973, df=1,28, p=.332). Finally, the ANOVA for the three tests together, with test modality as an extra factor, revealed only one significant effect, namely for the language of the verb (F=7.346, df=1,28, p=.011). There was no effect for test modality, which indicates that all three tests delivered similar results.

Turning to an analysis across participants, it is useful to consider the performance for English and Afrikaans items separately. For the 11 Afrikaans items, most participants gave zero ill-formed responses (N=18). The maximum number of ill-formed responses for a participant is three. For the ten English items, higher scores are expected (cf. the above-mentioned significant effect for language of the verb). The most frequently occurring number of ill-formed responses for the English items is zero, but a number of participants did obtain higher scores of ill-formed responses. Two participants had four ill-formed responses, two had five ill-formed responses, and one had six ill-formed responses. There was no indication that the number of ill-formed responses was related to the language of the participant.

5.3 Topicalisation constructions

The example test items for topicalisation constructions for the visual, auditory, and sentence construction tests, given in (95), (101), and (107), are repeated here for purposes of clear exposition as (130) to (132).

(130) a Die gebou veroorsaak probleme. Daardie probleme
the building cause problem-PL those problem- PL
the developer handles tydens vergaderings.
during meeting-PL

b Die gebou veroorsaak probleme. Daardie probleme
handles the developer tydens vergaderings.

(131) a The banks lend money to anyone. High interest
verdien hulle from big loans.
earn they

b The banks lend money to anyone. High interest
hulle verdien from big loans.

(132) Die ontwerper het die woonstel versier. Daardie versierings
the designer have the apartment decorate those decoration-PL

consider

'n ware nagmerrie
a real nightmare

the guests

The item-specific results for topicalisation constructions are presented in Table 5.3. For the Afrikaans items, support for the predictions is generally high, with the exception of Afrikaans item 3 in the sentence construction test, whose predicted well-formed order is *Those thieves beskuldig die polisie van misdaad* ("Those thieves the police accuse of crime"). This item is problematic, as it could be understood as a standard $SVOP_o$ sentence, meaning that the thieves accuse the police of crime, rather than a topicalisation construction, meaning that it is the thieves whom the police accuse of crime. This item was therefore excluded from further analysis, and the support for the predictions for topicalisation constructions tested by Afrikaans items ranges from 83.3% to 100%.

Turning to the results for English items, these are somewhat inconsistent across items, and a number of items require further explanation, namely English items 3 and 4 in the visual test, English items 2 and 4 in the auditory test, and English items 3 and 4 in the sentence test. One of

these items can reasonably be excluded from further analysis, namely English item 2 in the auditory test, containing the verb *worry*, which may be considered a loanword into Afrikaans, as confirmed by the post-test survey. Thus, participants may have considered both word orders (*worry the teachers* and *the teachers worry*) to be well-formed.

Test	Item	Well-formed	Ill-formed	Missing	Support %	Mean values	Overall means
visual	1 Eng	27	2	1	93.1	.93	.81
	2 Eng	29	1	0	96.7	.97	
	3 Eng	23	7	0	76.7	.77	
	4 Eng	17	13	0	56.7	.57	
	1 Afr	29	1	0	96.7	.97	.93
	2 Afr	25	5	0	83.3	.83	
	3 Afr	28	2	0	93.3	.93	
	4 Afr	30	0	0	100	1.00	
auditory	1 Eng	25	5	0	83.3	.83	.71
	2 Eng	(10)	(20)	(0)	(33.3)	(.33)	
	3 Eng	24	6	0	80.0	.80	
	4 Eng	15	15	0	50.0	.50	
	1 Afr	24	4	2	85.7	.86	.87
	2 Afr	25	5	0	83.3	.83	
	3 Afr	27	2	1	93.1	.93	
	4 Afr	26	4	0	86.7	.87	
sentence	1 Eng	25	2	2	92.6	.93	.71
	2 Eng	28	1	0	96.6	.97	
	3 Eng	11	16	2	40.7	.41	
	4 Eng	15	14	0	51.7	.52	
	1 Afr	28	1	0	96.6	.97	.97
	2 Afr	26	1	2	96.3	.96	
	3 Afr	(20)	(8)	(1)	(71.4)	(.71)	
	4 Afr	28	1	0	96.6	.97	

Table 5.3 Percentage support and means for focalisation constructions: visual judgments, auditory judgments, sentence construction

Item analysis for the remaining English items for which a large number of participants selected the ill-formed version as more well-formed revealed that these items share a common feature which distinguishes them from all the other English topicalisation items in these three tests, for which the well-formed scores were higher. Each of the items with high ill-formed scores contains a full NP subject (cf. the list of subject-verb combinations in 133), whereas each of the items with low ill-formed scores contains a pronominal subject (cf. the list of subject-verb

combinations in 134). It may be that an English pronoun, being overtly marked for case and agreement, is more firmly anchored to its grammatically correct position than is an NP, which is not overtly marked for such a position. The possibility that the form of the subject (NP vs. pronominal) has an effect on perceptions of the well-formedness of code switched utterances was further investigated by means of the magnitude estimation technique (cf. section 4.2.8 and the results in chapter 7).

(133) English item 3 visual: the builder handles
English item 4 visual: young couples consider
English item 4 auditory: the leaders regret
English item 3 sentence: their patients value
English item 4 sentence: the guests consider

(134) English item 1 visual: I consider
English item 2 visual: he places
English item 1 auditory: I watch
English item 3 auditory: I join
English item 1 sentence: she enjoys
English item 2 sentence: she keeps

With regard to the missing responses for topicalisation items, the four in the visual and auditory tests were made by four different participants and no systematicity is detectable. The majority of the alternative responses in the sentence construction test appeared to focalise an element after the topicalised element, as can be seen in (135) in response to English item 1. The remaining alternative constructions appear in Appendix L.

(135) Die swembad tydens die somer *she enjoys*.
the swimming pool during the summer

Turning to the means for items targeting topicalisation constructions, for the visual test, the means for English items range from .57 to .97, with an overall mean of .81. The Afrikaans items in the visual test have a mean range of .83 to 1.00, and an overall mean of .93. These overall means suggest strong support for the predictions. With regard to the auditory judgment test, the means for English items range from .50 to .83, with an overall mean of .71, indicating weak support for the predictions. The mean range for Afrikaans items in the auditory test is

once again higher than that for English, namely .83 to .93, with an overall mean of .87, indicating strong support for the predictions. Finally, in the sentence construction test, the mean range for English items is .41 to .97, with an overall mean of .71, reflecting weak support for the predictions. The Afrikaans items in the sentence test yielded a mean range of .96 to .97, with the overall mean of .97 indicating strong support for the predictions. It is thus clear that the predictions for topicalisation constructions are supported by the results of the visual and auditory judgment and sentence construction tests, and that responses to Afrikaans items were more robust in this support.

The ANOVA for the visual test revealed a significant effect for the language of the verb (F=9.664, df=1,28, p=.004), but not for either the language of the participant (F=.451, df=1,28, p=.508) or the interaction of the two (F=1.133, df=1,28, p=.296). For the auditory test, the ANOVA revealed significant effects for the language of the participant (F=5.321, df=1,28, p=.029) (English participants having more well-formed scores than Afrikaans participants), but not for the language of the verb (F=3.132, df=1,28, p=.088) or for the interaction of the two (F=1.061, df=1,28, p=.312). The ANOVA for the sentence test revealed a significant effect for the language of the verb (F=14.953, df=1,28, p=.001), but not for either the language of the participant (F=.251, df=1,28, p=.620) or for the interaction (F=.008, df=1,28, p=.931). The ANOVA for the three tests together allowed a test of whether the effects noted above were consistent. The results indicated that only the language of the verb effect was significant (F=15.069, df=1,28, p=.001).

Turning to the performance across participants, the maximum number of well-formed responses was 11, for both English and Afrikaans items. For the Afrikaans items separately, most participants had zero ill-formed responses, the maximum being four ill-formed responses (N=2). There was more variation in well- and ill-formed scores for English items. Almost all participants had at least one ill-formed response, and a number of participants had quite high scores for ill-formed responses (cf. table 5.4). There was no evidence of an effect of the language of the participant.

Number of ill-formed responses	Number of participants	Percentage of participants
0	3	10
1	4	13.3
2	9	30
3	2	6.7
4	8	26.7
5	1	3.3
6	2	6.7
8	1	3.3
Total	30	100

Table 5.4 Participant performance for English topicalisation items

5.4 Embedded *that* clauses

The examples of test items for embedded *that* clauses given in (96), (102), and (108) are repeated here as (136) to (138) for purposes of clear exposition.

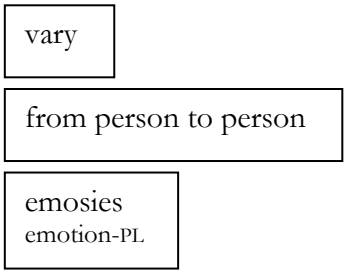
(136) a The auctioneer reports that the sculptures *teen 'n hoë spoed verkoop.*
at a high rate sell

b The auctioneer reports that the sculptures *verkoop teen 'n hoë spoed.*

(137) a Die uitslae dui aan dat die mense *like the sympathetic president.*
the result-PL indicate that the person-PL

b Die uitslae dui aan dat die mense *the sympathetic president like.*

(138) Die verskillende opinies dui aan dat
the different opinion-PL indicate that



The item-specific results for *that* items appear in Table 5.5, from which it is clear that there is much variation in the performance of both English and Afrikaans items. Afrikaans item 3 in the sentence test, *Research has since revealed that the elephants breek sulke draadheinings* ("… break such wire

fences"), is problematic, in that an alternative interpretation is possible for the predicted ill-formed order, as the subject and object in the embedded clause are potentially reversible (research could conceivably be understood to have revealed that the fences "break" or somehow hurt the elephants). This item was therefore excluded from further analysis, and support for the predictions ranges from 30% to 83.3% across tests for English items, and from 43.3% to 83.3% across tests for Afrikaans items.

Test	Item	Well-formed	Ill-formed	Missing	Support %	Mean values	Overall means
visual	1 Eng	24	6	0	80.0	.80	
	2 Eng	22	8	0	73.3	.73	.73
	3 Eng	23	7	0	76.7	.77	
	4 Eng	18	12	0	60.0	.60	
	1 Afr	13	17	0	43.3	.43	
	2 Afr	16	14	0	53.3	.53	.55
	3 Afr	22	8	0	73.3	.73	
	4 Afr	15	15	0	50	.50	
auditory	1 Eng	12	18	0	40.0	.40	
	2 Eng	20	9	1	70.0	.70	.67
	3 Eng	25	5	0	83.3	.83	
	4 Eng	22	7	1	75.9	.76	
	1 Afr	25	5	0	83.3	.83	
	2 Afr	23	6	1	79.3	.79	.63
	3 Afr	13	17	0	43.3	.43	
	4 Afr	14	16	0	46.7	.47	
sentence	1 Eng	9	20	0	31.0	.31	
	2 Eng	21	8	0	72.4	.72	.57
	3 Eng	20	9	0	69.0	.69	
	4 Eng	16	13	0	55.2	.55	
	1 Afr	14	14	1	50.0	.50	
	2 Afr	14	15	0	48.3	.48	.59
	3 Afr	(10)	(18)	(1)	(35.7)	(.36)	
	4 Afr	23	6	0	79.3	.79	

Table 5.5 Percentage support and means for embedded *that* clauses: visual judgments, auditory judgments, sentence construction

No systematic effect is detectable for the missing responses in the auditory test. Both of the alternative constructions in the sentence test were ungrammatical constructions (cf. Appendix L).

With regard to the mean scores, in the visual test, the mean range for English items is .60 to .80, with an overall mean of .73. The means for Afrikaans items range from .43 to .73, with an overall mean of .55, somewhat lower than that for the English items. For the auditory test, the means for English items range from .40 to .83, with an overall mean of .67, while the means for Afrikaans items range from .43 to .83, with an overall mean of .63, again lower than that for English items. Finally, for the sentence test, the means for English items range from .31 to .72, with an overall mean of .57, whereas the means for Afrikaans items range from .48 to .79, with an overall mean of .59, slightly higher than that for English. Overall, then, the English items yielded slightly more well-formed responses than did the Afrikaans items in terms of support for the predictions, in contrast to the cases of focalisation, topicalisation, and adverb constructions. The wide ranges in the means across both English and Afrikaans items indicate that performance varied widely from one particular verb to the next. Item analysis reveals a number of possible explanations for the discrepancies.

With regard to the Afrikaans items in the visual and auditory tests, an explanation may be proposed for the high number of well-formed responses to item 3 in the visual test and to items 1 and 2 in the auditory test, in comparison to the remaining items, which elicited closer to equal numbers of well- and ill-formed responses (i.e., means around chance level). Each of the items with means close to .50 contain a verb which can occur in an objectless passive construction (cf. (139)), while the verbs in the items with higher means cannot be used in this manner (cf. (140)). The possibility of this alternative construction may give a partial explanation for the difference in the performance of these items.

(139) Predicted well-formed:
It would appear that everyone *daardie studente bewonder*.
those student-PL admire
Predicted ill-formed:
It would appear that everyone *bewonder daardie studente*.
Possible grammatical construction (potentially distracting):
It would appear that everyone *bewonder word*.
admired get
(It would appear that everyone is admired)

(140) Predicted well-formed:
The lady acknowledges that her dog *groot gate grawe*.
large hole-PL dig
Predicted ill-formed:
The lady acknowledges that her dog *grawe groot gate*.
Ungrammatical construction (not potentially distracting):
*The lady acknowledges that her dog *grawe word*.

The exception to the above explanation is Afrikaans item 2 in the visual test, *My crazy grandmother says that her fish haar kat byt* ("… her fish bites her cat"), in that this item yielded a mean of .53, although it does not allow the above-mentioned potentially distracting alternative construction. However, it may be proposed that the counter-intuitive semantic content of this item interfered with its interpretation by participants, contributing to its chance level performance. The sequence of the English feminine possessive pronoun+noun combination and the (phonetically similar) Afrikaans feminine possessive pronoun+noun combination may further have contributed to participants' difficulty with this item.

With regard to the Afrikaans items in the sentence test, there is an inherent semantic difference related to the verbs of items 1 and 2, which yielded means close to .50, and that of item 4, which yielded a mean of .79 (item 3 has been excluded from analysis, cf. above). Items 1 and 2 (cf. (141) and (142)) refer to ongoing events (school pupils habitually hate difficult maths problems; the woman habitually buys interesting toys), whereas item 4 (cf. (143)) refers to a particular once-off event (the car is presently driving fast, according to the clock on which it is being timed). It may be that this difference in the nature of the verbs in these items played some role in the differences in their performance.

(141) My mother reports that school pupils *moeilike wiskunde probleme haat*.
difficult maths problem-PL hate

(142) The kids at the park remember that the woman
lekker interessante speelgoed koop.
nice interesting toys buy

(143) The clock indicates that the car *teen 'n baie hoë spoed ry*.
at a very high speed drive

Turning to the English items targeting embedded *that* clauses, there are four items with means of .60 and below, namely item 4 in the visual test, item 1 in the auditory test, and items 1 and 4 in the sentence test. These items yielded means of .60, .40, .31, and .55, respectively, while the mean range for the remaining items is .70 to .80, indicating weak support for the predictions. The item with the lowest mean, namely item 4 in the sentence test, contained the verb *prefer*. The status of this verb as a loanword in Afrikaans was not tested, as the likelihood of it being regarded as a loanword was considered slim. However, as discussed in section 5.5 below, another item in the sentence test containing *prefer*, namely English item 4 targeting an embedded *wh* clause, also elicited the lowest mean in its sub-set (.23). It may be that *prefer* was deemed by the majority of participants to be acceptable as a loanword or nonce borrowing in these constructions. However, for the remaining *that* items with English verbs, item analysis reveals no clear explanation for the wide range of means. It may be that participants were truly divided in terms of the preferred position for the English verbs in these constructions, and that there was no strong motivation to reject as ill-formed the constructions with an English verb in sentence-final position. (Cf. also the discussion in 5.5 below on participants' propensity for placing English verbs in the position Afrikaans verbs would occupy in alternative *wh* constructions.)

The two-way ANOVA for the results of the visual test revealed no significant effects, not for the language of the verb ($F=4.100$, $df=1,28$, $p=.053$), nor for the language of the participant ($F=3.528$, $df=1,28$, $p=.071$), neither for the interaction of the two ($F=.131$, $df=1,28$, $p=.720$). For the auditory test results, the ANOVA also revealed no significant effects for the language of the verb ($F=2.088$, $df=1,28$, $p=.160$), or for the language of the participant ($F=3.581$, $df=1,28$, $p=.069$), or for the interaction of the two ($F=3.415$, $df=1,28$, $p=.075$). The ANOVA for the sentence test revealed a significant effect for the language of the participant ($F=5.834$, $df=1,28$, $p=.022$), but not for either the language of the verb ($F=.000$, $df=1,28$, $p=.995$) or for the interaction of the two factors ($F=.207$, $df=1,28$, $p=.652$). The ANOVA for all three tests together allowed a test of the strength of the language of the participant effect, which in this case remained significant ($F=7.806$, $df=1,28$, $p=.009$), with Afrikaans participants having higher ill-formed scores than English participants.

The profile of ill-formed responses across participants is presented in table 5.6, which indicates a fair distribution. For English items, the maximum number of ill-formed responses is 11 (N=2), and three participants gave zero ill-formed responses. The most frequent ill-formed scores are two and four out of a possible 12 (N=5 in each case). For Afrikaans items, the maximum ill-formed score is 10, two participants had zero ill-formed responses, and the most frequent ill-formed scores are three and five out of a possible 12 (N=5 in each case). Out of the full set of 24 possible ill-formed responses, the maximum ill-formed score is 19 (N=1), one participant had zero ill-formed responses, and the most frequent ill-formed scores are seven (N=5) and eight (N=6).

Number of ill-formed responses	**English items**		**Afrikaans items**		**Total items**	
	Number of participants	Percentage participants	Number of participants	Percentage participants	Number of participants	Percentage participants
0	3	10,0	2	6,7	1	3,3
1	4	13,3	1	3,3	1	3,3
2	5	16,7	4	13,3	0	0
3	2	6,7	5	16,7	2	6,7
4	5	16,7	2	6,7	0	0
5	2	6,7	5	16,7	2	6,7
6	3	10,0	4	13,3	1	3,3
7	1	3,3	3	10,0	5	16,7
8	0	0	3	10,0	6	20,0
9	2	6,7	0	0	2	6,7
10	1	3,3	1	3,3	1	3,3
11	2	6,7	0	0	2	6,7
12					2	6,7
13					0	0
14					1	3,3
15					1	3,3
16					1	3,3
17					1	3,3
18					0	0
19					1	3,3
Total	30	100,0	30	100,0	30	100,0

Table 5.6 Participant performance for *that* items

5.5 Embedded *wh* clauses

The example test items for embedded *wh* clauses given in (97), (103), and (109) are repeated here as (144) to (146) for expository purposes.

(144) a The crew ask why their vessel *in die hawe bly.*
in the harbour stay

b The crew ask why their vessel *bly in die hawe.*

(145) a The girl asks her mother why her grandmother *sulke sterk drankies meng.*
such strong drink-PL mix

b The girl asks her mother why her grandmother *meng sulke sterk drankies.*

(146) Die toeriste vra hoekom
the tourist-PL ask why

prefer
die manlike robbe the male seal-PL
the deep water

The item-specific results for embedded *wh* clauses are presented in Table 5.7, where it is clear that the results for both English and Afrikaans items reflect much variation. English item 3 in the sentence test has been excluded from further analysis, as it contains the verb *start*, considered likely to occur as a loanword in Afrikaans according to the post-test survey. The support for the predictions as tested by English items ranges from 22.7% to 89.7% across tests, and that by Afrikaans items from 23.3% to 83.3% across tests.

Regarding missing responses in the visual and auditory tests, there is no systematicity detected, as each was from a different participant, and there were no items with more than two missing responses. Turning to the alternative responses in the sentence test, all eight items elicited at least one such response, and 14 of the 30 participants gave at least one such response. The alternative constructions given in each case were identical, reflecting the alternative structure for *wh* embeddings discussed in section 3.3.6. Interestingly, this alternative construction was given by participants more times for English items than for Afrikaans items, irrespective of the language of the participant. The alternative construction for English item 1 is given in (147) and that for Afrikaans item 1 in (148) for purposes of illustration; the remaining alternative constructions appear in Appendix L.

(147) Die bouer wonder waarom *chooses* die ryk ontwikkelaar *ugly tiles*.
the builder wonder why the wealthy developer

(148) My uncle asked me why *glimlag* the concert musician *vir die toeskouers*.
smile for the audience

Test	Item	Well-formed	Ill-formed	Missing	Support %	Mean values	Overall means
visual	1 Eng	26	3	1	89.7	.90	.61
	2 Eng	20	10	0	66.7	.67	
	3 Eng	12	17	1	41.4	.41	
	4 Eng	13	15	2	46.4	.46	
	1 Afr	14	16	0	46.7	.47	.50
	2 Afr	7	23	0	23.3	.23	
	3 Afr	21	8	1	72.4	.72	
	4 Afr	17	13	0	56.7	.57	
auditory	1 Eng	17	13	0	56.7	.57	.62
	2 Eng	21	9	0	70.0	.70	
	3 Eng	15	15	0	50.0	.50	
	4 Eng	21	9	0	70.0	.70	
	1 Afr	25	5	0	83.3	.83	.62
	2 Afr	20	8	2	71.4	.71	
	3 Afr	8	22	0	26.7	.27	
	4 Afr	19	10	1	65.5	.66	
sentence	1 Eng	17	8	4	68.0	.68	.52
	2 Eng	17	9	3	65.4	.65	
	3 Eng	(4)	(20)	(5)	(16.7)	(.17)	
	4 Eng	5	17	7	22.7	.23	
	1 Afr	12	14	3	46.2	.46	.65
	2 Afr	22	5	2	81.5	.82	
	3 Afr	16	11	2	59.3	.59	
	4 Afr	20	8	1	71.4	.71	

Table 5.7 Percentage support and means for embedded *wh* clauses: visual judgments, auditory judgments, sentence construction

Turning to the mean scores for items targeting embedded *wh* clauses, for the visual test, the range of means for English items is from .41 to .90, with an overall mean of .61. The Afrikaans items in the visual test yielded means ranging from .23 to .72, with an overall mean of .50, slightly lower than that for English items. For the auditory test, the means for English items range from .50 to .70, with an overall mean of .57, while those for Afrikaans items range from .27 to .83, with an overall mean of .62. Finally, in the sentence test, the means for English items range from .22 to .65, with an overall mean of .50, while the Afrikaans items yielded

means ranging from .44 to .79, with an overall mean of .62. Thus, for both the auditory and the sentence tests, the Afrikaans items yielded overall means slightly higher than those for English, but the mean ranges are wide for both English and Afrikaans items across the three tests. Item analysis offers some explanation for the wide range of means among these items. Firstly, the high mean (.90) for English item 1 in the visual test (cf. 149) may have been affected by the increased attention required for participants to process the sentence. The processing of this sentence may have been complicated by the *that* following *chirurg* ("surgeon") in the predicted ill-formed version of the sentence, which may have led participants up the garden path to expect an embedded clause. Furthermore, note the ambiguity in the phrase *that loud music*, which could refer to a particular occurrence of loud music, or to a particular loudness level of music.

(149) a Die verpleegster vra waarom die chirurg *needs that loud music.*
the nurse ask why the surgeon
b *Die verpleegster vra waarom die chirurg *that loud music needs.*

Secondly, the low mean for English item 4 in the sentence test may be explained on the basis of its verb *prefer*, which may have been considered acceptable as a loanword or nonce loan, as discussed in section 5.4. The mean range for the remaining English items is .41 to .70. This is a wide range, suggesting once again that participants considered English verbs in their predicted ill-formed position to be acceptable (i.e., English verbs in the Afrikaans position).

Turning to the Afrikaans items, there is a noticeable tendency toward high means for items whose verbs could not plausibly occur immediately after the subject without being followed by the given object or adverbial or prepositional phrase. Lower means were elicited by items whose verbs could occur in this position, where participants may have "ignored" the given object or adverbial or prepositional phrase, even if only temporarily during processing. Compare, for example, Afrikaans items 1 and 2 in the sentence test (cf. (150) and (151)), where (151) elicited 12 well-formed and 14 ill-formed responses, and (150) elicited 22 well-formed and 5 ill-formed responses.

(150) a His uncle asks him why the concert musician *vir die toeskouers glimlag.*
for the audience smile

b *His uncle asks him why the concert musician *glimlag vir die toeskouers.*
Possible construction:
His uncle asks him why the concert musician *glimlag.*

(151) a The boy asks his mother why the other boys *hulle oulike juffrou pla.*
b *The boy asks his mother why the other boys *pla hulle oulike juffrou.*
Impossible construction:
*The boy asks his mother why the other boys *pla.*

The ANOVA for the visual test revealed a significant effect for the language of the participant (F=11.478, df=1,28, p=.002), with Afrikaans participants having higher well-formed scores than English participants. No significant effects were revealed for the language of the verb (F=2.192, df=1,28, p=.150) or the interaction of the two (F=.015, df=1,28, p=.904). For the auditory test, the ANOVA revealed no significant effect for the language of the verb (F=1.836, df=1,28, p=.186), but a significant effect for both the language of the participant (F=6.194, df=1,28, p=.019) and the interaction of the two factors (F=13.944, df=1,28, p=.001), again with Afrikaans participants having higher well-formed scores than English participants, especially for Afrikaans items. The ANOVA for the sentence test revealed no significant effects, not for the language of the verb (F=.308, df=1,28, p=.583), nor for the language of the participant (F=.383, df=1,28, p=.541), nor for the interaction (F=.001, df=1,28, p=.981). The overall ANOVA for all three tests together revealed a significant effect of the language of the participant (F=7.831, df=1,28, p=.012).

The performance across participants is presented in tables 5.9 and 5.10, which reveal the distribution of ill-formed responses across participants. For English items, the maximum ill-formed score was nine (N=1), and two participants had zero ill-formed responses. The most frequently occurring ill-formed scores were one and four out of a possible 12 (N=5 in each case). Turning to Afrikaans items, the maximum ill-formed score was 10 out of 12 items (N=2), and one participant had zero ill-formed responses. The most frequently occurring ill-formed scores were two, three and seven (N=5 in each case). For the total set of 24 items, the maximum ill-formed score was 17 (N=3), the most frequent score was eight ill-formed responses (N=7), and not one participant had zero ill-formed responses.

Number of ill-formed responses	English items		Afrikaans items		Total items	
	Number of participants	Percentage participants	Number of participants	Percentage participants	Number of participants	Percentage participants
0	2	6,7	1	3,3	0	0
1	5	16,7	2	6,7	1	3,3
2	2	6,7	5	16,7	1	3,3
3	2	6,7	5	16,7	0	0
4	5	16,7	2	6,7	1	3,3
5	3	10,0	1	3,3	2	6,7
6	4	13,3	3	10,0	2	6,7
7	3	10,0	5	16,7	3	10,0
8	3	10,0	2	6,7	7	23,3
9	1	3,3	2	6,7	2	6,7
10			2	6,7	1	3,3
11					2	6,7
12					1	3,3
13					1	3,3
14					2	6,7
15					1	3,3
16					0	0
17					3	10,0
Total	30	100,0	30	100,0	30	100,0

Table 5.8 Participant performance for *wh* items

5.6 *yes-no* questions

The example test items targeting yes-no questions given in (98) and (104) are repeated here for expository purposes as (152) and (153).

(152) a Do *jou getroude vriende* enjoy such old music?
your married friend-PL

b Enjoy *jou getroude vriende* such old music?

(153) a Woon *much of the population* op die kus?
live on the coast

b Does much of the population *woon op die kus*?

The item-specific results for *yes-no* questions in the visual and auditory tests are presented in Table 5.9. There are no results for the sentence construction test, due to the fact that too few *yes-no* questions were elicited, due to a lack of clarity in the instructions. In the relative judgment tests, both visual and auditory, the support for the predictions varies widely across items. The support for the predictions as tested by Afrikaans items ranges from 50.0% to 93.3%, and is substantially higher

than that tested by English items, ranging from 14.3% to 80%. The five missing responses for one item in each of these two tests came from five different participants, and no systematicity is evident.

Test	Item	Well-formed	Ill-formed	Missing	Support %	Mean values	Overall means
visual	1 Eng	4	24	2	14.3	.14	.34
	2 Eng	7	23	0	23.3	.23	
	3 Eng	6	24	0	20	.20	
	4 Eng	23	6	1	79.3	.79	
	1 Afr	19	11	0	63.3	.63	.77
	2 Afr	28	2	0	93.3	.93	
	3 Afr	17	13	0	56.7	.57	
	4 Afr	28	2	0	93.3	.93	
auditory	1 Eng	10	18	2	35.7	.36	.51
	2 Eng	24	6	0	80.0	.80	
	3 Eng	11	19	0	36.7	.37	
	4 Eng	15	15	0	50.0	.50	
	1 Afr	15	15	0	50.0	.50	.73
	2 Afr	26	4	0	86.7	.87	
	3 Afr	20	10	0	66.7	.67	
	4 Afr	26	4	0	86.7	.87	

Table 5.9 Percentage support and means for *yes-no* questions: visual judgments, auditory judgments, sentence construction

The means for the items targeting *yes-no* questions indicate that there is little support for the predictions as tested by English items. The mean range for English items in the visual test is .14 to .79, with an overall mean of .34, and the mean range for English items in the auditory test is .36 to .80, with an overall mean of .51. Note, however, that the upper limits of these ranges are affected by only one item in each case, namely item 4 in the visual test, with a mean of .79, and item 2 in the auditory test, with a mean of .80. It appears that participants were reluctant to accept as well-formed the English verb raised to the front of the construction in these two cases, preferring the construction with *do*-support, whereas they were willing to accept as well-formed the raised English verbs in the remaining items (with means ranging from .14 to .50). Item analysis reveals that the verbs in these two exceptional cases share phonological features which distinguish them from the verbs in the remaining items, in that they are both monosyllabic with an open syllable, namely *buy* (visual item 4) and *play* (auditory item 2). In contrast, the verbs in the remaining items are either bisyllabic (*enjoy* in visual item

1, *relate* in auditory item 4), multisyllabic (*understand* in auditory items 1 and 4), or monosyllabic with a closed syllable (*drive* and *slide* in visual items 2 and 3, respectively). It may be that the phonological composition of these two verbs rendered them somehow less "frontable" – a participant weighing up the two options may have resisted the predicted ill-formed constructions in these two cases.

The support for the predictions as tested by Afrikaans items is higher than that for English items, ranging from .57 to .93 for the visual test and from .50 to .87 for the auditory test, with overall means of .77 and .73, respectively, which both indicate weak support for the predictions. These results suggest that participants considered both English and Afrikaans verbs in sentence-initial position in *yes-no* questions to be well-formed, but considered Afrikaans verbs combined with sentence-initial *do* to be ill-formed.

The ANOVA for the results of the visual test revealed a significant effect for the language of the verb (F=16.290, df=1,28, p=.000), but no significant effects for either the language of the participant (F=.033, df=1,28, p=.857) or for the interaction of the two (F=3.154, df=1,28, p=.087). For the auditory test, the ANOVA revealed no significant effects for the language of the verb (F=3.082, df=1,28, p=.090) or for the language of the participant (F=4.136, df=1,28, p=.052), but did reveal a significant effect for the interaction of the two (F=4.417, df=1,28, p=.045). The ANOVA for the two tests together revealed a significant effect of the language of the verb (F=12.579, df = 1,28, p=.001), but no effect for language of participant (F=2.664, df=1,28, p=.119).

The performance across participants, in terms of numbers of ill-formed responses, is presented in Table 5.10, which indicates that, as discussed above, there were more ill-formed responses to English items than to Afrikaans items. Nine participants had four ill-formed responses for English items, whereas fourteen participants had either zero or one ill-formed response for Afrikaans items (the total possible ill-formed responses in each case was eight, as there are no results for the sentence construction test). In terms of participant performance across all 16 items, the maximum ill-formed score was nine out of a possible 16 (N=8), a further six participants had seven ill-formed responses, and one participant had zero ill-formed responses.

Number of ill-formed responses	English items		Afrikaans items		Total items	
	Number of participants	Percentage participants	Number of participants	Percentage participants	Number of participants	Percentage participants
0	1	3.3	7	23.3	1	3.3
1	2	6.7	7	23.3	0	0
2	1	3.3	4	13.3	0	0
3	2	6.7	6	20.0	0	0
4	9	30.0	5	16.7	5	16.7
5	6	20.0	0	0	4	13.3
6	5	16.7	0	0	3	10.0
7	3	10.0	0	0	6	20.0
8	1	3.3	1	3.3	3	10.0
9					8	26.7
Total	30	100,0	30	100,0	30	100,0

Table 5.10 Participant performance for *yes-no* items

5.7 Summary of results

Overall, it is clear that the judgment and sentence construction tests were relatively successful at eliciting data to inform the predictions. The results for the relative judgment and sentence construction tests discussed above suggest strong support for the predictions regarding verb position in the cases of constructions with adverbs and focalisation constructions. The predictions for Afrikaans verbs are slightly more strongly supported than are those for English verbs.

With regard to topicalisation constructions, the results are more mixed. The results of all three tests indicate strong support for the predictions for Afrikaans verbs. For the predictions for English verbs, the results of the visual test indicate strong support, but those of the auditory and sentence construction tests indicate only weak support. It is noticeable in the topicalisation data that there are more English than Afrikaans items which performed around chance level (with means around .50). This may be an indication that English verbs were more easily considered well-formed in their predicted ill-formed position, i.e., in the position of the Afrikaans verb, than vice versa.

Turning to the results for *that* and *wh* constructions, there is weak support for the predictions in some cases, and performance at chance level in others. The wide ranges in the means for *that* and *wh* items, which have an impact on the results, have been explained in sections 5.4 and 5.5 in terms of a number of factors related to the processing of these

items (amongst others, structural and semantic complexity, ambiguity, and the presence of potentially distracting alternative constructions). Overall, however, it would appear that the means for English verb items are slightly higher than those for Afrikaans verb items in the case of *that* constructions, indicating that participants more often accepted or placed Afrikaans verbs in their predicted ill-formed position, than was the case for English verbs. However, with so many means at or close to chance level, it is clear that participants did not show a strong preference for either English or Afrikaans verbs in their predicted well-formed positions. In the case of *wh* constructions, the means for English and Afrikaans verb items are largely similar across the three tests, suggesting that English and Afrikaans verbs were considered by participants to be largely well-formed in their predicted ill-formed positions in *wh* constructions (i.e., that English verbs were considered well-formed in the position of Afrikaans verbs, and vice versa). The analysis of item performance did reveal more ill-formed responses to Afrikaans items than to English items. This tendency toward slightly better performance of English verb items than Afrikaans verb items in embedded *that* and *wh* clauses contrasts with the results for the remaining four construction types, in which Afrikaans verb items had higher well-formed scores than did English verb items. There is also a marked difference between *that* and *wh* constructions on the one hand, and adverb, focalisation and topicalisation constructions on the other, in the tendency of little or no support for the predictions. This asymmetry is underscored by the ANOVA results, according to which the language of the verb was significant in the ANOVA across the three tests for all of the constructions except embedded *that* and *wh* clauses. Furthermore, the language of the participant was significant only in the cases of embedded *that* and *wh* clauses, whereas performance was uniform across English and Afrikaans participants for the remaining four construction types.

