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Investigating Variability in the Acquisition of English Functional Categories by L1 speakers of Latakian Syrian Arabic and L1 speakers of Mandarin Chinese

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To Maryam, Zohour, Arwa, Hala and Lobna.

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Abstract

A widely studied L2 behaviour in the SLA literature is that of the inconsistency in the production of functional morphology by advanced and endstate L2 learners. The level of inconsistency seems to vary among L2 learners, for instance, SD, a Turkish endstate learner of English (White 2003a) was highly accurate in the production of English inflectional morphology compared with Patty, also an endstate learner of English whose L1 is Chinese (Lardiere 2007). The literature is divided on whether to consider the absence of overt morphology in L2 performance to be a reflection of underlying syntax, thus indicating the absence of corresponding syntactic features, or whether it is an indication of a missing surface inflection only.

A proponent of the first account is Hawkins (2009) who claims that a deficit in the L2 syntax, exemplified by the inability of L2 learners to acquire uninterpretable features not instantiated in the L1 grammar beyond the critical period causes the inconsistent suppliance of functional morphology in the interlanguage. On the other hand, Lardiere (2008) and Goad et al. (2003) describe types of post-syntactic problems causing variability: difficulty in mapping between different components of the grammar, and L1 transfer of prosodic structures, respectively.

To test the claims of the above hypotheses, this study provides comparative data from two groups of L2 learners who differ with respect to the L1: Latakian Syrian Arabic or Mandarin Chinese. These two languages differ from each other in terms of which functional features are overtly represented in the morphosyntax, but are similar in the manner functional material is prosodified in relation to stems.

Results based on the data collected do not lend support to claims of L1 prosodic transfer; they are rather compatible with an account that combines claims from both the Representational Deficit Hypothesis and the Feature Re-assembly hypothesis.

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Chapter 1   Introduction

This thesis investigates the phenomenon of variability in the production of functional morphology in interlanguage grammars. The importance of investigating this phenomenon stems from the fact that it reflects a kind of L2 behaviour that is observed crosslinguistically and by beginner to highly proficient and endstate L2 learners. The utterances cited below are produced by Patty (Lardiere 1998a, b; 2007), an endstate L2 learner of English whose L1s are Mandarin Chinese and Hokkien. Instances where inflection was omitted are in italics.

> I just barely *pass* the # uh # the minimum.
> so she *perform* and always send me the picture.
> my mom also *speak* Mandarin.
> I hardly *learn* to speak Cantonese.   (Lardiere 1998b: 368)

Similar types of mistakes to the ones made by Patty recur in the L2 production of learners regardless of the native language they speak or the second language they acquire. A few approaches are identified in SLA research implemented in the domain of L2 acquisition of functional morphology. This thesis focuses mainly on investigating variability from the point of view of, on the one hand, approaches that claim interlanguage grammars are defective and non-native-like because functional features that are absent in the L1 grammar cannot be acquired after a critical period has passed, leading to inconsistent suppliance of functional morphology in categorical contexts. The two hypotheses that fall within the scope of this approach are the Representational Deficit Hypothesis (Hawkins 1998; Hawkins and Chan 1997; Hawkins and Liszka 2003) and its revised and more recent version, the Interpretability Hypothesis (Tsimpli and Dimitrakopoulou 2007; Hawkins 2009;

Hawkins and Hattori 2006). On the other hand, there are approaches that treat variability as a result of extra-syntactic factors such as differences in prosodic structure or in featural configuration between the L1 and L2, and claim that otherwise the interlanguage grammar is native-like with respect to its inventory of functional features. The Prosodic Transfer Hypothesis (Goad et al. 2003; Goad and White 2003, 2004, 2006, 2009a, b) and the Feature Re-assembly Hypothesis (Lardiere 2007, 2008) belong to this second approach.

In order to test the claims made by the above two approaches, spontaneous L2 production was collected from two groups of participants who were advanced-proficiency learners of English. Participants in the first group spoke L1 Latakian Syrian Arabic (LSA) and participants in the second group spoke L1 Mandarin Chinese (MC). Instances of missing surface functional elements were identified in the data and then suppliance mean accuracy scores calculated for each of the L1 groups. Results from this study were used to try to answer a number of research questions, the main three of which are given below:

- Will L2 learners in the two tested groups be more accurate on the production of L2 functional material that has syntactic representation in the L1 compared to material that is not grammaticalized in the L1?
- Will L2 learners be more accurate on the production of L2 functional material whose L2 prosodic representation is available in L1 prosody or can be attained using L1 existing prosodic structures/relations compared to material whose L2 prosodic organization is not attainable from L1 prosody?

- Will L2 learners be more accurate on the production of L2 functional material whose featural makeup is easier to assemble in the L2, and will accuracy in the L2 production be compatible with the Cline of Difficulty?[1]

The rationale behind choosing the L1s of the participants to be LSA or MC is basically related to the fact that these two languages generally treat functional morphology in a similar way on the prosodic level; they both organize them as internal clitics which is different from the English manner of treating functional morphology as affixal clitics. If claims of L1 prosodic transfer are tenable then both groups should have relatively similar accuracy scores for supplying functional elements in the L2.

The chosen two L1s are also intended on the ground that the underlying syntactic presentation of functional morphology in one of these two languages, MC, is more divergent from that of L2 English compared to the other L1, LSA. Such a discrepancy between the L1s is crucial for testing the viability of the approach claiming that the difference in underlying syntactic structure between the L1 and L2 matters and indeed influences the consistency in supplying functional morphology in interlanguage production.

The presentation of the above-described study in this thesis is structured as follows. In Chapter 2, a background of SLA literature is provided first to narrow down the approaches to L2 acquisition of functional material that will be examined in this thesis, and second to present a review of prominent studies in this area alongside their results that aid in building a picture of what the interlanguage grammar is like. Chapter 3 is dedicated to presenting a detailed analysis of each element of the set of

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[1] Slabakova's (2009a) Cline of Difficulty will be discussed in section 2.3.3).

functional material this thesis is concerned with. The syntactic, morphological and prosodic representations of past tense marking, subject-verb agreement marking, number marking on nouns, articles, passive and perfective participles, and genitive marking in possessive constructions in each of the three languages (English, LSA and MC) are discussed in detail in this chapter. Chapter 4 introduces the reader to the implemented study and brings to their attention the main method used to collect and analyse the data. It also includes detailed information about each of the participants who took part in this study. Chapter 5 presents the results of the study carried out for this thesis. Finally, Chapter 6 tries to put all the pieces of the jigsaw together by presenting the results accompanied with a discussion by each of the tested hypotheses of the performance by the two L1 groups with regard to each of the functional elements listed earlier. At the end of the same chapter, the position of this thesis with respect to the approaches described in Chapter 2 is presented endorsed by evidence from the results obtained in this study. Chapter 7 provides a general conclusion of the work presented in this thesis.

Chapter 2   Explaining variability in the production of functional morphology by L2 speakers

2.1 Introduction

It is well observed in adult Second Language Acquisition (SLA) that convergence on the L2 is possible in some L2 domains, like semantics and pragmatics, but is most noticeably less possible in terms of phonology and morphosyntax. L2 speakers of advanced proficiency and even endstate learners who have been immersed in the L2 for years can very rarely be mistaken for native speakers mainly because of their non-native accent which is prominent in their L2 oral production (personal observation). While a distinguishable non-native-like accent is ubiquitous among L2 speakers, a closer examination of L2 production reveals further divergence from the L2; one which is possibly less recognizable to the listener and it occurs in the domain of functional morphology production. The phenomenon of variability/optionality in L2 production of functional material[2] (function words and inflectional morphology) occurs irrespective of what the L1 and L2 combination is (Bailey et al. 1974; Goad et al. 2003; Hawkins and Liszka 2003; Prévost and White 2000a, b). How common in the L2 production this phenomenon is potentially depends on the

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[2] Functional material, as opposed to content words, refers to words and morphemes that are functional and serve the grammatical meaning of an utterance rather than the lexical meaning. What is a function 'word' in one language, e.g. the English definite article *the*, can correspond to an inflectional 'morpheme/affix' in another language, e.g. the Arabic prefix *al*.

similarities/differences between the grammatical specifications of the languages involved in this combination.

Such a disparity in how proficient the L2 learner can be in different aspects of the L2 raises the issue of whether a Critical Period applies to all modules of the interlanguage grammar at the same time, or if it even applies to some of them at all. In many a case we find L2 learners who achieve target-like mastery of the L2 knowledge of semantics and some complicated syntactic aspects, but hardly ever do we come across (anecdotally or in SLA literature) L2 learners who, in their oral production, sound exactly native-like, or produce functional material invariably and without fail (White 2003b).

That said, it is a complicated task for researchers in SLA to tap into what is exactly causing divergence from the L2, merely because linguistic knowledge and competence is related to all aspects of life (personality, emotions, social environment, method of acquisition, intelligence, aptitude, etc.) and can, therefore, be affected and influenced by any or all of these factors at different times of the L2 acquisition process, which makes it difficult for the researcher to control for these factors. Additionally, modules of the grammar are all inter-related and operations in one module usually have (visible/invisible) consequences manifested in other modules. This renders hard the task of isolating the cause(s) behind a phenomenon such as variability in supplying L2 functional material which is exhibited by even[3] advanced L2 speakers.

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[3] I say 'even' because less advanced L2 learners are well expected to inconsistently supply functional morphology, in addition to displaying several other non-target-like behaviours, whereas this expectation does not apply to advanced learners who are highly proficient in the L2 and for whom knowledge of functional material usage would seem unquestionable.

The work reported in this thesis is going to focus on two mainstream approaches in SLA that tackle the issue of inconsistent suppliance of functional material by advanced L2 speakers: on the one hand, there are the Representational Deficit Hypothesis and its more recent version, the Interpretability Hypothesis, and, on the other hand, there are the Prosodic Transfer Hypothesis and the Feature Re-assembly Hypothesis. The two approaches to be discussed differ mainly with respect to their assumptions about whether full access to UG is possible when learning a second language and how the (non)availability of this access affects the acquisition of L2 functional features.

2.1.1   L2 acquisition of (un)interpretable features of functional categories

For many linguists (e.g. Hawkins 2009), surface functional morphology realises features of abstract functional categories like Complementizer (C), Negation (Neg), Determiner (D), Number (Num), Tense (T) and Agreement (Agr) - as opposed to lexical categories like Noun (N), Verb (V), Adverb (Adv), Preposition (Prep) and Adjective (Adj). Formal features, such as tense, number, person, gender and case, are the building blocks of functional categories. For example, the -*s* that appears on verbs in sentences like *She walks to work every day* realises the semantically-relevant [Present] (or perhaps [-Past]) and syntactically-relevant [Singular] and [3 Person] features of the functional category T. The features [Singular] and [3 Person] are semantically relevant when they are part of the specification of Nouns, but when they are part of the specification of T their function is to mark a syntactic dependency. The -*s* of plural forms, like *boys* and *trees*, realises the semantically-relevant [Plural] feature of Num (Hawkins 2009), and so on. While languages share abstract

morphosyntactic properties, they differ as to the surface forms (i.e. the realization of functional material) by which these properties are spelled out. For example, the English indefinite article *a* corresponds to the particle *bir* in Turkish but has no surface equivalent in vernacular Arabic (Versteegh 2014). Due to such an intricate mechanism of assigning features to functional categories in languages, the latter are assumed to be the locus of variability in L2 acquisition (Hawkins 2000, 2009).