Considering finally the relative judgment and sentence construction results for *yes-no* questions, these indicate weak support for the predictions for Afrikaans verbs, but no support for the predictions for English verbs. The means for English verb items varied from close to chance level to indicating weak evidence against the predictions (ignoring for the moment the two items whose high means were explained in section 5.6 on the basis of phonological factors). In general, it appears that participants considered English verbs to be largely well-formed, indeed in some cases more well-formed, in their predicted ill-formed

position, i.e., in the position of the Afrikaans verb. The results for English and Afrikaans verb items suggest that, while participants accepted sentence-initial English verbs without *do*-support as well-formed, they were less accepting of Afrikaans verbs sentence-medially with *do*-support.

Overall, the results of the relative judgment and sentence construction tests indicate straightforward support for the predictions for constructions with adverbs, and for focalisation and topicalisation constructions. For the remaining constructions, embedded *that* and *wh* clauses and *yes-no* questions, on the other hand, there is little support for the predictions, except in the case of the prediction for Afrikaans verbs in *yes-no* questions. Furthermore, the support for the predictions is stronger for Afrikaans verbs than for English verbs across all the constructions except embedded *that* and *wh* clauses. These asymmetries will be discussed further in chapter 8, where the results of all the tests will be integrated.

CHAPTER 6

RESULTS OF VIDEO CLIP DESCRIPTION TEST

This chapter presents the results of the video clip description test, which are presented separately from those of the other four tests due to the different nature of the test and participants' responses (cf. section 4.2.7). The video clip description test allowed minimal researcher control over participants' responses, as they were free to produce whatever structure with whatever lexical items they chose; only the language of the response was specified (i.e., either English or Afrikaans, or both in the case of *yes-no* question items). Example items (110) to (115) in chapter 4 are repeated here as (154) to (159) for purposes of clear exposition, with the target structure in upper case letters following the completion instruction (cf. Appendix H for the full list of items).

(154) adverb

Die meisie is gesê om skoon te vee *around the*
the girl is PAST PART-tell clean to wipe
basin. She has been combing her fluffy toys' hair in plaas
instead
daarvan om te werk. Sy hoor haar ma se
thereof to work she hear her mother POSS
voetstappe en sy … (complete in English)
footstep-PL and she

QUICKLY WETS THE CLOTH

(155) focalisation

Die vrou het die wasgoed gesorteer. Die skoon
the woman have the washing PAST PART-sort the clean
klere het sy in die *cupboards* gesit, *and now she*
clothing-PL have she in the PAST PART-put
comes into the kitchen with the washing basket full of dirty washing. Die vuil wasgoed … (complete in English)
the dirty washing

SHE PUTS IN THE WASHING MACHINE

(156) topicalisation

The girl has been told to finish up in the bath. *Sy*
she

het twee face- cloths in the bath, *een is pienk en een*
have two one is pink and one
wit. Die pienk face-cloth *gebruik sy vir haar gesig*, and
white the pink use she for her face
with the white face-cloth … (voltooi in Afrikaans)

WAS SY HAAR NEK
wash she her neck

(157) *that* embedding Die meisiekinders speel met die nuwe *air freshener*
the girl-PL play with the new
which their mom has just bought. Die ouer sussie *sprays*
the older sister
and smells, en sy sê vir haar sussie dat sy …
and she say for her sister that she
(complete in English)

LIKES THE NEW AIR FRESHENER

(158) *wh* embedding Everybody has drunken their tea and eaten their snacks, *en daar bly een koekie oor* on the plate. The
and there remain one biscuit over
grandmother offers the plate around *en vra wie* …
and ask who
(complete in English)

WANTS THE LAST BISCUIT

(159) *yes-no* questions[41] Die vrou en haar vriendin *are chatting in the kitchen*
the woman and her friend
terwyl sy tee maak. Sy het lank laas vir die
while she tea make she have long last for the
vriendin tee gemaak, *and doesn't know whether she*
friend tea PAST PART-make
takes sugar, so she asks "…?"
(complete in English and Afrikaans)

[41] Participants were instructed to give a direct question containing both languages in the cases where a *yes-no* question was required, as indicated by the quotation marks and the instruction to complete in English and Afrikaans.

NEEM JY SUGAR IN YOUR TEA? /
DO YOU TAKE SUIKER IN JOU TEE?

Participants' responses were coded firstly in terms of whether or not they realised the target construction (or a construction targeted by other test items), and secondly in terms of whether or not they were well-formed or ill-formed according to the predictions. Responses which did not correspond to any of the targeted constructions were not analysed further.

The results for the video clip description test are reported separately for each of the target constructions, in sections 6.1 to 6.6 below. For each construction type, there is a table presenting the total responses in each of the categories mentioned above, and a discussion of those items whose results did not conform to the pattern for that construction type. This is followed by the statistical analysis of the results for each construction type, including (i) a chi-square test to ascertain whether or not the distribution of target responses for each item was equally divided over the well-formed and ill-formed categories; and (ii) an ANOVA with the language of the verb (English or Afrikaans) as the within-subjects factor, and the language of the participant (English or Afrikaans) as the between-subjects factor, to ascertain the significance of differences in the number of target responses for English and Afrikaans participants. Section 6.7 presents a summary of the video clip description test results.

6.1 Constructions with adverbs

As is clear from table 6.1, the items in the video clip description test targeting constructions with adverbs were largely unsuccessful in eliciting the target construction; only 14% of the responses constituted target constructions. Regarding the items targeting English adverb-verb constructions, note that English item 1 elicited no target constructions, but 30 well-formed other-target constructions, all of which were focalisation constructions. The structure of the stimulus in this item was similar to those targeting focalisation constructions, ending with *maar op die ou end* ("in the end"), targeting *she rather takes Eeyore*, but eliciting simply *she takes / chooses Eeyore*. English items 2 and 3 behaved similarly to each other, eliciting two and three well-formed target constructions, respectively, the remaining responses constituting non-target constructions. Finally, English item 4 was the most successful at eliciting

target responses, eliciting 18 well-formed target responses and 12 non-target responses. Turning to the adverb items aiming to elicit Afrikaans verb-adverb constructions, note that Afrikaans item 3 was the most successful here, eliciting nine well-formed target responses (*gebruik eerder Marmite*) and 21 non-target responses. Afrikaans item 1 elicited one well-formed target response (*kies eerder die potlode*) and 29 non-target responses, while Afrikaans item 4 elicited only non-target responses. Afrikaans item 2 also elicited no target responses, but 23 other-target responses. This item is problematic in that it was structured similarly to the items targeting *that* embeddings, with the stimulus ending with *we see that she*, targeting *hulle eerder buite plaas* ("rather places them outside"). Most responses were simply the same as the responses to *that* items (cf. section 6.4), such as the well-formed *die diertjies buite die stal plaas* ("places the animals outside the stall"), and the ill-formed *hou hulle buite* ("keeps them outside"). Ten of these embedded *that* clause responses were of the predicted well-formed structure, and 13 of the predicted ill-formed structure. This pattern is also clear from the results for Afrikaans *that* items reported in section 6.4. Note that English item 1 and Afrikaans item 2 were the only adverb items to elicit other-target responses, and that all such responses were the same, namely focalisation constructions for item 2 and embedded *that* constructions for item 3. These two items have been excluded from further analysis.

There are no clear item-internal factors which can explain the discrepancies in the behaviour of the remaining six items targeting adverb constructions. The relative lack of success of these items in eliciting the target constructions may reasonably be ascribed to the inherent difficulty of depicting an event in which an adverb is somehow crucial to an adequate description of the event. For example, consider English item 3, given in (154) above. The adverb *quickly* is in no way essential in a participant's description of the event. This was the case for all adverb items, despite the efforts to compose the video clip and introductory text in such a way as to encourage participants to produce an adverb in their description. Despite this lack of success, however, note that no adverb constructions with the predicted ill-formed structure were elicited, while 33 predicted well-formed adverb constructions were elicited, namely 23 English adverb-verb constructions and ten Afrikaans verb-adverb constructions. Thus, of the 14% of target constructions elicited, 100% were of the predicted well-formed structure, offering perfect support for the predictions.

A chi-square test was applied in order to determine the distribution of target responses for each item over the well-formed and ill-formed categories. A significant outcome ($p<.05$, indicated by * in the table) indicates that one of the categories was consistently preferred. Significance cannot be ascertained in cases where the number of target responses is low (for example, three well-formed and zero ill-formed responses). In order to avoid the problems of categories with low numbers, the so-called "exact test" was applied throughout (cf. the Chi-Square option of Non-parametric Tests in SPSS, version 12). The results of the chi-square test in this case revealed significant differences between well- and ill-formed scores for English item 3 and Afrikaans item 4. Note that English items 2 and 3 and Afrikaans item 1 did elicit more well-formed than ill-formed target responses, although the differences were not significant.

Item	ill-formed target	well-formed target	well-formed other target	ill-formed other target	not analysed
adv 1 Eng	(0)	(0)	(30)	(0)	(0)
adv 2 Eng	0	2	0	0	28
adv 3 Eng	0	3	0	0	27
adv 4 Eng	0	18*	0	0	12
adv 1 Afr	0	1	0	0	29
adv 2Afr	(0)	(0)	(10)	(13)	(7)
adv 3 Afr	0	9*	0	0	21
adv 4 Afr	0	0	0	0	30
Totals	0	33	40	13	154

Table 6.1 Responses to video clip test items targeting constructions with adverbs

In order to identify patterns of performance across participants, the scores for well-formed responses for each participant were totalled (a comparison between the total well- and ill-formed responses was not possible, as there were no ill-formed responses). Fifteen of the 30 participants produced one target response, whereas eight participants did not produce any target response. The maximum number of target responses was three, produced by three participants (the maximum possible target responses was six, once English item 1 and Afrikaans item 2 were excluded). The ANOVA revealed no significant differences in the number of target responses between the English L1 and Afrikaans L1 participants, not for English verbs, nor for Afrikaans verbs, nor for the total set of verbs.

6.2 Focalisation constructions

The results of the video clip test for items targeting focalisation constructions are given in table 6.2. It is clear that these items were relatively successful at eliciting the target responses. The exception is Afrikaans item 1, which elicited 23 non-target responses. This item depicted a girl, having tidied her room, arranging her stuffed toys on her bed, with the stimulus ending with *the fluffy toys* …, targeting *rangskik sy op die bed* ("she arranges on the bed"). Of the 23 non-target responses to this item, 22 were passive constructions, such as *word op die bed gesit* ("are put on the bed") and *is op die bed gepak* ("are packed on the bed"). It should also be noted that the large majority of the 20 non-target responses to the remaining focalisation items, varying between three and 12 among individual items, constituted passive constructions, and that these passives were elicited from 13 different participants, each of these participants giving between one and six such passive responses. It is possible that the pre-posing of the object in the stimulus text triggered a passive construction in these cases. Nevertheless, if this problematic item is excluded, 80% of the responses to the remaining focalisation items, both English and Afrikaans items, constituted target constructions, 99% of which were well-formed. Bearing in mind the 29 well-formed focalisation constructions elicited by adverb item 2 (cf. section 6.1), it is clear that there is strong support for the predictions for code switched focalisation constructions.

Item	ill-formed target	well-formed target	well-formed other target	ill-formed other target	not analysed
foc 1 Eng	0	23 *	0	0	7
foc 2 Eng	0	18 *	0	0	12
foc 3 Eng	1	24 *	0	0	5
foc 4 Eng	0	27 *	0	0	3
foc 1 Afr	(1)	(6)	(0)	(0)	(23)
foc 2 Afr	0	25 *	0	0	5
foc 3 Afr	0	23 *	0	0	7
foc 4 Afr	0	26 *	0	0	4
Totals	1 (2)	166 (172)	0	0	43 (66)

Table 6.2 Responses to video clip test items targeting focalisation constructions

The chi-square test revealed that the difference between well- and ill-formed target responses is significant for all items (excluding Afrikaans item 1 discussed above). The scores for well-formed target responses for each participant were totalled (a comparison between the total well- and

ill-formed target responses was not possible, as there was only one ill-formed target response). All participants produced at least one target response. The most frequently occurring numbers of target responses were six (N=7) and seven (N=7) (seven target responses being the maximum once Afrikaans item 1 was excluded). The ANOVA revealed no significant outcomes.

6.3 Topicalisation constructions

The results for the items in the video clip test targeting topicalisation constructions are given in Table 6.3. As is clear from this table, both English and Afrikaans items were largely successful at eliciting the target constructions, with 88% of the responses constituting target constructions. No other-target responses were elicited, and the number of non-target responses varied between two and six among the items. Of the non-target responses, the majority of these again constituted passive constructions, such as *die klein prentjies are thrown in the dustbin* ("the small pictures are thrown in the dustbin") and *the pink towels word op die rak gesit* ("the pink towels are put on the rack"). Of the target responses, 97% of these were well-formed according to the predictions, indicating strong support for the predictions for code switched topicalisation constructions. Note that ill-formed target responses occurred only for (3 of the 4) Afrikaans items.

Item	ill-formed target	well-formed target	well-formed other target	ill-formed other target	not analysed
top 1 Eng	0	28 *	0	0	2
top 2 Eng	0	24 *	0	0	6
top 3 Eng	0	27 *	0	0	3
top 4 Eng	0	24 *	0	0	6
top 1 Afr	1	26 *	0	0	3
top 2 Afr	2	23 *	0	0	5
top 3 Afr	0	27 *	0	0	3
top 4 Afr	3	25 *	0	0	2
Totals	6	204	0	0	30

Table 6.3 Responses to video clip test items targeting topicalisation constructions

As is clear from table 6.3, the chi-square test revealed that the difference between well-formed and ill-formed target responses is significant for all items. The scores for well-formed target responses for each participant were totalled (a comparison between the total well- and ill-formed target responses was not possible, as there were too few ill-formed responses).

All participants produced at least one target response; most participants produced eight target responses (N=16). The ANOVA produced a significant outcome for language of participant (F=6.30, df=1,28, p=.018). More well-formed target responses were produced by Afrikaans participants than by English participants (7.43 vs. 6.00).

6.4 Embedded *that* clauses

With regard to the results of the video clip test for items targeting embedded *that* clauses, given in Table 6.4, these items were relatively successful at eliciting target responses, with the exception of Afrikaans item 3, which targeted an Afrikaans object-verb embedded clause. This item depicted a man checking the oil level of his car following its recent service, and appearing concerned at the result. The item ended with *it worries the guy that the car* …, aiming to elicit *so baie olie gebruik* ("uses so much oil"), but the depiction was perhaps not sufficiently explicit, as many non-target responses constituted less specific descriptions, such as *nie gaan ry nie* and *dalk gaan breek*. If one excludes this item, 89% of the responses elicited by the remaining *that* items constituted target constructions. The number of non-target responses elicited by the remaining items varies between zero and five, and no other-target constructions were elicited. Of the target responses, those with English verb-object constructions were more often well-formed (ranging from 64% for English item 3 to 96% for English item 2, with an average of 81%) than those with Afrikaans object-verb constructions (ranging from 20% for Afrikaans item 4 to 55% for Afrikaans item 2, with an average of 39%). In other words, it would appear that Afrikaans verbs were regularly produced in the position predicted to be regarded as ill-formed. The results therefore suggest strong support for the predictions for English verbs, but weak evidence against the predictions for Afrikaans verbs.

The chi-square test revealed significant differences between well- and ill-formed scores for English items 1, 2 and 4, with significantly more well-formed responses. For English item 3, there were also more well-formed than ill-formed responses, although the difference is not significant. The difference between well- and ill-formed scores was also significant for Afrikaans item 4, with significantly more ill-formed responses. There

Item	ill-formed target	well-formed target	well-formed other target	ill-formed other target	not analysed
that 1 Eng	3	27 *	0	0	0
that 2 Eng	1	23 *	0	0	6
that 3 Eng	9	16	0	0	5
that 4 Eng	6	20 *	0	0	4
that 1 Afr	17	8	0	0	5
that 2 Afr	12	15	0	0	3
that 3 Afr	(7)	(7)	(0)	(0)	(16)
that 4 Afr	24	6 *	0	0	0
Totals	73	119	0	0	48

Table 6.4 Responses to video clip test items targeting embedded *that* clauses

were more well-formed than ill-formed responses for Afrikaans item 2, but more ill-formed than well-formed responses for Afrikaans item 1, although these differences were not significant.

The totals of target responses across participants reveal that the number varies between four target responses (N=1) and eight target responses (N=7). The most frequent number of target responses was seven (N=12). The ANOVA revealed a significant effect for the language of the verb, and in order to investigate this further, the percentage of ill-formed target responses in relation to the total number of target responses was calculated, with the language of the participant included in the analysis. This ANOVA revealed a significant effect for the language of the verb (F=25.5265, df=1,28, p=.000). The number of ill-formed target responses was significantly higher for the Afrikaans items than for the English items. The number of participants who gave ill-formed target responses to the particular English and Afrikaans items are cross-tabulated in table 6.5. Note that five participants gave ill-formed target responses to all four Afrikaans items, but to none of the English items, and a further four participants gave ill-formed target responses to three of the four Afrikaans items, but to none of the English items.

		Ill-formed responses: Afrikaans items					
		0	**1**	**2**	**3**	**4**	**Total**
Ill-formed responses: English items	**0**	1	6	2	4	5	18
	1	2	0	6	0	0	8
	2	0	1	0	0	0	1
	3	0	1	2	0	0	3
	4	0	0	0	0	0	0
	Total	3	8	10	4	5	30

Table 6.5 Cross tabulation of the number of ill-formed target responses to items targeting embedded *that* clauses

6.5 Embedded *wh* clauses

The results of the video clip test for items targeting embedded *wh* clauses appear in Table 6.6. Of all the responses, 76% constituted target constructions, and there were no other-target constructions, but there is a wide range in the number of non-target responses amongst items, ranging from one for English item 4 to 19 for Afrikaans item 4. Regarding possible item-internal factors which may have played a role in these large differences, note that the two items which elicited the most non-target responses, namely English item 3 and Afrikaans item 3, called for a combination of a verb and a prepositional object. English item 3 ended with *waarom die vissies* ("why the fish")…, targeting *hide from her*, while Afrikaans item 3 ended with *how the milk* …, targeting *uit die beker lek* ("leaks out of the jug"). The remaining *wh* items targeted the possibly simpler and more easily elicited verb object combination, such as *why the girl … 'n suurlemoen teken* ("draws a lemon") for Afrikaans item 1. In terms of the well-formedness of the target responses, the results were similar for both English and Afrikaans items, and 87% were well-formed, indicating strong support for the predictions.

Item	ill-formed target	well-formed target	well-formed other target	ill-formed other target	not analysed
wh 1 Eng	7	17	0	0	6
wh 2 Eng	5	23 *	0	0	2
wh 3 Eng	1	13 *	0	0	16
wh 4 Eng	3	26 *	0	0	1
wh 1 Afr	3	25 *	0	0	2
wh 2 Afr	2	20 *	0	0	8
wh 3 Afr	0	27 *	0	0	3
wh 4 Afr	2	9	0	0	19
Totals	23	160	0	0	57

Table 6.6 Responses to video clip test items targeting embedded *wh* clauses

The chi-square test revealed significant differences between well- and ill-formed scores for all items except English item 1 and Afrikaans item 4. These two items did, nevertheless, elicit more well-formed than ill-formed target responses. The total numbers of target responses across participants revealed that the number varied between three (N=1) and eight (N=3). The most frequently-occurring number of target responses was six (N=10). The ANOVA revealed no significant effects in terms of the language of the verb or the language of the participant. The number

of ill-formed target responses in relation to the total number of target responses for both the English and Afrikaans items also revealed no effects for either the language of the verb or the language of the participant.

6.6 *yes-no* questions

With regard to the items in the video clip test targeting *yes-no* questions, the results of which are presented in Table 6.7, these items were largely unsuccessful in eliciting the target construction. No other-target constructions were elicited, and only 32% of all responses constituted target constructions. Two factors played a role in the high number of non-target responses. Firstly, although the stimuli provided cues to elicit a question in direct speech, and participants were verbally instructed as such, a number of the responses constituted embedded clauses expressing the event in indirect speech. An example is a response to item 2, which depicted two girls playing with dolls and their clothes, and ended with *asks the girl in green* …, targeting *does this dress fit hierdie pop* or *pas this dress vir hierdie pop*, but in this case eliciting *if she thinks the klein rokkie vir die Barbie sal pas*. Secondly, a large number of the non-target responses constituted *wh* questions, which were also naturally elicited in the context of the various items, such as *Which chips verkies jou man?* rather than the targeted *Does your husband prefer hierdie skyfies?* or *Verkies your husband hierdie skyfies?* for item 8. All of the *yes-no* items elicited some such *wh* responses, and 25 of the 30 participants offered at least one such response. Concerning the target responses, 84% of these were well-formed according to the predictions.

Item	ill-formed target	well-formed target	well-formed other target	ill-formed other target	not analysed
yes-no 1 (E+A)	0	2	0	0	28
yes-no 2 (E+A)	0	18 *	0	0	12
yes-no 3 (E+A)	3	8	0	0	19
yes-no 4 (E+A)	4	11	0	0	15
yes-no 5 (E+A)	1	4	0	0	25
yes-no 6 (E+A)	1	3	0	0	26
yes-no 7 (E+A)	1	16 *	0	0	13
yes-no 8 (E+A)	2	3	0	0	25
Totals	12	65	0	0	163

Table 6.7 Responses to video clip test items targeting *yes-no* questions

As is clear from Table 6.7, the chi-square test revealed that the difference between the number of well- formed and the number of ill-formed target responses was only significant in the case of two items, namely items 2 and 7. The remaining items, nevertheless, did all elicit more well-formed than ill-formed target responses. The totals of the well- and ill-formed scores across participants revealed that two participants did not produce any target responses. The maximum number of target responses was six (N=1). The most frequently occurring number of target responses was three (N=10). The ANOVA revealed no significant effect for language of the participant, not for the total number of target responses, nor for the well-formed target responses, nor for the ill-formed target responses. The percentage of ill-formed target responses in relation to the total target responses also did not yield a significant result for language of the participant.

6.7 Summary of results

Overall, the video clip description test was successful at gathering data to inform the predictions, despite the fact that some items failed to elicit many target responses. The percentages of well-formed responses for each construction indicate strong support for the predictions for both English and Afrikaans verb position in all cases except embedded *that* clauses (ranging from 84% for *yes-no* questions to 100% for constructions with adverbs). With regard to the chi-square outcomes, revealing the significance of the ratio of well- to ill-formed responses, the strongest support for the predictions occurs in the cases of focalisation and topicalisation constructions, for which the results were significant for all items (one focalisation item having been excluded). In the cases of adverb constructions, embedded *wh* clauses, and *yes-no* questions, there were a few more well-formed than ill-formed responses, although the differences were not significant for all items (significant differences were revealed for three of the six adverb items, six of the eight *wh* items, and two of the eight *yes-no* items). In the case of all of these constructions (excluding embedded *that* clauses), the ANOVA revealed no significant effects for the language of the verb or for the language of the participant.

The exception to the above pattern of support for the predictions is for embedded *that* clauses. The results for *that* items indicate a stark asymmetry, in that 81% of the responses to English items were well-formed (significantly more well- than ill-formed responses for three of

the four items, as per the chi-square test), whereas only 39% of responses to Afrikaans items were well-formed. The high proportion of ill-formed responses to Afrikaans items offers evidence against the predictions for Afrikaans verb position, suggesting that participants tended to place Afrikaans verbs in their predicted ill-formed position in this relatively free production task. Furthermore, the ANOVA revealed a significant effect for the language of the verb for *that* items. Note that the results of the relative judgment and sentence construction tests discussed in chapter 5 did suggest that participants considered Afrikaans verbs in embedded *that* clauses to be well-formed in their predicted ill-formed position, but this tendency occurred for both English and Afrikaans verbs in *that* constructions, and also occurred for *wh* and *yes-no* constructions. The results for the video description test, by which the performance of the Afrikaans verbs in *that* items stands so clearly apart from that of the English verbs in *that* items, and that of the verbs in the remaining construction types, will be discussed in relation to the results of the other tests in the discussion in chapter 8.

CHAPTER 7

RESULTS OF MAGNITUDE ESTIMATION TESTS

This chapter presents the results of the magnitude estimation tests, which are presented separately from those of the other four tests, due to the different nature of the tests. In the two magnitude estimation tests, participants were required to judge the relative level of well-formedness of each of a series of sentences in comparison to a particular reference sentence, assigning each sentence a numerical value indicating its level of well-formedness relative to that of the reference sentence.

In the results discussed below, note that the number of participants varies (N=20-25) from one set to another, due to a number of reasons. Firstly, two participants failed to complete the first magnitude estimation test, and four participants failed to complete the second magnitude estimation test. The failure of some participants to complete these tests may be ascribed to the fact that these were the last two of the six tests to be completed, and some participants had evidently lost interest in the project. Secondly, the results of two participants for both magnitude estimation tests were excluded due to their failure to apply the instructions appropriately (cf. Appendix I). Specifically, these two participants assigned a value of 1 to the reference sentence for a number of sentence sets, which rendered them unable to manipulate the values for subsequent sentences equally well to either side of the scale (i.e., there was more scope to assign a higher number to a sentence perceived to be substantially more well-formed than the reference sentence, than there was to assign a lower (than 1) value to a sentence perceived to be substantially less well-formed). Finally, the results of a particular participant were excluded from the analysis for a particular sentence set if s/he failed to assign a value to any single sentence in that set.

A shortcoming of the magnitude estimation tests should be noted here, in that the reference sentence was not constant for the two sets targeting each construction (cf. section 4.2.8), which makes direct comparison of the results between sets for each construction impossible. This shortcoming notwithstanding, it is still possible to get a picture of the degree of consistency of perceptions of relative well-formedness from

one set to the next for each construction. In other words, it is possible to ascertain whether sentence structures judged relatively ill-formed in set 1 were also judged relatively ill-formed in set 2, and whether sentences judged relatively well-formed in set 1 were also judged relatively well-formed in set 2. Recall that there is some consistency in the lexicalisation of the two sentence sets for each construction, i.e., the lexicalisations in the structures generated for the two sets are as similar as possible (cf. section 4.2.8).

An overview of the results is presented in tables 7.1 (a) and (b), where the significance of effects as revealed by the ANOVA (repeated measures) for each sentence set is indicated. These effects relate to the factors on the basis of which the stimulus sentences differ (cf. section 4.2.8). The main effects (cf. table 7.1(a)), depending on the construction tested, entail the language of the adverb (Lang Adv), the language of the verb (Lang V), the position of the verb (V Pos), the form of the subject (Subj Form) or the object (Obj Form), the language of the object (Lang Obj), and the presence of a modifying phrase (ModP). The interaction effects (cf. table 7.1(b)) relate to the interactions of each of these factors with each other factor. Table 7.1(b) presents the two-way interaction effects, whereas the significant three- and four-way interaction effects are discussed in sections 7.1 to 7.6, where applicable. In tables7.1 (a) and (b), the strength of a significant effect is indicated by means of an eta score (partial η^2), where the value indicates the strength of the effect, 0 being no effect and 1 being a perfect effect. No values are given for effects which were not significant.

Main effects				
	Lang Adv	**V Pos**	**Subj Form**	**Lang Obj**
adv 1	.408	.587	.190	.288
adv 2		.579	.337	
	Lang V	**V Pos**	**Subj Form**	**ModP**
foc 1			.460	.736
foc 2	.388	.424	.207	.536
top 1		.767		.250
top 2		.461	.384	.454
	Lang V	**V Pos**	**Obj Form**	**ModP**
that 1		.288	.389	
that 2	.545	.514	.629	
wh 1	.540		.692	
wh 2			.561	
yes-no 1		.289	.521	.468
yes-no 2		.443	.495	.205

Table 7.1(a) Magnitude estimation data: Overview of significant main effects

Interaction effects						
	Lang Adv x V Pos	**Lang Adv x Subj Form**	**V Pos x Subj Form**	**Lang V x Lang Obj**	**V Pos x Lang Obj**	**Subj Form x Lang Obj**
adv 1	.731		.208	.201	.224	
adv 2	.557		.324		.484	
	Lang V x V Pos	**Lang V x Subj Form**	**V Pos x Subj Form**	**Lang V x ModP**	**V Pos x ModP**	**Subj Form x ModP**
foc 1	.406	.183	.337			
foc 2	.521					
top 1						
top 2	.479	.357	.273	.473		
	Lang V x V Pos	**Lang V x Obj Form**	**V Pos x Obj Form**	**Lang V x ModP**	**V Pos x ModP**	**Obj Form x ModP**
that 1	.521				.177	
that 2	.537	.382			.260	
wh 1	.738				.200	
wh 2	.397		.341		.438	
yes-no 1	.480		.195	.176		.204
yes-no 2	.327			.599		

Table 7.1(b) Magnitude estimation data: Overview of significant interaction effects

The expected pattern, according to the predictions set out in chapter 3, would entail significant effects for the language of the verb (or adverb) and for the position of the verb, and especially for the interaction between the two. It would further be expected that any significant effects of the further factors tested, such as subject or object form and the presence of a modifying phrase, would be less strong than the primary effects related to verb language and position. The expected cross-over effect of the interaction between language and position is graphically illustrated in figure 7.1, to which the figures later in the chapter, representing the interaction of these factors for each set of sentences, may be compared.

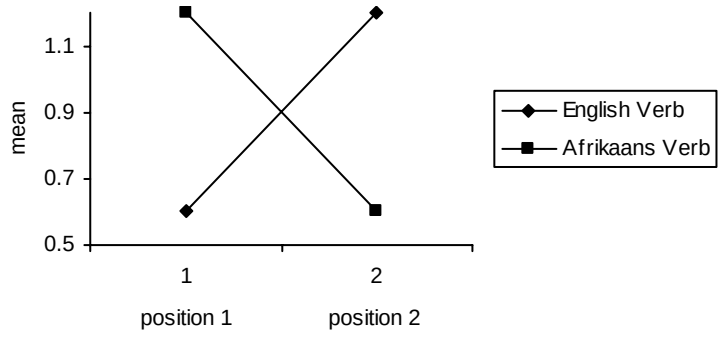


Figure 7.1 Expected interaction between language and position of verb

In line with this predicted pattern, the primary aim of the magnitude estimation tests is to investigate the effects of the language and the position of the verb (or adverb), and their interaction. A secondary aim is to investigate the effects of the other factors (such as subject or object form and the presence of a modifying phrase) and their possible interactions. In the discussion of the results for each sentence set, the primary factors will be discussed first, and the secondary factors later.

There is some support for the predicted pattern in table 7.1(a) and (b), if one considers, for example, that the interaction between language (of verb or adverb) and verb position is significant in all cases except topicalisation set 1, with eta values ranging from .327 to .738. Furthermore, the significance of the interaction between language and position is often stronger, in terms of eta values, than any other significant interaction effect for a particular set. Note too the significance of verb position in all cases except *wh* sets 1 and 2, with eta values ranging from .288 to .767. However, there are a number of effects which are contrary to the predicted pattern. Firstly, note that there is no consistent effect of the language of the verb or adverb on its own. Secondly, note the consistency of the effect of the form of the subject or object, observable in all cases except topicalisation set 1, with some relatively high eta values, such as in the cases of *that* set 1 and *wh* set 2. Thirdly, note the strength of the effect of the modifying phrase in the cases of focalisation sets 1 and 2. The discussion of the results for each of the construction which follows offers further insights into these effects.

The results for the magnitude estimation tests are presented for each construction separately in sections 7.1 to 7.6 below. For each of the six constructions, the predictions discussed in chapter 3 are briefly outlined, and the means of the values assigned by the participants to the sentences in each set are presented in a table and briefly discussed in terms of the predictions for verb position and the secondary factors on the basis of which the sentences differ. Following this, the outcomes of the ANOVA for each set are discussed, with the focus on the significant effects. Finally, the results across the two sets are summarised, and the significant effects common to both sets identified. Section 7.7 presents a summary of the results across the constructions.

7.1 Constructions with adverbs

According to the predictions for the magnitude estimation items targeting adverb constructions, set out in section 3.3.2, the Afrikaans verb must raise to the left of the adverb to check the strong tense and finiteness features of TP and FinP, respectively, whereas an English verb must remain in situ to the right of the adverb, and may not raise to the left. According to these predictions, sentences in adverb set 1 (cf. table 7.2) with the English verb *phones* in the post-adverb position would be considered more well-formed than sentences with *phones* in the pre-adverb position, irrespective of the language of the adverb, i.e., one would expect higher mean values for sentences with *often phones* and *dikwels phones* than for those with *phones often* and *phones dikwels*. Likewise, sentences in adverb set 2 (cf. table 7.3) with the Afrikaans verb *wen* ("win") in the pre-adverb position would be considered more well-formed than those with *wen* in the post-adverb position, irrespective of the language of the adverb. One would therefore expect higher mean values for sentences with *wen gereeld* and *wen often* than for those with *gereeld wen* and *often wen*. Furthermore, the ANOVA is expected to reveal significant effects for verb position and for the interaction of verb position and language of adverb, with these effects being more significant than those of the secondary factors whose effects are investigated in adverb sets 1 and 2, i.e., the form of the subject (NP or pronoun) and the language of the object (English or Afrikaans).

Beginning with the items targeting constructions with adverbs in the first of the two magnitude estimation tests (adverb set 1), table 7.2 presents the means of the values assigned to each item by the participants. The language of the adverb (Lang Adv) is indicated as either English (E) or Afrikaans (A); the position of the verb (V Pos) is indicated as either before the adverb (preAdv) or after the adverb (postAdv); the form of the subject (Subj Form) is indicated as either NP or pronoun (Pro); and the language of the object (Obj Lang) is indicated as either English (E) of Afrikaans (A). The reference sentence appears in bold. The tentative prediction is indicated as either well-formed (w-f) of ill-formed (i-f).[42]

[42] Note that the tentative predictions reflected in the tables in this chapter relate to the predictions discussed in chapter 3, on the basis of the syntactic analyses of the word order differences between English and Afrikaans. It must be borne in mind, however, that these predictions are based solely on the position of the verb, and that the purpose of the magnitude estimation tests (cf. section 4.2.8) was to investigate the perceived

No.	Item	Lang Adv	V Pos	Subj Form	Obj Lang	Pred	Mean Value
1	Die seun met die eienaardige tande phones often the pretty girl.	E	pre Adv	NP	E	i-f	.62
2	Die seun met die eienaardige tande phones often die mooi meisie.	E	pre Adv	NP	A	i-f	.67
3	Hy phones often the pretty girl.	E	pre Adv	Pro	E	i-f	.62
4	Hy phones often die mooi meisie.	E	pre Adv	Pro	A	i-f	.63
5	Die seun met die eienaardige tande often phones the pretty girl.	E	post Adv	NP	E	w-f	1.13
6	Die seun met die eienaardige tande often phones die mooi meisie.	E	post Adv	NP	A	w-f	1.04
7	Hy often phones the pretty girl.	E	post Adv	Pro	E	w-f	.96
8	**Hy often phones die mooi meisie.**	**E**	**post Adv**	**Pro**	**A**	**w-f**	**1.00**
9	Die seun met die eienaardige tande phones dikwels the pretty girl.	A	pre Adv	NP	E	i-f	.70
10	Die seun met die eienaardige tande phones dikwels die mooi meisie.	A	pre Adv	NP	A	i-f	.89
11	Hy phones dikwels the pretty girl.	A	pre Adv	Pro	E	i-f	.67
12	Hy phones dikwels die mooi meisie.	A	pre Adv	Pro	A	i-f	.86
13	Die seun met die eienaardige tande dikwels phones the pretty girl.	A	post Adv	NP	E	w-f	.72
14	Die seun met die eienaardige tande dikwels phones die mooi meisie.	A	post Adv	NP	A	w-f	.71
15	Hy dikwels phones the pretty girl.	A	post Adv	Pro	E	w-f	.63
16	Hy dikwels phones die mooi meisie.	A	post Adv	Pro	A	w-f	.64

Table 7.2 Mean values assigned to items in adverb set 1

As is clear from table 7.2, the highest mean values were assigned to sentences 5 to 8, which contain the predicted well-formed English adverb-verb sequence *often phones*. The lowest mean value in this subset of four predicted well-formed sentences was assigned to sentence 7, which contains a pronoun subject, the only Afrikaans element in the sentence (cf. also the low mean value for sentence 3, in which the pronoun subject is also the only Afrikaans element in the sentence). These results suggest that the length of a switched segment and/or the nature of a switched element may be factors affecting the perceived level of well-formedness of a code switched sentence. Thus, it may be that an NP subject preceding a switch point leads to a higher level of perceived

degree of well- or ill-formedness of sentences which differ in more aspects than just verb position, i.e., sentences which differ more than do the pairs in the visual and auditory relative well-formedness tests, for which less tentative predictions were made.

well-formedness than does a pronoun. Furthermore, it appears that a single word switch involving a pronoun (a functional element) is not regarded as well-formed. The preference for an NP subject is noticeable throughout the results for adverb set 1, where sentences with pronominal subjects were consistently assigned slightly lower mean values than their NP subject counterparts (compare, for example, sentences 2 and 4, and sentences 9 and 11).

Turning to sentences 9 to 12, which contain an English verb in the predicted ill-formed position preceding the Afrikaans adverb (*phones dikwels*), and sentences 13 to 16, which contain an English verb in the predicted well-formed position following the Afrikaans adverb (*dikwels phones*), note that the sentences with *phones dikwels* (predicted ill-formed) were assigned higher mean values than their counterparts with *dikwels phones* (predicted well-formed) in three of the four pairs (sentences 10 and 14, 11 and 15, 12 and 16, but not sentences 9 and 13). This may suggest that the language of the adverb played a greater role in participants' perceptions of well-formedness than did the language of the verb in these cases. In other words, an English adverb led to a preference for an English verb in the predicted well-formed position, but an Afrikaans adverb had an adjacency effect[43], allowing the English verb to be considered well-formed in its predicted ill-formed position (predicted well-formed for an Afrikaans verb). This adjacency effect suggests the possibility that verb position and language of adverb may interact in perceptions of well-formedness. Also note that the highest mean values in this subset of sentences 9 to 16 were assigned to the predicted ill-formed sentences 10 and 12, in which only the verb is in English. This may be taken to suggest that a single word switch involving a content word is considered more well-formed than one involving a functional element, such as the case of the pronoun discussed above, where the single content word switched is possibly perceived as a (nonce) loan in such cases.

[43] The term "adjacency" is used here to refer to the position of an element relative to another. The term "adjacency effect" is used in the remainder of the text to refer to the effect of the language and/or nature of an element on the perceived well-formed position of an adjacent element.

Finally, note that sentences 1 to 4, containing the predicted ill-formed English verb-adverb sequence *phones often*, were assigned the lowest mean values overall.

The ANOVA for the results for adverb set 1 revealed a significant effect for the interaction of the language of the adverb and verb position (F=67.943, df=1,25, p=.000), this being the strongest effect, with an eta value of .731. This interaction is plotted in figure 7.2, where the intersecting lines indicate a strong preference for adverb-verb order when the adverb was English, but also a slight preference for verb-adverb order when the adverb was Afrikaans, notwithstanding the fact that the verb was English in all cases. This reflects the above-mentioned adjacency effect of the adverb on the perceived well-formed verb position, whereby the English verb is considered well-formed in the position predicted to be well-formed for an Afrikaans verb, when in combination with an Afrikaans adverb. Note that the main effects of both language and position were also significant (F=17.214, df=1,25, p=.000 for language, and F=35.523, df=1,25, p=.000 for position), with relatively high eta values of .408 and .587, respectively.

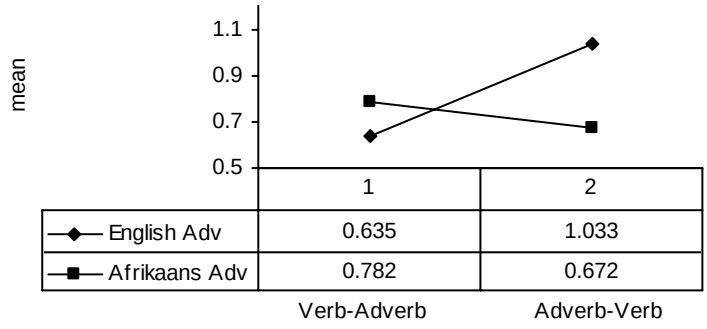


Figure 7.2 Interaction of language of adverb and verb position for adverb set 1

The ANOVA revealed a further significant interaction effect for the interaction of verb position and subject form (F=6.577, df=1,25, p=.017), and a significant main effect for subject form (F=5.873, df=1,25, p=.023). As indicated in figure 7.3, both adverb-verb and verb-adverb orders were considered more well-formed with NP than with pronominal subject forms, slightly more pronounced for the adverb-verb order, which was the predicted well-formed order on the basis of the

English verb. This result ties in with the suggestions made above concerning the role of the length and nature of switched elements in perceptions of well-formedness, where an NP subject is preferred in terms of well-formedness to a pronoun, and an single word switch involving a pronoun is considered ill-formed.

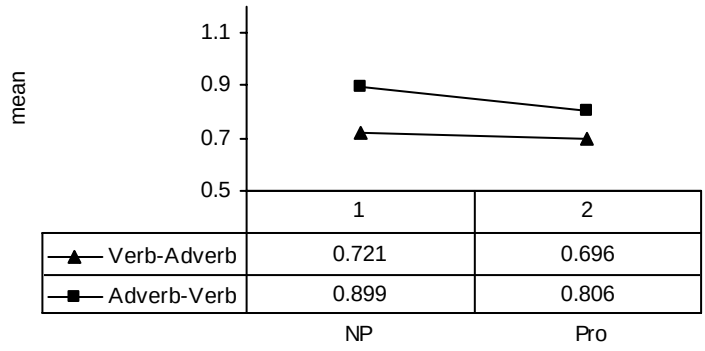


Figure 7.3 Interaction of verb position and subject form for adverb set 1

The ANOVA also revealed a significant interaction effect for the interaction of the language of the adverb and the language of the object (F=6.219, df=1,25, p=.019), as well as a significant main effect for the language of the object (F=10.094, df=1,25, p=.004). As figure 7.4 indicates, when the adverb was English, the language of the object made no difference to the perceived level of well-formedness. When the adverb was Afrikaans, on the other hand, there was a preference for an Afrikaans object. This may suggest that the amount of switched material (in other words the length of the switched segment) played a role in perceptions of well-formedness, in that the sentences with Afrikaans adverbs and Afrikaans objects contained more Afrikaans material than did the sentences with Afrikaans adverbs and English objects. This suggestion does not allow for the relative lack of an effect in the case of English adverbs, which may plausibly be due to the effect of the English verb in all these sentences, i.e., the sentences with English adverbs already contained sufficient English material for the language of the object to have little effect.

Finally, the ANOVA revealed a significant interaction effect for the interaction of verb position and the language of the object (F=7.233, df=1,25, p=.013). Interestingly, figure 7.5 appears to indicate that the

adverb-verb order, in which the English verb immediately preceded the object, showed only a very slight preference for an English object over an Afrikaans object. On the other hand, the verb-adverb order, in which either the English or the Afrikaans adverb immediately preceded the object, showed a more marked preference for an Afrikaans object

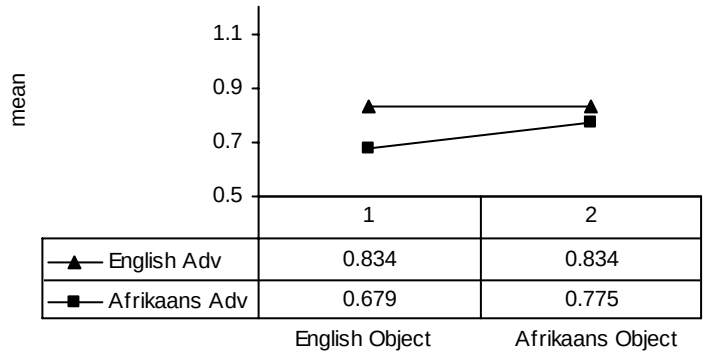


Figure 7.4 Interaction of language of adverb and language of object for adverb set 1

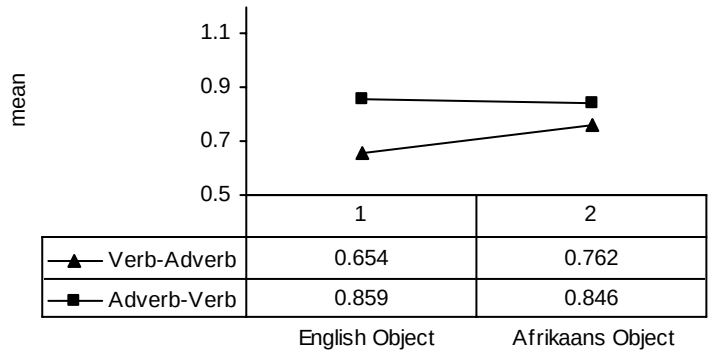


Figure 7.5 Interaction of verb position and language of object for adverb set 1

Turning to the results for adverb set 2, the mean values assigned to these sentences are presented in table 7.3,[44] where it is clear that sentences 9 to 12, which contained the predicted well-formed Afrikaans verb-adverb sequence *wen gereeld*, were assigned among the highest mean values. The

[44] Note that the Afrikaans verb *wen* in these items is homophonous / homonymous with the English verb *win*, the use of which represents a shortcoming in the test design and may have affected the results in this case.

highest mean values overall were assigned to sentences 9 and 10, which contained an NP subject as well as the verb in its predicted well-formed position. The mean values for sentences 11 and 12, which contained a pronominal subject, were lower. These results (similarly to those for adverb set 1) may be taken to indicate support for the possibility that the length and nature of switched elements may be factors affecting the perceived level of well-formedness of code switched sentences, specifically indicating an effect of subject form, whereby mean values are lower for sentences with pronominal subjects than for those with NP subjects. This effect, however, is not consistent throughout the remaining data for adverb set 2, although the mean values of sentences 5 and 7, and those of sentences 6 and 8, do offer some support.

No.	Item	Lang Adv	V Pos	Subj Form	Obj Lang	Pred	Mean Value
1	The guy with the strange vehicles wen often the big races.	E	pre Adv	NP	E	w-f	1.01
2	The guy with the strange vehicles wen often die groot resies.	E	pre Adv	NP	A	w-f	1.06
3	He wen often the big races.	E	pre Adv	Pro	E	w-f	.89
4	**He wen often die groot resies.**	**E**	**pre Adv**	**Pro**	**A**	**w-f**	**1.00**
5	The guy with the strange vehicles often wen the big races.	E	post Adv	NP	E	i-f	1.04
6	The guy with the strange vehicles often wen die groot resies.	E	post Adv	NP	A	i-f	.97
7	He often wen the big races.	E	post Adv	Pro	E	i-f	.96
8	He often wen die groot resies.	E	post Adv	Pro	A	i-f	.91
9	The guy with the strange vehicles wen gereeld the big races.	A	pre Adv	NP	E	w-f	1.18
10	The guy with the strange vehicles wen gereeld die groot resies.	A	preAdv	NP	A	w-f	1.31
11	He wen gereeld the big races.	A	pre Adv	Pro	E	w-f	.92
12	He wen gereeld die groot resies.	A	pre Adv	Pro	A	w-f	1.03
13	The guy with the strange vehicles gereeld wen the big races.	A	post Adv	NP	E	i-f	.73
14	The guy with the strange vehicles gereeld wen die groot resies.	A	post Adv	NP	A	i-f	.73
15	He gereeld wen the big races.	A	post Adv	Pro	E	i-f	.73
16	He gereeld wen die groot resies.	A	post Adv	Pro	A	i-f	.69

Table 7.3 Mean values assigned to items in adverb set 2

Turning to the results for sentences 1 to 4, containing the predicted well-formed *wen often*, and sentences 5 to 8, containing the predicted ill-formed *often wen*, note that there is very little difference in the mean values for each of these two subsets (the mean values for *wen often* range from .89 to 1.06, and those for *often wen* from .91 to 1.04). This suggests that the language of the adverb may have had an adjacency effect on the position of the verb (less pronounced than that suggested for adverb set 1), as the Afrikaans verb was considered as well-formed in its predicted ill-formed position as in its predicted well-formed position, when in combination with an English adverb.

Finally, note that the predicted ill-formed sentences 13 to 16 in adverb set 2, with the Afrikaans adverb-verb sequence *dikwels wen*, were assigned the lowest mean values overall.

The ANOVA for the results for adverb set 2 revealed that the two strongest significant effects were for the interaction of the language of the adverb and verb position ($F=26.376$, $df=1,21$, $p=.000$), with an eta value of .557, and for verb position ($F=28.915$, $df=1,21$, $p=.000$), with an eta value of .579. The interaction is plotted in Figure 7.6, where it is clear that the English adverb occurred in either order with the Afrikaans verb with very little difference in perceived well-formedness, whereas the Afrikaans adverb was considered substantially more well-formed in its language-appropriate position following the verb. This result suggests that the language of the adverb and the position of the verb interact in some way in perceptions of well-formedness. Note, however, that the ANOVA also revealed a significant effect for the three-way interaction of language of adverb, verb position, and subject form ($F=7.723$, $df=1,21$, $p=.011$). Thus, it may be that the proposed interaction between language of adverb and verb position may be further confounded by the role of subject form.

A further significant effect revealed by the ANOVA was for the interaction of verb position and the language of the object ($F=19.700$, $df=1,21$, $p=.000$). As can be seen in figure 7.7, there appears to be a pronounced preference for an Afrikaans object when the verb and adverb were in the order predicted to be well-formed for Afrikaans (recall that the verb remains Afrikaans in this set). On the other hand, the adverb-verb order, predicted to be ill-formed for Afrikaans, in which

the Afrikaans verb was immediately adjacent to the object, showed a slight preference for an English object rather than an Afrikaans object.

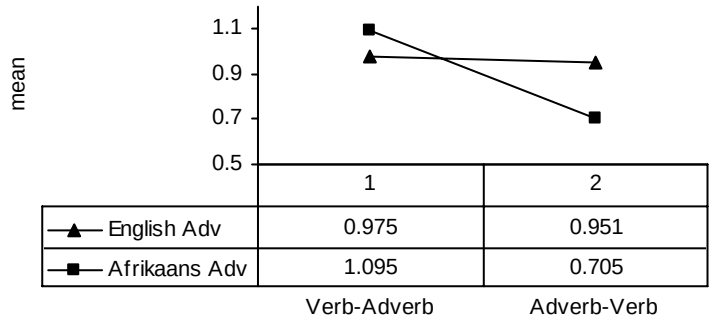


Figure 7.6 Interaction of language of adverb and verb position for adverb set 2

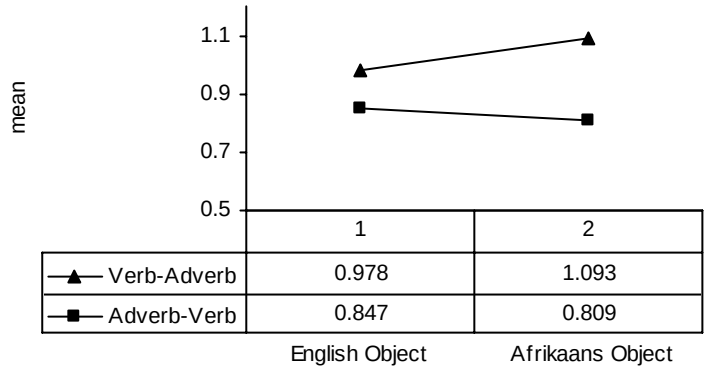


Figure 7.7 Interaction of verb position and language of object for adverb set 2

The ANOVA also revealed significant effects for the interaction of verb position and subject form ($F=10.065$, $df=1,21$, $p=.005$), and for subject form ($F=10.656$, $df=1,21$, $p=.004$). As illustrated by figure 7.8, both adverb-verb and verb-adverb orders were considered more well-formed with NP than with pronominal subject forms, more pronounced for the verb-adverb order, which was the predicted well-formed order on the basis of the Afrikaans verb. These results are similar to those for adverb set 1, supporting the notion that the length and nature of switched elements play a role in perceptions of well-formedness.

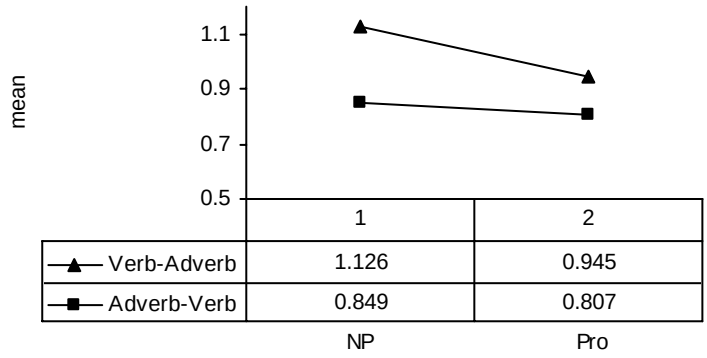


Figure 7.8 Interaction of verb position and subject form for adverb set 2

Considering the results for adverb sets 1 and 2 together, a number of points emerge. Firstly, note that the lowest mean values were consistently assigned to the predicted ill-formed structures in the cases where there was no switch between verb and adverb (i.e., English verb-adverb and Afrikaans adverb-verb structures). Secondly, note that the preference for NP over pronoun subjects persisted throughout both sets and across permutations of the sentences, and the ANOVA revealed a significant effect of subject form in both sets. In this regard, recall that the NP subject not only differs in nature from a pronoun, but also that it has the effect of lengthening the pre-switch segment of the sentence. A third point concerns the adjacency effect of the language of the adverb on the perceived well-formed position of the verb in both sets, more pronounced in set 1 with the English verb. Finally, concerning the ANOVA outcomes, note that the predicted effect of verb position was significant in both sets, as was the predicted interaction of verb position and language of adverb. Furthermore, the interaction of verb position and object language, and the interaction of verb position and subject form, were also significant, but with lower eta values than the effects of position and language.

7.2 Focalisation constructions

According to the predictions for focalisation constructions outlined in section 3.3.3, the Afrikaans verb must raise first to TP and then to FocP to check their strong tense and finiteness features, respectively, whereas an English verb must remain in situ as the TP and FocP possess no

strong tense and finiteness features. Thus, for the magnitude estimation items targeting focalisation constructions, it is predicted that the English verb will be considered more well-formed in the pre-subject position, and the Afrikaans verb more well-formed in the post-subject position, irrespective of the language of the subject. For focalisation set 1 (cf. table 7.4), the prediction is that sentences with *young girls/they order* and *bestel young girls/they* will be assigned higher mean values than sentences with *order young girls/they* and *young girls/they bestel*. For focalisation set 2 (cf. table 7.5), the prediction is that sentences with *gretige lesers/hulle buy* ("eager readers buy") and *koop gretige lesers/hulle* will be assigned higher mean values than will sentences with *buy gretige lesers/hulle* and *gretige lesers/hulle koop*. It is furthermore predicted that the ANOVA will reveal significant effects for the language and position of the verb, as well as for the interaction of language and position. Finally, the effects of subject form and the presence of a modifying phrase, being investigated here, are expected to be less significant than the above-mentioned effects of language and position of the verb.

The mean values assigned to items targeting focalisation in the first magnitude estimation test, focalisation set 1, appear in Table 7.4. The language of the verb (Lang V) is indicated as either English (E) or Afrikaans (A); the position of the verb (V Pos) is indicated as either before or after the subject (pre or post Subj); the form of the subject (Subj Form) is indicated as either NP or pronominal (Pro); and a modifying phrase (ModP) is indicated as either present (yes) or absent (no). The reference sentence appears in bold. The tentative prediction is indicated as either well-formed (w-f) of ill-formed (i-f).

Concerning the role of the language and position of the verb, an overview of the data in table 7.3 indicates that the order of the verb and the subject did play a role in perceptions of well-formedness. Note in this regard the higher mean values for the predicted well-formed sentences 5 to 8 containing *order* following the subject (ranging from .88 to 1.09) than for the predicted ill-formed sentences 1 to 4 containing *order* preceding the subject (ranging from .70 to 1.08), and the higher mean values for the predicted well-formed sentences 9 to 12 containing *bestel* preceding the subject (ranging from .72 to 1.19) than for the predicted ill-formed sentences 13 to 16 containing *bestel* following the subject (ranging from .77 to 1.00).

No.	Item	Lang V	V Pos	Subj Form	Mod P	Pred	Mean Value
1	Die bekende ou modetydskrif order young girls op 'n gereelde basis.	E	pre Subj	NP	yes	i-f	1.08
2	Die bekende ou modetydskrif order young girls.	E	pre Subj	NP	no	i-f	.78
3	Die bekende ou modetydskrif order they op 'n gereelde basis.	E	pre Subj	Pro	yes	i-f	.90
4	Die bekende ou modetydskrif order they.	E	pre Subj	Pro	no	i-f	.70
5	Die bekende ou modetydskrif young girls order op 'n gereelde basis.	E	post Subj	NP	yes	w-f	1.09
6	Die bekende ou modetydskrif young girls order.	E	post Subj	NP	no	w-f	.90
7	Die bekende ou modetydskrif they order op 'n gereelde basis.	E	post Subj	Pro	yes	w-f	1.01
8	Die bekende ou modetydskrif they order.	E	post Subj	Pro	no	w-f	.88
9	Die bekende ou modetydskrif bestel young girls op 'n gereelde basis.	A	pre Subj	NP	yes	w-f	1.19
10	Die bekende ou modetydskrif bestel young girls.	A	pre Subj	NP	no	w-f	1.06
11	Die bekende ou modetydskrif bestel they op 'n gereelde basis.	A	pre Subj	Pro	yes	w-f	.95
12	Die bekende ou modetydskrif bestel they.	A	pre Subj	Pro	no	w-f	.72
13	**Die bekende ou modetydskrif young girls bestel op 'n gereelde basis.**	**A**	**post Subj**	**NP**	**yes**	**i-f**	**1.00**
14	Die bekende ou modetydskrif young girls bestel.	A	post Subj	NP	no	i-f	.85
15	Die bekende ou modetydskrif they bestel op 'n gereelde basis.	A	post Subj	Pro	yes	i-f	.97
16	Die bekende ou modetydskrif they bestel.	A	post Subj	Pro	no	i-f	.77

Table 7.4 Mean values assigned to items in focalisation set 1

However, participants' perceptions of well-formedness in focalisation set 1 also appear to have been affected by the form of the subject and the presence of the modifying phrase. Sentences with NP subjects were consistently assigned higher mean values than those with pronoun subjects (compare, for example, sentences 1 and 3, and sentences 14 and 16). Note too the low mean values assigned to sentences 12 and 16, in which the sentence-final pronoun *they* is involved in a single word switch, suggesting that pronoun switches at the periphery are considered particularly ill-formed. There is thus evidence that the length and nature of the switched element played a role in perceptions of well-formedness in this set. Furthermore, sentences with a modifying phrase were consistently assigned higher mean values than sentences without a modifying phrase (compare, for example, sentences 5 and 6, and

sentences 11 and 12, and note especially the low mean values for sentences 8 and 12). Note that the addition of a modifying phrase had two effects on the sentences here. Firstly, the English segment became embedded between two Afrikaans segments, and secondly, there was more Afrikaans material in the sentence. Note that the effect of the modifying phrase in these results was stronger than that of the language and position of the verb, as revealed by the ANOVA, according to which the effect of the presence of a modifying phrase was significant (F=66.919, df=1,24, p=.000), indeed more strongly significant than any of the remaining effects, with an eta value of .736. The question arises as to whether these constructions were appropriate for testing the predictions for verb position in code switched focalisation constructions, as the participants' strong preference for sentences with a modifying phrase possibly indicates that sentences without a modifying phrase were considered somehow less complete.

The ANOVA for the results for focalisation set 1 revealed a significant effect, as predicted, for the interaction of the language and position of the verb (F=16.405, df=1,24, p=.000). As is clear from figure 7.9, there was a strong preference for subject-verb order for the English verb *order*, as well as a preference for verb-subject order for the Afrikaans verb *bestel*.

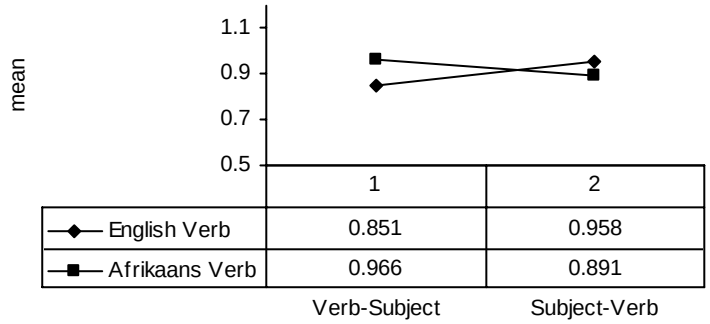


Figure 7.9 Interaction of language and position of verb for focalisation set 1

A further significant effect revealed by the ANOVA was that for the interaction of language of verb and subject form (F=5.390, df=1,24, p=.029) (cf. figure 7.9). The main effect of subject form was also significant (F=20.439, df=1,24, p=.000). As illustrated by figure 7.10, for

both English and Afrikaans verbs, there was a preference for an NP subject, slightly stronger for Afrikaans verbs (recall that the focalised object and the modifying phrase were Afrikaans in all sentences in focalisation set 1).

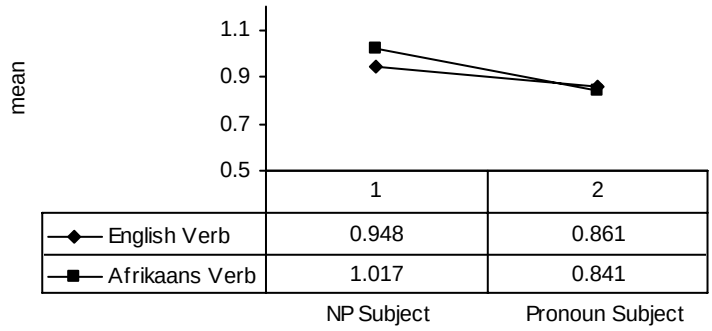


Figure 7.10 Interaction of language of verb and subject form for focalisation set 1

The ANOVA for focalisation set 1 also revealed a significant effect for the interaction of verb position and subject form (F=12.211, df=1,24, p=.002). As can be seen in figure 7.11, the verb-subject order, predicted well-formed for Afrikaans verbs, showed a stronger preference for NP subjects than did the subject-verb order.

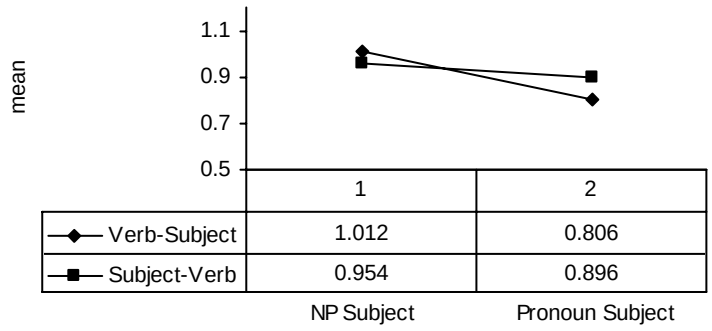


Figure 7.11 Interaction of verb position and subject form for focalisation set 1

Finally, the ANOVA for the results of focalisation set 1 revealed a significant three-way interaction effect between language of verb, subject form, and presence of a modifying phrase (F=5.061, df=1,24, p=.034). This result has implications for some of the effects discussed and

illustrated above, perhaps especially so for the interaction of language of verb and subject form (cf. figure 7.10), which may not be a straightforward interaction. The preference of both English and Afrikaans verbs for an NP subject may have been influenced in some manner by the presence of a modifying phrase.

The means of the values assigned to the items in focalisation set 2 are presented in table 7.5.

No.	Item	Lang V	Pos V	Obj Form	Mod P	Pred	Mean Value
1	**Exciting new novels buy gretige lesers every month.**	**E**	**pre Subj**	**NP**	**yes**	**i-f**	**1.00**
2	Exciting new novels buy gretige lesers.	E	pre Subj	NP	no	i-f	.87
3	Exciting new novels buy hulle every month.	E	pre Subj	Pro	yes	i-f	.98
4	Exciting new novels buy hulle.	E	pre Subj	Pro	no	i-f	.88
5	Exciting new novels gretige lesers buy every month.	E	post Subj	NP	yes	w-f	.98
6	Exciting new novels gretige lesers buy.	E	post Subj	NP	no	w-f	.96
7	Exciting new novels hulle buy every month.	E	post Subj	Pro	yes	w-f	.85
8	Exciting new novels hulle buy.	E	post Subj	Pro	no	w-f	.76
9	Exciting new novels koop gretige lesers every month.	A	pre Subj	NP	yes	w-f	1.18
10	Exciting new novels koop gretige lesers.	A	pre Subj	NP	no	w-f	1.12
11	Exciting new novels koop hulle every month.	A	pre Subj	Pro	yes	w-f	1.19
12	Exciting new novels koop hulle.	A	pre Subj	Pro	no	w-f	1.03
13	Exciting new novels gretige lesers koop every month.	A	post Subj	NP	yes	i-f	.95
14	Exciting new novels gretige lesers koop.	A	post Subj	NP	no	i-f	.80
15	Exciting new novels hulle koop every month.	A	post Subj	Pro	yes	i-f	.92
16	Exciting new novels hulle koop.	A	post Subj	Pro	no	i-f	.74

Table 7.5 Mean values assigned to items in focalisation set 2

As is clear in table 7.5, the highest mean values were assigned to sentences 9 to 12, which contained the Afrikaans verb in the predicted well-formed position. Within this subset, there was a preference for sentences with a modifying phrase (compare sentences 9 and 10, and

sentences 11 and 12), but not a consistent preference for an NP over a pronoun subject (compare sentences 9 and 11, and sentences 10 and 12).

Turning now to the subset of sentences 5 to 8, containing the English verb in its predicted well-formed position, and only an Afrikaans subject, the mean values range from .76 to .98. These mean values are lower overall than those for the subset of sentences 1 to 4, which contained the English verb in the predicted ill-formed position, and an Afrikaans subject. The possibility therefore arises that the Afrikaans subject, even in its pronominal form, had an adjacency effect here, allowing the English verb to be considered (slightly) more well-formed in its predicted ill-formed position, which is the position predicted to be well-formed for the Afrikaans verb.

Finally, note that the mean values for sentences 13 to 16 (ranging from .74 to .95) are the lowest of the four subsets of sentences, although not by much, implying that the Afrikaans verb in its predicted ill-formed position was not regarded as much less well-formed than the English verb in either its predicted well-formed or predicted ill-formed position. This pattern also underscores the possibility of the above-mentioned adjacency effect of the Afrikaans subject, by which participants considered an English verb adjacent to an Afrikaans subject to be well-formed.

An overview of the data in table 7.4 indicates that the preference for sentences with an NP subject over those with a pronoun subject, noted above for focalisation set 1, recurred in set 2 with one exception, namely sentences 9 and 11. Furthermore, the sentences with a modifying phrase, in this case increasing the amount of English material and embedding the Afrikaans element(s) between two English elements, were consistently perceived as more well-formed than those without a modifying phrase (compare, for example, sentences 1 and 2, sentences 7 and 8, sentences 11 and 12, and sentences 13 and 14). Thus, the effect of the modifying phrase noted above for focalisation set 1 was repeated in focalisation set 2. The ANOVA for focalisation set 2 further revealed that the strongest significant effect was that of the modifying phrase, with $F=23.061$, $df=1,20$, $p=.000$ and an eta value of .536. The eta value of the interaction of language and position of verb was slightly lower, at .521. Once again then, it may be that the effect of the modifying phrase overshadowed the effect of verb position, underscoring the possibility

that the sentences did not reliably test the predictions regarding verb position.

The significant effect for the interaction of language and position of the verb (F=21.751, df=1,20, p=.000) revealed by the ANOVA is plotted in figure 7.12. It is clear that there was a very slight preference for the predicted ill-formed verb-subject order for the English verb *buy*, and a pronounced preference for the predicted well-formed verb-subject order for the Afrikaans verb *koop*.

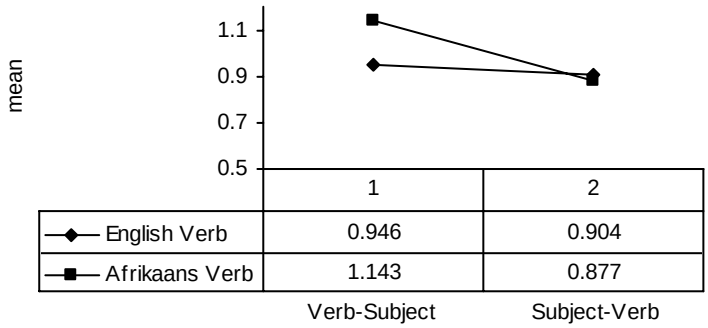


Figure 7.12 Interaction of language and position of verb for focalisation set 2

The ANOVA further revealed that the effects of language of the verb, position of the verb, and form of the subject were significant (F=12.696, df=1,20, p=.002 for language of the verb; F=14.712, df=1,20, p=.001 for position of the verb; and F=5.213, df=1,20, p=.033 for subject form). In addition, the three-way interaction between language of verb, position of verb, and subject form was also significant (F=5.260, df=1,20, p=.033), which implies the possibility that the interaction between language and position of verb plotted in figure 7.12 above may have been further influenced by the role of the subject form.

Considering the data for both focalisation sets together, it would appear that there is some support for the prediction for Afrikaans verb position, and slightly less support for the prediction for English verb position. The perceptions of ill-formedness of the sentences with English verbs may have been due to an adjacency effect of the Afrikaans subject. In the cases of both English and Afrikaans verbs, perceptions of well-formedness were affected by further factors. Firstly, it is clear that there

was a preference for an NP over a pronoun subject, and the effect of subject form was significant in both sets. Secondly, the addition of a modifying phrase, which has the effect of embedding a segment in one language between two segments in the other language, appears to have had a positive effect on perceptions of well-formedness. Note the possibility that this effect may have been so great as to render the sentences unreliable in testing the predictions for verb position. In this regard, note the outcomes of the ANOVA, by which the strongest significant effect in both focalisation sets was for the presence of a modifying phrase, while the interaction of the language and the position of the verb was also significant in both sets. It is clear that the effects of the secondary factors (subject form and presence of a modifying phrase) may have had a greater influence on perceptions of well-formed verb position than anticipated (cf. the discussion in the introduction to this chapter concerning the expected primary and secondary effects).