Earlier in SLA research, all functional features were considered to be a major source of difficulty for L2 learners (e.g. Hawkins and Liszka 2003; Lardier 1998a, b). However, claims were later made in the Interpretability Hypothesis (IH) (Hawkins and Hattori 2006) that only uninterpretable features, i.e. those that are syntactically related but semantically irrelevant to the stem such as number on verbs, pose a difficulty for L2 acquisition because they cannot be acquired after a critical period has passed, whereas interpretable features, such as number on nouns, can be more easily acquired benefiting from semantic processing. Such distinction is very important for the current research because the latter is one of the postulates tested in this study.

2.1.2   Variability is not random

Despite the divergence between surface inflection and more abstract syntactic properties in L2 acquisition, variability in supplying L2 functional material is by no means random. Data from adult L2 acquisition of French and German (e.g. Prévost and White 2000b), two languages that have distinct non-finite morphology[4] show that

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[4] In languages such as French and German non-finite forms are marked by specific morphemes rather than being uninflected (e.g. French *manger* 'to eat'), in contrast to the case in English. Therefore, one

L2 learners tend to supply non-finite in place of finite verb forms but not vice versa, which denotes that substitution is unidirectional and systematic.

Another crosslinguistic feature of L2 acquisition that supports the idea of systematized variability is that learners of different age groups, L1 backgrounds and L2 learning conditions, may have broadly similar accuracy profiles on different grammatical morphemes (see Bailey et al. 1974), and that certain features of functional categories are particularly difficult to acquire for learners of different L1s and of varying L2 proficiency levels; for example, the 3SG agreement inflection *-s* in L2 English appears to be relatively more difficult to acquire for child (Ionin and Wexler 2002; Dulay and Burt 1974) as well as adult endstate L2 learners (Lardiere 1998a) when compared to acquisition of other inflectional morphology such as English past-tense *-ed* and plural *-s*.

2.1.3   The initial state

One issue that has merited a lot of debate in SLA research and that is directly related to acquisition of functional material in the interlanguage is whether, in the initial state, L2 learners have access to the syntactic content of features of functional categories from the L1 or UG and they, consequently, only have to learn the overt morphological paradigms, or whether access to previous linguistic knowledge (L1 or UG) is blocked and that, therefore, syntactic specifications of the acquired features have to be inferred, if possible at all, after exposure to and subsequently learning the morphological paradigms first (see White 2003b).

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can distinguish between absence of inflection and non-finite inflection in French and German but not in English.

There are a few proposals for what constitutes the initial stage of the interlanguage grammar. The Full Transfer Full Access Hypothesis (FTFAH) (Schwartz and Sprouse 1994, 1996) proposes that the entire L1 is the starting point of L2 acquisition (hence Full Transfer) and that L2 data (parameters, functional categories or feature values) not matching with these in the L1 can be acquired to a target-like level by resorting to UG (Full Access). The Prosodic Transfer Hypothesis (PTH) (Goad et al. 2003; Goad and White 2004, 2006, 2009a, b) and the Feature Re-assembly Hypothesis (FRH) (Lardiere 2008) embrace a Full Transfer Full Access approach to L2 acquisition. The Minimal Trees Hypothesis (MTH) (Vainikka and Young-Scholten 1994, 1996a, b) slightly differently claims that the L1 grammar is only partly available in the early stages, mainly lexical, but not functional, categories with their associated properties such as headedness. Nevertheless, target-like acquisition of L2 functional categories is predicted by the MTH via accessing the UG inventory, which remains available during the developmental stages of L2 learning.[5]

In contrast to the above three hypotheses, the Initial Hypothesis of Syntax (IHS) (Platzack 1996) and the Full Access (without transfer) Hypothesis (FAWTH) (Epstein et al. 1996, 1998) both advocate the claims that the initial stage of the interlanguage is UG, that the L1 grammar has no effect whatsoever at this stage, and that target-like attainment of the L2 is predicted. The last claim coincides with predictions of the FTFAH and MTH, and therefore, the four hypotheses mentioned so far assume that

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[5] Eubank's (1994, 1996) Valueless Features Hypothesis differs from the MTH in that L1-based functional categories along with lexical categories are also considered to be part of the initial state grammar. They, however, carry valueless, or inert, features, as opposed to weak/strong features. Due to insufficient evidence to support this hypothesis, no further discussion will be made of it (see White 2003b).

the interlanguage grammar is only temporarily defective and that target-like syntactic representations of functional features will eventually be acquired.

On the other hand, there are opposing points of view where the interlanguage grammar is considered to be permanently impaired, either partly (the Local Impairment Hypothesis (Beck 1998a)) or entirely (the Global Impairment Hypothesis (Meisel 1997, Clahsen and Hong 1995)). On these two accounts, the interlanguage grammar suffers from either a global breakdown in the parametric system, where parameters are totally absent from the interlanguage, or from a local breakdown which assumes that some of the parameters, which are part of the interlanguage, are defective and can never be set due to associated features being permanently inert.

One hypothesis that claims the L1 forms the initial state is the Failed Functional Features Hypothesis (FFFH) (Hawkins and Chan 1997; Hawkins and Liszka 2003), or what White (2003b) calls the No Parameter Resetting Hypothesis (NPRH). This hypothesis was purposefully not grouped with the FTFAH, PTH and MTH[6] due to the fact that although the FFFH acknowledges the L1 as the initial state, no resetting of parameters is predicted in response to L2 input or through recourse to UG (so full transfer but partial access)[7] and that, therefore, only L1 parameters are exemplified in the interlanguage, and hence, in contrast to the perspective of the FTFAH, PTH and MTH, non-native-like attainment ensues whenever the L1 and L2 differ in parameter values.

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[6] All of them claim the L1 forms the initial state of the interlanguage.

[7] According to the FFFH, although the interlanguage of L2 learners is divergent from the L2, it still adopts solutions for representing L2 functional material that are compatible with the principles of UG, hence the assumption of partial access to UG.

2.1.4   Morphology-before-Syntax or Syntax-before-Morphology

Following from the above controversy of what initially is available for the L2 learner, a number of different explanations have been offered in recent years for the source of variability/optionality in the production of the surface forms that realize functional categories. They can be broadly grouped into two categories depending on whether presence of underlying morphosyntactic representations is implied in the interlanguage grammar at the initial stage of L2 acquisition (and in later stages as well) (White 2003b). In the first category are hypotheses that claim that L2 learners who show evidence of productively using a form (however infrequently in required contexts) must have acquired the underlying linguistic representation and suffer from an 'output' problem. This is a difficulty in mapping between levels of representation, for example, between syntax and morphology (the Missing Surface Inflection Hypothesis (Haznedar and Schwartz 1997; Prévost and White 2000a, b)), or between morphology and phonology (the PTH (Goad, White and Steele 2003)). Such hypotheses are described as Syntax-before-Morphology approaches (see White 2003b) because their main postulate is that abstract morphosyntax is in place from the initial state but problems with producing surface forms are due to difficulties in accessing and/or mapping this abstract knowledge.

In the second category are hypotheses that claim variability in the use of functional forms reflects a deficit of some kind in the morphosyntactic representations that underlie those forms (the MTH (Vainikka and Young-Scholten 1994, 1996a, b); Global Impairment Hypothesis (Clahsen and Hong 1995); the Representational Deficit Hypothesis (RDH) (Hawkins and Liszka 2003)). Hypotheses in this category assume that acquisition of morphology is prior to acquisition of syntax (Morphology-before-

Syntax approaches); therefore, absence of overt functional morphology (which is the purported trigger for acquisition) in the target language indicates the inability of the L2 learner to acquire concomitant syntactic properties. In this sense, variability in supplying functional morphology in the interlanguage reflects the L2 learners' actual grammatical competence, rather than being merely a case of missing surface morphology.

The rest of this chapter describes studies that fall into one or the other of the categories described above and evaluates the evidence used by researchers to support their claims. Eventually, predictions of interlanguage performance by LSA- and MC-speaking learners of English will be speculated to be later confirmed in Chapter 4 after the morphosyntactic and prosodic descriptions are presented for functional material in each of the three languages.

2.2 Syntactic deficits in L2 grammars (Morphology-before-Syntax approaches)

The general claim of the L2-syntactic-deficit approach is that (uninterpretable) functional features not instantiated in L1 grammars cannot be acquired later in the course of L2 acquisition. It follows from this claim that the underlying syntactic representations of functional material in the grammars of L2 learners are non-target-like even when target-like productions are variably attested in interlanguage production (Hawkins and Chan 1997).

In contrast to Full Access approaches (e.g. the Full Transfer Full Access hypothesis (FTFAH) (Schwartz and Sprouse 1994, 1996) and the Full Access without Transfer hypothesis (FAWTH) (Epstein et al. 1996, 1998)) whose view is that parameters

distinct from those found in the L1 can be (re)set according to L2 values, Full Transfer approaches adopt the view that parameter values not exemplified in the L1 grammar cannot be reset to suit L2 values, and thus can never be fully acquired. This section is going to discuss implications of Full Transfer (with Partial Access) on L2 acquisition by reviewing relevant work and identifying what strategies are used by L2 learners in the production of functional morphology, and finally pointing out what the predictions would be for the performance of each of the two participant groups in the current study.

2.2.1   The Representational Deficit Hypothesis

The Representational Deficit Hypothesis (RDH)[8] (Hawkins 1998; Hawkins and Chan 1997; Hawkins and Liszka 2003) claims that there is a critical period for the acquisition of features of functional categories in the L2.[9] At birth, all features are available through UG for acquisition of any L1(s). Features that are not selected during the critical period 'disappear' from the UG inventory, and become, therefore, unavailable for L2 learners whose L1(s) do(es) not instantiate them. This means that the L1 feature specification is fixed and cannot be reset in adulthood even after extensive exposure to the L2. Hence, variability in supplying functional morphology associated with non-L1 features is predicted by the RDH to prevail even for advanced and endstate L2 acquirers.

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[8] Or what White (2003b) calls the No Parameter Resetting Hypothesis.
[9] The RDH assumes Partial Access to UG because a critical period is claimed to apply only for features of functional categories but not to other components of the L2 grammar.

2.2.1.1   *The Failed Functional Features Hypothesis (FFFH)*

Based on the earlier proposal by Tsimpli and Smith (1991) and Smith and Tsimpli (1995) that features of functional categories are subject to a critical period, Hawkins and Chan (1997) proposed the Failed Functional Features Hypothesis (FFFH) which claims that L2 learners are unable to acquire target functional features that are not found in the L1. As Partial Access to UG is assumed under the FFFH, only features of functional categories are subject to a critical period, whereas other aspects of UG, including principles such as the Empty Category Principle, Subjacency, the Binding Principles, and others proposed at the time Hawkins and Chan were writing, remain available in the interlanguage grammar. Following from that, the FFFH suggests that the explanation for correctly produced L2 data, whose associated parameters are not instantiated in the L1, is that the interlanguage can, through partial access to UG, accommodate L2-appropriate representations of functional features that are constrained by principles of UG. Therefore, according to Hawkins and Chan, the overt realization of L2 functional features should not imply that associated underlying syntactic representations are the same as those in the mental grammar of native speakers. In effect, Hawkins and Chan postulate that "UG is accessible to L2 learners in some attenuated form" (1997: 4) and that L2 learners end up with what they call a 'possible interlanguage grammar' that diverges from both the L1 and L2.

The authors conducted an experiment on post-puberty Cantonese- and French-speaking L2 learners of English. The predictions were made based on the assumption of a parametric difference between English and French on the one hand, and Cantonese on the other. The functional category C(omplementizer) is presumed to have a [±Wh] feature in the former languages but not in the latter. Thus, the

Cantonese-speaking L2 learners in this experiment are expected by the FFFH to maintain the L1 setting of no [Wh] feature of C into the interlanguage even when they correctly produce L2 structures.

The functional category C in English relative clauses and *wh*-questions has a strong [±Wh] feature which motivates the overt movement of an operator[10] to the Spec of CP for feature checking purposes. The complementizer *that* is the lexical realization of [-Wh] in English C. The presence of a [±Wh] feature in English also dictates that the Subjacency constraint (Chomsky 1986) cannot be overcome in English relative clauses and *wh*-questions, and that resumptive pronouns are not allowed in English.

Relative clauses in Cantonese, on the other hand, cannot be introduced by *wh*-phrases, but with a complementizer *ge* which lacks a [Wh] feature (the feature [±Wh] is lacking in Cantonese as far as the functional category C is concerned) which means there is no motivation for the movement of an operator or a *wh*-phrase to the Spec of C for feature checking. Consequently, sentences which superficially appear to violate Subjacency and resumptive pronouns are in fact grammatical in this language.

Hawkins and Chan predict that the L1 parameter setting, i.e. absence of [±Wh] in C, will characterize the interlanguage grammar and, therefore, lead to a number of non-target-like behaviours by L2 learners, mainly the non-use of operator movement as the syntactic operation to derive relative clauses in the interlanguage, and potential difficulty in recognizing that Subjacency violations and resumptive pronouns are ungrammatical in L2-English.

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[10] An operator in English can be overt or null.

It is argued that despite the fact that L2 learners will be able to acquire the English complementizer *that*, the underlying syntactic representation of this overt form is not that of the L2, i.e. the feature [-Wh], but rather of the L1, i.e. like the complementizer *ge* which does not carry a [Wh] feature at all. A comparison between the performances of L1-Cantonese and L1-French[11] participants enables the testing of the prediction of the FFFH that the Cantonese speakers will not be able to acquire knowledge associated with the availability of a [±Wh] feature, whereas the French speakers will. Results from a grammaticality judgement task showed that the L1 did have an effect on the performance of the participants in each of the two groups. The L1-French group outperformed the L1-Cantonese group on all the tested aspects at every level of proficiency; the latter group, however, appear to be pretty capable of being accurate on many aspects of English relatives (e.g. 90% accuracy rate on rejection of resumptives in the L2) a behaviour that Hawkins and Chan account for in terms of the ability of L2 learners to employ L1-based structures that fall within the constraints of UG in order to accommodate L2 data. For instance, they suggest that the Cantonese speakers in this experiment who were accurate on fronting *wh*-phrases actually perceive such structures as a topic in Spec CP, a situation allowed in the L1. White (2003b) points out that the fact that accuracy within the Cantonese group increased proportionately with higher L2 proficiency forms evidence against the FFFH which maintains that L2 parameters not instantiated in the L1 can never be acquired. The better performance of more advanced L2 learners can, however, be argued to be the result of an increasing ability for accommodating other devices made available by UG.

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[11] Recall that French shares the property of having a [±Wh] feature of C with the L2-English.

Results from later studies by Hawkins also support the FFFH. Hawkins (1998) showed that English-speaking learners of French seemed to be unable to acquire the L2 gender feature which motivated agreement between nouns, adjectives and determiners. The lack of a grammatical gender feature in the L1-English led to persistent difficulties in producing L2-appropriate noun-determiner agreement. Hawkins and Hattori's (2006) study of *wh*-movement by L1 Japanese learners of English reiterates the claim of the FFFH that when features of functional categories are missing in the L1, target-like productions by L2 learners are in fact mappings of these L1 features to corresponding L2 morphological forms but without any related syntactic properties.

However, a study carried out by White and Juffs (1998) of adult Chinese speakers who were immersed in English involved a grammaticality-judgment task and revealed contradictory results to those of Hawkins (1998). The Chinese participants achieved near-native-like accuracy on recognizing violations of Subjacency as ungrammatical in the L2 English, which was taken as an indication that the Chinese speakers have acquired the target [±Wh] feature and associated properties. White (2003b) contends that in terms of parameter resetting, not only new features and feature values not instantiated in the L1 can be acquired, but also new feature strength (White 1992; White et al. 2001), and new functional categories (Robertson 2000; Leung 2001)[12] along with the associated syntactic consequences.

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[12] White (2003b: 141) points out that further research is required to support the conclusions from Robertson's (2000) and Leung's (2001) studies, as there is the possibility that Chinese-speaking learners of English or French may have acquired L2 articles as classifiers, which is a functional category available in the L1 grammar.

2.2.1.2   Hawkins and Liszka (2003)

Hawkins and Liszka (2003) examine data regarding past tense marking on thematic verbs from three L1 groups of high proficiency in English. It was proposed that in the L2-English and two of the L1s (German and Japanese) tense is grammaticalized and T has a [±Past] feature which requires verbs to undergo morphological changes. The L1-Mandarin, on the other hand, does not grammaticalize tense (T does not have a [±Past]) and, as a result, verbs do not change morphological form and their meanings have to be contextually disambiguated. Hawkins and Liszka claim that "where parameterised syntactic features are not present in a speaker's L1, they will not be accessible in later L2 acquisition... [which means that] when Chinese speakers learn English they are unable to establish that English T is specified for [±Past]" (2003: 36).

Results (in Table 2.1 below) from a Cloze test and an elicited production task show that the L1 Chinese group provided regular past tense morphology (63%) significantly less often in unambiguously past tense contexts than the participants in the other L2 groups (Japanese (92%) and German (96%)).

Table 2.1 Suppliance of past tense marking, past participle marking, and -t/-d in monomorphemes (adapted from results in Hawkins and Liszka 2003)

	L1		
	Mandarin (n = 2)	**Japanese** (n = 5)	**German** (n = 5)
Regular past tense (%)	63	92	96
Irregular past tense (%)	84	93	95
***-t/-d* in monomorphemes (%)**	82	96	100
Past participles (%)	100	100	100

These results are in conflict with Lardiere's (1998a, b; 2000) view that transfer of L1 phonotactic rules affects the L2 production of past tense morphology, which if true would mean a reduction in accurate L2 production should be witnessed in the cases of L1s Mandarin and Japanese due to the presence of constraints on complex codas in both languages. The above results, however, reveal that the Japanese group's performance is significantly better than that of the Mandarin group. The results also differ from Lardiere's findings in another respect. While Patty (Lardiere's Chinese end-state learner of English) had across-the-board problems with final clusters, Hawkins and Liszka's Mandarin participants had lower suppliance rates of *t/d* in regular past-tense contexts (63%) than in monomorphemic words (82%) and past participles[13] (100%), which suggests that the source of the problem is unlikely to be phonological in nature.

Because past tense seems to be more of a problem to Hawkins and Liszka's L2 learners, the authors propose that absence of a [±Past] feature in the L1 causes the difficulty in production of an overt realization of this feature in the interlanguage. They propose that:

> …optionality results from a failure of L2 learners to include a syntactic feature for tense, that [the authors] are calling [±Past], among the features which make up the lexical item T. Where this is the case, T enters syntactic derivations without the feature which, for native speakers of English, eventually forces the insertion of vocabulary items inflected for past tense into terminal nodes (2003: 33).

The fact that difficulties in production seem to be specific to past tense supports Hawkins and Liszka's conclusion that functional features cannot be acquired after a

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[13] Past participles implicate perfectivity rather than tense; tense is realized on the associated auxiliary. Mandarin overtly realizes perfective aspect; hence no problems are predicted with production of past participles under the RDH.

critical period has passed. The authors, however, acknowledge that more research is needed for their conclusion to be generalizable due to having a small pool of participants (a total of 9 participants in all 3 L1 groups) and relatively few comparable contexts (regular past tense n = 40, monomorphemic words n = 11, and regular past participles n = 10).

2.2.2   The Interpretability Hypothesis

In his more recent work, Hawkins (2009) further develops the RDH into the Interpretability Hypothesis (IH) (Tsimpli and Dimitrakopoulou 2007; also discussed in Hawkins and Hattori 2006). L2 research shows that not all features of functional categories that are absent from the L1 are unacquirable for L2 learners after the critical period has passed. In the case of the L2 acquisition of past tense, according to the IH, the tense head (T) carries two types of features: semantically-relevant features (finiteness and tense), hence interpretable features, and syntactically-relevant features (strength, Agr and affixality) which are semantically uninterpretable. Uninterpretable features are assigned a value by the corresponding interpretable features, for example, the uninterpretable Agr features, or [*Agr:* V], on T (person and number in the case of English T) are assigned a value by the interpretable Agr features carried by the accompanying noun phrase in the subject position. The uninterpretable features of English T, [+Af] and [*Agr:* V], are of special concern to us here. [+Af] indicates that T is affixal and, therefore, needs to adjoin to a head that has a verbal feature, which means that "[a]t the surface... T must have a verbal host, either through lowering to the main verb or through the merging of

another kind of verb (copula, auxiliary or modal) directly with T" (Hawkins 2009: 213).

This differs from Hawkins and Liszka's (2003) account in that it is no longer the [±Past] feature on English T that is assumed to be problematic and unacquirable for adult L2 learners whose L1 is Chinese, but it rather is the [+Af] feature. In fact, under IH [±Past] is semantically relevant and interpretable and, therefore, the L2 grammar of a Chinese L2 learner of English specifies T for either [+Past] or [-Past]. However, the highly non-target-like use of past tense marking by Chinese learners of English is attributed by the IH to the assumption that the feature make-up of Chinese T has [±Past] but lacks [+Af], so these learners can associate a past-tense meaning to a verb form but, due to the lack of [+Af], there is no requirement for T to merge with V, and hence the form that appears as an exponent of V is a bare form. This contrasts with the situation in English, in which [+Af] requires verbs that have a [+Past] feature to add an affix.