7.3 Topicalisation constructions

The predictions for topicalisation constructions, discussed in section 3.3.4, entail that the Afrikaans verb moves to check the strong tense and finiteness features of the CP projections, whereas the English verb does not. Therefore, the English verb is predicted to be considered more well-formed in the post-subject position, whereas the Afrikaans verb is predicted to be considered more well-formed in the pre-subject position. These preferences are predicted to hold irrespective of the language of the subject. The prediction for topicalisation set 1 (cf. table 7.6) is therefore that sentences with *die meisies/hulle taste* and *proe die meisies/hulle* will be considered more well-formed than sentences with *taste the girls/hulle* and *die meisies/hulle proe*. As for topicalisation set 2 (cf. table 7.7), the prediction is that sentences with *the cooks/they cut* and with *sny the cooks/they* will be considered more well-formed than sentences with *cut the cooks/they* and *the cooks/they proe*. It is further predicted that the ANOVA will reveal significant effects for the language and position of the verb and their interaction, with these effects being more significant than those of the secondary factors investigated in topicalisation sets 1 and 2, i.e., the form of the subject and the presence of a modifying phrase.

The mean values assigned to items targeting topicalisation in the first magnitude estimation test, topicalisation set 1, appear in Table 7.6. The language of the verb (Lang V) is indicated as either English (E) or

Afrikaans (A); the position of the verb (V Pos) is indicated as either before or after the subject (pre or post Subj); the form of the subject (Subj Form) is indicated as either NP or pronominal (Pro); and a modifying phrase (ModP) is indicated as either present (yes) or absent (no). The reference sentence appears in bold, and the tentative prediction is indicated as either well-formed (w-f) of ill-formed (i-f).

No.	Item	Lang V	V Pos	Subj Form	Mod P	Pred	Mean Value
1	There are bottles of tomato on the shelf. That tomato taste die meisies in the morning.	E	pre Subj	NP	yes	i-f	1.08
2	There are bottles of tomato on the shelf. That tomato taste die meisies.	E	pre Subj	NP	no	i-f	1.14
3	There are bottles of tomato on the shelf. That tomato taste hulle in the morning.	E	pre Subj	Pro	yes	i-f	1.05
4	**There are bottles of tomato on the shelf. That tomato taste hulle.**	**E**	**pre Subj**	**Pro**	**no**	**i-f**	**1.00**
5	There are bottles of tomato on the shelf. That tomato die meisies taste in the morning.	E	post Subj	NP	yes	w-f	.99
6	There are bottles of tomato on the shelf. That tomato die meisies taste.	E	post Subj	NP	no	w-f	.83
7	There are bottles of tomato on the shelf. That tomato hulle taste in the morning.	E	post Subj	Pro	yes	w-f	.86
8	There are bottles of tomato on the shelf. That tomato hulle taste.	E	post Subj	Pro	no	w-f	.92
9	There are bottles of tomato on the shelf. That tomato proe die meisies in the morning.	A	pre Subj	NP	yes	w-f	1.12
10	There are bottles of tomato on the shelf. That tomato proe die meisies.	A	pre Subj	NP	no	w-f	1.06
11	There are bottles of tomato on the shelf. That tomato proe hulle in the morning.	A	pre Subj	Pro	yes	w-f	1.14
12	There are bottles of tomato on the shelf. That tomato proe hulle.	A	pre Subj	Pro	no	w-f	1.12
13	There are bottles of tomato on the shelf. That tomato die meisies proe in the morning.	A	post Subj	NP	yes	i-f	.96
14	There are bottles of tomato on the shelf. That tomato die meisies proe.	A	post Subj	NP	no	i-f	.86
15	There are bottles of tomato on the shelf. That tomato hulle proe in the morning. (die meisies proe)	A	post Subj	Pro	yes	i-f	.86
16	There are bottles of tomato on the shelf. That tomato hulle proe.	A	post Subj	Pro	no	i-f	.77

Table 7.6 Mean values assigned to items in topicalisation set 1

Considering first the sentences with the English verb *taste*, note that the mean values assigned to the sentences 5 to 8, with *taste* in the predicted well-formed position following the Afrikaans subject, range from .84 to .99. These mean values are well below those assigned to sentences 1 to 4 (ranging from 1.05 to 1.14), in which *taste* occurs in its predicted ill-formed position preceding the Afrikaans subject. In these cases, it appears that the Afrikaans subject, whether NP or pronoun, may have had an adjacency effect on participants' perceptions of the well-formed position for the English verb, allowing the English verb to be considered well- formed in its predicted ill-formed position (i.e., the position predicted to be well-formed for the Afrikaans verb). This effect is particularly noticeable due to the fact that the NP or pronoun subject was the only Afrikaans element in these otherwise English sentences. In these cases, then, participants did not consider a single word switch of a pronoun to be particularly ill-formed.

Turning to the sentences with Afrikaans verbs, those with the Afrikaans verb in the predicted well-formed position preceding an Afrikaans subject (sentences 9 to 12) were assigned among the highest mean values, ranging from 1.06 to 1.14. The four sentences with the Afrikaans verb in the predicted ill-formed position following an Afrikaans subject (sentences 13 to 16) were assigned among the lowest mean values, ranging from .77 to .96.

An overview of the data in table 7.6 indicates some support for the predictions for the position of the Afrikaans verb, but not for that of the English verb. Furthermore, the positive effects on perceptions of well-formedness of an NP over a pronominal subject, and of the addition of a modifying phrase, noted above for adverb and focalisation constructions, were not observable for topicalisation set 1.

The ANOVA for topicalisation set 1 revealed a strong significant effect for verb position ($F=75.620$, $df=1,23$, $p=.000$), with an eta value of .767. There was also a significant effect for the presence of a modifying phrase ($F=7.673$, $df=1,23$, $p=.011$). Furthermore, the three-way interaction between verb position, subject form, and presence of a modifying phrase was also significant ($F=6.393$, $df=1,23$, $p=.019$). The interaction between the language and the position of the verb was not significant ($F=2.458$, $df=1,23$, $p=.131$), but is nevertheless plotted in figure 7.13 for purposes

of clear exposition. The preference for a verb-subject order for both English and Afrikaans verbs (with an Afrikaans subject) is clear.

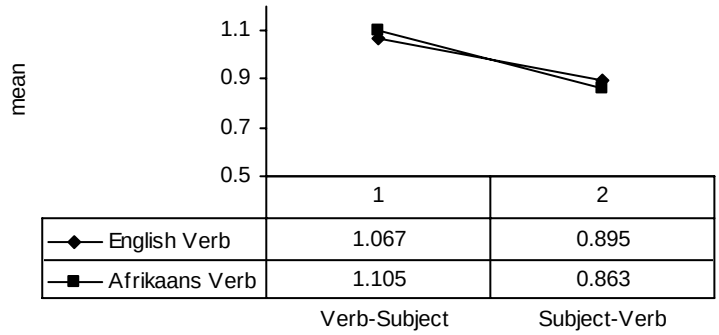


Figure 7.13 Interaction of language and position of verb for topicalisation set 1

The mean values assigned to items targeting topicalisation in the second magnitude estimation test, topicalisation set 2, are presented in Table 7.7. Beginning with the sentences with the English verb *cut*, those with *cut* in the predicted well-formed position following an English subject (sentences 5 to 8) were assigned among the highest mean values, ranging from 1.02 to 1.16. Sentences 1 to 4, with the English verb in the predicted ill-formed position preceding the English subject were assigned substantially lower mean values, ranging from .79 to. 96.

Turning to the sentences with the Afrikaans verb *sny* in the predicted well-formed position preceding the English subject (sentences 9 to 12), note the preference for an NP over a pronoun subject, which is particularly visible in the low mean value of .78 assigned to sentence 12, in which the sentence-final pronoun was the only English element in the sentence. The mean values for sentences 11 and 12 appear to indicate that participants did not consider a single word switch involving a pronoun to be well-formed, particularly not at the periphery of the sentence. Consider now the mean values for sentences 13 to 16, in which the Afrikaans verb *sny* occurred in the predicted ill-formed position following the English subject. The mean values for these sentences are relatively high, ranging from .90 to 1.09, suggesting that, in these cases, the English subject, whether NP or pronoun, may have had an effect on participants' perceptions of the well-formed position of the Afrikaans verb, allowing the Afrikaans verb to be considered well-formed in the

post-subject position (an adjacency effect). Furthermore, the mean values of 1.06 and .90 for sentences 15 and 16 with a single word switch involving the pronoun contrast with those for sentences 11 and 12 discussed above.

No.	Item	Lang V	Pos V	Subj Form	Mod P	Pred	Mean Value
1	Daar lê sakke vleis op die rak. Daardie vleis cut the cooks vir die sop.	E	pre Subj	NP	yes	i-f	.96
2	Daar lê sakke vleis op die rak. Daardie vleis cut the cooks.	E	pre Subj	NP	no	i-f	.90
3	Daar lê sakke vleis op die rak. Daardie vleis cut they vir die sop.	E	pre Subj	Pro	yes	i-f	.79
4	Daar lê sakke vleis op die rak. Daardie vleis cut they.	E	pre Subj	Pro	no	i-f	.94
5	Daar lê sakke vleis op die rak. Daardie vleis the cooks cut vir die sop.	E	post Subj	NP	yes	w-f	1.09
6	Daar lê sakke vleis op die rak. Daardie vleis the cooks cut.	E	post Subj	NP	no	w-f	1.09
7	Daar lê sakke vleis op die rak. Daardie vleis they cut vir die sop.	E	post Subj	Pro	yes	w-f	1.16
8	Daar lê sakke vleis op die rak. Daardie vleis they cut.	E	post Subj	Pro	no	w-f	1.02
9	Daar lê sakke vleis op die rak. Daardie vleis sny the cooks vir die sop.	A	pre Subj	NP	yes	w-f	1.20
10	Daar lê sakke vleis op die rak. Daardie vleis sny the cooks.	A	pre Subj	NP	no	w-f	1.00
11	Daar lê sakke vleis op die rak. Daardie vleis sny they vir die sop.	A	pre Subj	Pro	yes	w-f	.99
12	Daar lê sakke vleis op die rak. Daardie vleis sny they.	A	pre Subj	Pro	no	w-f	.78
13	Daar lê sakke vleis op die rak. Daardie vleis the cooks sny vir die sop.	A	post Subj	NP	yes	i-f	1.09
14	**Daar lê sakke vleis op die rak. Daardie vleis the cooks sny.**	**A**	**post Subj**	**NP**	**no**	**i-f**	**1.00**
15	Daar lê sakke vleis op die rak. Daardie vleis they sny vir die sop.	A	post Subj	Pro	yes	i-f	1.06
16	Daar lê sakke vleis op die rak. Daardie vleis they sny.	A	post Subj	Pro	no	i-f	.90

Table 7.7 Mean values assigned to items in topicalisation set 2

An overview of the data in table 7.7 indicates some support for the predictions for the position of the English verb, but not for that of the Afrikaans verb. As was the case for topicalisation set 1, there was no consistent preference for an NP over a pronominal subject, nor for a modifying phrase.

The ANOVA for the results for topicalisation set 2 revealed the predicted strongest significant effect for the interaction of language of verb and verb position (F=20.188, df=1,22, p=.000), with an eta value of .479. The effect of verb position on its own was also significant (F=18.791, df=1,22, p=.000). As can be seen in figure 7.14, there was a very slight preference for the predicted ill-formed subject-verb order for the Afrikaans verb (as noted above), and a more pronounced preference for the predicted well-formed subject-verb order for the English verb.

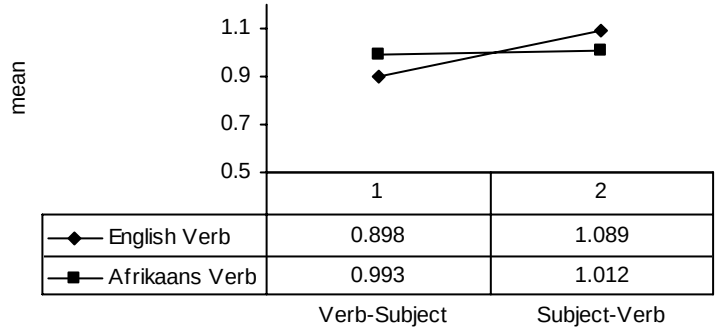


Figure 7.14 Interaction of language and position of verb for topicalisation set 2

A further significant effect revealed by the ANOVA for topicalisation set 2 was for the interaction of language of verb and subject form (F=11.874, df=1,22, p=.002) (cf. figure 7.13). The main effect of subject form was also significant (F=13.713, df=1,22, p=.001). As figure 7.15 clearly indicates, there was a preference for an NP subject, more pronounced for constructions with an Afrikaans verb than for those with an English verb.

The ANOVA also revealed a significant effect for the interaction of verb position and subject form (F=8.276, df=1,22, p=.009). As is clear from figure 7.16, there was once again a preference for an NP subject over a pronoun subject, for both pre- and post-subject verb positions, more pronounced for the verb in pre-subject position, the predicted well-formed position for the Afrikaans verb.

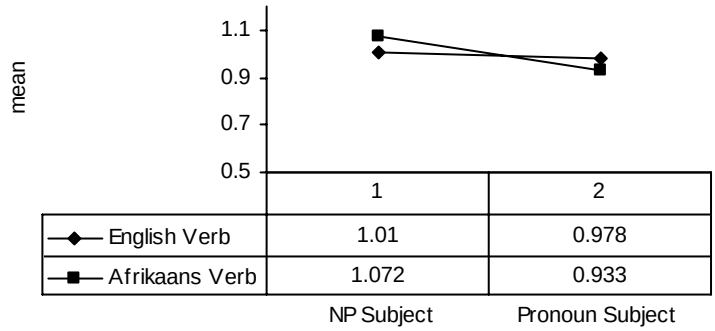


Figure 7.15 Interaction of language of verb and subject form for topicalisation set 2

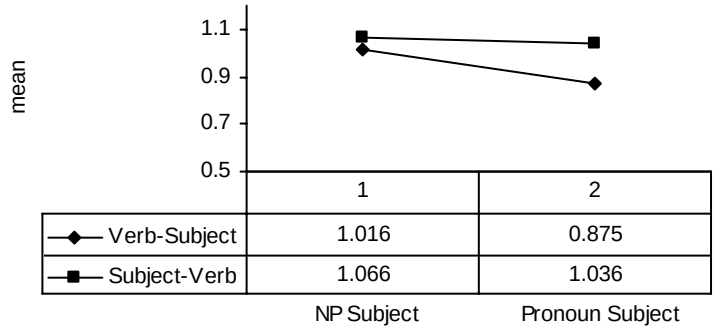


Figure 7.16 Interaction of verb position and subject form for topicalisation set 2

A further significant effect revealed by the ANOVA for the results for topicalisation set 2 was for the interaction of language of verb and the presence of a modifying phrase (F=19.710, df=1,22, p=.000) (cf. figure 7.17). The main effect of the presence of a modifying phrase was also significant (F=18.258, df=1,22, p=.000). As indicated by figure 7.17, mean values were higher in the presence of a modifying phrase, especially in the case of an Afrikaans verb (recall that the sentences in this set contained mainly Afrikaans elements; sentences with an Afrikaans verb contained only the subject in English).

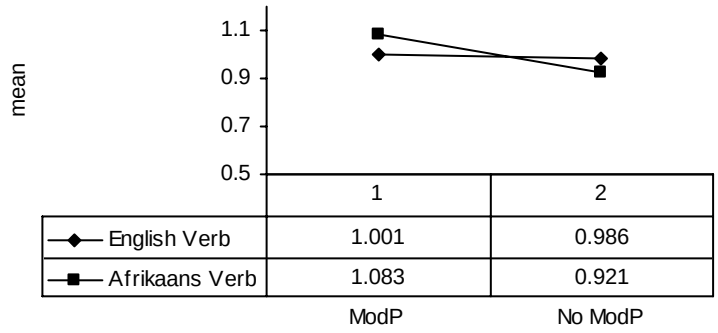


Figure 7.17 Interaction of language of verb and presence of modifying phrase for topicalisation set 2

Finally, it is important to note the significance of two three-way interaction effects and a four-way interaction effect for the results of topicalisation set 2. The interaction of verb position, subject form, and presence of a modifying phrase was significant ($F=10.684$, $df=1,23$, $p=.004$), as was the interaction of verb position, language of verb, and presence of a modifying phrase ($F=6.818$, $df=1,23$, $p=.016$). The four-way interaction between verb position, language of verb, subject form and presence of a modifying phrase was also significant ($F=4.582$, $df=1,23$, $p=.044$). These interaction effects suggest that the secondary factors (subject form and modifying phrase) may have played a role in the observed effects of the primary factors (language and position of the verb), which may have implications for the extent to which the results of the magnitude estimation tests can directly inform the primary predictions regarding verb position.

Considering the data for topicalisation sets 1 and 2 together, it is clear that there is support for the predictions regarding verb position in the cases where the subject and the verb were in the same language (i.e., for the Afrikaans verb in set 1 and for the English verb in set 2). However, when the switch occurred between subject and verb, the predictions regarding verb position were not supported. In topicalisation set 1, the strong preference for the English verb in its predicted ill-formed position was perhaps due to an adjacency effect of the Afrikaans subject embedded in the English environment. In topicalisation set 2, the lack of any preference for the Afrikaans verb in its predicted well-formed

position was possibly due to an adjacency effect of the English subject embedded in the Afrikaans environment. Furthermore, note that the positive effects of an NP over a pronoun subject, and of the addition of a modifying phrase, noted above for adverb and focalisation constructions, were not evident in the topicalisation data. These potentially positive effects may have been confounded, in the case of topicalisation, by the effect of the language of the subject. Regarding the ANOVAs for the topicalisation results, note that the effect of verb position was significant for both sets, whereas the interaction of language of verb and verb position was significant only for set 2, as are the interactions involving subject form and modifying phrase.

7.4 Embedded *that* clauses

According to the predictions for embedded *that* clauses outlined in section 3.3.5, both English and Afrikaans verbs must remain in situ, while the Afrikaans object NP moves to the left of the Afrikaans verb, and the English object NP does not move. Thus, for the magnitude estimation items targeting embedded *that* clauses, it is predicted that the English verb will be considered more well-formed in the pre-object position, and the Afrikaans verb more well-formed in the post-object position, irrespective of the language of the object. For *that* set 1 (cf. table 7.8), the prediction is that sentences with *catch those insects/them* and *those insects/them vang* will be assigned higher mean values than sentences with *those insects/them catch* and *vang those insects/them*. For *that* set 2 (cf. table 7.9), the prediction is that sentences with *reads die boeke/hulle* ("reads the books/them") and *die boeke/hulle lees* will be assigned higher mean values than will sentences with *die boeke/hulle reads* and *lees die boeke/hulle*. It is furthermore predicted that the ANOVA will reveal a significant effect for the language of the verb, as well as for the interaction of language and position of the verb. Finally, the effects of object form and the presence of a modifying phrase, being investigated here, are expected to be less significant than the above-mentioned effects of language and position of the verb.

The means of the values assigned to items targeting embedded *that* clauses in the first magnitude estimation test (*that* set 1) appear in table 7.8. The language of the verb (Lang V) is indicated as either English (E) or Afrikaans (A); the position of the verb (V Pos) is indicated as either preceding the object (pre Obj) or following the object (post Obj); the

form of the object (Obj Form) is indicated as either NP or pronoun (Pro); and the modifying phrase is indicated as either present (yes) or absent (no). The reference sentence appears in bold, and the tentative prediction is indicated as either well-formed (w-f) of ill-formed (i-f).

No.	Item	Lang V	V Pos	Obj Form	Mod P	Pred	Mean Value
1	Ons ouers dink dat daardie groot voëls catch those insects in flight.	E	pre Obj	NP	yes	w-f	1.19
2	Ons ouers dink dat daardie groot voëls catch those insects.	E	pre Obj	NP	no	w-f	1.22
3	Ons ouers dink dat daardie groot voëls catch them in flight.	E	pre Obj	Pro	yes	w-f	1.18
4	Ons ouers dink dat daardie groot voëls catch them.	E	pre Obj	Pro	no	w-f	1.01
5	Ons ouers dink dat daardie groot voëls those insects catch in flight.	E	post Obj	NP	yes	i-f	1.04
6	Ons ouers dink dat daardie groot voëls those insects catch.	E	post Obj	NP	no	i-f	.88
7	Ons ouers dink dat daardie groot voëls them catch in flight.	E	post Obj	Pro	yes	i-f	.79
8	Ons ouers dink dat daardie groot voëls them catch.	E	post Obj	Pro	no	i-f	.81
9	Ons ouers dink dat daardie groot voëls vang those insects in flight.	A	pre Obj	NP	yes	i-f	1.15
10	Ons ouers dink dat daardie groot voëls vang those insects.	A	pre Obj	NP	no	i-f	1.02
11	Ons ouers dink dat daardie groot voëls vang them in flight.	A	pre Obj	Pro	yes	i-f	.95
12	Ons ouers dink dat daardie groot voëls vang them.	A	pre Obj	Pro	no	i-f	.94
13	Ons ouers dink dat daardie groot voëls those insects vang in flight.	A	post Obj	NP	yes	w-f	1.05
14	Ons ouers dink dat daardie groot voëls those insects vang.	A	post Obj	NP	no	w-f	1.16
15	Ons ouers dink dat daardie groot voëls them vang in flight.	A	post Obj	Pro	yes	w-f	.92
16	**Ons ouers dink dat daardie groot voëls them vang.**	**A**	**post Obj**	**Pro**	**no**	**w-f**	**1.00**

Table 7.8 Mean values assigned to items in *that* set 1

Considering first the sentences with the English verb *catch* in the predicted well-formed position preceding the English object (sentences 1 to 4), note that these were all assigned high mean values, including the three highest mean values overall for sentences 1 to 3. Within this subset, there is evidence of a positive effect on perceptions of well-formedness of an NP over a pronoun object, and of the presence of a modifying phrase. Turning now to sentences 5 to 8, in which *catch* occurred in the predicted ill-formed position following the English object, note the relatively high mean value of 1.04 assigned to sentence 5,

in contrast to those assigned to sentences 6 to 8, which are the lowest mean values overall. In this instance, it appears that participants considered a sentence with the English verb in the predicted ill-formed position to be well-formed, perhaps encouraged by the positive effect of the NP object and the presence of the modifying phrase.

Considering now the sentences with the Afrikaans verb, note that the mean values for sentences 9 to 12, with *vang* in the predicted ill-formed position preceding the English object (ranging from .94 to 1.15) are similar to the mean values for sentences 13 to 16, with *vang* in the predicted well-formed position following the English object (ranging from .92 to 1.16). The high mean values for sentences 9 and 10 can possibly be explained in terms of a combination of (i) the positive effect of an NP over a pronoun object, and (ii) the adjacency effect by which the English object allowed the Afrikaans verb to be considered well-formed in its predicted ill-formed position (i.e., the position which was predicted to be well-formed for the English verb).

An overview of the results for *that* set 1 therefore appears to indicate some support for the predictions for the position of the English verb, in that sentences with the English verb following the object were considered ill-formed. There is less support for the prediction for the Afrikaans verb position, which was possibly affected by the form and language of the object. It would appear that the Afrikaans verb was generally considered equally well-formed in its predicted well- and ill-formed position. The possibility arises of a syntactic convergence effect, whereby an Afrikaans subordinate clause may (but need not) have an English internal structure. Note further the positive effect on perceptions of well-formedness of an NP over a pronominal object. Finally, note that the presence of a modifying phrase does not appear to have played a consistent role in perceptions of well-formedness in *that* set 1.

The ANOVA for the results for *that* set 1 revealed that the strongest significant effect was, as predicted, for the interaction of language and position of the verb ($F=26.121$, $df=1,24$, $p=.000$), with an eta value of .521. The effect of verb position on its own was also significant ($F=9.730$, $df=1,24$, $p=.005$). Figure 7.18 represents the interaction effect, where the Afrikaans verb showed only a slight preference for object-verb

order, whereas the English verb showed a stronger preference for verb-object order.

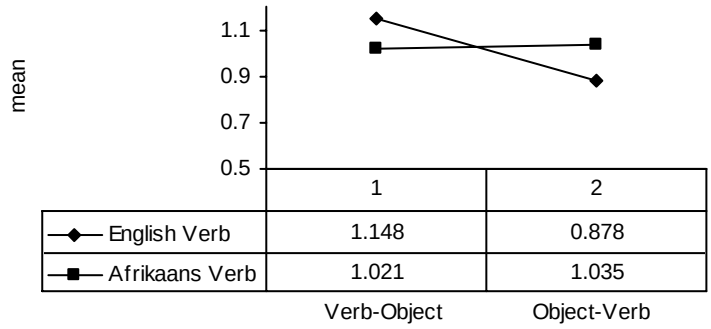


Figure 7.18 Interaction of language and position of verb for *that* set 1

The ANOVA further revealed a significant effect for the interaction of verb position and the presence of a modifying phrase (F=5.144, df=1,24, p=.033). As can be seen in figure 7.19, the object-verb order (predicted well-formed for the Afrikaans verb) showed a very slight negative effect for the presence of a modifying phrase, whereas the verb-object order (predicted well-formed for the English verb) showed a slight preference for the presence of a modifying phrase.

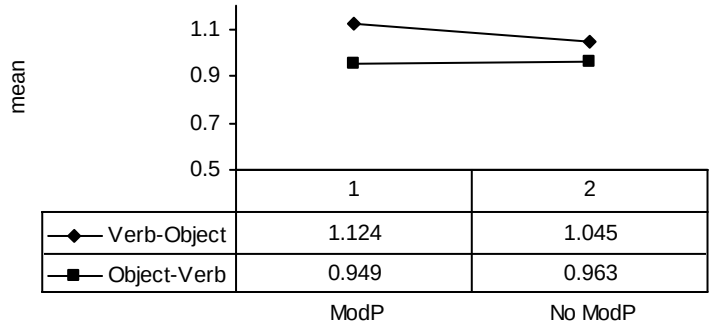


Figure 7.19 Interaction of language of verb and presence of modifying phrase for *that* set 1

A further significant effect revealed by the ANOVA for *that* set 1 was for the main effect of object form (F=15.285, df=1,24, p=.001). Finally, the four-way interaction between language and position of verb, object form,

and presence of a modifying phrase, was also significant (F=6.957, df=1,24, p=.014). This result supports the suggestion made above that the role of the secondary factors in participants' responses in the magnitude estimation tests should not be overlooked.

The mean values assigned to items in *that* set 2 are presented in table 7.9.

No.	Item	Lang V	Pos V	Obj Form	Mod P	Pred	Mean Value
1	The author said that the youngster reads die boeke oor naweke.	E	pre Obj	NP	yes	w-f	1.01
2	The author said that the youngster reads die boeke.	E	pre Obj	NP	no	w-f	.93
3	The author said that the youngster reads hulle oor naweke.	E	pre Obj	Pro	yes	w-f	.83
4	The author said that the youngster reads hulle.	E	pre Obj	Pro	no	w-f	.79
5	The author said that the youngster die boeke reads oor naweke.	E	post Obj	NP	yes	i-f	.63
6	The author said that the youngster die boeke reads.	E	post Obj	NP	no	i-f	.64
7	The author said that the youngster hulle reads oor naweke.	E	post Obj	Pro	yes	i-f	.52
8	The author said that the youngster hulle reads.	E	post Obj	Pro	no	i-f	.51
9	The author said that the youngster lees die boeke oor naweke.	A	pre Obj	NP	yes	i-f	1.12
10	**The author said that the youngster lees die boeke.**	**A**	**pre Obj**	**NP**	**no**	**i-f**	**1.00**
11	The author said that the youngster lees hulle oor naweke.	A	pre Obj	Pro	yes	i-f	.88
12	The author said that the youngster lees hulle.	A	pre Obj	Pro	no	i-f	.71
13	The author said that the youngster die boeke lees oor naweke.	A	post Obj	NP	yes	w-f	1.07
14	The author said that the youngster die boeke lees.	A	post Obj	NP	no	w-f	1.02
15	The author said that the youngster hulle lees oor naweke.	A	post Obj	Pro	yes	w-f	.78
16	The author said that the youngster hulle lees.	A	post Obj	Pro	no	w-f	.81

Table 7.9 Mean values assigned to items in *that* set 2

Beginning with sentences 9 to 16, containing the Afrikaans verb *lees*, note that the mean values reflect no clear preference for the verb in its predicted well-formed position following the Afrikaans object. The highest mean value overall (1.12) was assigned to sentence 9, which contains the Afrikaans verb in the predicted ill-formed position preceding the Afrikaans NP object, and an Afrikaans modifying phrase. This is an unexpected result, as the counterpart to sentence 9 with the

Afrikaans verb in the predicted well-formed position following the object (sentence 13) was assigned a lower mean value of 1.07. Note too the low mean values assigned to sentences 15 and 16, in which the Afrikaans verb was in the predicted well-formed position. The prediction for an overall pattern would be that sentences 9 to 12 would have lower mean values than sentences 13 to 16, and this was not the case. Compare, for example, sentence 11 with a mean value of .88 and sentence 15 with a mean value of .78. In these cases, it would appear that participants considered sentences with the Afrikaans verb in the predicted ill-formed position to be more well-formed than those with the Afrikaans verb in the predicted well-formed position, possibly due to an adjacency effect of the English NP subject in these sentences (i.e., the English subject may have influenced participants to consider as well-formed the Afrikaans verb in the position predicted to be well-formed for the English verb).[45]

Regarding the sentences with the English verb *reads*, note that the lowest mean values overall, ranging from .51 to .64, were assigned to sentences 5 to 8, in which *reads* occurs in the predicted ill-formed post-object position. Of the sentences with the English verb in the predicted well-formed pre-object position (sentences 1 to 4), however, only one was assigned a higher-than-reference mean value, namely sentence 1 (mean value 1.01). The positive response of participants to this sentence may have been influenced by the length of the segments in each language, as the NP object and modifying phrase were in Afrikaans. The remaining three sentences in this subset, all with the English verb in the predicted well-formed position, were assigned higher mean values than were the sentences with the English verb in the predicted ill-formed position (sentences 4 to 8). However, note that the mean values for sentences 9 to 12, which contained the Afrikaans verb *lees* in the predicted ill-formed position preceding the Afrikaans object, were higher than those for sentences 1 to 4 in three of the four cases. This supports the possibility mentioned above that participants were willing to accept as well-formed the Afrikaans verb in its predicted ill-formed position, perhaps due to an adjacency effect of the English subject.

[45] Note that such an effect of the subject lies outside the realm of the factors tested here for *that* constructions, i.e., the form of the object and the presence of a modifying phrase.

An overview of the results for *that* set 2 indicates little support for the predictions regarding verb position, the only clear effect being the ill-formedness of an English verb in post-object position. These results may suggest support for the convergence effect proposed above for the results for *that* set 1, whereby an Afrikaans subordinate clause may have an English internal structure. Note that a positive effect on perceptions of well-formedness of an NP object over a pronoun object was evident throughout *that* set 2 (compare, for example, sentences 1 and 2, and sentences 13 and 14). The ANOVA revealed that the effect of object form was the strongest significant effect (F=39.036, df=1,23, p=.000), with an eta value of .629. The effect of a modifying phrase, on the other hand, was not consistent.

The ANOVA for the results for *that* set 2 revealed a significant effect for the interaction of language and position of the verb (F=26.720, df=1,23, p=.000). The main effect of language was also significant (F=27.592, df=1,23, p=.000), as was the main effect of position (F=24.314, df=1,23, p=.000). The eta values for these significant effects were all relatively high (.545 for language of verb, .514 for verb position, .537 for the interaction), indicating the strength of these effects The interaction is plotted in figure 7.20, where there appears to be a strong preference for the English verb to precede the object (as predicted to be well-formed), and a slight preference for the Afrikaans verb to precede the object (as predicted to be ill-formed).

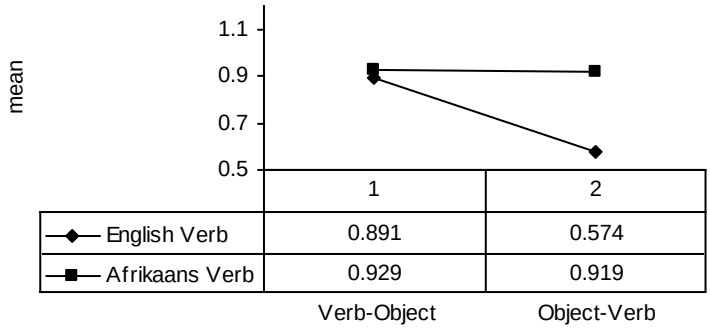


Figure 7.20 Interaction of language and position of verb for *that* set 2

A further significant effect revealed by the ANOVA was for the interaction of language of verb and object form (F=14.196, df=1,23,

p=.001). Recall that the main effect for object form was also significant (F=39.036, df=1,23, p=.000). The interaction plotted in figure 7.21 shows that there was a preference for an NP object over a pronoun object for both English and Afrikaans verbs.

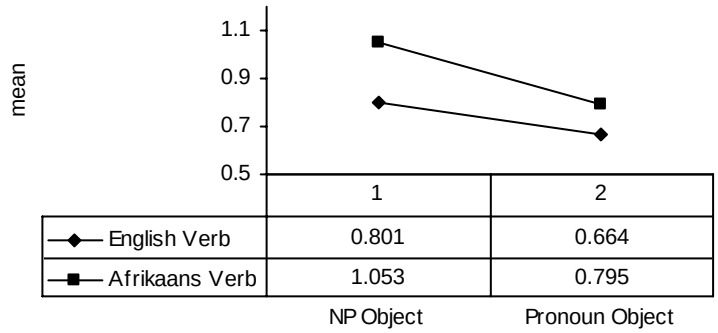


Figure 7.21 Interaction of language of verb and object form for *that* set 2

Finally, the ANOVA revealed a significant effect for the interaction of verb position and the presence of a modifying phrase (F=8.097, df=1,23, p=.009). As can be seen in figure 7.22, there was a preference for a modifying phrase, more pronounced in the case of the verb-object order, predicted to be well-formed for the English verb.

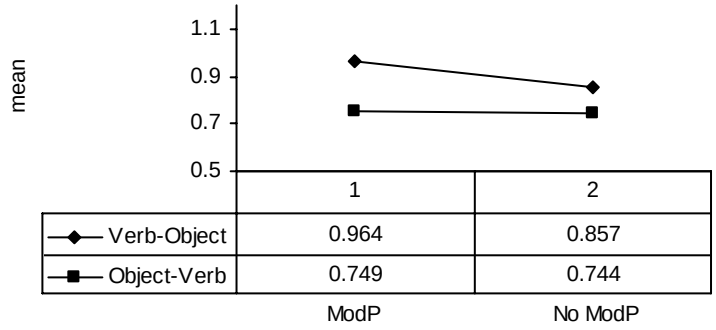


Figure 7.22 Interaction of verb position and presence of modifying phrase for *that* set 2

From the data for *that* sets 1 and 2, there appears to be little support for the prediction for the position of the Afrikaans verb. The perceived well-formed position of the Afrikaans verb was possibly influenced by other

factors, such as the language of the adjacent subject. Concerning the English verb, there appears to be some support for the predicted well-formed position. Throughout both data sets for *that* constructions, there appears to be a positive effect of an NP over a pronoun object, but no clear effect of the presence of a modifying phrase. Finally, with regard to the ANOVA outcomes, note that the interaction of language and position was significant in both cases, indicating support for the predicted well-formed English verb position, but not for the predicted well-formed Afrikaans verb position. The effect of object form was also significant in both data sets, more strongly in set 2. A further significant effect common to both sets was that for the interaction of verb position and the presence of a modifying phrase, but there was no clear preference indicated.