2.2.3   Predictions of the RDH and IH for the current study

If claims of the RDH and IH are sustainable then highly target-like production would be expected by participants in the L1-LSA participant group on all functional morphemes tested in the study. The grammar of LSA includes the same features of English T: [+Af], [±Past] and [*Agr:*V] (as will be argued in chapter 3), which indicates that acquisition of English past tense and 3SG agreement on present tense verbs should be relatively unproblematic for LSA speakers. In contrast, the Mandarin group of participants are expected to be very non-target-like as a result of the uninterpretable feature [+Af] being unavailable in their L1.

The functional category Num in LSA and English is specified for an interpretable [*Num*: Singular, Plural] feature and, from the perspective of IH, a syntactic [+Af] feature that requires nouns to add a plurality affix in the case of [*Num*: Plural] being chosen, therefore, high suppliance rates are expected for the LSA participants. Mandarin Num is thought to lack a [*Num*: Singular, Plural] feature by the RDH, or have the latter feature but lack its [+Af] counterpart as the IH claims, which means that high omission rates of plural marking in L2 English is predicted by native speakers of Mandarin.

English past participles used in perfective and passive structures are supposed to be unproblematic for both learner groups since the features [±Passive] and [*Asp*: Perfective] are part of the grammars of the L1s LSA and MC. Differences in morphological representation of these two features between the L1s and the L2 can still influence the L2 production of the corresponding L2 functional morphology, as will be shown later in Chapter 5.

Similar predictions to the above apply in the case of the genitive feature since this feature and a morphological realization of it are part of the grammars of English, MC and LSA.

Although [±Definite] is a feature of NP in English, MC and LSA, there is a difference in how articles are realized in the three languages; both definite and indefinite articles are overtly realized in English, but only the definite article is in LSA. In MC, there is no overt representation of articles and MC native speakers utilize syntactic operations and contextual clues to resolve definiteness ambiguity in noun phrases. In spite of this difference, highly native-like performance is predicted by the RDH for

participants in both the LSA and MC groups since the underlying syntactic structure of [±Definite] is the same in the L2 and L1s. The IH differs from the RDH in its prediction in the case of articles. The lack of a syntactic feature in MC that requires the overt realization of articles on the morphological level in this language implies that high rates of article omission will be observed in the L2 performance.

2.3 Non-syntactic deficits in L2 grammars (Syntax-before-Morphology approaches)

Approaches claiming that underlying syntactic representations in the interlanguage are intact even when L2 production is non-target-like assume that the interlanguage performance of L2 learners undermines their actual syntactic knowledge in the target language. As explained earlier in section 2.1.4, these approaches contend that as long as L2 learners productively use a form, the underlying linguistic representation must have been acquired and the cause of variability is assumed to be an 'output' problem. The 'output' problem is claimed to be the result of a difficulty in mapping between different components of the grammar. This problem seems to persist even though syntactic features are assumed to be available through access to UG. L2 learners frequently fail to map these features onto morphological forms (a difficulty in mapping between syntax and morphology), or alternatively the difficulty might lie in mapping morphosyntactic representations onto phonological form (PF) (a difficulty in mapping between morphosyntax and phonology) (Lardiere 2000). Hypotheses based on the above considerations are going to be presented in this section.

2.3.1   The Missing Surface Inflection Hypothesis

In contrast to approaches that attribute variability in producing functional morphology in the interlanguage to a deficit in the underlying syntactic representations, the Missing Surface Inflection Hypothesis[14] (MSIH) (Haznedar and Schwartz 1997; Lardiere 1998a, b, 2000; Prévost and White 2000a, b) "makes a clear distinction between knowledge of surface morphology and knowledge of the abstract features underlying movement" (Prévost and White 2000b: 126) and, therefore, maintains that absence of functional morphology in the interlanguage is merely a reflection of the absence of a surface manifestation of functional morphology rather than an impairment in the underlying syntactic representations, or a lack in associated functional features. Variability is, then, attributed to a potential breakdown in the relationship between one component and another of the interlanguage grammar. It is suggested that this breakdown prevents the overt realization of abstract morphosyntactic features that are claimed to be present even in early interlanguage grammar.

Prévost and White (2000a, b) argue that functional categories are available for L2 learners even at early stages of L2 acquisition. In their work, they looked at adult L2 acquisition of two languages that have rich surface morphology and strong features, German and French. The L1s of the participants were Arabic (n=2), Spanish (n=1) and Portuguese (n=1). Unlike in English, finite and non-finite forms in German and French have distinct morphology (see footnote 4), which makes it possible to

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[14] The term Missing Inflection was first suggested by Haznedar and Schwartz (1997) but was later modified to Missing Surface Inflection by Prévost and White (2000a, b) in order to emphasize that it is only surface forms that are lacking rather than underlying abstract morphosyntactic features.

investigate whether non-suppliance of inflectional morphology is a case of absence of inflection or of non-finite inflection. Prévost and White report based on their data that the participants are able to make a clear distinction in the use of finite and non-finite forms because non-finite forms are used for both values of T: [+Finite] and [-Finite] but not vice versa. (1d) below can be used in the position of (1a), (1b) and (1c), which means that there is a case of non-finite inflection rather than absence of inflection.[15] Another important finding was that their participants were hardly faulty in the use of subject-verb agreement features, whenever a finite verb form is used in a finite context. This means that utterances in L2 French like *"*il mange-**ons**,* lit: he eat-1.Plural' are rarely encountered in the data, whereas ones like '**il mang-**er**,* lit: he eat-Infinitive' are the type of non-target structures that the L2 learners are producing in their interlanguage.

The MSIH's account for the above findings draws on claims of the Separation Hypothesis (Beard 1995) and Distributed Morphology (Halle and Marantz 1993; Embick and Marantz 2005) that morphosyntactic and semantic features are stored in the 'lexicon' whereas their phonological exponents are stored in a 'vocabulary' component. A phonological exponent is inserted into a terminal node that matches it with respect to functional features, for example if the terminal node V carries the feature bundle [-Past, *Agr:* Singular*, Agr:* 3 Person] then (1a) below would be the most appropriate entry for insertion.

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[15] Such a finding is significant for the argument against the principle of MTH that functional categories are totally absent in early L2 grammars, a claim which presumably would lead to the random use of functional morphology.

(1) a. *mange*   [V, -Past, *Agr*: Singular, *Agr*: 3 Person]   'he eats'

  b. *mangent*   [V, -Past, *Agr:* Plural, *Agr*: 3 Person]   'they eat'

  c. *mangeons* [V, -Past, *Agr:* Plural, *Agr*: 1 Person]   'we eat'

  d. *manger*   [V]   'eat-infinitive'

As for native speakers, the case is that the phonological exponent that gets inserted into a terminal node must have, in comparison with other entries competing for insertion, the largest number of features matching those of the terminal node, a case that Hawkins (2009) refers to as the *competition condition*, provided that no feature of the phonological exponent clashes with any of the terminal node's features. This means that for a native speaker only ((*1.* a) above, and not ((*1.* d), would be inserted in a V that bears the features [-Past, *Agr*: Singular, *Agr:* 3 Person].

L2 learners, on the other hand, who are assumed by the MSIH to "have acquired the relevant features of the terminal nodes in the syntax (from the L1, from UG or motivated by L2 input)" (Prévost and White 2000b: 127), might allow the insertion of a phonological exponent that is underspecified in terms of features compared with the terminal node itself. This implies that, unlike native speakers, L2 learners accept the underspecified ((*1.* d), as well as the more fully specified ((*1.* a), to be a possible entry for insertion under a V with [-Past, *Agr*: Singular, *Agr*: 3 Person] features. This means that even though entries in the vocabulary are assumed by the MSIH to be similar for L2 learners and native speakers, variability in production of functional material is expected and it results from a lack of the *competition condition* which translates as the L2 learners' tolerability of inserting underspecified entries into terminal nodes.

The findings from Prévost and White (2000a, b) reported above are compatible with this account of the MSIH. The fact that those L2 learners use non-finite forms in finite and non-finite positions is attributed by the MSIH to the fact that non-finite forms can be unspecified in terms of finiteness and hence be α-finite[16], which guarantees that no feature mismatch occurs when a non-finite form is inserted in a finite position. The intolerance of feature clash in the insertion process can, therefore, be used to account for the accuracy in subject-verb agreement in finite positions observed in the Prévost and White data. The no-feature-clash rule explains why L2 learners might insert into a V node specified as [-Past, *Agr:* Singular*, Agr:* 3 Person][17] an entry like (*(1. d)*), which partly matches but does not clash, rather than (*(1. c)*), which partly matches but, yet, clashes with respect to the person feature, with the V node.

The insertion of underspecified entries into terminal nodes is claimed by the MSIH to be more dominant in early L2 acquisition stages. As L2 learners advance in their knowledge of fully specified forms in the L2 vocabulary, variability would still be observed because these learnt forms might be 'temporarily' unavailable for insertion "due to processing reasons or to communication pressure" (Prévost and White 2000b: 129) which are non-linguistic factors that Hawkins (2000) describes as a problem in computation rather than representation.

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[16] α-finite means that a non-finite form can be treated as finite in a finite position, and as non-finite in a non-finite position.

[17] For a native speaker of French the optimum entry is (1. a) because it maximally matches the V node in this case.

2.3.2   Mapping problems

Similarly to the claims made by MSIH, Lardiere (1998a, b, 2000), Lardiere and Schwartz (1997), Haznedar and Schwartz (1997) and Prévost and White (2000a, b) all argue that the phenomenon of morphological variability in L2 acquisition reflects a problem in mapping between abstract functional categories and corresponding morphological (or morpho-phonological) manifestations. Variability as a mapping problem is essentially accounted for as the result of fluctuation in the ability of L2 learners to access correct forms in their mental lexicon. It happens because while learners sometimes succeed in retrieving forms, leading to overt inflection being realized, at other times they fail to retrieve forms, thus causing inflection to be missing.

In this sense, Lardiere's (2000) account of variability is a syntax-before-morphology approach to L2 acquisition (see White 2003b), wherein L2 learners need not depend on L2 morphology to trigger the acquisition of syntactic features; L2 learners are assumed to have prior linguistic knowledge of functional categories and features from UG and/or L1, and that, therefore, morphological variability in the interlanguage does not reflect a deficit in the syntax but rather a post-syntactic problem which "lies in figuring out how (and whether) to spell out morphologically the categories they already represent syntactically, i.e. the 'mapping problem'" Lardiere (2000: 121). The issue of variability for Lardiere is more of an inconsistent ability of L2 learners to access correct morphological forms than it is to do with absence of related underlying syntax from the interlanguage grammar. This means that the L2 learner sometimes succeeds in linking an abstract feature, such as [+Definite], with a surface form, *the* in the case of L2 English, but fails to do so on other occasions, and this is not

influenced by whether the [+Definite] feature is morphologically represented in the L1 or not.

In the same vein, Lardiere (2007) argues that L2 performance cannot be attributed to only whether the L1 instantiates certain morphosyntactic features or not. In her extensive study of the endstate learner Patty,[18] Lardiere found that despite the differences between Patty's L1s (Mandarin and Hokkien) and her L2 English with respect to how they parameterize all of the examined properties (see Table 2.2 below), Patty was highly native-like in her performance on some of these properties but, simultaneously, very non-native-like in her performance on others.

Table 2.2 Grammatical properties examined by Lardiere (2007) in Patty's L2 production and their status in the L1s vs. L2

	Null Subjects	Case Marking on Pronouns	Copula/Auxiliary Be in Present Tense	Past-Tense Marking	Agreement Marking in Present Tense
L1s (Mandarin and Hokkien)	✓	X	X	X	X
L2 (English)	X	✓	✓	✓	✓

Despite her L1s (Hokkien and Mandarin) allowing null subjects and not distinguishing pronouns for Case, Lardiere (2007) reports that Patty's performance was highly target-like in the L2 English (see Table 2.3 below for Patty's suppliance scores from the third data collection), producing overt subjects in 98% of obligatory contexts, with 100% of pronouns appropriately Case-marked, thus indicating that Patty's L2 grammar contains a functional head T that is fully specified with all the L2 features that are not represented in the L1 morphology. However, Patty's

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[18] Patty had lived in the US for 18 years at the time of the second and third data collections, with a 9-year interval after the first data collection during which time her L2 performance had barely changed.

suppliance rates of past-tense marking and agreement marking on main verbs (neither is available in the L1s) are very non-target-like (34% and 5%, respectively).

Table 2.3 Patty's accuracy scores from data collection 3 (Adapted from Lardiere 2007)

	Overt Subjects	Case Marking on Pronouns	Copula/Auxiliary Be in Present Tense	Past-Tense Marking	Agreement Marking in Present Tense
tokens	329/336	76/76	59/63	46/136	1/22
percentage (%)	98	100	94	34	5

Lardiere attributes this difference in L2 performance between nominative case marking and the production of overt subjects, on the one hand, and past tense and agreement marking, on the other, to the requirement of additional "layers of mapping" (Lardiere 2000: 122) between feature and form in the production of the latter properties. Lardiere also maintains that:

> …the areas of greatest divergence and fossilization in Patty's L2 grammar appear to be situated in precisely those PF [i.e. Phonological Forms] areas increasingly seen as 'external' or 'extraneous' to the computational… component of the grammar... In contrast, an (abstract) morphosyntactic feature-checking mechanism along with knowledge of the relevant feature values appears to be intact in Patty's L2 grammar (1998b: 370).

Moreover, she suggests that case assignment is easier to map into morphology because it is motivated by T features that are fundamental to the derivational computation

Hawkins and Liszka (2003) explain that their results do not support the claim that a difficulty in mapping between the syntax and morphology could be causing the interlanguage to diverge from the target language. The interlanguage grammar of

their Mandarin participants was particularly more divergent from the target language compared to the case with participants in the German and Japanese groups (see section 2.2.1.2 for more details about this study) indicating that problems other than mapping are involved, mainly ones related to the grammar of the L1.

Lardiere (2000) concludes that L2 learners face a (possibly permanent) difficulty in mapping between syntax and morphology, both components which develop autonomously during the L2 acquisition process in the sense that morphology only 'reads' the output of syntactic computations which evolve from abstract features that are themselves 'insulated' from their morpho-phonological representations. Consequently, the above explained autonomy in development means that the failure of L2 learners to consistently map features to forms does not impede implementing syntactic computations or building target syntactic representations.

If functional features are accessible through UG and the problem in mapping from one system to another is the cause of variability in L2 production of functional material, then the question remains unanswered of why some properties/features are more difficult than others to map into forms in the L2, as well as the question of why L2 learners differ in which features they find difficult to map in the L2 when they speak different L1s (for instance, the end-state learners Patty (L1 = Mandarin and Hokkien) (Lardiere 2007) and SD (L1 = Turkish) (White 2003a) behave differently with respect to the production of past tense and agreement morphology in English interlanguage).

2.3.3   The Feature Re-assembly Hypothesis and the Cline of Difficulty

As explained earlier, problems in mapping between form and function are insufficient for explaining variability in L2 production. Lardiere (2008) also points out the insufficiency of the 'switch-setting' or 'selection' process that parameter-resetting theories use to account for the variability in L2 production of functional morphology. In this same work, Lardiere argues that variability is rather caused by the remapping or reconfiguration of L1 features in a way that is compatible with the configuration of the L2 featural system.

This suggested process which characterizes the L2 learning task differs from the previously discussed MSIH (Prévost and White 2000a, b) and the mapping problems account (Lardiere 1998a, b; 2000) in that the difficulty faced by L2 learners is not because of a lack of a competition condition for insertion of entries into terminal nodes but rather a difficulty in figuring out what "the right contextual or conditioning features… [are] for the selection or insertion of this entry" (2008: 136).

Lardiere (2008) observes that her participant Patty was successful in the L2 acquisition of many uninterpretable features that have no overt representations in her L1 (e.g. Case and finiteness) which, for Lardiere, implies that acquisition of an L2 feature goes beyond the mere change of its value from its L1 setting (i.e. minus, in the case of Patty acquiring T features) to the L2 setting (i.e. plus).[19] For that matter, Lardiere considers the acquisition of number and definiteness features by Patty and argues that while these two features are available in both the L1 and L2,

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[19] In this case the L1 is Chinese and the L2 is English.

they are assembled differently in the two languages. Although Chinese appears to lack overt articles, the need for a [±Definite] feature can be detected in certain plural contexts: the plural suffix -*men* can only be used in Chinese in collective contexts that have a definite interpretation and refer to humans (see example (2) below; from Lardiere 2008: 121).

(2).   ta   hui   daixuesheng-men   hui   jia
        he   bring   student-COLL   back   home
        'He will bring the students back home'
        *'He will bring (some) students back home'

Lardiere's view is that an L2 learner, like Patty whose L1 and L2 vary in how they assemble number and definiteness features, would have to 'de-link' these two features and then re-assemble them in a way that is appropriate for the L2, something that Patty seems to have accomplished in the case of English number marking. Her L2 performance provides evidence that she can correctly use the English number marker on indefinite nouns, as in *six students*, a situation that is prohibited in Chinese. Patty was successful in re-assembling L1 features (definiteness and number) into the L2 configuration.

Lardiere speculates that the less featurally complex the conditioning environment, the easier the reassembly process is in the L2 acquisition of the relevant features. The fact that Patty is more successful in the production of English definite articles compared with indefinite articles supports this conclusion, provided that the use of indefinite articles in English is compounded by the need to take the number feature and the mass/count distinction into consideration when assembling features in this language. In this sense, a feature re-assembly approach, as opposed to a mapping

problem approach[20] (see section 2.3.2 above), can account for why L2 learners are highly successful in the target-like production of certain functional morphemes but not others.

Slabakova's Bottleneck Hypothesis (2009a, b; 2014; 2015) supports the above view regarding the acquisition of functional morphology. Particularly, in her (2009a) work, Slabakova reiterates Lardiere's view on the need for feature re-assembly as a crucial process in the L2 acquisition of functional features, and introduces the notion of the Cline of Difficulty (CoD) in second language acquisition. CoD is based on a combination of predictions by Lardiere's FRH and Ramchand and Svenonius' (2008) claim of the presence of a universal computational system,[21] and it mainly outlines that the bigger the mismatch between how the L1 and L2 assemble grammatical features, the more difficulty the L2 learner is expected to experience in re-assembling those features to fit the L2 configuration. Figure 2.1 below shows that the 'Harder to acquire' end of the scale are cases that require the L2 learner to overtly represent in the interlanguage a functional feature that is context-fixed in their native language. The least problematic cases, which are on the 'Easier to acquire' end of the scale, are ones that involve the assignment of a new overt form (the L2 form) with a feature assembly that is the same in the L1 and L2. The ease of acquisition in the latter case stems from the fact that a re-assembly of L1 features is not required.

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[20] Mapping Problems assume a difficulty in mapping between the different components of the grammar (e.g. syntactic features and morphological representations) but provide no account of why the level of difficulty is not unified for learners of different L1 backgrounds across all feature-to-form mappings of similar complexity in the L2 acquisition process.

[21] Slabakova adopts the claim that all the meanings that languages express are available in the universal semantic/pragmatic component. Languages, however, vary in the way they represent these universal meanings, i.e. the same universal meaning can be expressed through overt morphology in one language but be context-dependent in another language.

Figure 2.1 Cline of Difficulty in grammatical feature acquisition (Slabakova 2009a: 321)
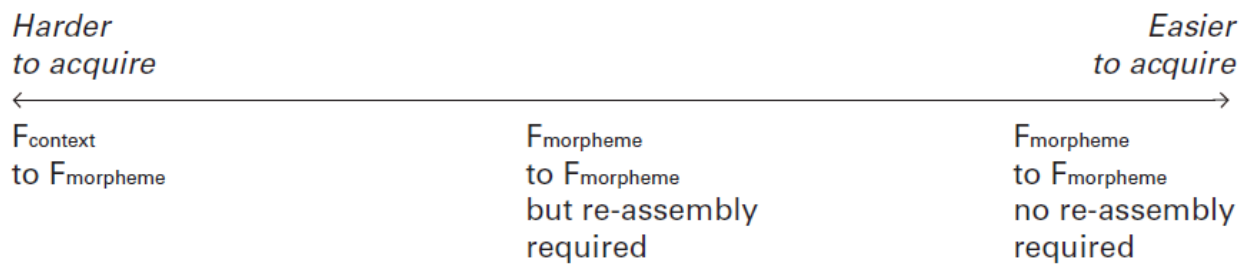
Slabakova reports results from a study by Sabourin et al. (2006) that supports the concept of the Cline of Difficulty. In this study, the authors examine the L2 acquisition of Dutch gender by L1 speakers of English, German, French, Italian and Spanish. Dutch grammatical gender involves two categories: common[22] and neuter. English is the most divergent from Dutch since grammatical gender is not marked on NPs in this L1,[23] whereas German is the closest to Dutch with regard to grammatical gender because it identifies three categories of grammatical genders that are very similar to those in Dutch: masculine, feminine and neuter. French, Italian and Spanish have masculine and feminine grammatical gender categories, but no neuter category. Therefore, those three romance languages fall midway between German and English in how analogous grammatical gender is between the L1 and L2.