7.5 Embedded *wh* clauses

The predictions for embedded *wh* clauses outlined in section 3.3.6 entail that both English and Afrikaans verbs must remain in situ, the Afrikaans object NP must move to the left of the Afrikaans verb, and the English object NP may not move. Thus, for the magnitude estimation items targeting embedded *wh* clauses, it is predicted that the English verb will be considered more well-formed in the pre-object position, and the Afrikaans verb more well-formed in the post-object position, irrespective of the language of the object. For *wh* set 1 (cf. table 7.10), the prediction is that sentences with *sells die groot plaas/dit* and *die groot plaas/dit verkoop* will be assigned higher mean values than sentences with *die groot plaas/dit sells* and *verkoop die groot plaas/dit*. For *wh* set 2 (cf. table 7.11), the prediction is that sentences with *serves a small portion/it* and *a small portion/it skep* will be assigned higher mean values than will sentences with *a small portion/it serves* and *skep a small portion/it*. It is furthermore predicted that the ANOVA will reveal significant effects for the language and position of the verb, as well as for their interaction, these effects being more significant than those of object form and the presence of a modifying phrase, also being investigated here.

The means of the values assigned to the sentences targeting embedded *wh* clauses in the first magnitude estimation test, *wh* set 1, are presented in table 7.10. The language of the verb (Lang V) is indicated as either English (E) or Afrikaans (A); the position of the verb (V Pos) is indicated as either preceding the object (pre Obj) or following the object

(post Obj); the form of the object (Obj Form) is indicated as either NP or pronoun (Pro); and the modifying phrase is indicated as either present (yes) or absent (no). The reference sentence appears in bold, and the tentative prediction is indicated as either well-formed (w-f) of ill-formed (i-f).

No.	Item	Lang V	V Pos	Obj Form	Mod P	Pred	Mean Value
1	The competitors wonder when the council sells die groot plaas aan die publiek.	E	pre Obj	NP	yes	w-f	1.09
2	**The competitors wonder when the council sells die groot plaas.**	**E**	**pre Obj**	**NP**	**no**	**w-f**	**1.00**
3	The competitors wonder when the council sells dit aan die publiek.	E	pre Obj	Pro	yes	w-f	.78
4	The competitors wonder when the council sells dit.	E	pre Obj	Pro	no	w-f	.74
5	The competitors wonder when the council die groot plaas sells aan die publiek.	E	post Obj	NP	yes	i-f	.79
6	The competitors wonder when the council die groot plaas sells.	E	post Obj	NP	no	i-f	.84
7	The competitors wonder when the council dit sells aan die publiek.	E	post Obj	Pro	yes	i-f	.66
8	The competitors wonder when the council dit sells.	E	post Obj	Pro	no	i-f	.64
9	The competitors wonder when the council verkoop die groot plaas aan die publiek.	A	pre Obj	NP	yes	i-f	1.02
10	The competitors wonder when the council verkoop die groot plaas.	A	pre Obj	NP	no	i-f	1.02
11	The competitors wonder when the council verkoop dit aan die publiek.	A	pre Obj	Pro	yes	i-f	.99
12	The competitors wonder when the council verkoop dit.	A	pre Obj	Pro	no	i-f	.80
13	The competitors wonder when the council die groot plaas verkoop aan die publiek.	A	post Obj	NP	yes	w-f	1.14
14	The competitors wonder when the council die groot plaas verkoop.	A	post Obj	NP	no	w-f	1.24
15	The competitors wonder when the council dit verkoop aan die publiek.	A	post Obj	Pro	yes	w-f	.97
16	The competitors wonder when the council dit verkoop.	A	post Obj	Pro	no	w-f	.98

Table 7.10 Mean values assigned to items in *wh* set 1

Considering first the subset of sentences 1 to 4, with the English verb in the predicted well-formed position preceding the Afrikaans object, note that the mean values for these sentences (ranging from .74 to 1.09) were substantially higher than those for sentences 5 to 8, in which the English verb occurs in the predicted ill-formed position following the Afrikaans object. However, note further that there was a strong preference for an

NP object over a pronominal object, as the mean values for sentences 5 and 6 were higher than those for sentences 3 and 4.

Turning to the subset of sentences 13 to 16, with the Afrikaans verb in the predicted well-formed position following the Afrikaans NP object, note that the highest mean values overall were assigned to sentences 13 and 14. The mean values for sentences 15 and 16, which contain a pronominal object, were somewhat lower. Consider now the mean values assigned to sentences 9 to 12, in which the Afrikaans verb occurs in the predicted ill-formed position preceding the Afrikaans subject. Sentences 9 and 10 were assigned higher mean values than sentences 15 and 16, suggesting that the form of the object had a greater effect on participants' perceptions of the well-formed position of the Afrikaans verb in these cases. Note further that the mean values for sentences with an NP object were consistently higher than those for sentences with a pronoun object throughout *wh* set 1, irrespective of verb language or position. Sentences with the verb in the predicted ill-formed position, but with an NP object, were regarded as more well-formed than were sentences with the verb in the predicted well-formed position, but a pronoun object.

An overview of the data in table 7.10 indicates some support for the predictions regarding the position of both English and Afrikaans verbs, although the relatively high mean values assigned to sentences with the Afrikaans verb in the predicted ill-formed position may be taken to indicate some support for the convergence effect discussed in section 7.4. The ANOVA outcomes are informative in this regard, indicating that the strongest effect was for the interaction of the language and position of the verb, with an eta value of .738. Perceptions of well-formedness, however, appear to have been affected by the form of the object, with a strong preference for an NP object. The eta value for the significant effect of object form was .692. There was no clear effect in *wh* set 1 for the presence of a modifying phrase.

The ANOVA for the results for *wh* set 1 revealed significant effects for the interaction of language and position of the verb ($F=64.905$, $df=1,23$, $p=.000$), and for language of verb on its own ($F=26.977$, $df=1,23$, $p=.000$). Figure 7.23 represents the interaction effect, and it is clear that the mean values for Afrikaans verbs were higher than those for English verbs, and that the English verb showed a preference for the predicted

well-formed verb-object order, and the Afrikaans verb showed a preference for the predicted well-formed object-verb order.

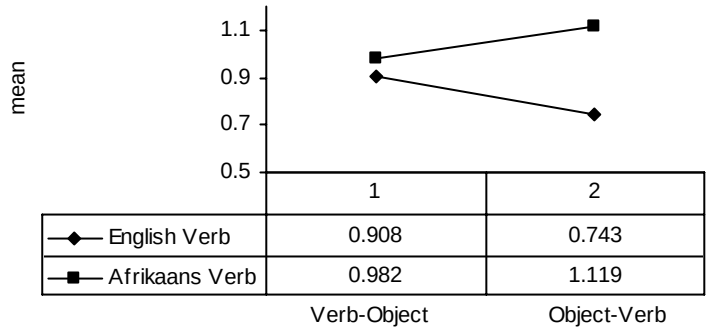


Figure 7.23 Interaction of language and position of verb for *wh* set 1

The ANOVA further revealed a significant effect for the interaction of verb position and the presence of a modifying phrase (F=9.038, df=1,23, p=.006). As is clear from figure 7.24, the verb-object order, predicted well-formed for English verbs, was regarded as more well-formed with a modifying phrase, whereas the object-verb order, predicted well-formed for Afrikaans verbs, was regarded as more well-formed without a modifying phrase. The actual difference in the mean values was small, however.

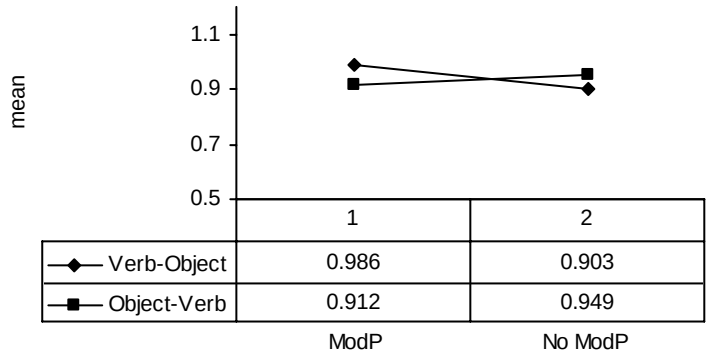


Figure 7.24 Interaction of verb position and presence of modifying phrase for *wh* set 1

Finally, the ANOVA for *wh* set 1 also revealed a significant main effect of object form (F=51.633, df=1,23, p=.000), and a significant effect for

the three-way interaction of language and position of verb and object form (F=5.754, df=1,23, p=.025).

The mean values for *wh* set 2 are presented in table 7.11.

No.	Item	Lang V	Pos V	Obj Form	Mod P	Pred	Mean Value
1	My niggies vra waarom hulle ouma serves a small portion at the table.	E	pre Obj	NP	yes	w-f	1.08
2	**My niggies vra waarom hulle ouma serves a small portion.**	**E**	**pre Obj**	**NP**	**no**	**w-f**	**1.00**
3	My niggies vra waarom hulle ouma serves it at the table.	E	pre Obj	Pro	yes	w-f	.94
4	My niggies vra waarom hulle ouma serves it.	E	pre Obj	Pro	no	w-f	.80
5	My niggies vra waarom hulle ouma a small portion serves at the table.	E	post Obj	NP	yes	i-f	.92
6	My niggies vra waarom hulle ouma a small portion serves.	E	post Obj	NP	no	i-f	1.00
7	My niggies vra waarom hulle ouma it serves at the table. (serves a small portion)	E	post Obj	Pro	yes	i-f	.77
8	My niggies vra waarom hulle ouma it serves.	E	post Obj	Pro	no	i-f	.76
9	My niggies vra waarom hulle ouma skep a small portion at the table.	A	pre Obj	NP	yes	i-f	.89
10	My niggies vra waarom hulle ouma skep a small portion.	A	pre Obj	NP	no	i-f	.96
11	My niggies vra waarom hulle ouma skep it at the table.	A	pre Obj	Pro	yes	i-f	.79
12	My niggies vra waarom hulle ouma skep it.	A	pre Obj	Pro	no	i-f	.72
13	My niggies vra waarom hulle ouma a small portion skep at the table.	A	post Obj	NP	yes	w-f	1.08
14	My niggies vra waarom hulle ouma a small portion skep.	A	post Obj	NP	no	w-f	1.14
15	My niggies vra waarom hulle ouma it skep at the table.	A	post Obj	Pro	yes	w-f	.74
16	My niggies vra waarom hulle ouma it skep.	A	post Obj	Pro	no	w-f	.77

Table 7.11 Mean values assigned to items in *wh* set 2

Beginning with the subset of sentences 1 to 4, containing the English verb in the predicted well-formed position preceding the English object, note that their mean values (ranging from .80 to 1.08) were higher than those for the subset of sentences 5 to 8, containing the English verb in the predicted ill- formed position following the English object (ranging from .76 to 1.00). Note further the positive effect on perceptions of well-formedness of an NP over a pronominal object in sentences 1 to 8, although this effect did not overshadow the predicted effect of verb position (except perhaps in the case of sentences 2 and 6). Also note that

sentences 12 and 16, in which the only English element is the pronoun at the periphery of the sentences, were assigned among the lowest mean values, indicating that such single word switches involving pronouns at the periphery were considered particularly ill-formed.

Turning to the sentences with the Afrikaans verb, note the higher mean values for sentences 13 to 16 with the verb in the predicted well-formed position (ranging from .74 to 1.14) than for sentences 9 to 12 with the verb in the predicted ill-formed position (ranging from .72 to .96). Once again, however, there was a strong influence of object form, with the preference for an NP object overshadowing the predicted effect of verb position in the case of sentences 11 and 15.

An overview of the data in table 7.11 therefore indicates some support for the predictions regarding the position of both the English and Afrikaans verb, but also an effect of object form. Indeed, the ANOVA outcomes reveal that the strongest effect was for object form, with an eta value of .561. There was no consistent effect of the modifying phrase in this data set.

The ANOVA for the results for *wh* set 2 revealed a significant effect for the interaction of the language and position of the verb (F=15.148, df=1,23, p=.001). As is clear from figure 7.25, the English verb showed a slight preference for the predicted well-formed verb-object order, and the Afrikaans verb a slight preference for the predicted well-formed object-verb order.

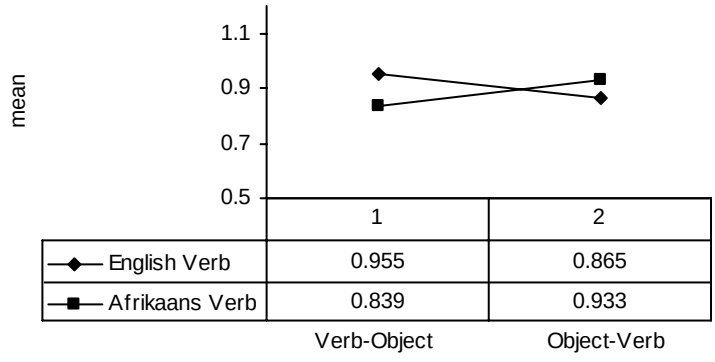


Figure 7.25 Interaction of language and position of verb for *wh* set 2

A second significant effect revealed by the ANOVA for *wh* set 2 was for the interaction of verb position and object form (F=11.918, df=1,23, p=.002) (cf. figure 7.26). The main effect of object form was also significant (F=31.941, df=1,23, p=.000), as was the three-way interaction between language and position of verb and object form (F=6.421, df=1,23, p=.019). As figure 7.24 shows, both verb-object and object-verb orders showed a strong preference for an NP object, more marked in the case of the object-verb order.

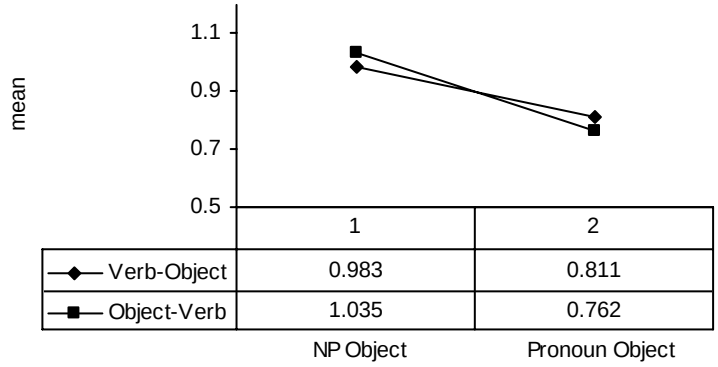


Figure 7.26 Interaction of verb position and object form for *wh* set 2

Finally, the ANOVA revealed a significant effect for the interaction of verb position and the presence of a modifying phrase (F=17.919, df=1,23, p=.000). As shown by figure 7.27, the verb-object order showed a very slight preference for a modifying phrase, whereas the object-verb order showed a very slight preference for the absence of a modifying phrase.

Considering the data for both *wh* sets together, note that the ANOVA outcomes plotted in figures 7.23 and 7.25 suggest that there is some support for the predictions regarding verb position for both English and Afrikaans verbs, but a close look at the mean values for individual items reveals that participants' responses appear to be have been more affected by the form of the object, with a strong preference for an NP over a pronoun object, than by verb position. With regard to the addition of a modifying phrase, there was no clear effect on perceptions of well-formedness. Note that the ANOVA outcomes for both *wh* sets revealed

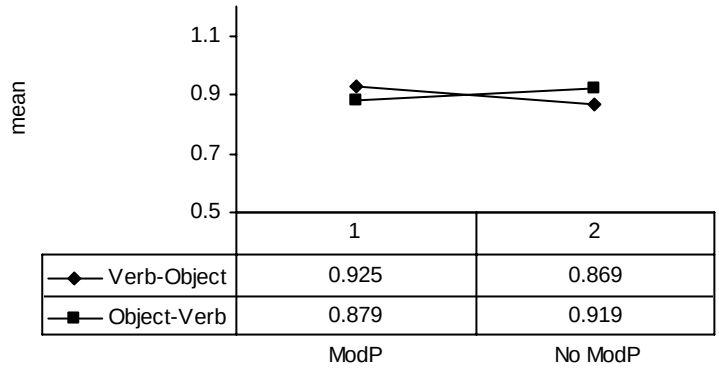


Figure 7.27 Interaction of verb position and presence of modifying phrase for *wh* set 2

Significant effects for the interaction of language and position of verb, and for the interaction of verb position and modifying phrase, as well as for the three-way interaction between language and position of verb and object form. Clearly, the secondary factors of object form and presence of a modifying phrase once again played a role in participants' perceptions of well-formed verb position.

7.6 *yes-no* questions

According to the predictions for *yes-no* questions outlined in section 3.3.7, the strong Q feature of the English QP must be checked by the insertion of *do*; movement of an English verb into this sentence-initial position is predicted to be ill-formed. Furthermore, the strong tense and finiteness features of the Afrikaans TP and FinP, and the strong Q feature of an Afrikaans QP, must be checked by an Afrikaans verb raised to the sentence-initial position. Thus, for the magnitude estimation items in *yes-no* set 1 (cf. table 7.12), it is predicted that sentences with *Do those young girls prefer*… and *Verkies those young girls*… will be considered more well-formed than sentences with *Prefer those young girls*…and *Do those young girls verkies*…. For *yes-no* set 2 (cf. table 7.13), the prediction is that sentences with *Do daardie gawe ouens enjoy*… and *Geniet daardie gawe ouens*… will be considered more well-formed than sentences with *Enjoy daardie gawe ouens*… and *Do daardie gawe ouens geniet*… . It is also predicted that the ANOVA for the *yes-no* results will reveal significant effects for the language and position of the verb, as well as for their interaction, and

that these effects will be stronger than those of object form and the presence of a modifying phrase, also being investigated in this case.

The mean values for the sentences targeting *yes-no* constructions in the first magnitude estimation test, *yes-no* set 1, appear in table 7.12. The language of the verb (Lang V) is indicated as either English (E) or Afrikaans (A); the position of the verb (V Pos) is indicated as either initial or with *do* support; the form of the object (Obj Form) is indicated as either NP or pronoun (Pro); and the modifying phrase is indicated as either present (yes) or absent (no). The reference sentence appears in bold, and the tentative prediction is indicated as either well-formed (w-f) of ill-formed (i-f).

No.	Item	Lang V	V Pos	Obj Form	Mod P	Pred	Mean Value
1	Prefer those young girls souterige botter op hulle brood?	E	initial	NP	yes	i-f	.86
2	Prefer those young girls souterige botter?	E	initial	NP	no	i-f	.85
3	Prefer those young girls dit op hulle brood?	E	initial	Pro	yes	i-f	.91
4	Prefer those young girls dit?	E	initial	Pro	no	i-f	.69
5	Do those young girls prefer souterige botter op hulle brood?	E	with *do*	NP	yes	w-f	1.07
6	**Do those young girls prefer souterige botter?**	**E**	**with *do***	**NP**	**no**	**w-f**	**1.00**
7	Do those young girls prefer dit op hulle brood?	E	with *do*	Pro	yes	w-f	.89
8	Do those young girls prefer dit?	E	with *do*	Pro	no	w-f	.67
9	Verkies those young girls souterige botter op hulle brood?	A	initial	NP	yes	w-f	1.05
10	Verkies those young girls souterige botter?	A	initial	NP	no	w-f	1.04
11	Verkies those young girls dit op hulle brood?	A	initial	Pro	yes	w-f	.97
12	Verkies those young girls dit?	A	initial	Pro	no	w-f	.93
13	Do those young girls verkies souterige botter op hulle brood?	A	with *do*	NP	yes	i-f	.87
14	Do those young girls verkies souterige botter?	A	with *do*	NP	no	i-f	.74
15	Do those young girls verkies dit op hulle brood?	A	with *do*	Pro	yes	i-f	.66
16	Do those young girls verkies dit?	A	with *do*	Pro	no	i-f	.60

Table 7.12 Mean values assigned to items in *yes-no* set 1

Beginning with the subset of sentences 5 to 8, in which the English verb occurs in the predicted well-formed position, note the high mean values for sentences 5 and 6 with an NP object, in contrast to the low mean values for sentences 7 and 8, with a pronominal object. Note further that

the mean values for sentences 3 and 4, which contain the English verb in the predicted ill-formed sentence-initial position, and a pronominal object, were slightly higher than those for sentences 7 and 8, suggesting that the negative effect on perceptions of well-formedness of a pronominal object was strong in these cases. The mean values for sentences 1 and 2, with the English verb in the predicted ill-formed position, were lower than those for sentences 5 and 6. The positive effect on perceptions of well-formedness of the presence of a modifying phrase was also evident throughout the results for sentences 1 to 8. Note that the addition of a modifying phrase in this set increased the length of the Afrikaans segment, which appears to be relevant when one considers the very low mean values assigned to sentences 4 and 8, with a single word switch of the functional element *dit* in sentence-final position.

Turning to sentences 9 to 12, in which the Afrikaans verb occurred in the predicted well-formed sentence-initial position, note the high mean values assigned to sentences 9 and 10, with an NP object, in contrast to the lower mean values for sentences 11 and 12, with a pronoun object. Finally, the mean value values for sentences 13 to 16, containing the Afrikaans verb in the predicted ill-formed position with *do*-support, were the lowest overall, and the mean values for this set also indicated a preference for an NP object. Again, the mean values for all the sentences with Afrikaans verbs (sentences 9 to 16) indicated a positive effect on perceptions of well-formedness for the presence of a modifying phrase, which lengthened the Afrikaans segment following the switch.

An overview of the data in table 7.12 indicates some support for the predictions for both English and Afrikaans verbs, but it is clear that other effects interfere with the predicted effect of verb position. Firstly, there was a preference for an NP over a pronoun object in all but one case (the case of sentences 1 and 3 being the exception). The ANOVA revealed this to be the strongest effect, with an eta value of .521. Consider in this regard the eta value of .480 for the significance of the interaction of language and position of the verb. Secondly, the presence of a modifying phrase appears to had a positive effect on perceptions of well-formedness throughout *yes-no* set 1, which the ANOVA revealed as a significant effect with an eta value of .468.

The ANOVA for the results for *yes-no* set 1 revealed significant effects for the interaction of language and position of the verb (F=19.398,

df=1,21, p=.000), and for position on its own (F=8.527, df=1,21, p=.008). As is clear from figure 7.28, the English verb showed a preference for *do*-support, and the Afrikaans verb an even more pronounced preference for the sentence-initial position.

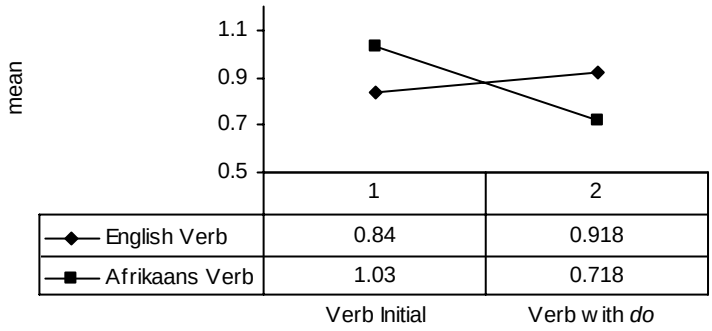


Figure 7.28 Interaction of language and position of verb for *yes-no* set 1

The ANOVA also revealed a significant effect for the interaction of verb position and object form (F=5.090, df=1,21, p=.035), as well as for object form on its own (F=22.817, df=1,21, p=.000). Figure 7.29 clearly illustrates the preference of both verb positions for an NP object, more pronounced in the case of *do*-support, predicted well-formed for the English verb.

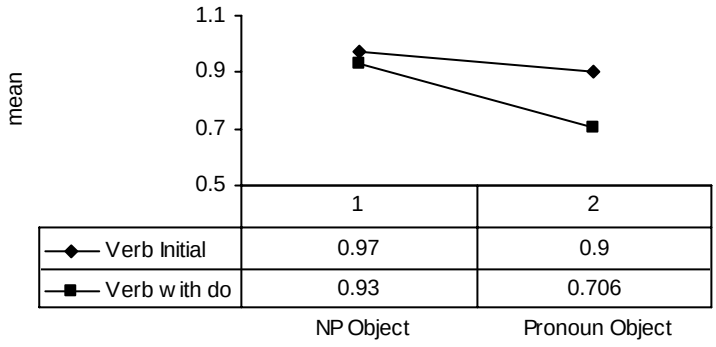


Figure 7.29 Interaction of verb position and object form for *yes-no* set 1

Further significant effects revealed by the ANOVA in the case of *yes-no* set 1 were for the presence of a modifying phrase on its own (F=18.470, df=1,21, p=.000), the interaction of language of verb and modifying

phrase (F=4.496, df=1,21, p=.046), and for the three-way interaction between language of verb, object form, and modifying phrase (F=8.504, df=1,21, p=.008). As can be seen in figure 7.30, both English and Afrikaans verbs showed a slight preference for a modifying phrase, slightly more pronounced for the English verb.

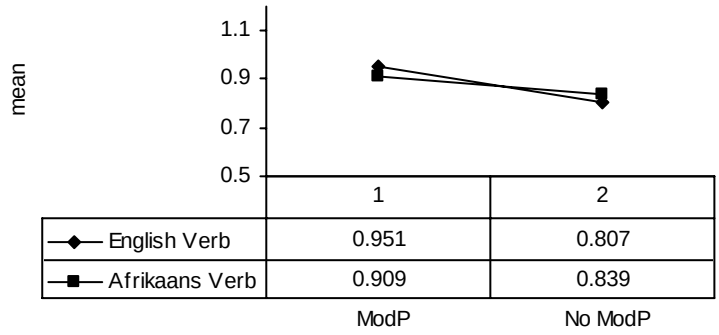


Figure 7.30 Interaction of language of verb and presence of modifying phrase for *yes-no* set 1

Finally, the ANOVA revealed a significant effect in *yes-no* set 1 of the interaction of object form and the presence of a modifying phrase (F=5.387, df=1,21, p=.030). Figure 7.31 represents this interaction, where a preference for a modifying phrase is clear for both NP and pronoun objects, more pronounced in the case of pronoun objects.

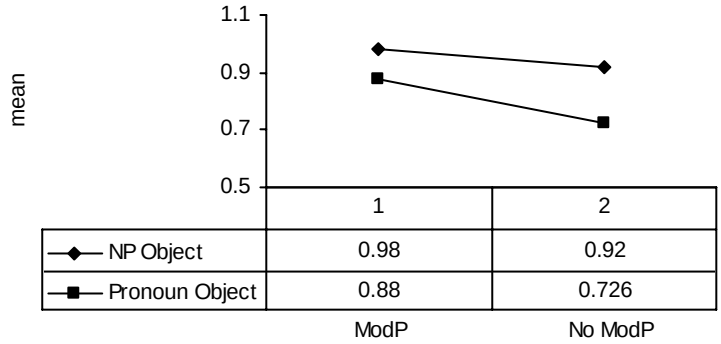


Figure 7.31 Interaction of object form and presence of modifying phrase for *yes-no* set 1

The means of the values assigned to the sentences in *yes-no* set 2 in the second magnitude estimation test are presented in table 7.13.

Considering first the subset of sentences containing the Afrikaans verb in the predicted well-formed sentence-initial position (sentences 9 to 12), note that the highest mean values overall were assigned to sentences 9 and 10, with an NP object, a slightly lower mean value to sentence 11, with a pronominal object and a modifying phrase, and the lowest mean value to sentence 12, with a pronominal object and no modifying phrase. The mean values for sentences 13 to 16, containing the Afrikaans verb in the predicted ill-formed position with *do*-support, were substantially lower than those for sentences 9 to 12, indicating the predicted effect of verb position on perceptions of well-formedness. The results for sentences 9 to 16, with Afrikaans verbs, reveal a uniform pattern, with the mean values for the predicted well-formed sentences 9 to 12 being higher than those for the predicted ill-formed sentences 13 to 16, and the positive effects of both an NP object and a modifying phrase in evidence. Note that the addition of a modifying phrase to these sentences led to the lengthening of the English segment.

No.	Item	Lang V	V Pos	Obj Form	Mod P	Pred	Mean Value
1	Enjoy daardie gawe ouens brown sugar in their tea?	E	initial	NP	yes	i-f	1.13
2	Enjoy daardie gawe ouens brown sugar?	E	initial	NP	no	i-f	1.06
3	Enjoy daardie gawe ouens it in their tea?	E	initial	Pro	yes	i-f	.90
4	Enjoy daardie gawe ouens it?	E	initial	Pro	no	i-f	1.02
5	**Do daardie gawe ouens enjoy brown sugar in their tea?**	**E**	**with *do***	**NP**	**yes**	**w-f**	**1.00**
6	Do daardie gawe ouens enjoy brown sugar?	E	with *do*	NP	no	w-f	1.04
7	Do daardie gawe ouens enjoy it in their tea?	E	with *do*	Pro	yes	w-f	.95
8	Do daardie gawe ouens enjoy it?	E	with *do*	Pro	no	w-f	.87
9	Geniet daardie gawe ouens brown sugar in their tea?	A	initial	NP	yes	w-f	1.23
10	Geniet daardie gawe ouens brown sugar?	A	initial	NP	no	w-f	1.13
11	Geniet daardie gawe ouens it in their tea?	A	initial	Pro	yes	w-f	1.05
12	Geniet daardie gawe ouens it?	A	initial	Pro	no	w-f	.94
13	Do daardie gawe ouens geniet brown sugar in their tea?	A	with *do*	NP	yes	i-f	.96
14	Do daardie gawe ouens geniet brown sugar?	A	with *do*	NP	no	i-f	.86
15	Do daardie gawe ouens geniet it in their tea?	A	with *do*	Pro	yes	i-f	.83
16	Do daardie gawe ouens geniet it?	A	with *do*	Pro	no	i-f	.74

Table 7.13 Mean values assigned to items in *yes-no* set 2

Considering now the results for the sentences with the English verb, note that the mean values for sentences 1, 2 and 4, with the English verb in the predicted ill-formed sentence-initial position, were high in comparison to those assigned to sentences 5 to 8, with the English verb in the predicted well-formed position. It appears that participants considered the sentence-initial English verb to be well-formed in these cases. It may be that this result is due to an adjacency effect of the Afrikaans subject in these sentences, which may have allowed participants to consider the English verb as well-formed in the position predicted to be well-formed for the Afrikaans verb. The positive effect on perceptions of well-formedness of an NP object is observable in the mean values assigned to sentences 1 to 8, but the presence of a modifying phrase apparently had no consistent effect.

An overview of the data in table 7.13 therefore indicates some support for the predictions for the position of the Afrikaans verb, but no support for that of the English verb. The preference for an NP over a pronominal object was consistent throughout. The preference for the addition of a modifying phrase appeared to play a role in the case of the Afrikaans verb, but not that of the English verb. In this regard, note that the strongest effect revealed by the ANOVA was for the interaction of language of verb and presence of a modifying phrase, with an eta value of .599.

The ANOVA for the results for *yes-no* set 2 revealed significant effects for the interaction of language and position of the verb ($F=10.678$, $df=1,22$, $p=.004$), and for verb position ($F=17.333$, $df=1,22$, $p=.000$). The lines in figure 7.32 illustrate the preference for the sentence-initial position, very slight in the case of the English verb, and more pronounced in the case of the Afrikaans verb.

The ANOVA further revealed significant effects for the interaction of language of verb and the presence of a modifying phrase ($F=32.806$, $df=1,22$, $p=.000$), as well as for the modifying phrase on its own ($F=5.673$, $df=1,22$, $p=.026$). As can be seen in figure 7.33, the English verb is largely insensitive to the presence of a modifying phrase, whereas the Afrikaans verb shows a preference for a modifying phrase.

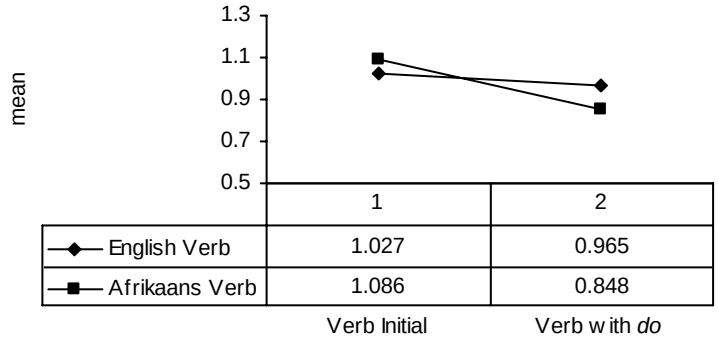


Figure 7.32 Interaction of language and position of verb for *yes-no* set 2

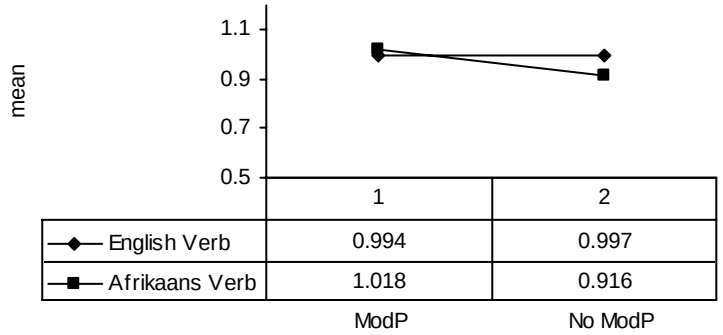


Figure 7.33 Interaction of language of verb and presence of modifying phrase for *yes-no* set 2

Finally, the ANOVA revealed a significant main effect of object form (F=21.573, df=1,22, p=.000), and a four-way interaction between language and position of verb, object form, and presence of a modifying phrase (F=7.839, df=1,21, p=.010).

The results for the *yes-no* sets together reveal an asymmetry, in that the prediction regarding the position of the Afrikaans verb is supported by both sets, but that for the position of the English verb is supported only by the results for set 1. The results for set 2 appear to indicate that the English verb was considered well-formed in the predicted ill-formed sentence-initial position. This may be due to an adjacency effect of the Afrikaans subject in these sentences. There is evidence in both sets that perceptions of well-formedness were positively affected by an NP rather

than a pronoun object, and by the presence of a modifying phrase. Furthermore, the ANOVA outcomes reveal that these secondary factors may have had an influence on the role of the primary factors of verb language and position.

7.7 Summary of results

With regard to the predictions for the well- and ill-formed positions of English and Afrikaans verbs in the various constructions, the results of the magnitude estimation tests appear to be inconclusive. While there is some support for the verb position predictions for some of the constructions (such as for English and Afrikaans verbs in constructions with adverbs and embedded *wh* clauses, English verbs in embedded *that* clauses, and Afrikaans verbs in focalisation constructions and *yes-no* questions), it appears that there are a number of factors besides verb position which affected participants' perceptions of well- and ill-formedness of the code switched sentences. Overall, it would appear that the magnitude estimation test was relatively successful at eliciting data on the perceived levels of well-formedness of various permutations of each construction, and in identifying linguistic factors other than verb position which play a role in judgments of well- and ill-formedness.

Firstly, the language of the element adjacent to the verb appears to have interacted with the perceived well-formed position of the verb. For example, an English subject may have allowed an Afrikaans verb to be considered well-formed in its predicted ill-formed position (as in the cases of topicalisation and *that* constructions), and an Afrikaans subject may have allowed an English verb to be considered well-formed in its predicted ill-formed position (as in the cases of focalisation and topicalisation constructions and *yes-no* questions). This apparent effect of the element adjacent to the verb was also observed in the case of constructions with adverbs, where the language of the adverb appeared to affect perceptions of the well-formed position of the English verb (i.e., the English verb was considered well-formed in its predicted ill-formed position when adjacent to an Afrikaans adverb).