The two experiments carried out in the above study: the gender assignment task and the noun-relative pronoun agreement task, revealed that indeed when no feature re-assembly was required the L2 learners were highly target-like in their interlanguage use of grammatical gender, and this was the case with the German speakers. Participants who spoke L1 English were the least accurate in producing Dutch

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[22] The Dutch gender category 'common' is mainly the masculine and feminine genders collapsed together in one category.
[23] Grammatical gender investigated by Sabourin et al. (2006) should not be confused by semantic gender which is marked on pronominals in English.

grammatical gender because the L2 acquisition process for them involved a mapping of an L1 context-determined feature into a three-value feature in the L2. L2 learners who spoke L1 French, Italian or Spanish were more accurate than English L1 speakers since grammatical gender has morphological representation in both the L1 and L2. In spite of the lack of mismatch between the L1 and L2 in the latter case, German speaker participants were still more accurate than speaker of the romance languages who had to re-assemble their L1 grammatical gender features in a manner that is appropriate for the L2 Dutch, mainly by including an additional category (neuter) to the existing L1 categories (masculine and feminine).

2.3.3.1   *Predictions of the Feature Re-assembly Hypothesis*

Feature Re-assembly predicts differences between the performance of the two L1 groups in this study with regard to the properties examined based on how the L1 (LSA or MC) and the L2 (English) differ in the way they assemble features to express the same concept. Generally, the L2 English featural makeup is more similar to that of L1 LSA than to L1 MC. In some cases, the feature assembly in LSA is more complicated than in English, as with subject-verb agreement marking and number marking, in which cases facilitated L2 acquisition of features is predicted by the FRH for native speakers of LSA. The same morphological markers are interpreted through context in L1 MC, thus implying that L2 learners in this L1 group are likely to have less target-like performance than those in the LSA group when it comes to production of agreement and number morphology.

Past tense marking and articles are predicted by the FRH to require a greater level of feature re-assembly on the part of L2 learners whose L1 is MC than is required

from L2 learners in the LSA group. On the other hand, there are a number of functional morphology (passive- and perfective-participle and genitive morphemes) whose L2 production is predicted to be highly native-like by L2 learners in both L1 groups in the current study since their featural makeup is quite similar in L2 English and the L1s LSA and MC.

2.3.4   The Prosodic Transfer Hypothesis

In a series of articles Goad et al. (2003) and Goad and White (2003; 2004; 2006; 2009a, b) present and argue for a new account of the rather inconsistent suppliance of L2 functional material in the interlanguage of L2 learners. The Prosodic Transfer Hypothesis (PTH) proposes that interlanguage grammars are not defective, in contrast to claims by the RDH and FFFH (see section 2.2.1), but rather that morphological variability in the interlanguage is attributed, partly, to the L1 prosodic structures that are transferred into the interlanguage grammar. As a consequence, even when the L2 learner has in place the underlying syntactic knowledge required to morphologically realize a functional feature, they may still fail to overtly realize this feature in target-like outputs due to the difference in the way this feature is prosodically represented in the L1 and L2. In many cases the L2 learner has to resort to L1-derived prosodic structures in order to realize L2 functional material. This proposal partly stems from the observation that variability in supplying functional morphology is manifested principally in oral production as opposed to considerably better performance in other types of production, such as written tasks.

The PTH and the MSIH (see section 2.3.1) share the claim that underlying syntax is target-like; nevertheless, the latter hypothesis assumes an output problem resulting

from the selection of underspecified forms where more specified forms are required. The PTH is different because it assumes that the forms are accessible, but prosodic constraints transferred from the L1 prevent the L2 speaker from pronouncing the forms in certain circumstances. This section is going to report on results from a number of studies that uphold the above claims by the PTH.

2.3.4.1   *Goad, White and Steele (2003)*

In the course of establishing the principles of the PTH, Goad et al. (2003) started with more general claims but have since then continued to modify and refine the hypothesis. The initial claim of the PTH proposed in their (2003) article states that L1 prosodic constraints rather than failed functional features lie behind the phenomenon of variability in L2 production. When the L2 prosodic structure required to represent a certain functional morpheme is absent in the prosody of the L1, optionality in producing an overt realization of this morpheme is predicted. L1 constraints on prosodic structure are transferred into the interlanguage grammar.

In this study, the authors examine the production data of agreement marking and past tense marking from twelve Mandarin-speaking adult learners of English whose length of residence in Canada ranged between 6 months to 5 years. The claim is that for these Mandarin speakers tense and agreement features, which are assumed to be underlyingly present in their interlanguage grammar,[24] cannot be spelled out in a target-like manner due to the fact that these two features have different prosodic representations in relation to the stem in the L1 and L2. Therefore, low suppliance

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[24] Evidence for that (from a GJT) includes near-native-like accuracy in nominative case assignment and incidence of copula and auxiliaries.

rates of tense and agreement morphology are predicted for English learners of L1

Mandarin background.

Adopting Nespor and Vogel's (1986) and Selkirk's (1986) perspective that

phonological constituents are prosodically organized into a hierarchy, Goad et al.

(2003) propose that English adjoins tense and agreement inflections to the prosodic

word as affixal clitics[25] (see (3.a below), whereas in Mandarin the closest inflection-

like forms to past tense (aspectual markers like perfective *le)* are incorporated into

the PWd of the base which they attach to, i.e. internal clitics ((3.b below), which

causes difficulty for Chinese learners of English.[26] They fail to represent English

inflection in a prosodically target-like fashion.

*(3) Prosodic organization of inflection in English and Chinese as proposed by Goad
et al. (2003)*
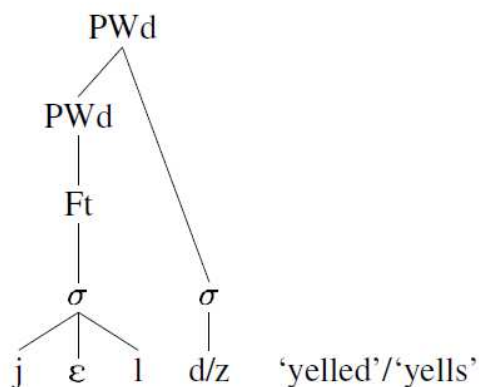
a.   English tense and agreement: b.   Mandarin aspect:
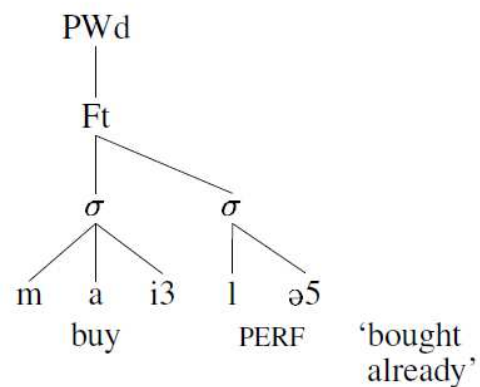
Data from previous research showed that some L2 learners, like Patty (Lardiere

1998a, b; 2007; 2008) whose L1 is Mandarin, reduce clusters in both inflected and

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[25] Selkirk (1996) refers to functional morphology as an "affixal clitic" if they adjoin to the PWd/$_{stem}$, as an "internal clitic" if they are organized within the PWd/$_{stem}$, and as a "free clitic" if they link directly to the phonological phrase (PPh).

[26] For a detailed description of the motivations the authors provide for the above prosodic structures of tense and agreement markings in English and Mandarin, see Chapter 3: sections 3.5.4 and 3.5.5, respectively.

uninflected forms to a similar degree (see section 2.3.2), suggesting that a ban on all word-final CC sequences is in place, whereas others, like the Mandarin-speaking learners of English in Hawkins and Liszka's (2003) study (see section 2.2.1.2), have no difficulty with consonant clusters in monomorphemic forms, but at the same time inflectional morphology still seems to be problematic for them.

Such discrepancy between the English interlanguage production of consonant clusters by learners who speak the same L1 can be explained, according to Goad et al. (2003), by the presence of two separate L1 transferred constraints: (*CC)[27] and (*PWd-adjunction). The former constraint does not affect CC sequences that result from inflection being added to a consonant-final stem in English, as the inflection lies outside the scope of the PWd/$_{stem}$. Both *CC and *PWd-adjunction seem to persist in the interlanguage grammar of L2 learners like Patty (see (a) in Table 2.4), whereas the participants in Hawkins and Liszka's (2003) study seem to have overcome *CC, but transferred *PWd-adjunction from Mandarin (see (b) in Table 2.4).

*Table 2.4 The possible combinations of (not) having *CC and/or *PWd-adjunction in the interlanguage grammar*

Interlanguage grammar	(a) *CC & *PWd-adjunction	(b) CC & *PWd-adjunction	(c) *CC & PWd-adjunction	(d) CC & PWd-adjunction
Effects on performance	• Clusters reduced in monomorphemes • Deletion of inflection	• Clusters produced in monomorphemes • Deletion of inflection	• Clusters reduced in monomorphemes • Suppliance of inflection	• Clusters produced in monomorphemes • Suppliance of inflection
Example	Lardiere (L1=Mandarin, L2=English)	Hawkins and Liszka (L1=Mandarin, L2=English)	??	Native-like performance

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[27] Goad et al. (2003) propose that *CC only applies to consonants that are adjacent within the lower PWd (or PWd/$_{stem}$).

Based on the above analysis, the authors focus in their study on participants who have overcome the ban on consonant clusters in the lower PWd, and consequently their reduction of clusters in inflected forms can only be attributed to the lack of the target adjunction structure, and not to the transfer of *CC. Their data reveal that their participants (those who have overcome *CC) fall in either of two behaviour groups:

(i) Across-The-Board (ATB) deletion group which includes L2 learners who, when faced with the absence of an adjunction structure to produce inflection, tend to delete it across the board.[28] For this group, suppliance rates of agreement inflection[29] and word-final clusters in non-inflected forms were 10% and 57%, respectively.

(ii) Variable deletion group which includes those learners who find a way around the lack of the adjunction structure and, wherever possible, accommodate English inflection by means of a PWd-internal analysis (as shown in (4) below) that does not result in violating prosodic structure well-formedness. Agreement marking and monomorphemic-final clusters suppliance for this group were 49% and 68%, respectively.

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[28] The authors provide no explanation of why some learners sense the need for a unified analysis of inflection and others do not.
[29] Goad et al. (2003) point out that their data provided many more contexts for agreement than for past tense, hence their decision to focus their analysis on agreement inflection only.