Secondly, the length and nature of certain elements in the sentence may also be seen to have interacted with verb position in perceptions of well-formedness. The form of the subject in the adverb, topicalisation and focalisation constructions, and the form of the object in the *that*, *wh* and

yes-no constructions, was varied between an NP and a pronoun. An NP is longer and perceptually more salient than a pronoun. Furthermore, a pronoun is a functional element, while an NP is a lexical element. In all cases except topicalisation, there was a preference for full NP over pronominal subjects and objects. This preference may relate to a preference for longer switched segments, in that an NP subject or object lengthens the switched segment. Note that there was a tendency to consider sentences with longer switched segments as more well-formed than those with shorter switched segments, such as in the cases of adverb sets 1 and 2, *that* set 2, and *yes-no* sets 1 and 2. On the other hand, the preference for an NP over a pronoun subject or object may have to do with their differing nature, in that there was a tendency to regard sentences with a single word switch involving a pronoun as less well-formed,[46] particularly at the periphery of the sentence (cf. the results for focalisation set 1, topicalisation set 2, and *wh* set 2). This tendency was not observed for single word switches involving content words, which may be due to participants' perception of such content words as (nonce) loans.

Thirdly, the effect of the addition of a modifying phrase was evaluated in all constructions except those with adverbs. The addition of a modifying phrase had different effects on different sentences, in some cases lengthening a segment in a particular language, in others entailing an additional one or two switch points, thereby embedding a segment in one language between two segments in the other. The effect of the presence of the modifying phrase was not consistent; a positive effect on perceptions of well-formedness was noted for focalisation and (less strongly) for *yes-no* constructions, but not in the other cases.

Concerning the significant effects as reflected by the ANOVA outcomes, note that the interaction of the language and position of the verb, which formed the foundation of the predictions, was significant in 15 of the 16 data sets (the exception being topicalisation set 1) (cf. table 7.1). Also note that the main effect for the form of the subject or object, discussed above, was significant in 15 of the 16 data sets (the exception again being topicalisation set 1) (cf. table 7.1). Finally, note the significant effects in some of the results sets for the three- and four-way interactions of

[46] Note that this tendency was not consistent (cf. the results for adverb set 1, focalisation set 1, *yes-no* set 1, as opposed to topicalisation sets 1 and 2).

primary and secondary factors, which support the suggestion above that there is no conclusive support for the predictions regarding the role of the language and position of the verb.

The results for the magnitude estimation tests are discussed in relation to the results for the other tests, and in relation to the main hypothesis, in chapter 8.

CHAPTER 8

DISCUSSION

This chapter presents an overview and discussion of the results of the various tests. The relative merit of the experimental paradigm is the focus of section 8.1. The results are discussed in terms of the main hypothesis in section 8.2, and a number of further findings in section 8.3. Concluding remarks are offered in section 8.4. By way of introduction, table 8.1 indicates the degree of support for the predictions for each construction from each test, differentiating between the support for the predictions for English verbs ("Eng V") and for Afrikaans verbs ("Afrik V"), and offering further comments where relevant.

	Visual judgments	**Auditory judgments**	**Sentence construction**	**Video clip description**	**Magnitude estimation**
Adverbs	strong support; stronger for Afrik V	strong support; stronger for Afrik V	strong support; stronger for Afrik V	perfect support	some support; adjacency effect; NP subject effect
Focalisation	strong support; stronger for Afrik V	strong support; stronger for Afrik V	strong support; stronger for Afrik V	strong support	some support ; stronger for Afrik V; adjacency effect; NP subject effect; ModP effect
Topicalisation	strong support; stronger for Afrik V	weak support for Eng V; strong support for Afrik V	weak support for Eng V; strong support for Afrik V	strong support; stronger for Eng V	some support; adjacency effect
embedded *that* clauses	weak support for Eng V; no support for Afrik V	weak support; stronger for Eng V	no support	strong support for Eng V; evidence against predictions for Afrik V	some support for Eng V; adjacency effect; NP object effect
embedded *wh* clauses	weak support for Eng V; no support for Afrik V	weak support	no support for Eng V; weak support for Afrik V	strong support	some support; NP object effect
***yes-no* questions**	evidence against predictions for Eng V; weak support for Afrik V	no support for Eng V; weak support for Afrik V	n/a	strong support	some support for Afrik V; adjacency effect; NP object effect; ModP effect

Table 8.1 Results for each construction across the tests

8.1 Evaluating the paradigm

In evaluating the merit of the experimental paradigm and each of its parts, the focus is on (i) the extent of the similarity between results, indicating inter-test reliability, discussed in section 8.1.1; (ii) the contribution made by each test to the data base, discussed in section 8.1.2; (iii) factors which influenced test performance, discussed in section 8.1.3; and (iv) an evaluation of the web-based format, discussed in section 8.1.4.

8.1.1 Results across the tests

Focusing first on the results of the visual and auditory judgment tests and the sentence construction test, discussed in chapter 5, these results reveal the inter-test reliability for the three tests. The mean ranges for each test, as well as the ANOVA outcomes, suggest that results were similar for each individual construction type. In the case of constructions with adverbs, focalisation and topicalisation constructions, and *yes-no* questions, the language of the verb played a significant role, whereas in embedded *that* and *wh* clauses, the role of the language of the verb was not significant. In these three tests, performance across participants also appears to have been consistent for constructions with adverbs, focalisation and topicalisation constructions, and *yes-no* questions. The language of the participant did, however, play a significant role in *that* and *wh* clauses.

The clustering of results across these three tests may be interpreted as an indication that the three techniques complement one another in tapping participants' linguistic competence in a similar fashion. In the relative judgment tests, the participant performs a receptive task and has a choice between two options; in the sentence construction test, the participant performs a productive task, but still has a limited set of options available, i.e., there is a limit to the number of ways in which the three sentence fragments may be combined. Thus, it may be concluded that the results of the limited-option sentence construction task support those of the binary-option relative judgment task. Furthermore, the consistency of results across the two relative judgment tests suggests that both presentation modalities tested the predictions in a similar manner.

Consider now the relationship of the above-mentioned test results to those of the video clip description test, which entailed an open-ended production task, thereby differing in nature from each of the above-mentioned tests. The video clip description test tapped participants' linguistic competence in a different manner to the above tests, as a participant was free to produce any structure s/he chose, rather than selecting from a closed set. Note, however, that the task was not entirely spontaneous, as participants had no option as to the position of the switch point or the language of the verb (except in the case of the *yes-no* items, where the language of the verb was under the control of the participant). Recall that the results of the video clip description test indicated strong support for the predictions regarding verb position for all of the constructions, with the exception of the prediction for the Afrikaans verb in *that* constructions. In this manner the results of the video clip description test differed from those of the relative judgment and sentence construction tests, which indicated strong support for the predictions regarding verb position for constructions with adverbs, and focalisation and topicalisation constructions; weak support for the prediction for Afrikaans verb position in *yes-no* questions; weak evidence against the prediction for English verb position in *yes-no* questions; and weak to no support for the prediction for verb position in embedded *that* and *wh* clauses.

Thus, the results of the video clip description test differ markedly from those of the relative judgment and sentence construction tests. In the cases of constructions with adverbs, and focalisation and topicalisation constructions, the results of the four tests appear to complement one another, indicating support for the predictions regarding verb position. For the remaining constructions, however, the picture is more complex, and the question arises as to the role of the nature of a particular test in influencing the results, or more specifically as to whether a particular test more accurately reflects the bilingual speaker's competence than does another. One may be tempted to conclude that the open-ended production task offers the most direct and reliable reflection of a participant's competence, as responses indicate what the participant actually felt comfortable producing. Conversely, one may propose that a forced-choice task encourages a participant to consciously reflect on the options available, and to make a decision based on his/her linguistic competence.

Finally, the results of the magnitude estimation test can, to a certain extent, be related to those of the other four tests. In the case of each of the construction types, the magnitude estimation results indicated some support for the predictions for verb position for either English or Afrikaans verbs, or both. However, the magnitude estimation test appears to have fulfilled its purpose of identifying linguistic factors other than verb position which play a role in judgments of well- and ill-formedness (cf. section 8.3), and so its results may be seen as supplementing those of the other four tests.

8.1.2 The relative merit of each of the tests

The relative consistency of results across tests, although not universal across all constructions for both English and Afrikaans verbs, as well as the added information gained from the magnitude estimation test, suggest that all of the tests used in the present study have merit in testing the predictions of the sort made in chapter 3. The consistency of results across the two relative judgment tests, of visually presented sentences and auditorily presented utterances, as mentioned above, suggests that presentation modality had little effect on participant performance. The use of both modalities does, however, have the advantage of generating a larger and more diverse database. The consistency of the results of the relative judgment tests and the sentence construction test indicate further that response modality did not significantly affect performance. The consistency of results across the two presentation modalities and the two response modalities is encouraging, and may be taken to suggest that such a combination of tests yields complementary information regarding the relevant predictions.

The video clip description test, in its turn, yielded information on what participants actually produced in terms of code switched constructions. The failure of participants to produce the target structure in certain instances, as in the case of adverb constructions discussed in chapter 6, is also significant, and illustrates a shortcoming of such an open-ended production task, which allows little researcher control over participants' responses. Such a production task is, however, invaluable in gathering data to inform predictions of the sort tested here, and specifically in supplementing the data gathered by other tests.

Finally, the magnitude estimation test appears to have succeeded in identifying a number of factors besides verb position which affect perceptions of well- and ill-formedness. The consistency of these effects across constructions is striking, and suggests that the items in each test targeting each of the constructions yielded similar results. The effects of the language and nature of elements adjacent to the verb, the central finding of the magnitude estimation test, are discussed further in relation to the predictions in section 8.3. For the present, suffice to say that the magnitude estimation test was invaluable in supplementing the information regarding the predictions from the other four tests.

In conclusion, it may be suggested that a test battery such as the one applied here is essential in building up a reliable database on structural aspects of code switching. There is a need for both receptive and production data, and for data gathered by means of a number of different modalities, in order to determine the support or lack thereof for predictions made regarding structure, and to identify further factors, grammatical or otherwise, affecting participant performance.

8.1.3 Factors influencing test performance

In research aiming to test specific predictions on the basis of participants' responses to linguistic constructions, care must be taken to avoid undue influence from other linguistic factors, not related to the relevant prediction. One of the most exacting tasks in the research reported here was that of the generation of test items. The factors borne in mind in item generation (cf. section 4.2), such as frequency and cognate status, appear to have had distinct value, considering the item-specific idiosyncrasies which were revealed by the results in some cases, attributed to a variety of semantic and other factors (cf. chapter 5). Furthermore, the care taken to avoid potential loanwords and homophones, for example, was insufficient, as the results for some items had to be excluded from analysis due to the possible influence of such words. Care in item generation therefore appears to be of central importance in order to ensure the testing of the relevant prediction, and to avoid influence from other linguistic factors on participant performance. It should, however, be borne in mind that, in settings of intense bilingual contact, it may be difficult to identify (nonce) loans with a satisfactory degree of precision. True (nonce) loans would be identified in the core vocabulary, and the core vocabularies of the languages

involved in such intense contact may contain many near-cognates, as is the case with English and Afrikaans.

8.1.4 The web-based test format

The web-based format of the tests in the present project was of great benefit in a number of ways. Firstly, it was possible to select qualifying participants from a larger group of potential participants without subjecting them to the effort of a face-to-face meeting. Secondly, the test paradigms, once they have been set up and fine-tuned, may be re-used for further testing with the insertion of new tests items. Thirdly, the format of such tests is in keeping with modern trends, and may appear more attractive than traditional pen-and-paper tests to potential participants, especially among the student population. The main advantage offered by the web-based format, however, was that it allowed data to be gathered from a large group of participants in a relatively short space of time, with minimum contact between researcher and participant. This minimised the effort on the part of the participant in terms of making and keeping appointments, and made it possible to have all participants complete the five web-based tests as well as the video clip description test without losing interest in the project. A related disadvantage of the web-based format, however, was the lack of on-site instruction clarification and monitoring by the researcher, who was not present as the participant undertook each web-based test. In general, participants appeared to regard all the tests except that of magnitude estimation, which was cognitively taxing to many, as relatively "user-friendly", and this may be largely ascribed to the presentation format, which allowed them to complete the tests in their own time.

8.2 The main hypothesis

Recall that the main hypothesis for the present study entails that the assumptions and devices associated with minimalist syntax (specifically, feature checking and related principles and operations) provide an adequate framework within which to characterise and explain the structural aspects of English-Afrikaans intrasentential code switching. Adopting the principles and parameters and convergence frameworks (cf. section 3.1.3), the study aims to evaluate the merit of an account of the structure of certain code switched constructions in terms of parametric differences between the two languages in (i) the feature

checking requirements of various CP heads, and (ii) the feature checking abilities of verbs (where English and Afrikaans verbs differ in their formal feature make-up) (cf. section 3.2). The differences between English and Afrikaans in the surface word order in the six constructions tested were analysed in terms of these parametric differences, and predictions were made for the structure of such constructions in which code switching occurs. The extent to which the predictions are borne out by the data may be informative in terms of (i) the merit of the underlying analyses, (ii) the merit of the proposal for code switching, and (iii) the merit of the main hypothesis.

The results for each construction are discussed in sections 8.2.1 to 8.2.6 in terms of their support for the analyses and predictions made on the basis of the main hypothesis. Section 8.2.7 presents an overall evaluation of the extent to which the results provide information on (i) to (iii) above.

8.2.1 Constructions with adverbs

The predictions for constructions with adverbs in which English and Afrikaans are switched, as set out in section 3.3.2, entail that an Afrikaans verb must raise to the left of the adverb to check the strong tense and finiteness features of TP and FinP, respectively, whereas an English verb must remain in situ to the right of the adverb, and may not raise to the left. These predictions are reflected by the constructions in (54) and (55), repeated here as (160) and (161).

(160) a My elderly grandfather *kies gewoonlik* the soft white meat.
choose usually
b *My elderly grandfather *gewoonlik kies* the soft white meat.

(161) a Daardie prokureur *clearly hates* sy lui sekretaresse.
that lawyer his lazy secretary
b *Daardie prokureur *hates clearly* sy lui sekretaresse.

Strong support for these predictions was indicated by the visual and auditory relative judgment, sentence construction, and video clip description tests, slightly stronger in the case of the Afrikaans verb than that of the English verb. The results of the magnitude estimation test indicated some support for the predictions, but also suggested that

factors besides the language and position of the verb may be central to perceptions of well- and ill-formedness of code switched constructions with adverbs (cf. section 8.3). On the basis of this support, it may be suggested that the analysis of the difference in surface word order of English and Afrikaans adverb constructions in terms of parametric differences in feature checking requirements (of heads in the CP layer) and feature checking abilities (of English and Afrikaans verbs), may have some merit. It may be that these feature checking differences play a role in the structure of constructions with adverbs in which English and Afrikaans are switched, but this suggestion would be more plausible if supported by findings regarding other constructions in which one would expect a similar effect of feature checking differences.

8.2.2 Focalisation constructions

The predictions for focalisation constructions in which English and Afrikaans are switched, as set out in section 3.3.3, entail that an Afrikaans verb must raise first to TP and then to FocP to check their strong tense and finiteness features, whereas an English verb must remain in situ as the TP and FocP possess no strong tense and finiteness features. These predictions are reflected by the constructions in (61) and (62), repeated here as (162) and (163).

(162) a The tall plastic containers *gebruik daardie kok* for brown sugar.
use that chef
b *The tall plastic containers *daardie kok gebruik* for brown sugar.

(163) a Die helder rooi blomme *she grows* onder in haar tuin.
the bright red flower-PL below in her garden
b *Die helder rooi blomme *grows she* onder in haar tuin.

Strong support for these predictions was indicated by the visual and auditory relative judgment, sentence construction, and video clip description tests. The support for the prediction regarding the position of the Afrikaans verb was slightly higher than for that of the English verb. The magnitude estimation results offered some support for the predictions, but once again indicated further factors playing a determining role in perceptions of well- and ill-formedness (cf. section 8.3). On the basis of this support, it may be suggested that the analysis of the difference in surface word order of English and Afrikaans

focalisation constructions in terms of parametric differences in feature checking requirements (of CP heads) and feature checking abilities (of verbs), may have some merit. The suggestion that these feature checking differences play a role in the structure of code switched focalisation constructions, however, would be strengthened by support from other constructions, already evident for constructions with adverbs discussed above.

8.2.3 Topicalisation constructions

The predictions for topicalisation constructions in which English and Afrikaans are switched, as set out in section 3.3.4, entail that an Afrikaans verb must raise first to TP and then to FocP to check their strong tense and finiteness features, whereas an English verb must remain in situ. These predictions are reflected by the constructions in (68) and (69), repeated here as (164) and (165).

(164) a My favourite shop is in the old district. That shop *besoek ek*
visit I
every week.

b *My favourite shop is in the old district. That shop *ek besoek* every week.

(165) a Die soldate het die grenspos aangeval. Daardie noodlottige
the soldier-PL have the border post on-PAST PART-fall that fatal
aanval *the leaders regret* elke dag.
attack every day

b *Die soldate het die grenspos aangeval. Daardie noodlottige aanval *regret the leaders* elke dag.

Strong support for the prediction for Afrikaans verbs (cf. (158)) was indicated by the results of the visual and auditory judgment, sentence construction, and video clip description tests. Strong support for the prediction for English verbs (cf. (159)) was indicated by the visual judgment and video clip description tests, and weak support by the auditory judgment and sentence construction tests. Across the judgment and sentence tests, items with English verbs got higher ill-formed scores than did items with Afrikaans verbs, and a number of items with English verbs performed around chance level. These results suggest the possibility that English verbs were in some cases considered well-formed

in their predicted ill-formed position, i.e., in the position usually filled by an Afrikaans verb. The results of the magnitude estimation test offered no clear support for the predictions, and indicated an interaction between subject and verb in terms of the positions in which these elements were considered to be well-formed (cf. section 8.3). Thus, the results for topicalisation constructions differ somewhat from those for adverb and focalisation constructions discussed above, but nevertheless there is some support for the predictions regarding verb position in topicalisation constructions in which English and Afrikaans are switched, suggesting that the analysis of English and Afrikaans topicalisation constructions in terms of feature checking differences may have some merit. The suggestion that these feature checking differences play a role in the structure of code switched topicalisation constructions is supported by the results for adverb and focalisation constructions discussed above.

8.2.4 Embedded *that* clauses

The predictions for embedded *that* clauses in which English and Afrikaans are switched, as set out in section 3.3.5, entail that both English and Afrikaans verbs must remain in situ, and that the Afrikaans object NP moves to the left of the Afrikaans verb, whereas the English object NP may not move. These predictions are reflected by the constructions in (75) and (76), repeated here as (166) and (167).

(166) a The author said that the youngster *die boeke lees*.
the book-PL read
b *The author said that the youngster *lees die boeke*.

(167) a Die uitslae dui aan dat die mense *like the sympathetic president*.
the result-PL indicate that the person-PL
b *Die uitslae dui aan dat die mense *the sympathetic president like*.

The results of the visual and auditory judgment and sentence construction tests indicated little support for the predictions reflected by (166) and (167), with mean scores varying between chance level and indications of weak support. In these three tests, the support for the prediction regarding the position of the English verb was slightly higher than that for the Afrikaans verb, which is the opposite to the pattern for the three constructions discussed above. Furthermore, the ANOVA

outcomes revealed no significant effect for the language of the verb, unlike in the cases of the three above constructions. Finally, the results from the judgment and sentence tests for *that* items also differed from those for the constructions discussed above, in that there were wide mean ranges, suggesting that a variety of factors besides verb position, as discussed in section 5.4, influenced participants' performance with the items. The results of the video clip description test underscore the difference between embedded *that* clauses and the above three constructions, indicating strong support for the prediction for the English verb position, but weak evidence against that for the Afrikaans verb position. Furthermore, the ANOVA revealed a significant effect for the language of the verb in embedded *that* clause video clip items only, not for any of the remaining five construction types. The magnitude estimation results, in turn, further underscore the difference between the performance of English and Afrikaans verbs, indicating some support for the prediction regarding the position of the English verb, but not for that of the Afrikaans verb. Furthermore, the magnitude estimation results indicate an interaction between subject and verb in terms of the positions in which these elements were considered to be well-formed, as mentioned above for the case of topicalisation constructions (cf. section 8.3 for further discussion).

Overall, the results for embedded *that* clause items across the five tests appear to suggest that the Afrikaans verb was quite regularly considered well-formed in its predicted ill-formed position, whereas the English verb was somewhat more consistently preferred in its predicted well-formed position, although not so much as to indicate strong support for the predictions.

In partial explanation for these findings, it may be proposed that the language of the lexical item (complementiser) in the head of the top-/leftmost CP projection (*that* or *dat* in this case) determines the language index of the entire CP layer, thereby determining the language index of all the projections within this CP layer.[47] The implication for embedded *that* (and *wh*) clauses is that the language index of AgrOP is determined by the language of the complementiser. Therefore, a sentence with the complementiser *that* will not allow leftward movement of the object into the (English-indexed) AgrOP, whereas a sentence with the

[47] Or within the CP phase, to use the more recent terminology.

complementiser *dat* will require such leftward movement of the object into the (Afrikaans-indexed) AgrOP. For constructions with no overt complementiser (such as the adverb, focalisation, and topicalisation constructions discussed above), this proposal holds no implications.

Note, however, that predictions based on this proposal would be the exact opposite of those reflected in (166) and (167) above (cf. (168) and (169)), as the English complementiser *that* would dictate a verb-object order, and the Afrikaans complementiser *dat* would dictate an object-verb order. This proposal would therefore be supported if the results of the tests indicated consistent evidence against the original predictions for both English and Afrikaans verb position, which is not the case.

(168) a The author said that the youngster *lees die boeke*.
b *The author said that the youngster *die boeke lees*.

(169) a Die uitslae dui aan dat die mense *the sympathetic president like*.
b *Die uitslae dui aan dat die mense *like the sympathetic president*.

The problem to be addressed here is in fact the inconclusiveness of the results, in that they neither adequately support nor adequately refute the predictions. Furthermore, there is the problem of the inconsistency of the results for English and Afrikaans verbs. There are two factors which may contribute a partial explanation for the results for embedded *that* clauses. The first may lie in the apparent vulnerability of these items to interference from the type of processing effects mentioned in section 5.4, such as the processing of semantic content. A second possible partial explanation may lie in the adjacency effect of the language of the subject on the perceived well-formed position of the verb revealed by the magnitude estimation results, by which an English verb was considered well-formed in its predicted ill-formed position when adjacent to an Afrikaans subject, and an Afrikaans verb was considered well-formed in its predicted ill-formed position when adjacent to an English subject.

Finally, it may be suggested that the results for embedded *that* clauses actually indicate participants' lack of certainty with regard to the well-formed position of the verb in such code switched constructions. Such uncertainty may result from a lack of convergence for the derivations of both options, i.e., if the derivations of both the (a) and the (b) options in (166) and (167) crash instead of converging. Recall that a derivation is

said to converge when all strong uninterpretable features are checked (cf. section 3.1.3). In the case of the code switched test items for embedded *that* clauses, there may be a mismatch between the feature checking needs of the functional projections and the availability of lexical items able to check these features.

8.2.5 Embedded *wh* clauses

The predictions for embedded *wh* clauses in which English and Afrikaans are switched, as set out in section 3.3.6, are similar to those for embedded *that* clauses, entailing that both English and Afrikaans verbs must remain in situ, the Afrikaans object NP must move to the left of the Afrikaans verb, whereas the English object NP may not move. These predictions, reflected by the constructions in (83) and (84), are repeated here as (170) and (171).

(170) a His divorce lawyer asks him why he *daardie tipe kontrak verkies*.
that type contract prefer
b *His divorce lawyer asks him why he *verkies daardie tipe kontrak*.

(171) a Die gaste vra wanneer die restaurante *close in the evening*.
the guest-PL ask when the restaurant-PL
b *Die gaste vra wanneer die restaurante *in the evening close*.

The results of the visual and auditory judgment and sentence construction tests indicated very little support for the predictions reflected by (170) and (171), with mean scores varying between chance level and indications of weak support. In these three tests, the support for the prediction regarding the position of the English verb in embedded *wh* clauses was slightly higher than that for the Afrikaans verb. The ANOVA outcomes also revealed no significant effect for the language of the verb. Finally, the wide mean ranges for *wh* items in the judgment and sentence tests suggested that a variety of factors besides verb position, as discussed in section 5.5, influenced participants' performance with the items. In these ways, the results of these three tests for embedded *wh* clause items are similar to those for embedded *that* clause items, and different to those for adverb, focalisation, and topicalisation constructions. The results of the video clip description test, on the other hand, indicate strong support for the predictions regarding both English and Afrikaans verbs in embedded *wh* clauses, and the

magnitude estimation results also indicate some support for these predictions. In these ways, the results for embedded *wh* clauses are similar to those for adverb, focalisation, and topicalisation constructions, and different from those for embedded *that* clauses.

Overall, the results for embedded *wh* clause items across the five tests appear to suggest some support for the predictions reflected by (170) and (171), but there is also evidence that both English and (even more so) Afrikaans verbs are in some instances considered well-formed in their predicted ill-formed positions. Note that the proposal of the language-indexing power of the complementiser in embedded *that* clauses (cf. section 8.2.4) implies the same language-indexing power of the *wh* complementiser, and so predicts that the results for *wh* items would indicate evidence against the original predictions for both English and Afrikaans verb position, which is clearly not the case. Rather, these items once again seem especially vulnerable to processing effects, such as those discussed in section 5.5, as well as being affected by the subject adjacent to the verb, as discussed above in the case of embedded *that* clauses.

8.2.6 *yes-no* questions

The predictions for *yes-no* questions in which English and Afrikaans are switched, as set out in section 3.3.7, entail that the strong Q feature of the English QP must be checked by the insertion of *do*, and that the strong tense and finiteness features of the Afrikaans TP and FinP, and the strong Q feature of an Afrikaans QP, may only be checked by an Afrikaans verb, and not by an English verb. These predictions, reflected by the constructions in (90) and (91), are repeated here as (172) and (173).

(172) a Do *daardie inwoners* drive the same small vehicles?
those resident- PL
b *Drive *daardie inwoners* the same small vehicles?

(173) a Verduidelik *the book on animals* hulle kommunikasiesisteme?
explain their communication system-PL
b *Does the book on animals *verduidelik hulle kommunikasiesisteme*?

With regard to the prediction for English verb position (cf. (172)), the results of the visual and auditory judgment, sentence construction, and magnitude estimation tests indicated no support (with performance varying between chance and weak evidence against the prediction), whereas the video clip description test indicated strong support. This inter-test discrepancy suggests that performance was perhaps affected by test modality in the case of this construction. Participants' verbal production in the video clip description test indicated some merit for the prediction that the strong Q feature of an English QP may only be checked by *do*-insertion, but their performance with all four other tests indicated that they considered the raising of the English verb to be well-formed. As mentioned in section 7.6, this may be due to the effect of an Afrikaans subject adjacent to the English verb (cf. the mention of this adjacency effect in sections 8.2.4 and 8.2.5 above, and the discussion in section 8.3 below).

Turning to the prediction for Afrikaans verb position (cf. (173)), the results of the visual and auditory judgment and sentence construction tests indicated weak support, whereas those for the video clip description test indicated strong support. The magnitude estimation results also indicated some support for the Afrikaans verb prediction. These results may be taken as an indication that participants did not in most instances consider the combination of sentence-initial *do* and a post-subject Afrikaans verb as well-formed. Thus, there may be some merit in the suggestion that the strong Q feature of the Afrikaans QP may only be checked by an Afrikaans verb (cf. section 3.3.7), and not by the insertion of *do*.

8.2.7 An overall evaluation

As mentioned in the introduction to section 8.2, the extent to which the predictions are borne out by the data may be informative in terms of (i) the merit of underlying analyses, (ii) the merit of the proposal for code switching, and (iii) the merit of the main hypothesis.

Firstly, with regard to the merit of the underlying analyses, on the basis of which the predictions were made, the data appear to offer support for the analyses of constructions with adverbs and for focalisation and topicalisation constructions. In these cases, it appears that the proposed differences in the feature checking requirements of the heads of English

and Afrikaans CP projections, and in the feature checking abilities of English and Afrikaans verbs, may have some explanatory power in accounting for the structure of code switching. In the cases of embedded *that* and *wh* clauses, there is little support for the predictions, and the possibility of an alternative analysis has been raised, by which the complementiser in an embedded construction determines the language index of the CP layer. This proposal, however, also lacks consistent support from the data. The vulnerability of the *that* and *wh* items to processing effects, as well as the possible structural effect of the subject adjacent to the verb, may lead to the conclusion that the underlying analysis and the resultant predictions are problematic. Note, however, that an analysis of the differences between English and Afrikaans surface word order in these constructions in terms of feature checking differences may yet have merit, even if the analyses provided in sections 3.3.4 and 3.3.5 are incomplete and/or insufficient to account for the data. Finally, the results for *yes-no* questions indicate some support for the underlying analysis, whereby the English and Afrikaans QPs differ in their feature checking requirements, and the English and Afrikaans verbs in their feature checking abilities.

Secondly, with regard to the proposal for code switching made in section 3.2, there are indications that code switching boundaries within the constructions tested may be governed by feature checking differences between the languages involved. The strongest evidence is for constructions with adverbs, and focalisation and topicalisation constructions. Furthermore, although there is little support for the predictions for embedded *that* and *wh* clauses and *yes-no* questions, this does not necessarily imply that the proposal does not hold in these cases. Adjustments to the analyses and predictions are possible within the framework of the proposal, by which it may be extended to account for the data. For example, one may need to propose that NPs of different languages differ in their ability to check features (as has been proposed for verbs), leading to the problem when an English NP raises to check the strong N feature of an Afrikaans AgrOP (cf. the results for embedded *that* clauses in section 8.2.5). Furthermore, consider the possibility that English and Afrikaans adverbs differ in their feature make-up, contributing to the adjacency effect of the adverb on the verb position revealed by the magnitude estimation test. There is also the possibility that the proposal in section 3.2 is correct, but simply insufficient to account for the data, in that the structure of code

switching may be vulnerable to processing effects which are (i) unrelated to the feature checking mechanisms at play, and (ii) unrelated to those involved in monolingual language use.

Thirdly, with regard to the main hypothesis, it may be proposed that an investigation into structural aspects of intrasentential code switching within the framework of the mechanisms and devices of minimalist syntax may, at the very least, constitute a fruitful avenue of research. The application of the principles and parameters and convergence frameworks and of feature checking theory to the question of code switching boundaries within sentences, led in the case of the present study to the development of a substantial database on the basis of which the merit of the present and alternative accounts may be evaluated. Whether or not the structural aspects of code switching can be fully accounted for on the basis of the same mechanisms and devices as those of monolingual language use remains an open question, as there appear to be (i) processing effects at play in code switching which may not be at play in monolingual language use, and (ii) aspects of code switched constructions which are not present in monolingual constructions, such as the switch between a verb and the adjacent element. Of course, the extent to which monolingual phenomena are "fully accounted for" by the mechanisms and devices of minimalist syntax also remains an open question.

8.3 Further findings

The further findings discussed here have to do mainly with the factors besides verb position which were found to have an influence on participants' perceptions of well-formedness in the various tests, particularly in the case of magnitude estimation. In other words, these are factors which had an effect on item performance over and above that of verb position, implying that the given analyses and predictions were insufficient to account for the data in these cases. Note that such factors relate to the main hypothesis in a non-trivial manner: if there are factors which play a role in the structure of code switched constructions which do not play a role in the structure of monolingual constructions, then the hypothesis may not be upheld. The merit of the hypothesis is therefore directly related to the extent to which the factors discussed here may be accommodated within the framework of the assumptions and devices

associated with minimalist syntax, not necessarily restricted to feature checking and its related principles and operations.

8.3.1 Adjacency effects

Consider the adjacency effect which was revealed by the magnitude estimation results (for all constructions except embedded *wh* clauses), by which the language of the element adjacent to the verb appeared to have an effect on the perceived well-formed position of the verb. Although one may be tempted to explain the acceptance of English verbs in their predicted ill-formed positions in terms of nonce borrowing (cf. section 8.3.3), the perceived well-formed positions of Afrikaans verbs were also affected by this adjacency effect (cf., for example, the results for adverb constructions and embedded *that* clauses). It would therefore appear that this is a structural effect on a switch between a verb (of either language) and its adjacent element (of the other language). Specifically, it would appear that some degree of interaction between verb position and the language of the adjacent element is at play in code switched constructions. Such an interaction would not be detectable in monolingual structures, nor in code switched structures in which the switch occurs elsewhere in the sentence.

A full explanation for the adjacency effect within the present feature checking framework is not attempted here. However, it is possible that an explanation may be related to the notion of a language index for a functional projection (cf. the proposal in section 3.2 and the discussion on embedded *that* clauses in section 8.2.4). In terms of such an explanation, the language index of a particular functional projection, adjacent to that filled by a verb of another language, may have some effect in code switched constructions. Furthermore, such an explanation may be linked to the proposal of a degree of convergence between English and Afrikaans at the syntactic level, perhaps especially affecting the structure of subordinate clauses (cf. sections 7.4 and 7.5).

8.3.2 Effects of length and nature of elements

In the discussions of the results of a number of the constructions, reference has been made to the effects of the length and nature of a switched element or segment on perceptions of well-formedness. These effects are instantiated most clearly in (i) the effect of the form (i.e., full

NP or pronoun) of the subject or object, and (ii) the effect of the addition of a modifying phrase.

In terms of the form of the subject/object, the magnitude estimation results revealed a preference for an NP over a pronominal subject/object in all constructions except topicalisation. In a number of instances, sentences with an NP subject/object and the verb in the predicted ill-formed position were preferred to sentences with a pronoun subject/object and the verb in the predicted well-formed position. Thus, the preference for NP subjects/objects was strong, in some cases overcoming a preference for the predicted well-formed verb position. Such an NP subject/object had the effect of lengthening the switched segment in each individual item. Furthermore, items with a single word switch involving a pronoun were generally considered the least well-formed. These results appear to indicate that longer switches were preferred, i.e., the longer the segment in each language, the more well-formed the construction was perceived to be. Such a length effect may conceivably be related to perceptual salience in terms of processing, unique to code switched constructions, which entail bilingual language processing. However, it is also possible that the preference for NP subjects and objects may be related to the nature, rather than, or in addition to, the length of the switched segment. Consider in this regard the discussion in section 5.3, according to which topicalisation constructions in the visual and auditory judgment and sentence construction tests with NP subjects were assigned higher ill-formed scores than were constructions with pronoun subjects. The suggestion was made in section 5.3 that the pronoun may be more closely tied to its grammatically correct position, due to its overt case and agreement marking, than is an NP, which is not overtly marked for such a position. Such an explanation is linguistic in nature, although not directly related to the theoretical framework adopted here. Considering the results overall, there seems to be a preference for NP subjects and objects, this preference being so strong that participants accepted, indeed selected, such elements in their predicted ill-formed positions. Pronoun subjects and objects, in contrast, were considered acceptable only in their predicted well-formed positions, and were strongly dispreferred when an NP alternative was available.