(4) Possible non-target-like prosodifications of English inflectional morphology as presented in Goad et al. (2003: 257)

a. Agr as onset: b. Agr as coda: c. Agr as foot-internal OEHS:
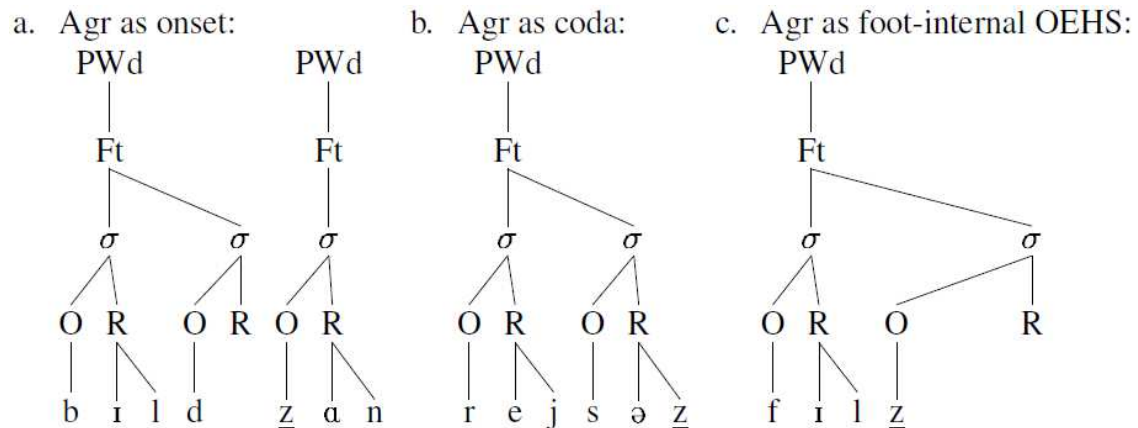
This presupposes that regular past forms are more problematic than irregular past forms, as the representation of the latter requires no adjunction to the PWd. And indeed, the overall results reveal that suppliance rates were significantly higher on irregular past forms (78%) as compared to (57%) for regular past forms and (28%) for agreement marking.

Results from this study are also very much compatible with the predictions made in (i) and (ii) above concerning the effect of stem shape on the possibility of facilitating a PWd-internal analysis of inflection (see Table 2.5 below).[30]

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[30] Goad et al. (2003) point out that the number of tokens of overt inflection in their study was quite small and therefore further research is needed to support their findings.

Table 2.5 *L2 production of 3SG agreement marking by stem shape (from Goad et al. 2003: 258)*

		Example		ATB deletion group	Variable deletion group
a.	Agreement as onset	[bɪldzɑn]	'builds on'	7%	75%
b.	Agreement as coda	[rejsəz]	'races'	0%	27%
c.	Agreement as foot-internal OEHS	[fɪlz]	'fills'	7%	68%
d.	No option for agreement inside PWd	[bɪldz]	'builds'	0%	9%

For participants in the variable deletion group, suppliance of agreement is considerably low when a PWd-internal analysis is not possible (only 9%), whereas participants in the ATB deletion group seem to delete inflection whatever the stem shape is.

These results reflect the PTH's predictions that the Mandarin-speaking learners of English in this study will either delete the L2 agreement inflection as a result of the adjunction structure being absent in L1 prosody or circumvent the lack of the adjunction structure by incorporating inflection within the PWd/$_{stem}$ whenever the stem shape is permissible.

2.3.4.2   Goad and White (2004)

Another way of circumventing the unavailability of L2 prosodic structures for L2 learners is proposed in a developed version of the PTH by Goad & White (2004) as that of minimally adapting the prosodic structures available in the L1 to yield the structures required for representing L2 functional material. In other words, suppliance rates of functional morphology are expected to be persistently lower when the required L2 structure is absent or cannot be built from L1 structures. In contrast, when L1 licensing relations can be rebuilt in order to accommodate L2 prosodic

structures, accuracy is expected to be high. Adaptation of L1 prosodic structures is proposed to be possible under two conditions: (a) when they can be built through combining L1 licensing relations; or (b) when they involve L1 structures being licensed in new positions.

The above claim is supported by data from the L2 production of functional morphology by SD, the adult endstate Turkish-speaking learner of English (White 2003a).[31] A comparison between SD's performance on right-edge inflectional morphology: tense, agreement and plural (or TAP), prosodified as internal clitics in Turkish, on the one hand, and on definite/indefinite articles, prosodified as affixal clitics in this L1, on the other hand, reveals that adaptation of L1 prosodic structures, when possible, can lead to improved performance by L2 learners.

Adjunction to the PWd, the structure required for representing TAP morphology in L2 English can be accommodated in L1 Turkish by licensing available prosodic relations[32] in a new position leading to a high accuracy rate with respect to TAP morphology (84%), whereas the free clitic, the structure required for prosodifying English articles cannot be built using/combining L1 prosodic structures because the (PPh-σ) relation required for free clitics is not available in Turkish prosody at all, thus causing suppliance to be comparatively lower than that of TAP (68%).[33]

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[31] SD's production indicates that she represents the morphosyntactic features of L2 TAP and articles, and that, therefore, omission of functional morphology cannot be attributed to such a deficit in the interlanguage grammar.

[32] In this case, it is the adjunction structure used in Turkish to represent articles on the left-edge of the stem.

[33] Because a 68% suppliance rate of articles is still high, Goad & White argue that under certain phonological conditions that allow using L1 non-target-like structures to accommodate L2 functional morphology, L2 learners might still be able to variably produce L2 functional morphology whose prosodic representation cannot be built from L1 structures.

2.3.4.3   Goad and White (2006; 2009a, b)

In their following three articles, Goad & White present what seem to be slightly contradictory versions of the PTH. In their (2006) work, the authors propose that prosodic structures required to represent functional material in the L2 that are not buildable by combining/re-licensing L1 existing relations, can never be acquired, thus leading to fossilization in the phonological domain[34] for even proficient L2 learners, a claim that is consistent with the data from SD. Goad & White contend that L2 learners at early stages of development may resort to circumventing the lack of the required L2 prosodic structures by organizing L2 functional material in an L1 prosodic fashion, whenever possible, suggesting that at later stages of development, at least some L2 learners will have the ability to minimally adapt existing L1 structures and relations in order to yield the structures required to represent functional morphology in the L2. Goad & White, however, do not specify at what stage of development L2 learners begin to minimally adapt L1 prosodic structure nor do they discuss what might be triggering such behaviour.

In their (2009a, b) work, Goad & White seem to overturn their previous claim that non-available/non-buildable L2 prosodic structure can never be acquired. The authors argue that in cases where the prosodic structure required to represent L2 material is neither available in the L1 nor buildable from L1 prosodic relations, such as the case with English articles for native speakers of Turkish, high rates of omission are expected by low level proficiency learners, but improved performance is expected to be in proportion with proficiency level, as more proficient-level learners will be

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[34] Fossilization in the syntactic domain as a consequence of a permanent deficit in the representation of certain functional features is against the claims of the PTH.

aware that languages such as English require overt articles, and hence utilize non-target strategies to produce articles. Advanced learners are even expected to acquire the target-like structure, and therefore produce prosodically target-like articles.

Because of the way the PTH has been modified repeatedly, a chronological representation of its claims is given below in order to make them clearer to the reader.

Table 2.6 The chronological development of the PTH claims

PTH Version I *(GWS 2003)*	1) L1 prosodic structures restrict L2 production 2) If L2 structure is not available in L1 → Low suppliance is predicted 3) Some phonological environments may facilitate L2 production
PTH Version II *(GW 2004)*	1) L1 prosodic structures restrict L2 production 2) L1 prosodic structures can be minimally adapted to yield required L2 structures 3) Most languages can build the adjunction to PWd structure but not that of a free clitic
PTH Version III *(GW 2006)*	Same as Version II + 1) At early L2 acquisition stages, minimal adaptation is not used 2) In later stages, learners employ the minimal adaptation technique
PTH Version IV *(GW 2009a, b)*	Same as version III + If the required L2 structure is not available nor buildable from L1 prosody, it is predicted that: 1) Low proficiency learners invariably delete L2 functional material 2) More proficient learners become aware of the difference in representation between L1 and L2 and use non-target-like methods to represent L2 functional material. 3) Very proficient learners acquire the target structure (it is not specified how this could be achieved)

2.3.4.4   Predictions of the PTH

Because most of the functional morphology examined in the current study is prosodified as internal clitics or affixal clitics in the L2 English, the PTH predicts that participants in both the LSA and MC L1 groups, who are all of advanced proficiency in the L2, will be highly accurate in their production of the L2 functional

morphology aided by transfer of available L1 prosodic structures and by their realization of the difference between L1 and L2 prosodic representation of functional material which leads eventually to successful acquisition of target structures (see PTH Version IV in Table 2.6 above). Internal clitics (or PWd-internal analysis) are available anyway in both L1s, and affixal clitics (or PWd-adjunction) can be accommodated from L1 existing relations. Therefore, accuracy in the production of the English past tense, agreement, plural, passive participle, perfective participle and genitive markers, is predicted to be highly target-like by both L1 groups.

Prosodification of English articles, on the other hand, requires that the article itself links directly to the PPh, i.e. a PPh-σ relation. The latter prosodic relation is available in neither of the L1s, and moreover, cannot be built nor relicensed based on L1 prosodic relations. This indicates that production of English articles is supposed to be at a lower rate compared to that of other functional morphology, but still possible due to the use of L1 non-target-like methods when permissible, such as stressing of articles (i.e. treating articles as independent PWds).

The preliminary prediction then is that there will be no significant difference in the performance of the participants in the two L1 groups on the grammatical properties examined in this study.

2.3.1   The current research

Research in SLA shows that variability in production of functional material is true both of child L2 learners (Ionin and Wexler 2002; Jia 2003; Zapf and Smith 2007; Haznedar 2001; Haznedar and Schwartz 1997) and adult L2 learners (Lardiere 1998a, b; White 2002; White 2003a; Hawkins and Liszka 2003) with the difference

being that child L2-learners are more likely to achieve L2 mastery in the long run considering that L2 acquisition for them still happens before the critical period has passed.

Our target learner-group in this work is adult L2 learners (L2 is English) who have achieved high proficiency in different aspects of the L2 (advanced proficiency) but still drop functional morphology in contexts that would be considered as categorical for native speakers. The aim is to test the opposing claims for causes of variability, mainly those of the RDH and IH, on the one hand, and the PTH and FRH, on the other, via exploring the similarities/differences in the morphosyntactic and prosodic representations of functional material in the two L1s involved, Latakian Syrian Arabic (LSA) and Mandarin Chinese (MC), in order to predict what representations are possible in the interlanguage and whether one learner-group would be more target-like than the other.

The next chapter provides the linguistic background required for addressing the above issues by presenting a detailed description of how the L2 and each of the L1s organize functional material on the morphosyntactic and prosodic levels. The Research Questions will also be presented at the end of the next chapter.

Chapter 3   Morphosyntactic and prosodic representations of functional material in LSA, MC and English

3.1 Introduction

As a prelude to testing the claims of the hypotheses discussed in chapter 2, the current chapter presents a brief description of the morpho-syntactic and phonological makeup of functional material in the L1s Latakian Syrian Arabic (LSA) and Mandarin Chinese (MC), and in the target language English. An account is given of how functional material is represented in the syntax and integrated with the phonology of lexical stems to produce prosodic structures in the above three languages. One of the major issues this chapter addresses is the prosodic organization of inflected words in LSA, as the existing literature provides little information about the phonology and prosody of this dialect. Concerning the morpho-syntax, the main goal is to determine to what extent inflectional material in LSA is concatenative as in languages such as English and MC, or is marked by stem-internal operations that take place within the boundaries of a phonological 'template'.