Turning to the effect on perceptions of well-formedness of the addition of a modifying phrase, as tested by magnitude estimation, recall that the

preference for the presence of a modifying phrase was only clear in the cases of focalisation constructions and *yes-no* questions. Furthermore, only in the case of *yes-no* questions did the addition of a modifying phrase entail a lengthening of the switched segment (cf. section 7.6). These data therefore contribute little to a proposal regarding a preference for longer switched elements.

8.3.3 Borrowing

Reference has been made to the possibility that English words embedded in Afrikaans structures are more readily accepted as (nonce) borrowings than are Afrikaans words embedded in English structures. The results for the visual and auditory judgment, sentence construction, and video clip description tests revealed more English verb items than Afrikaans verb items which performed around chance level (the exception being embedded *that* clauses, especially in the video clip description test). This indication that English verbs were more readily considered well-formed in their predicted ill-formed position, i.e., in the position of the Afrikaans verb, may be taken to support the proposal that English words are more readily borrowed into Afrikaans than vice versa.

Further evidence in support of this proposal lies in the alternative *wh* constructions offered by participants in the sentence construction test (cf. section 5.5). The constructions given embody the alternative V2 embedded *wh* construction which is common in spoken Afrikaans (cf. section 3.3.6 and appendix L), but were given more often for English verb items than for Afrikaans verb items, by both English and Afrikaans participants. These results may be taken to indicate that English verbs are more free in terms of their perceived well-formed position in code switched embedded *wh* clauses, and that they may be accepted as (nonce) borrowings in the position predicted to be well-formed for Afrikaans verbs.

In terms of the theoretical framework adopted here, an account of the structure of code switched constructions containing such (nonce) borrowings would entail that such lexical items are handled the same manner as items from the monolingual lexicon. In other words, a particular English lexical item, whether present as a loanword in the monolingual Afrikaans lexicon, or used in an ad hoc manner as a nonce

borrowing, is handled in the course of the derivation in the same manner as an Afrikaans lexical item.

8.4 Concluding remarks

The present study has succeeded in applying a number of experimental techniques in order to gather data regarding the structure of intrasentential code switching between English and Afrikaans. The advantage of using a range of data gathering techniques, incorporating different stimulus and response modalities, has been made clear. The difficulties involved in gathering "pure" code switching data, free from the effects of convergence (interference) and borrowing, in a context of intense bilingual contact, have also been made clear.

The central hypothesis of the study was that an adequate account of the structure of English-Afrikaans intrasentential code switching would be possible within the framework of the assumptions and devices associated with minimalist syntax, specifically feature checking theory and its related principles and operations. In terms of such a hypothesis, the same grammatical principles that account for monolingual phenomena also account for intrasentential code switching phenomena, making it unnecessary to postulate code switching-specific constraints or a "third grammar" governing code switching. The predictions for the structure of the code switched constructions tested by the present study, developed within the framework of feature checking theory, were not uniformly borne out. Although strong support was evident for the predictions for some constructions, the predictions for other constructions fared less well. A number of factors besides those proposed within the framework of feature checking theory appeared to be at play in participants' perceptions of well-formed code switched constructions.

It may be concluded that the hypothesis is not fully supported, in that an adequate account of the intrasentential code switching data presented here may require cognisance of more than just the mechanisms and devices proposed to account for the structure of monolingual constructions. Amongst other factors, processing effects and the possibility of syntactic convergence may play a unique role in code switching. Nevertheless, in terms of the development and testing of analyses and predictions for the structure of code switched constructions, the framework of minimalist syntax, and specifically of

feature checking theory, was useful in the context of the present study. It may therefore further be concluded that research into grammatical aspects of intrasentential code switching which remains in tune with current grammatical theory has the potential to develop an adequate account of the structural phenomena in question.

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Appendix A: The questions in the pre-test (English version)

1. My name is _____

2. My age in years is _____

3. I was born in (place) _____

4. My first language (home language / mother tongue) is
   □ English
   □ Afrikaans

5. My second language is
   □ English
   □ Afrikaans

6. I acquired my second language
   □ before the age of 5 years
   □ after the age of 5 years

7. I acquired my second language
   □ at home, in a family environment
   □ at school or other institution

8. The language I currently use most on an everyday basis is
   □ English
   □ Afrikaans

9. Consider the following sentence:

   My mother says she likes daardie soort musiek wat hulle daar luister.

   I consider sentences like this to be
   □ acceptable in informal conversation between English-Afrikaans bilinguals
   □ unacceptable in informal conversation between English-Afrikaans bilinguals

10. Consider the following sentence:

    Ek sien hoe my niggie takes all the sweets out the box.

    I consider sentences like this to be
    □ acceptable in informal conversation between English-Afrikaans bilinguals
    □ unacceptable in informal conversation between English-Afrikaans bilinguals

11. Which of the following two Afrikaans sentences do you consider to be more well-formed?

    □ Sy oupa wat in die Kaap bly dikwels koop sulke lekkers.
    □ Sy oupa wat in die Kaap bly koop dikwels sulke lekkers.

12. Which of the following two English sentences do you consider to be more well-formed?

    □ Spicy Mexican food I order often.
    □ Spicy Mexican food order I often.

13. Which of the following two Afrikaans sentences do you consider to be more well-formed?

    □ Ons ouers dink dat groot slange eet daardie insekte.
    □ Ons ouers dink dat groot slange daardie insekte eet.

14. Which of the following two English sentences do you consider to be more well-formed?

    □ The shop stocks lots of hats. Those hats buy I for the kids' dressing up parties.
    □ The shop stocks lots of hats. Those hats I buy for the kids' dressing up parties.

15. Which of the following two Afrikaans sentences do you consider to be more well-formed?

□ Hulle vra my nogal dikwels hoekom hulle ouma sulke sterk kerrie maak.
□ Hulle vra my nogal dikwels hoekom hulle ouma maak sulke sterk kerrie.

16. Which of the following two English sentences do you consider to be more well-formed?

□ Take the final year students that subject you were talking about?
□ Do the final year students take that subject you were talking about?

17. Which of the following two English sentences do you consider to be more well-formed?

□ The man with the strange rod seldom catches big fish.
□ The man with the strange rod catches seldom big fish.

18. Which of the following two Afrikaans sentences do you consider to be more well-formed?

□ Sulke gesellige mense hulle nooi na al hulle partytjies.
□ Sulke gesellige mense nooi hulle na al hulle partytjies.

19. Which of the following two English sentences do you consider to be more well-formed?

□ My friend Sarah reckons that the sailors write lots of letters.
□ My friend Sarah reckons that the sailors lots of letters write.

20. Which of the following two Afrikaans sentences do you consider to be more well-formed?

□ Kyk al die swart perde in die veld. Sulke perde vind ek baie mooi.
□ Kyk al die swart perde in die veld. Sulke perde ek vind baie mooi.

21. Which of the following two English sentences do you consider to be more well-formed?

□ I was wondering how those little boys the butterflies catch.
□ I was wondering how those little boys catch the butterflies.

22. Which of the following two Afrikaans sentences do you consider to be more well-formed?

□ Stryk daardie oulike jong meisies hulle eie klere?
□ Doen daardie oulike jong meisies stryk hulle eie klere?

23. Complete the following Afrikaans idiom:

Hy het te veel hooi op sy _____

24. Complete the following English idiom:

To run like the _____

25. Complete the following Afrikaans idiom:

Liewer bang Jan as _____

26. Complete the following English idiom:

Too many cooks spoil the _____

Appendix B: Instructions for the judgments of the relative well-formedness of visually presented sentences

ENGLISH: In this task you will be looking at sentences in which English and Afrikaans are mixed. Some sentences may seem to you to be well-formed, and some may seem less well-formed. Each test item consists of a pair of two sentences. For each pair of sentences, you need to decide which one of the two is in your opinion more well-formed. You then need to select this more well-formed sentence as your answer. Test items are numbered 3-53, and in each case you may select either the first or the second sentence. I am interested in your opinions about the well-formedness of the sentences, based on your intuitions, which do not necessarily relate to what you may have learnt about English and/or Afrikaans grammar. For each sentence pair, just decide which one you would consider more acceptable in informal conversation between English-Afrikaans bilinguals.

AFRIKAANS: In hierdie toets sal u na sinne kyk waarin Afrikaans en Engels gemeng word. Sommige sinne sal vir u welgevorm lyk, en sommiges dalk minder welgevorm. Elke toetsitem bestaan uit 'n sinspaar. Vir elke sinspaar moet u besluit watter een van die twee sinne in u opinie meer welgevorm is. U moet dan hierdie meer welgevormde sin as u antwoord selekteer. Toetsitems is van 3-53 genommer, en in elke geval kan u of die eerste of die tweede sin selekteer. Ek stel belang in u opinies oor die welgevormdheid van die sinne, wat op u intuisies gebaseer is, wat nie noodwendig verband hou met wat u dalk geleer het van Afrikaanse en/of Engelse grammatika. Besluit net vir elke sinspaar watter een u as meer aanvaarbaar sou beskou in informele gesprek tussen tweetalige sprekers van Afrikaans en Engels.

Appendix C: Items for the judgments of the relative well-formedness of visually presented sentences[48]

Constructions with adverbs

English item 1 Die juffrou met die swart rok usually helps die kinders.
Die juffrou met die swart rok helps usually die kinders.
2 Daardie baie sterk spelers clearly challenge vir mekaar.
Daardie baie sterk spelers challenge clearly vir mekaar.
3 Daardie suksesvolle prokureur clearly hates sy baie lui sekretaresse.
Daardie suksesvolle prokureur hates clearly sy baie lui sekretaresse.
4 My seun en dogter generally choose droë brood.
My seun en dogter choose generally droë brood.

Afrikaans item 1 The neighbourhood children koop dikwels toys with their pocket money.
The neighbourhood children dikwels koop toys with their pocket money.
2 Her hungry daughter gryp vinnig the last cake.
Her hungry daughter vinnig gryp the last cake.
3 Tall fat women haat blykbaar accurate bathroom scales.
Tall fat women blykbaar haat accurate bathroom scales.
4 The crazy policeman gryp skielik his partner's gun.
The crazy policeman skielik gryp his partner's gun.

Focalisation constructions

English item 1 Die helder rooi blomme she grows onder in haar tuin.
Die helder rooi blomme grows she onder in haar tuin.
2 Die baie hoë bergspits they reach voor die aand.
Die baie hoë bergspits reach they voor die aand.
3 Die seep advertensie the artist selects met sorgvuldige noukeurigheid.
Die seep advertensie selects the artist met sorgvuldige noukeurigheid.
4 Daardie groot vragmotor her uncle drives op sy plaas.
Daardie groot vragmotor drives her uncle op sy plaas.

Afrikaans item 1 Such friendly neighbours nooi sy to all her parties.
Such friendly neighbours sy nooi to all her parties.
2 That dark chocolate koop haar broer at the local shop.
That dark chocolate haar broer koop at the local shop.
3 The tall plastic containers gebruik daardie kok for brown sugar.
The tall plastic containers daardie kok gebruik for brown sugar.
4 The old piano gee sy ma to the village school.
The old piano sy ma gee to the village school.

[48] For purposes of clarity, items are categorised here according to target structure, rather than being presented in the randomised order in which they occurred in the test. Furthermore, items are presented with the predicted well-formed version first, followed by the predicted ill-formed version; in the test itself, pairs were randomised in terms of which item was presented first.

Topicalisation constructions

English item 1 Haar oupa skryf lang treurige gedigte. Daardie gedigte I consider absoluut aaklig.
Haar oupa skryf lang treurige gedigte. Daardie gedigte consider I absoluut aaklig.
2 Die man het sy wyn klaargedrink. Die leë glas he places op die wasbak.
Die man het sy wyn klaargedrink. Die leë glas places he op die wasbak.
3 Die gebou veroorsaak probleme. Daardie probleme the builder handles tydens vergaderings.
Die gebou veroorsaak probleme. Daardie probleme handles the builder tydens vergaderings.
4 Kinders neig om sake te kompliseer. Sulke komplikasies young couples consider 'n groot kommernis.
Kinders neig om sake te kompliseer. Sulke komplikasies consider young couples 'n groot kommernis.

Afrikaans item1 My favourite shop is in the old district. That shop besoek ek every week.
My favourite shop is in the old district. That shop ek besoek every week.
2 Oranges and apples are very sweet. Sweet fruit verkies die kinders to sour.
Oranges and apples are very sweet. Sweet fruit die kinders verkies to sour.
3 My sister and I always argued as children. Those arguments bespreek ons during therapy.
My sister and I always argued as children. Those arguments ons bespreek during therapy.
4 My uncle favours terrible jokes. Most of his jokes noem ek very crude.
My uncle favours terrible jokes. Most of his jokes ek noem very crude.

Embedded *that* clauses

English item 1 Die reisigers vertel dat die lugredery reserves seats for children.
Die reisigers vertel dat die lugredery seats for children reserves.
2 Die tennis-speler voel dat haar teenspeler deserves the point.
Die tennis-speler voel dat haar teenspeler the point deserves.
3 Die nat grond is evidensie dat reën falls in the forest.
Die nat grond is evidensie dat reën in the forest falls.
4 Die grootte van die donasies wys dat sy possesses excessive wealth.
Die grootte van die donasies wys dat sy excessive wealth possesses.

Afrikaans item1 It would appear that everybody daardie slim studente bewonder.
It would appear that everybody bewonder daardie slim studente.
2 My crazy grandmother says that her fish haar kat byt.
My crazy grandmother says that her fish byt haar kat.
3 The responses indicate that most guests 'n vroeë ontbyt verkies.
The responses indicate that most guests verkies 'n vroeë ontbyt.
4 The auctioneer reports that the sculptures teen 'n hoë spoed verkoop.
The auctioneer reports that the sculptures verkoop teen 'n hoë spoed.

Embedded *wh* clauses

English item 1 Die verpleegster vra altyd waarom die chirurg needs that loud music.
Die verpleegster vra altyd waarom die chirurg that loud music needs.
2 Die man wil vra waarom sy broer burns the outside light.
Die man wil vra waarom sy broer the outside light burns.
3 Die gaste vra wanneer die restaurante close in the evening.
Die gaste vra wanneer die restaurante in the evening close.
4 Die kwaai juffrou vra hoekom die studente lose the classroom key.
Die kwaai juffrou vra hoekom die studente the classroom key lose.

Afrikaans item1 His divorce lawyer asks him why he daardie tipe kontrak verkies.
His divorce lawyer asks him why he verkies daardie tipe kontrak.
2 My daughter asks why the girls in die oggend swem.
My daughter asks why the girls swem in die oggend.
3 The drivers ask when the huge cars hulle resies jaag.
The drivers ask when the huge cars jaag hulle resies.
4 The crew ask why their vessel in die hawe bly.
The crew ask why their vessel bly in die hawe.

yes-no questions

English item 1 Do jou getroude vriende enjoy such old music?
Enjoy jou getroude vriende such old music?
2 Do daardie inwoners drive the same small vehicles?
Drive daardie inwoners the same small vehicles?
3 Do sulke koffiebekers slide off the smooth table?
Slide sulke koffiebekers off the smooth table?
4 Do getroude meisies buy very much strong alcohol?
Buy getroude meisies very much strong alcohol?

Afrikaans item1 Geniet the girl's father sy moeilike konstruksie werk?
Does the girl's father geniet sy moeilike konstruksie werk?
2 Staan the black cat onder die lang venster?
Does the black cat staan onder die lang venster?
3 Verduidelik the book on animals hulle kommunikasiesisteme?
Does the book on animals verduidelik hulle kommunikasiesisteme?
4 Bewe the wooden statue wanneer die wind sterk waai?
Does the wooden statue bewe wanneer die wind sterk waai?

Appendix D: Instructions for the judgments of the relative well-formedness of auditorily presented utterances

ENGLISH: In this task you will be listening to sentences in which English and Afrikaans are mixed. Some sentences may seem to you to sound well-formed, and some may sound less well-formed. Each test item consists of a pair of two sentences. For each pair of sentences, you need to decide which one of the two is in your opinion more well-formed. You then need to select this more well-formed sentence as your answer. To listen to a sentence, simply click on the link for sin/sentence 1 or sentence/sin 2. Test items are numbered 3-53, and in each case you may choose either the first or the second sentence. I am interested in your opinions about the well-formedness of the sentences, based on your intuitions, which do not necessarily relate to what you may have learnt about English and/or Afrikaans grammar. For each sentence pair, just decide which one you would consider more acceptable in informal conversation between English-Afrikaans bilinguals.

AFRIKAANS: In hierdie toets sal u na sinne luister waarin Afrikaans en Engels gemeng word. Sommige sinne sal vir u welgevorm klink, en sommiges dalk minder welgevorm. Elke toetsitem bestaan uit 'n sinspaar. Vir elke sinspaar moet u besluit watter een van die twee sinne in u opinie meer welgevorm is. U moet dan hierdie meer welgevormde sin as u antwoord selekteer. Om 'n sin te luister klik u eenvoudig op die skakel ("link") vir sin/sentence 1 of sentence/sin 2. Toetsitems is van 3-53 genommer, en in elke geval kan u of die eerste of die tweede sin selekteer. Ek stel belang in u opinies oor die welgevormdheid van die sinne, wat op u intuisies gebaseer is, wat nie noodwendig verband hou met wat u dalk geleer het van Afrikaanse en/of Engelse grammatika nie. Besluit net vir elke sinspaar watter een u as meer aanvaarbaar sou beskou in informele gesprek tussen tweetalige sprekers van Afrikaans en Engels.

Appendix E: Items for the judgments of the relative well-formedness of auditorily presented utterances[49]

Constructions with adverbs

English item 1 Die vreemdeling in die park always showers in die reën.
Die vreemdeling in die park showers always in die reën.
2 Die rugby-afrigter seldom catches die balle wat ons gooi.
Die rugby-afrigter catches seldom die balle wat ons gooi.
3 Die interessante kunstenaar usually prefers kleurvolle olieverf.
Die interessante kunstenaar prefers usually kleurvolle olieverf.
4 Die groot grys walvis eventually rests anderkant die golwe.
Die groot grys walvis rests eventually anderkant die golwe.

Afrikaans item 1 The lion with the broken foot vang graag small animals.
The lion with the broken foot graag vang small animals.
2 The enthusiastic photographer neem graag pictures of wildlife.
The enthusiastic photographer graag neem pictures of wildlife.
3 The woman in blue verkoop blykbaar ice on the beach.
The woman in blue blykbaar verkoop ice on the beach.
4 Tired public school teachers kies eerder early retirement.
Tired public school teachers eerder kies early retirement.

Focalisation constructions

English item 1 Die gebreekte kontrak the moviestar names uiters onbillik.
Die gebreekte kontrak names the moviestar uiters onbillik.
2 Daardie naweek se leeujag I regret elke dag.
Daardie naweek se leeujag regret I elke dag.
3 Op die lang wit strand his uncles wander heel naweek.
Op die lang wit strand wander his uncles heel naweek.
4 Daardie groot lorrie her cousin drives op die strand.
Daardie groot lorrie drives her cousin op die strand.

Afrikaans item 1 Hot tomato soup bestel ons at our favourite restaurant.
Hot tomato soup ons bestel at our favourite restaurant.
2 His girlfriend's clothing noem sy ma interesting.
His girlfriend's clothing sy ma noem interesting.
3 The more delicate plates pak sy into wooden boxes.
The more delicate plates sy pak into wooden boxes.
4 That correspondent betaal die netwerk for his excellent work.
That correspondent die netwerk betaal for his excellent work.

[49] For purposes of clarity, items are categorised here according to target structure, rather than being presented in the randomised order in which they occurred in the test. Furthermore, items are presented with the predicted well-formed version first, followed by the predicted ill-formed version; in the test itself, pairs were randomised in terms of which item was presented first.

Topicalisation constructions

English item 1 Kyk hoe die son agter die berg verdwyn. Daardie uitsig I watch elke aand.
Kyk hoe die son agter die berg verdwyn. Daardie uitsig watch I elke aand.
2 Die meisie is baie maer. Oor maer tieners the teachers worry aanhoudend.
Die meisie is baie maer. Oor maer tieners worry the teachers aanhoudend.
3 Die navorsingsgroep werk deur die nag. Daardie groep I join enige tyd.
Die navorsingsgroep werk deur die nag. Daardie groep join I enige tyd.
4 Die soldate het die grenspos aangeval. Daardie noodlottige aanval the leaders regret elke dag.
Die soldate het die grenspos aangeval. Daardie noodlottige aanval regret the leaders elke dag.

Afrikaans item1 That shop carries hats. Those hats koop my vriendin for parties.
That shop carries hats. Those hats my vriendin koop for parties.
2 On the weekend his family visited. Visitors geniet sy vrou on weekends.
On the weekend his family visited. Visitors sy vrou geniet on weekends.
3 The banks lend money to anyone. High interest verdien hulle from big loans.
The banks lend money to anyone. High interest hulle verdien from big loans.
4 I earn interest on my fixed deposit. Those funds hou ek for difficult months.
I earn interest on my fixed deposit. Those funds ek hou for difficult months.

Embedded *that* clauses

English item 1 Die nuut-verkose skoolraad vereis dat onderwysers exercise strict discipline.
Die nuut-verkose skoolraad vereis dat onderwysers strict discipline exercise.
2 Die span se afrigter vertel dat die spelers buy various drugs.
Die span se afrigter vertel dat die spelers various drugs buy.
3 Die uitslae dui aan dat die mense like the sympathetic president.
Die uitslae dui aan dat die mense the sympathetic president like.
4 Die senuweeagtige aansoeker voel dat die vraag demands enormous attention.
Die senuweeagtige aansoeker voel dat die vraag enormous attention demands.

Afrikaans item1 The lady acknowledges that her dog groot gate grawe.
The lady acknowledges that her dog grawe groot gate.
2 My best friend reckons that sailors baie lang briewe skryf.
My best friend reckons that sailors skryf baie lang briewe.
3 The lack of protest suggests that the soldiers daardie oorlogvoering ondersteun.
The lack of protest suggests that the soldiers ondersteun daardie oorlogvoering.
4 The cook worries that the dish meer geur benodig.
The cook worries that the dish benodig meer geur.

Embedded *wh* clauses

English item 1 Die dokter verstaan blykbaar hoe die arme vrouens catch the dreadful disease.
Die dokter verstaan blykbaar hoe die arme vrouens the dreadful disease catch.
2 My tannie roep my om te vra waar my dogter hides her vegetables.
My tannie roep my om te vra waar my dogter her vegetables hides.
3 Die pasassier vra waarom die nuwe vlieënier allows those cigarettes.
Die pasassier vra waarom die nuwe vlieënier those cigarettes allows.
4 Die aandeelhouers wil verstaan waarom hulle beleggings grow very slowly.
Die aandeelhouers wil verstaan waarom hulle beleggings very slowly grow.
Afrikaans item1 Her colleague asks me how the little boys so baie vis vang.
Her colleague asks me how the little boys vang so baie vis.
2 The girl asks her mother why her grandmother sulke sterk drankies meng.
The girl asks her mother why her grandmother meng sulke sterk drankies.
3 The guy is eager to ask when they daardie groot wit seil hys.
The guy is eager to ask when they hys daardie groot wit seil.
4 The girl asks her grandmother how the big animal sy kos vang.
The girl asks her grandmother how the big animal vang sy kos.

yes-no questions

English item 1 Do jou getroude vriende enjoy such old music?
Enjoy jou getroude vriende such old music?
2 Do daardie inwoners drive the same small vehicles?
Drive daardie inwoners the same small vehicles?
3 Do sulke koffiebekers slide off the smooth table?
Slide sulke koffiebekers off the smooth table?
4 Do getroude meisies buy very much strong alcohol?
Buy getroude meisies very much strong alcohol?
Afrikaans item1 Geniet the girl's father sy moeilike konstruksie werk?
Does the girl's father geniet sy moeilike konstruksie werk?
2 Staan the black cat onder die lang venster?
Does the black cat staan onder die lang venster?
3 Verduidelik the book on animals hulle kommunikasiesisteme?
Does the book on animals verduidelik hulle kommunikasiesisteme?
4 Bewe the wooden statue wanneer die wind sterk waai?
Does the wooden statue bewe wanneer die wind sterk waai?

Appendix F: Instructions for the sentence construction task

ENGLISH: In this test you will be building sentences. In each test item, you are presented with the beginning of a sentence, and then a list of three sentence fragments, each in its own text box. You need to drag-and-drop each of the text boxes onto the line of the sentence in the order of your choice to create what you consider a well-formed sentence with the fragments available. Note that the text which does not appear in a text box (the beginning of the sentence) may not be moved. Some of the sentence fragments are English and some Afrikaans, so you will be building code switched sentences. In some of the test items, you will see that there are two dotted-line text boxes containing the words *do* and *does*. In all of these items, the *do* and *does* are OPTIONAL – you may use one of these words in your answer, but you do not have to. Please consider the diagram below, which depicts the drag-and-drop activity you will be completing for each item. Remember to click save every now and then as you are busy, so as not to lose the answers already given. Once you have completed all the test items, please save the document as YOURSURNAME.doc (e.g. VANDULM.doc) and e-mail it back to me (ovd@sun.ac.za). Please also confirm below that you have read and understood these instructions.

AFRIKAANS: In hierdie toets moet u sinne bou. In elke toetsitem verskyn daar die begin van 'n sin gevolg deur 'n lys van drie sinsfragmente, elkeen in sy eie teksboksie. U moet hierdie teksboksies skuif na die reël van die sin in die volgorde van u keuse om 'n welgevormde sin te vorm met die sinsfragmente wat beskikbaar is. Let wel dat die teks wat nie in 'n teksboksie verkyn nie, nie geskuif mag word nie. Sommige van die sinsfragmente is in Afrikaans en sommiges in Engels, dus sal u kodewisselingsinne bou. In sommige van die items, sal u sien dat daar twee stippellyn-teksboksies is met die Engelse woorde *do* en *does*. In al hierdie items is die *do* en *does* OPSIONEEL – u mag een van hulle in u antwoord gebruik, maar u hoef nie. Beskou asseblief die diagram hieronder, wat die "drag-and-drop" aktiwiteit wat u by elke item gaan toepas, uitegebeeld word. Onthou om elke nou en dan te "save" sodat u nie reeds voltooide items verloor nie. Nadat u al die toetsitems voltooi het, moet u asseblief die dokument terug e-pos (ovd@sun.ac.za) met die naam JOUVAN.doc (bv. VANDULM.doc). Bevestig asseblief hieronder aan dat u hierdie instruksies gelees en verstaan het.

Appendix G: Items for the sentence construction test[50]

Constructions with adverbs

English item
1 My gesonde ouma / still / lives / met haar wonderlike broer.
2 Die meisie in die slaapkamer / often / jumps / op haar sagte bed.
3 Die ou ervare bestuurder / seldom / drives / sulke swaar voertuie.
4 My voormalige dosent / often / focuses / op historiese stukke.

Afrikaans item
1 His elderly grandfather / haat / blykbaar / chocolate with large nuts.
2 The children in the class / kies / eerder / the cheese sandwiches.
3 The gentleman with the cap / haat / duidelik / the hot weather.
4 My elderly grandfather / kies / gewoonlik / the soft white meat.

Focalisation constructions

English item
1 Die pienk sjampanje glase / she / buys / van die plaaslike supermark.
2 Daardie groot pryse / the organisers / keep / for the young competitors.
3 Die partytjiekos / her mother / chooses / met die bejaardes in gedagte.
4 Die sterk winde / his old boat / handles / sonder probleme.

Afrikaans item
1 Old horror movies / geniet / sy / more than the usual stuff.
2 His vegetable diet / volg / haar pa / as of next month.
3 Their round trip tickets / koop / daardie reisigers / on the big red bus.
4 The high inflation rate / blameer / haar pa / for all his problems.

Topicalisation constructions

English item
1 Sy het in die somer leer swem. Die swembad / she / enjoys / tydens die somer.
2 Die vrou koop verskillende soorte kaas. Die geel kaas / she / keeps / vir toebroodjies.
3 Die verpleegsters is baie fluks. Hulle fluksheid / their patients / value / besonder baie.
4 Die ontwerper het die woonstel versier. Daardie versierings / the guests / consider / 'n ware nagmerrie.

Afrikaans item
1 A few weeks ago she ran a race. That race / onthou / haar ma / very well.
2 The family is really interested in tennis. Tennis matches / kyk / hulle / on television.
3 The streets are full of thieves. Those thieves / beskuldig / die polisie / van misdaad.
4 I really enjoy watching old movies. Silent movies / geniet / ek / the most.

[50] For ease of reading, items are presented here with forward slashes separating fragments, and fragments in the predicted well-formed order. *yes-no* items are presented with the verb in the predicted well-formed position with the predicted well-formed *do*-support for the English verbs.

Embedded *that* clauses

English item
1 Dit het nou duidelik geword dat / die seuns / prefer / cream cake.
2 Die eksperimente wys dat / die wilde diere / hunt / late at night.
3 Die verskillende opinies dui aan dat / emosies / vary / from person to person.
4 Die vraelysantwoorde wys dat / die jongmense / lack / the necessary initiative.

Afrikaans item
1 My mother reports that / the school pupils / moeilike wiskunde probleme / haat.
2 The kids at the park remember that / the woman / lekker interressante speelgoed / koop.
3 Research has since revealed that / the elephants / sulke draadheinings / breek.
4 The clock indicates that / the car / teen 'n baie hoë spoed / ry.

Embedded *wh* clauses

English item
1 Die bouer wonder waarom / die ryk ontwikkelaar / chooses / ugly tiles.
2 Die skip se bemanning verstaan waarom / die arme eienaar / trades / expensive cloth.
3 Die gretige jong vlieënier vra wanneer / die bemanning / start / the main engine.
4 Die toeriste vra hoekom / die manlike robbe / prefer / the deep water.

Afrikaans item
1 My uncle asked me why / the concert musician / vir die toeskouers / glimlag.
2 My son asks why / the other boys / hulle oulike juffrou / pla.
3 The crazy professor asks how/ the valuable specimens / vanuit die laboratorium / verdwyn.
4 The research assistant wonders how / the suspension / binne die oop bottel / bly.

yes-no questions

English item
1 Does / enige iemand / read / that sort of book?
2 Do / meeste van die werkers / vote / for the annual election?
3 Do / daardie baba se ouers / prefer / the blue carpet?
4 Do / daardie gevaarlike stowwe / burn / at a very high temperature?

Afrikaans item
1 Koop / the poor old farmer / sulke gesonde skape?
2 Staan / the black horse / onder die groen bome?
3 Koop / those little boys / soet sjokolade koek?
4 Benodig / the support group / 'n baie streng stelsel?

Appendix H: Introductory texts and target structures for the video clip description test[51]

Constructions with adverbs

English item 1 Die meisies gaan met die fluffy toys speel. The taller girl asks the shorter girl watter diertjie she wants to play with. The shorter girl looks at Eeyore and Piglet, en sy hou van altwee, maar sy … (complete in English)
RATHER CHOOSES EEYORE

English item 2 Almal het klaar hulle koffie gedrink, en die grown-ups are all reading. The little girl is bored, en honger ook. Sy kyk vinnig rond om seker te maak niemand kyk nie, en sy … (complete in English)
QUICKLY GRABS THE LAST BISCUIT

English item 3 Die meisie is gesê om skoon te vee around the basin. She has been combing her fluffy toys' hair in plaas daarvan om te werk. Sy hoor haar ma se voetstappe en sy … (complete in English)
QUICKLY WETS THE CLOTH

English item 4 Die meisie is gesê she must keep her cupboards tidy for a change. Haar ma is kwaad because usually she just throws her clothes by die kas in. Sy wil graag haar ma beïndruk, en sy … (complete in English)
CAREFULLY FOLDS HER SWEATER

Afrikaans item 1 The girls are sitting at the desk colouring hulle prentjies. Die een meisie vra vir die ander een whether she wants to use the pencils or the kokis. The girl in green ... (voltooi in Afrikaans)
NEEM EERDER DIE POTLODE

Afrikaans item 2 The woman is arranging the nativity scene vir die Kersseisoen. Sy kan nie besluit waar om die diertjies te sit nie – inside or outside the manger. Op die ou einde, we see that she … (voltooi in Afrikaans)
DIE DIERTJIES EERDER BUITE SIT

Afrikaans item 3 The little girl is making herself 'n toebroodjie all on her own. Sy verkies gewoonlik grondboontjiebotter, maar dit raak vervelig. Today she decides she feels like iets souterig, and she … (voltooi in Afrikaans)
GEBRUIK EERDER MARMITE

[51] For purposes of clarity, items are categorised here according to target structure, rather than being presented in the randomised order in which they occurred in the test. Target responses appear in upper case letters following the stimulus.

Afrikaans item 4 Die man maak vir hom a bowl of ProNutro for an early breakfast before work. Hy het baie allergie-probleme, amongst others is hy allergies vir melk, so he … (voltooi in Afrikaans)
GEBRUIK EERDER WATER

Focalisation constructions

English item 1 Die meisies is gesê om mooi stil in hulle kamer te gaan speel until their mom is finished cleaning the house. The older sister is reading, maar met haar sussie … (complete in English)
SHE PLAYS SNAKES AND LADDERS

English item 2 The girls have been playing in the playroom met al hulle verskillende speelgoed, en nou wil hulle bietjie aan die kant maak. They pack everything neatly, en die tee-stel … (complete in English)
THEY ARRANGE ON THE LITTLE TABLE

English item 3 Die meisie speel met haar nuwe kasteel and the small cardboard characters that came with it. Most of the characters los sy om buite die kasteel te staan, maar die koning en koningin … (complete in English)
SHE PUTS INSIDE THE CASTLE

English item 4 The girl is sitting on the kitchen floor by die groot kas, helping her mom to pack the food wat hulle nodig het vir hulle vakansie in the caravan. Die blikkieskos … (complete in English)
SHE PUTS IN THE BOX

Afrikaans item 1 The girl is tidying the room and wants everything mooi netjies. Sy het alles van die vloer af opgetel en weggepak. The bed is made and the little fluffy toys … (voltooi in Afrikaans)
RANGSKIK SY OP DIE BED

Afrikaans item 2 The girl wants to play with the horses, but wants to use net een op 'n slag, omdat haar ma gevra het dat hulle die speelkamer netjies hou. The orange horse … (voltooi in Afrikaans)
SIT SY OP DIE VLOER

Afrikaans item 3 Die man het in die tuin gewerk en is nou baie moeg but he has to get the mess cleared up. His last job is to empty die kruiwa wat hy gebruik het. The dead weeds … (voltooi in Afrikaans)
GOOI HY IN DIE VULLISDROM

Afrikaans item 4 The girl is clearing up nadat hulle ontbyt geët het, en bring die skinkbord by die kombuis in. She puts the dirty bowls and cups in die wasbak. The milk … (voltooi in Afrikaans)
BÊRE SY IN DIE YSKAS

Topicalisation constructions

English item 1 After the party the woman collected al die koppies en borde en goed wat gewas moet word. Sy bring die skinkbord by die kombuis in en die vuil koppies … (complete in English)
SHE PUTS IN THE SINK

English item 2 Die dogtertjie gee vir haar ouma pictures which they have cut from magazines. Daar is klein prentjies en groot prentjies, en hulle besluit hulle save the big ones om later in te plak. Die klein prentjies … (complete in English)
THEY THROW IN THE BIN

English item 3 Die vrou is besig om slaai te maak for her guests. She cuts komkommer en klein tamaties for the salad. The cucumber she puts aside for later, en die tamatie … (complete in English)
SHE PUTS IN THE BOWL

English item 4 Die vrou het die wasgoed gesorteer. Die skoon klere het sy in die cupboards gesit, and now she comes into the kitchen with the washing basket full of dirty washing. Die vuil wasgoed … (complete in English)
SHE PUTS IN THE WASHING MACHINE

Afrikaans item 1 The woman is packing some fruit vir haar kleindogters om in die kar te eet. Die druiwe het redelik lank in die yskas gelê en sommiges are a bit old and others are nice. The nice grapes … (voltooi in Afrikaans)
SIT SY IN DIE PLASTIEKHOUERTJIE

Afrikaans item 2 The little girl is gesê om die handdoeke waarmee hulle gespeel het uit te sorteer. There are blue and pink towels wat sy apart wil hou. Sy sit die handdoeke op hopies volgens kleur and the pink towels … (voltooi in Afrikaans)
SIT SY OP DIE RAK

Afrikaans item 3 The woman is sharpening her daughters kleurpotlode. Sommige van die potlode is stukkend en these she puts aside. The pencils that are already sharpened … (voltooi in Afrikaans)
SIT SY IN DIE POTLOODBLIKKIE

Afrikaans item 4 The girl has been told to finish up in the bath. Sy het twee face-cloths in the bath, een is pienk en een wit. Die pienk face-cloth gebruik sy vir haar gesig, and with the white face-cloth … (voltooi in Afrikaans)
WAS SY HAAR LYF

Embedded *that* clauses

English item 1 The girl is looking for the Barbie se spieël. She knows her sister always keeps it in the same place maar sy kan nie onthou waar nie. At last sê haar ma dat haar sussie … (complete in English)
KEEPS IT IN THE DRAWER

English item 2 Die meisiekinders speel met die nuwe air freshener which their mom has just bought. Die ouer sussie sprays and smells, en sy sê vir haar sussie dat sy … (complete in English)
LIKES THE NEW AIR FRESHENER

English item 3 The girl has two toothbrushes, een pienk en een groen. Sy hou daarvan om elke oggend te choose which one sy wil gebruik, en hierdie keer sien ons dat sy … (complete in English)
CHOOSES THE PINK ONE

English item 4 Die dogtertjie se pa verwag dat sy die red helmet sal dra, because he just bought it for her, en sy het dit self uitgekies. Maar hy kyk en hy sien dat sy … (complete in English)
USES THE PINK ONE

Afrikaans item 1 Die vrou kyk hoe groei die blomme in die tuin, because she wants all the flowers to look nice for the party. Some of the flowers are blooming and look good, but she sees that some flowers … (voltooi in Afrikaans)
BAIE SLEG LYK

Afrikaans item 2 Die vrou proe die sop wat haar man gemaak het, maar she finds soos gewoonlik he has used too little salt. Sy besluit om iets daaroor te sê so she tells her husband that he … (voltooi in Afrikaans)
TE MIN SOUT GEBRUIK

Afrikaans item 3 Die man is weer besig om die olievlak van sy kar na te gaan, after the oil leak was fixed toe die kar laas gediens is. The oil is low, and it worries the guy that the car … (voltooi in Afrikaans)
SO BAIE OLIE GEBRUIK

Afrikaans item 4 Die meisies in honger en hulle ma sê hulle moet 'n healthy snack eet. They go to the fruit bowl, en die een bied vir die ander 'n groen appel aan, but she says that she … (voltooi in Afrikaans)
GROEN APPELS HAAT

Embedded *wh* clauses

English item 1 Die vrou is besig om perskes te sny for fruit salad. The first peach is too soft so she throws it in the vullisdrom. Die meisie is mal oor sagte perskes and she asks her ouma waarom sy … (complete in English)
THROWS THE PEACH AWAY

English item 2 Everybody has drunken their tea and eaten their snacks, en daar bly een koekie oor on the plate. The grandmother offers the plate around en vra wie … (complete in English)
WANTS ANOTHER BISCUIT

English item 3 Die meisie probeer altyd om die vissies in her grandmother's pool te sien, maar hulle kruip dikwels weg and she can't see them. Die meisie vra vir haar ouma waarom die vissies … (complete in English)
ALWAYS HIDE FROM HER

English item 4 The girl is a bit confused want haar sussie het so min ertjies in vergelyking met haar eie bord. But she knows her sister's skelmstreke en sodra sy die bord optel sien sy waar haar sussie … (complete in English)
HID HER PEAS

Afrikaans item 1 The girl is drawing an apple tree op haar witbord. Sy teken appels op die boom and then om een of ander rede she adds a lemon. Her mother wonders why the girl … (voltooi in Afrikaans)
'N SUURLEMOEN TEKEN

Afrikaans item 2 Die meisie vind dit dikwels moeilik om op haar skoolwerk te konsentreer, but she loves practising netball. Haar ma kyk terwyl sy oefen and wonders how the girl … (voltooi in Afrikaans)
SO GOED KONSENTREER OP NETBAL

Afrikaans item 3 The girl has tried so hard om die kombuisoppervlak skoon te hou, en nou het die melk gemors. She checks the bottom of the jug but there's no hole or crack en sy kan nie verstaan how the milk … (voltooi in Afrikaans)
UIT DIE BEKER LEK

Afrikaans item 4 The girl wants to play in the pool met die oranje bootjie wat hulle altyd strand toe neem. Sy weet haar suster had the boat the other day, but she always hides things. Die meisie vra nou vir haar ouma where her sister … (voltooi in Afrikaans)
DIE BOOT WEGGESTEEK HET

yes-no **questions**

Item 1 The girl is upset that her sister has made such 'n gemors op haar vloer. Sy kan nie glo how messy her room looks, and her sister kom dit nie eers agter nie. Sy vra "…" (complete in English and Afrikaans)
DO YOU SEE AL HIERDIE GEMORS OP MY VLOER? /
SIEN JY ALL THIS MESS ON MY FLOOR?

Item 2 Die meisiekinders speel met hulle Barbie-poppe, and are trying on all the different dresses. The girl in pink wonder of die klein rokkie gaan pas, and asks the girl in green "…" (voltooi in Afrikaans en Engels)
DOES THIS DRESS FIT HIERIDE BARBIE? /
PAS HIERIDE ROK ON THIS BARBIE?

Item 3 Die meisie kan nie glo how many books there are on the shelf. She didn't know her friend likes reading so much, and can't believe sy lees al die boeke nie. Sy vra haar vriendin "…" (voltooi in Afrikaans en Engels)
DO YOU READ AL HIERDIE BOEKE? /
LEES JY ALL THESE BOOKS?

Item 4 Die vrouens gesels about the pros and cons of low-cholestrol oil. Die vrou by die stoof sê dit maak nie vir haar veel saak nie, because she doesn't use much oil. Sy vra die ander vrou "…?" (complete in English and Afrikaans)
DO YOU USE BAIE OLIE? /
GEBRUIK JY LOTS OF OIL?

Item 5 Die man is al gesê dat sy kinders baie help around the house. Al weet hy dit is waar, he is still surprised when he walks into the kitchen, en hy vra "…?" (complete in English and Afrikaans)
DO YOU GIRLS WASH AL HIERDIE SKOTTELGOED? /
WAS JULLE MEISIEKINDESR ALL THESE DISHES?

Item 6 Die meisies soek flitsligte vir hulle camp-out at school that evening. They found some torches but they needed nuwe batterye. Die meisie is onseker of sy die regte grootte batterye gekoop het, en sy vra haar ouma "...?" (voltooi in Afrikaans en Engels)
DO THESE BATTERIES FIT IN HIERDIE FLITS? /
PAS HIERDIE BATTERYE IN THIS TORCH?

Item 7 Die vrou en haar vriendin are chatting in the kitchen terwyl sy tee maak. Sy het lank laas vir die vriendin tee gemaak, and doesn't know whether she takes sugar, so she asks "…?" (complete in English and Afrikaans)
DO YOU TAKE SUIKER IN JOU TEE? /
NEEM JY SUGAR IN YOUR TEA?

Item 8 The woman is preparing for a picnic with haar dogter en skoonseun. Sy wil graag haar skoonseun se gunsteling snacks saamvat, but she's forgotten which chips he prefers. Sy vra haar dogter "…?" (voltooi in Afrikaans en Engels)
DOES HE PREFER HIERDIE SOORT? /
VERKIES HY THIS KIND?

Appendix I: Instructions for the magnitude estimation of the relative well-formedness of sentence sets

ENGLISH: In this test you are required to rate sentences according to their level of well-formedness. You will compare each sentence to a particular reference sentence and assign each sentence a number which represents its level of well-formedness in comparison to the reference sentence. As with the sentence pair judgment tests you completed earlier, in this test I am interested in your intuitions. There are no correct and incorrect answers. I am interested in your opinions regarding the level of well-formedness of each sentence, based on your own intuition, and not on any rules of English or Afrikaans grammar which you may have learnt. In the first few items of this test, you will practise by judging line lengths. In these items you will be presented with a series of lines, and you will estimate the length of each line by assigning a number to it. For example, if the first line, which will be your reference line, looks like this _____ , you might assign it the number 10. If the following line looks like this _____ , and seems to you to be almost twice as long as the reference line, you might assign it the number 18. You might give the next line, which looks like this ___ , a 2.5. You may use any number above zero (you may not use zero), and you may use decimals. Just try to make each number match the length of the line as you see it, and try to assign the reference line a number which you are comfortable manipulating in either direction, i.e. not too big or too small (50 is often considered a good number for the reference line). When you are finished with the line length estimation part of the test, you will begin the sentence judgment part, where you will assign numbers to sentences to reflect their level of well-formedness in comparison to a reference sentence. The first sentence in any particular set of sentences will be your reference sentence, and you are to assign a number to it in accordance with its level of well-formedness. For example, if the sentence is MY OOM NEEMS PICTURES OF CLOWNS, you might assign it the number 10. If the next sentence is MY OOM IS TOOKEN PICTURES OF CLOWNS, and it seems far less well-formed to you, you might assign it the number 2. If the following sentence is MY OOM NEEM PICTURES OF CLOWNS, and seems to you to be substantially more well-formed than the reference sentence, you might assign it the number 20. Therefore, a higher number represents a more well-formed

sentence, and a lower number a less well-formed sentence. You will get further instructions as you go along.

AFRIKAANS: In hierdie toets moet u sinne beoordeel in terme van hul vlak van welgevormdheid. U sal elke sin vergelyk met 'n spesifieke verwysingsin en aan elkeen 'n syfer toeken wat sy vlak van welgevormdheid in vergelyking met die verwysingsin verteenwoordig. Soos met die sinspaarbeoordelingstoetse wat u vroeër voltooi het, stel ek hier belang in u intuisies. Daar is geen regte en verkeerde antwoorde nie. Ek stel belang in u opinies oor die vlak van welgevormdheid van elke sin gebasseer op u intuisie, en nie op enige reëls van Afrikaanse of Engelse grammatika wat u dalk ken nie. In die eerste paar items van hierdie toets sal u oefen deur om lynlengtes te beoordeel. In hierdie items sal u 'n reeks lyne gegee word, en sal u elkeen se lengte beraam deur om 'n syfer daaraan toe te ken. Byvoorbeeld, indien die eerste lyn, wat u verwysinglyn gaan wees, so lyk _____ , sal u dalk die syfer 10 daaraan toeken. Indien die volgende lyn so lyk _____, en vir u amper twee keer so lank as die verwysinglyn blyk te wees, sal u dalk die syfer 18 daaraan toeken. U sal dalk aan die volgende lyn, wat so lyk ___ , 'n 2.5 toeken. U mag enige syfers bo nul gebruik (u mag nie nul gebruik nie), en u mag desimale gebruik. Probeer net om elke syfer verteenwoordigend te maak van die lyn se lengte soos u dit sien, en probeer om aan die verwysinglyn 'n syfer toe te ken wat u gemaklik in beide rigtings kan manipuleer, d.w.s. nie te klein of te groot nie (50 word dikwels beskou as 'n goeie syfer vir die verwysinglyn). As u klaar is met die lynlengte beoordeling afdeling van die toets, sal u die sinsbeoordeling afdeling begin, waar u syfers aan sinne sal toeken wat hul vlak van welgevormdheid in vergelyking met 'n verwysingsin, reflekteer. Die eerste sin in enige stel sinne sal u verwysingsin wees, en u moet 'n syfer ooreenkomstig met sy vlak van welgevormdheid daaraan toeken. Byvoorbeeld, indien die eerste sin MY OOM NEEMS PICTURES OF CLOWNS is, sal u dalk die syfer 10 daaraan toeken. Indien die volgende sin MY OOM IS TOOKEN PICTURES OF CLOWNS is, en indien hierdie tweede sin vir u heelwat minder welgevorm voorkom, sal u dalk 'n 2 daaraan toeken. Indien die volgende sin MY OOM NEEM PICTURES OF CLOWNS is, en hierdie sin vir u heelwat meer welgevorm voorkom as die verwysingsin, sal u dalk die syfer 20 daaraan toeken. Dus verteenwoordig 'n hoër syfer 'n meer welgevormde sin, en 'n laer syfer 'n minder welgevormde sin. U sal verdere instruksies kry soos u met die toets aangaan.

Appendix J: Questions in the post-test questionnaire (English version)

1. The sentence judgment task on WebCT, where I had to read the sentences, was in my opinion …

   □ difficult
   □ neutral
   □ easy

2. The auditory judgment task on WebCT, where I had to listen to the utterances, was in my opinion …

   □ difficult
   □ neutral
   □ easy

3. The magnitude estimation tests on WebCT, where I had to assign numbers to sentences, was in my opinion …

   □ difficult
   □ neutral
   □ easy

4. I think the sentences and utterances in the WebCT tests were quite natural, i.e., such sentences and utterances may well occur in normal everyday conversation between English-Afrikaans bilinguals.

   □ agree
   □ neutral
   □ disagree

5. The sentence construction test which was sent by e-mail, where I had to build sentences, was in my opinion …

   □ difficult
   □ neutral
   □ easy

6. I think the sentences in the sentence construction test which was sent by e-mail were quite natural, i.e., such sentences and utterances may well occur in normal everyday conversation between English-Afrikaans bilinguals.

   □ agree
   □ neutral
   □ disagree

7. The video description test, where I had to complete the video descriptions orally, was in my opinion …

   □ difficult
   □ neutral
   □ easy

8. I think the utterances I produced during the video description task sounded quite natural, i.e., such utterances may well occur in normal everyday conversation between English-Afrikaans bilinguals.

   □ agree
   □ neutral
   □ disagree

9. I am aware of the following syntactic / grammatical structures that were tested:

   _____
   _____
   _____
   _____

10. Please feel free to comment on any aspect of the code switching survey.

    _____
    _____
    _____
    _____

Appendix K: Post-test of loanword status of English verbs (English version)

The aim of this test is to evaluate the status of certain English words as loanwords in standard Afrikaans. The word appears on the left, and an example linguistic context on the right. In each case, please indicate whether the word is in your opinion very likely, likely, unlikely, or very unlikely to be regarded as a loanword in Afrikaans.

1. **rest** Daardie groot walvisse **rest** nou lekker anderkant die golwe.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

2. **worry** Oor sulke lui studente **worry** ek die meeste.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

3. **choose** My kinders **choose** altyd die duur speelgoed.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

4. **challenge** Daardie rugbyspelers **challenge** mekaar lekker.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

5. **like** Die gemiddelde man op straat **like** daardie raadslede.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

6. **enjoy** Sal jou vriende dit **enjoy** om saam te gaan fliek?

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

7. **buy** Ek hoor daardie nuwe bure **buy** kiste sterk drank.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

8. **start** Ek het hom gevra wanneer **start** hy daardie enjin.

very likely heel waarskynlik	likely waarskynlik	onseker	unlikely onwaarskynlik	very unlikely heel onwaarskynlik

Appendix L: Alternative constructions in the sentence construction test

Constructions with adverbs

English item 3:
Die ou ervare bestuurder *drives* sulke swaar voertuie *seldom*.
the old experienced driver such heavy vehicle-PL

Afrikaans item 1:
His elderly grandfather *haat* chocolate with large nuts *blykbaar*.
hate apparently
His elderly grandfather *blykbaar* chocolate with large nuts *haat*.

Afrikaans item 2:
The children in the classroom *kies* the cheese sandwiches *eerder*.
choose rather
The children in the classroom *eerder* the cheese sandwiches *kies*.

Afrikaans item 3:
The man with the cap the hot weather *duidelik haat*.

Focalisation constructions

English item 1:
Die pienk sjampanje glase van die plaaslike supermark *she buys*.
the pink champagne glass-PL from the local supermarket

English item 3:
Die partytjiekos met die bejaardes in gedagte *her mother chooses*.
the party food with the aged-PL in mind

Afrikaans item 4:
The high inflation rate *haar pa* for all his problems *blameer*.
her father blame

Topicalisation constructions

English item 3:
Hulle fluksheid besonder baie *their patients value*.
their energy particularly much
Hulle fluksheid *value* besonder baie *their patients*.
Hulle fluksheid *their patients* besonder baie *value*

Afrikaans item 2:
Tennis matches on television *kyk hulle*.
watch they

Embedded *that* clauses

Afrikaans item 1:
My mother reports that *moelike wiskunde probleme haat* the school pupils.
difficult maths problem-PL hate

Afrikaans item 3:
Research has since revealed that *breek* the elephants *sulke draadheinings*.
break such wire fence-PL

Embedded *wh* clauses

English item 2:
Die skip se bemanning verstaan waarom *trades* die arme eienaar *expensive cloth*.
the ship POSS crew understand why the poor owner

English item 3:
Die gretige jong vlieënier wonder wanneer *start* die bemanning *the main engine*.
the eager young pilot wonder when the crew

English item 4:
Die toeriste vra waarom *prefer* die manlike robbe *the deep water*.
the tourist-PL ask why the male seal-PL

Afrikaans item 2:
My son asks why *pla* the other boys *hulle oulike juffrou*.
bother their nice teacher

Afrikaans item 3:
The crazy professor asks how *verdwyn* the valuable specimens *vanuit die laboratorium.*
disappear from-out-TRUNC the laboratory

Afrikaans item 4:
The research assistant wonders how *bly* the suspension *binne die oop bottel.*
stay inside the open bottle

Samenvatting

Deze dissertatie richt zich op de structurele aspecten van codewisseling tussen het Zuid-Afrikaans Engels en het Afrikaans. Het doel van deze studie is om te onderzoeken wat het belang is van een beschrijving van intrasententiële codewisseling (wisseling van taal binnen een zin), met behulp van een "minimalistische" theorie die gebaseerd is op het controleren van kenmerken. De hypothese is dat de aannames en mechanismen die samenhangen met minimalistische syntaxis (in het bijzonder het controleren van grammaticale kenmerken en daarmee samenhangende principes en operaties), een passend kader bieden waarbinnen de structurele aspecten van Engels-Afrikaanse codewisseling kunnen worden gekarakteriseerd en verklaard. In het kader van deze hypothese betekent dit dat dezelfde grammaticale principes die voor eentalige verschijnselen gelden, wellicht ook gelden voor intrasententiële codewisselingsverschijnselen. In dit onderzoek wordt getracht om te bepalen of deze hypothese waar of niet waar is.

Het boek is als volgt ingedeeld. In hoofdstuk 1 wordt een korte inleiding gegeven op het doel van de studie en een beschrijving van de meertalige Zuid-Afrikaanse context waarin codewisseling gemeengoed is.

Hoofdstuk 2 geeft een overzicht van relevante literatuur. In het begin van het hoofdstuk wordt de kwestie van terminologisch onderscheid besproken en wordt codewisseling onderscheiden van ontlening, codemixing en interferentie, waarbij dit onderscheid wordt toegelicht met voorbeelden uit Zuid-Afrikaans Engels en Afrikaans. Tevens wordt een kort overzicht gegeven van de belangrijkste sociolinguïstische studies over het verschijnsel codewisseling en wordt er dieper ingegaan op studies die zich richten op de grammaticale aspecten van codewisseling. Aan het begin van het hoofdstuk wordt bij de bespreking van de grammaticale aspecten een onderscheid gemaakt tussen enerzijds intrasententiële codewisseling en anderzijds inter- en extrasententiële codewisseling. Vervolgens worden studies besproken die zich richten op (i) structurele beperkingen en codewisseling, (ii) "nul"-hypotheses, volgens welke er geen beperkingen bestaan op codewisseling, en (iii) de typologie van codewisseling. Tot slot wordt een overzicht gegeven van onderzoek naar codewisseling in de Zuid-Afrikaanse context. De meeste onderzoeken zijn gericht op sociolinguïstische aspecten en onderzoek

naar gemengde varianten die relevant zijn voor de studie van Engels-Afrikaanse codewisseling.

Het theoretisch kader wordt geschetst in hoofdstuk 3. Er wordt een kort overzicht gegeven van de ontwikkelingen binnen het kader van de generatieve grammatica. Tevens worden bepaalde mechanismen en operaties verklaard die samenhangen met minimalistische syntaxis. Een aantal verschillen in de woordvolgorde tussen het Engels en het Afrikaans, in het bijzonder de positie van het werkwoord, wordt geanalyseerd binnen het kader van de kenmerken controlerende theorie, waarbij de verplaatsing van lexicale elementen wordt veroorzaakt door de noodzaak om sterke, niet te interpreteren, kenmerken die gerelateerd zijn aan functionele hoofden, te controleren. De verschillen in de positie van het werkwoord tussen de twee talen worden geanalyseerd in termen van verschillen in de sterkte van bepaalde kenmerken. Het gaat daarbij om constructies met bijwoorden, gefocaliseerde en getopicaliseerde elementen, ingebedde *dat-* en *wh-*zinnen en *ja-nee*-vragen. Op basis van analyses die gebaseerd zijn op het controleren van kenmerken worden voorspellingen gedaan met betrekking tot de welgevormdheid van deze typen constructies waarin codewisseling tussen Engels en Afrikaans voorkomt.

Het experimentele paradigma waarin de data zijn verzameld aan de hand waarvan gekeken kan worden of de voorspellingen uitkomen, wordt besproken in hoofdstuk 4. Het hoofdstuk begint met een bespreking van de tekortkomingen van spontane data in de context van deze studie, en de behoefte aan experimentele data oor specifieke voorspellingen. De motivering voor ieder van de elicitatietechnieken wordt besproken en elke techniek wordt uitvoerig beschreven. De data zijn afkomstig van 30 tweetalige Engels-Afrikaanse deelnemers die beide talen vloeiend spreken, door middel van het geven van (i) oordelen over de mate van welgevormdheid van visueel aangeboden zinsparen, (ii) oordelen over de mate van welgevormdheid van mondeling aangeboden uitingsparen, (iii) het construeren van zinnen (iv) de beschrijving van video clips, en (v) "magnitude estimation" van de mate van welgevormdheid van visueel aangeboden reeksen van zinnen.

De resultaten van de relatieve welgevormdheidsoordelen en van de zinsconstructietesten worden besproken in hoofdstuk 5. De ondersteuning (of het gebrek daaraan) van de voorspellingen voor elke

constructie wordt besproken in de vorm van (i) de gemiddelden voor elk testitem, en (ii) een statistische analyse met ANOVA. Globaal blijken deze resultaten de voorspellingen voor constructies met bijwoorden en gefocaliseerde en getopicaliseerde constructies te ondersteunen. Echter, voor de voorspellingen betreffende de overige constructies, ingebedde *dat-* en *wh-*zinnen en *ja-nee*-vragen, is weinig ondersteuning gevonden, met uitzondering van de voorspelling over Afrikaanse werkwoorden in *ja-nee* vragen.

In hoofdstuk 6 worden de resultaten van de beschrijving van de video clip besproken ter ondersteuning van de voorspellingen. De statistische analyses voor elk type constructie omvatten (i) een chi-kwadraat test om vast te stellen of de respons evenredig was verdeeld over de welgevormde en niet-welgevormde categorieën; en (ii) een ANOVA met de taal van het werkwoord (Engels of Afrikaans) als "within-subjects" factor, en de taal van de deelnemer (Engels of Afrikaans) als het "between-subjects" factor om de significantie van de verschillen vast te stellen in de respons van de Engelse en Afrikaanse deelnemers. De resultaten van de beschrijving van de video clip wijzen op sterke ondersteuning van alle voorspellingen, behalve in het geval van het Afrikaanse werkwoord in ingebedde *dat*-zinnen.

De resultaten van de "magnitude estimation test" worden besproken in hoofdstuk 7, in termen van significantie (zoals met ANOVA) van de effecten van de verschillende manieren waarop de stimuluszinnen van elkaar verschillen. Globaal laten de resultaten van de "magnitude estimation test" een gemengd beeld zien met enige ondersteuning voor de voorspellingen en indicaties van een aantal andere factoren die de oordelen van deelnemers beïnvloeden, zoals de taal van het element grenzend aan het werkwoord, de vorm (een volle NP of persoonlijk voornaamwoord) van het subject of het object en de aanwezigheid van een uitbreidend zinsdeel.

In hoofdstuk 8 wordt een overzicht gegeven van de testen en worden de resultaten van de verschillende testen besproken. Eerst wordt ingegaan op het relatieve belang van het experimentele paradigma. De behoefte wordt benadrukt aan een uitgebreide serie testen, die de voorspellingen ieder op een verschillende manier aangeven, en de relatieve betekenis van ieder van de testen en de testopmaak worden besproken. Ten tweede worden de resultaten besproken, in hoeverre ze (i) de onderliggende

analyses, (ii) de voorspellingen voor codewisseling, en (iii) de centrale hypothese ondersteunen. In de gevallen waarin de voorspellingen niet sterk worden ondersteund (zoals in het geval van de ingebedde *dat*-zinnen), worden alternatieve analyses overwogen. In de derde plaats worden verdere bevindingen besproken, hoofdzakelijk op basis van de resultaten van "magnitude estimation" en ook in de zin van het effect van ontlening. Tenslotte wordt geconcludeerd dat de hypothese niet volledig wordt ondersteund, in die zin dat een toereikende verklaring van de huidige data wellicht kennis vereist van meer dan alleen de mechanismen die worden verondersteld de structuur van constructies binnen één taal te verklaren. Het is mogelijk dat naast andere factoren taalverwerkingseffecten en de mogelijkheid van syntactische convergentie een unieke rol spelen in codewisseling. Niettemin wordt gesuggereerd dat het via onderzoek naar grammaticale aspecten van intrasententiële codewisseling, afgestemd op de gangbare grammaticale theorie (zoals in dit geval de minimalistische theorie van controle van kenmerken) het mogelijk moet zijn om een adequate beschrijving te geven van de structurele verschijnselen in kwestie.

Opsomming

Hierdie tesis fokus op strukturele aspekte van kodewisseling tussen Suid-Afrikaanse Engels en Afrikaans. Die hoofdoel van die studie is spesifiek om die waarde van 'n verklaring van intrasentensiële kodewisseling (d.w.s. waar tale binne 'n enkele sinsnede gewissel word) in terme van kenmerk-kontroleringsteorie, 'n teorie wat met minimalistiese sintaksis geassosieer word, te ondersoek. Die hipotese is dat die aannames en meganismes wat met minimalistiese sintaksis geassosieer word (spesifiek kenmerk-kontrolering en verbandhoudende beginsels en bewerkinge) 'n voldoende raamwerk bied waarbinne strukturele eienskappe van Engels-Afrikaanse kodewisseling gekarakteriseer en verduidelik kan word. In terme van dié hipotese mag dieselfde grammatikale beginsels wat voorgestel word om eentalige verskynsels te verklaar, ook intrasentensiële kodewisselingverskynsels verklaar. Die navorsing poog om die waar- of valsheid van hierdie hipotese vas te stel.

Die boek is soos volg saamgestel. Hoofstuk 1 bied 'n bondige inleiding tot die doel van die studie en 'n uiteensetting van die meertalige Suid-Afrikaanse konteks waarin dit afgelê is, een waarin kodewisseling 'n algemene verskynsel is.

Hoofstuk 2 bied 'n oorsig van die relevante literatuur. Die hoofstuk begin met 'n bespreking van terminologiese onderskeidings, en kodewisseling word onderskei van ontlening, kodevermenging en inmenging, met voorbeelde van hierdie verskynsels uit Suid-Afrikaanse Engels en Afrikaans ter illustrasie. 'n Kort oorsig word gegee van prominente sosiolinguistiese studies van kodewisseling, waarna 'n meer in-diepte bespreking van studies wat op grammatikale aspekte van kodewisseling fokus, volg. Die bespreking van grammatikale aspekte begin met 'n onderskeiding tussen intrasentensiële kodewisseling en beide inter- en ekstrasentensiële kodewisseling. Dit word gevolg deur 'n bespreking van studies wat fokus op (i) strukturele beperkinge op kodewisseling, (ii) sogenaamde "nul"-hipoteses van kodewisseling, waarvolgens daar geen strukturele beperkinge op kodewisseling is nie, en (iii) 'n tipologie van kodewisseling. Laastens word 'n oorsig gegee van navorsing oor kodewisseling in die Suid-Afrikaanse konteks, wat meestal op sosiolinguistiese aspekte fokus, en van navorsing oor gemengde

variëteite wat relevant is tot die studie van Engels-Afrikaanse kodewisseling.

Die teoretiese raamwerk word in hoofstuk 3 uiteengesit. 'n Bondige oorsig van ontwikkelinge binne die raamwerk van die generatiewe grammatika word gegee, en sekere meganismes en bewerkinge wat met minimalistiese sintaksis geassosieer word, word verduidelik. 'n Aantal woordvolgordeverskille tussen Engels en Afrikaans, spesifiek wat werkwoordposisie betref, word binne die raamwerk van kenmerk-kontroleringsteorie geanaliseer, waarvolgens die verplasing van leksikale items genoodsaak word deur die behoefte om sterk oninterpreteerbare kenmerke wat met funksionele hoofde geassosieer word, te kontroleer. Die verskille in werkwoordposisie tussen die twee tale word geanaliseer in terme van verskille in die sterkte van sekere kenmerke. Die strukture wat betrokke is sluit in konstruksies met byvoeglike naamwoorde, fokalisasie- en topikalisasiestrukture, ingebedde *dat*- en *wh*-sinsnedes, en *ja-nee*-vrae. Op die basis van die kenmerk-kontroleringsanalises word voorspellings gemaak wat betref die welgevormdheid van konstruksies van hierdie aard waarin kodewisseling tussen Engels en Afrikaans plaasvind.

Die eksperimentele prosedures waarmee data ingesamel is om die voorspellings toe te lig word in hoofstuk 4 uiteengesit. Die hoofstuk begin met 'n bespreking van die tekortkominge van naturalistiese data in die konteks van die huidige studie, en die behoefte aan eksperimentele data om die spesifieke voorspellings toe te lig. Die rasionaal vir elk van die dataversamelingstegnieke word bespreek, en elke tegniek word uitvoerig verduidelik. Data is van 30 vlot tweetalige sprekers van Engels en Afrikaans versamel deur middel van (i) oordele oor die relatiewe welgevormdheid van visueel-aangebiede sinspare, (ii) oordele oor die relatiewe welgevormdheid van ouditief-aangebiede uitingspare, (iii) sinskonstruksie, (iv) videobeskrywing, en (v) "magnitude estimation" van die relatiewe welgevormdheid van visueel-aangebiede sinstelle.

Die resultate van die relatiewe oordeel- en sinskonstruksietoetse word in hoofstuk 5 aangebied. Die ondersteuning al dan nie vir die voorspellings vir elke konstruksie word bespreek in terme van (i) die gemiddelde vir elke toetsitem, en (ii) statistiese analise deur middel van ANOVA. Oor die algemeen het hierdie resultate op ondersteuning vir die voorspellings vir byvoeglike naamwoord-, fokalisasie-, en topikalisasiestrukture gedui.

Wat die ander drie strukture betref, naamlik ingebedde *dat-* en *wh-*sinsnedes en *ja-nee*-vrae, was daar min ondersteuning vir die voorspellings, behalwe in die geval van die Afrikaanse werkwoord in *ja-nee*-vrae.

Hoofstuk 6 bespreek die resultate van die video-beskrywingstoets in terme van ondersteuning vir die voorpsellings. Die statistiese analises vir elke tipe konstruksie sluit in (i) 'n chi-kwadraat-toets om vas te stel of die verspreiding van teikenresponse vir elke item eweredig oor die welgevormde en onwelgevormde kategorieë verdeel is, en (ii) 'n ANOVA met taal van werkwoord (Engels of Afrikaans) as binne-deelnemer faktor en taal van deelnemer (Engels of Afrikaans) as tussen-deelnemer faktor om die beduidendheid van verskille tussen die aantal teikenresponse van Engelse en Afrikaanse deelnermers vas te tel. Die resultate van die videobeskrywingstoets het sterk ondersteuning gebied vir al die voorspellings, behalwe in die geval van ingebedde *dat*-sinsnedes.

Die resultate van die "magnitude estimation"-toets word in hoofstuk 7 aangebied in terme van die beduidendheid (volgens ANOVA) van die effekte van die verskeie maniere waarop die stimulus-sinne van mekaar verskil het. Oor die algemeen het die "magnitude estimation"-resultate 'n gemengde beeld opgelewer, met beperkte ondersteuning vir die voorpsellings, en aanduidings van 'n aantal verdere faktore wat deelnemers se oordele geaffekteer het. Hierdie faktore sluit in die taal van die element naasliggend tot die werkwoord, die vorm (volle NP of voornaamwoord) van die subjek of objek, en die teenwoordiheid van 'n modifiserende frase.

Hoofstuk 8 bied 'n oorsig en bespreking van die resultate oor die toetse heen. Eerstens word die relatiewe waarde van die eksperimentele paradigma bespreek. Die behoefte aan 'n omvattende stel toetse wat elk op 'n verskillende manier data ontlok, word beklemtoon, en die relatiewe waarde van elk van die dataversamelingstegnieke word bespreek. Tweedens word die resultate bespreek in terme van die ondersteuning wat dit bied vir (i) die onderliggende analises, (ii) die voorspellings vir kodewisseling, en (iii) die sentrale hipotese. In die gevalle waar ondersteuning vir die voorspellings nie sterk is nie (soos in die geval van ingebedde *dat*-sinsnedes) word alternatiewe analises oorweeg. Derdens word verdere bevindinge bespreek, hoofsaaklik gebaseer op die resultate van die "magnitude estimation"-toets, en ook in terme van die effek van

ontlening. Laastens word die gevolgtrekking gemaak dat die hipotese nie op 'n uniforme manier ondersteun word nie, en dat 'n voldoende verklaring van die huidige data moontlik kennisname verg van meer as net die meganismes wat voorgestel word om die struktuur van eentalige konstruksies te verklaar. Onder andere mag daar prosesseringseffekte wees. Verder is dit moontlik dat sintaktiese konvergensie 'n unieke rol speel in kodewisseling. Nietemin word daar voorgestel dat navorsing oor grammatikale aspekte van kodewisseling wat in pas bly met resente grammatikale teorie (soos in hierdie geval met kenmerk-kontroleringsteorie) die potensiaal het om 'n toereikende verklaring van die strukturele verskynsels te bied.

Curriculum Vitae

Ondene van Dulm studied speech therapy and audiology at Stellenbosch University (South Africa), where she later completed a Masters degree in Linguistics. She has been employed as a lecturer in the Linguistics Department at Stellenbosch University since 1998, where she teaches sociolinguistics, psycholinguistics, bilingualism, and intercultural communication, among other topics, at both under- and post-graduate level.