3.1.1   The linguistic features under investigation

The set of functional material to be described in this chapter includes past tense marking, subject-verb agreement marking, plural marking, articles, passive and perfective participles, and genitive marking. The rationale behind choosing this set of functional material to be examined in the interlanguage production is related to the way this material compares in terms of morphological, syntactic and prosodic

representations in English and in the L1s, and how this comparison helps in testing the claims of the hypotheses discussed in this thesis. For example, 3SG agreement marking and number marking have the same overt morphological realization in L2 English (the suffix –s); consequently, the PTH expects that the above two morphemes would pose the same level of difficulty/ease for all L2 learners who speak the same L1, whereas the IH expects the uninterpretable 3SG agreement features to be more problematic to acquire than the number feature. The same analogy applies to past tense marking and passive participles in English since they are both overtly realized as the suffix –ed, but are syntactically different; therefore, different predictions are made for their L2 productions depending on whether the claims of the hypothesis are syntax- or prosody-based. Comparing the L2 production of functional morphemes that are represented in the underlying syntax but differ in their morphological shape is useful for testing the claims of the RDH, such as the case with comparing the L2 production of past tense marking and number marking by LSA speakers. This chapter is also going to discuss the status of word-final consonant clusters in the L1s LSA and MC. The purpose of such discussion is to compare the production of final CCs in monomorphemes and in inflected forms in order to provide information about whether L2 learners have an actual problem in producing final CCs or in producing the adjunction-to-PWd structure.

After providing a description of the morpho-syntactic and prosodic representations of features of functional categories in the three languages that concern this study - LSA, MC and English - a comparison will be made between each of the L1s and the L2 and between the L1s themselves in order to make predictions about interlanguage

production of functional material by the two learner groups examined in the current study which will be presented in Chapter 4.

3.2 The structure of complex words

Morphemes are the minimal meaningful units in a language. While words in all languages are made up of morphemes, in fact languages differ in the way morphemes are linked together to form complex words. Languages like English and Turkish are called concatenative languages where "morphemes can be added as prefixes or suffixes to a basic stem" and "each individual morpheme can usually be identified as an isolatable whole, even where sounds at morpheme boundaries may have changed" (Watson 2002: 124). This means that for a word like *unbelievable* we can identify three morphemes of which it is composed, as in (5) below:

(5).   [un]neg. [believ]v. [able]adj.   (Watson 2002: 124)

This is not to say that such languages do not exceptionally employ non-concatenative means for forming words. Among the exceptions are ablaut and umlaut (change in vowel quality) in derivation, as in the English *take → took* and *tooth → teeth*, respectively. Likewise, languages that are described as being predominantly non-concatenative, wherein words are not made of linearly continuous morphemes, such as Arabic (including Modern Standard Arabic (MSA) and its vernacular dialects) still use affixation for word formation, as will be illustrated in section 3.2.2 below.

3.2.1   Complex words in Mandarin Chinese and English

MC, also known as Standard Chinese, is among the seven major dialect families spoken in China, but is the largest with over seventy per cent of the population

speaking it. MC itself consists of several dialects (Duanmu 2000) and is the official language of China being used in education and broadcasting.

What is considered to be a word in English may be equal to a compound in MC, for example, *gao-xing* 'high-mood' is an MC compound that corresponds to the word 'glad' in English (Duanmu 2000). Although the notion of word is different between English and MC, the two languages are here grouped together as opposed to LSA, and the reason for doing so is that a word in both English and MC can be broken down into isolable continuous morphemes, whereas in LSA this is not always possible. Example (5) above illustrates this situation in English.

Words in MC are made up of continuous syllables, as is the case with English words. Ross and Sheng Ma (2014) explain that a syllable in MC is made of an initial consonant, a final vowel and a tone.[35] The minimum syllable consists of a vowel and is neutral-toned. The main difference between English and MC, in spite of both being concatenative languages,[36] is that every syllable in MC has an identifiable meaning,[37] and these meaningful syllables are combined together to make words. On the other hand, not all individual syllables in English are necessarily meaningful. To clarify this difference between the two languages, consider the words from each language in (6) below (adapted from Ross and Sheng Ma 2014: 6).

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[35] An isolated syllable in MC can bear either of the following tones: level pitch, rising pitch, falling-rising pitch, falling pitch or neutral. The tone of a syllable may change if followed by another syllable (Ross and Sheng Ma 2014).

[36] MC can only be described as being 'broadly' concatenative as words in this language are made of syllables (or morphemes) that are all meaningful, rather than of a basic stem and concatenated affixes. MC is only concatenative in the sense that the morphemes making up a word are continuous rather than fusional.

[37] There are very few meaningless syllables in MC, such as the noun suffix 'zǐ' which adds to one-syllable words as a strategy to maintain the two-syllable word in MC.

(6).   (a)   English 'lettuce' = 'let' + 'tuce' (neither of the two syllables has a meaning on its own)

(b)   MC 'chēzhàn' (meaning *bus/train station/stop*) = 'chē' (meaning *vehicle*) + 'zhàn' (meaning *stand*)

(c)   MC 'gùshì' (meaning *story*) = 'gù' (meaning *former/ previous*) + 'shì' (meaning *situation/incident*)

MC is a language that is not rich with inflectional paradigms. In the majority of cases, words are formed and derived without overt inflection being added. For example, inflections for case, gender and number[38] on nouns are not overtly represented in the morphosyntax. Also, there are no overt articles in MC. This means that a bare noun can be interpreted, according to context, as singular/plural, definite/indefinite and generic/specific (Huang et al. 2009: 283).

Verbs in MC exhibit overt inflection only to mark aspect, but allow other types of affixation. One of the few (non-inflectional) affixes that attach to the verb in MC is -*de*, the post-verbal resultative marker, as (7) below shows (from Huang et al. 2009: 84):

(7).   ta   zou-de   quchuanxuxu
        he   walk-DE   breathe.heavily
        'He walked so fast that he breathed heavily.'

Huang et al. argue that -*de*, despite forming a phonological word with the preceding verb, is structurally linked to the following element. This suggests that phonology does not necessarily reflect the morphological and syntactic make up of utterances in MC, a situation that will be argued to be present in LSA and English, too.

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[38] As will be explained later in section 3.4.3, a collective plural suffix -*men* is used in very narrow contexts (with definite nouns that refer to humans).

3.2.2   Complex words in LSA

The analysis used to account for morphology in concatenative languages, wherein words are divided into consecutive morphemes (see example (1) in section 3.2.1 earlier), is insufficient to describe the morphology of another group of languages. Arabic,[39] among other languages in the Semitic family, displays different morphological processes that are non-concatenative in nature, in addition to concatenative processes such as affixation. Morphemes making up word stems in Arabic are discontinuous. This is described as root-and-pattern morphology (Watson 2002; Ryding 2005), wherein the formation of a word requires a fixed pattern (a template) in which stem consonants and vocalic melodies are inserted, in addition to certain operations taking place such as gemination of some stem radicals, as in the canonical pattern for the triliteral verb form II which is CVCCVC with a medial geminate. To explain this notion, take the example of the verb kattab 'to make (someone) write'. The root of this verb is triliteral as it is made up of three consonants. From this same root the verb katab 'to write' can be derived by inserting the root consonants and a vocalic melody in the canonical pattern CVCVC, which is verb form I. The canonical pattern for verb form II results from having a geminate middle consonant, i.e. CVCCVC, and hence the verb kattab 'to make write' is derived.

Ryding (2005: 47-8) also describes Arabic as a templatic morphology language. This means that in Arabic, including LSA, the root carries the semantic meaning, and the pattern conveys grammatical information about the word, like whether it is a noun,

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[39] Whenever reference is made to Arabic, the implication is that all dialects of Arabic, including Modern Standard Arabic (MSA) and Latakian Syrian Arabic (LSA), are covered.

a verb or an adjective, etc. whereas affixes reflect a range of inflectional features like number and gender on nouns and agreement features on verbs (see Figure 3.1 below).

Hence, in LSA, among other dialects of Arabic, the stem of a content word consists of three discontinuous morphemes each with a specific role.[40] They are the consonantal root: the morpheme that carries the semantic meaning; the vocalic melody: the morpheme that marks functional variations such as voice in verbs; and finally the templatic pattern into which the consonantal root and the vocalic melody units are intercalated (Watson 2002: 126). Words that share the same root, such as (k-t-b) 'to do with writing', are "morphologically related to one another, although they do not share isolable strings of segments in concatenated morphemes" (McCarthy 1981: 374).

Because they constitute the essential units for constructing words in LSA, these three morphemes are bound morphemes, and none of them can exist independently from the other two. Nevertheless, they are not all projected at the same morphological level. They are rather represented on three separate tiers that are conflated at a later stage into a linear configuration (McCarthy 1986). The morphological tiers that make up the word *lʕb-u* 'they played' are presented in Figure 3.1 below and they include the suffix *-u*.[41]

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[40] McCarthy (1981: 379-80) provides evidence for the fact that, in an Arabic word, the consonantal root (excluding affixes) and the vocalic melody each form one interconnected morpheme, even though its constituent parts are not adjacent. One piece of evidence is a word game in Bedouin Hijazi Arabic where the three root consonants of a verb can be freely permuted into any order, but still neither the vocalic melody nor the affixed consonants are affected by this process, which indicates that the speakers of this language treat the root consonants as one unit that is separable from other components of the word.

[41] Bendjaballah (2007) has different views concerning the position of suffixes with respect to the template. She contends that templates contain specific sites that host different markers, and she generalizes her findings about Berber to other templatic languages. Her main claim is that the verb stem and the suffix occupy the same templatic domain.

Figure 3.1 The morphological tiers in [ləʔb-u] 'they played'
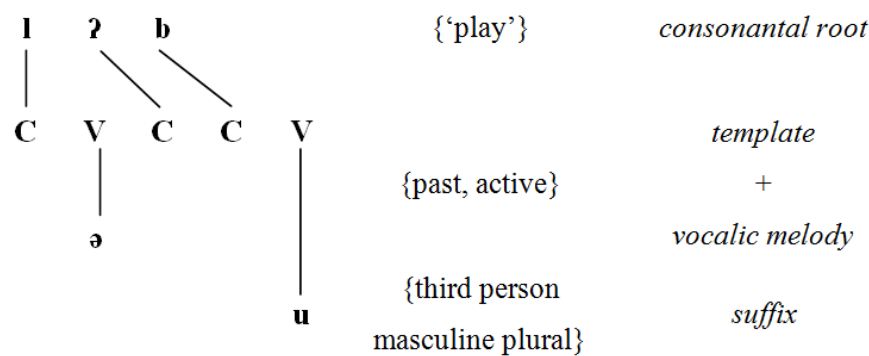
The principle of paradigm formation in LSA is first to have a unified templatic pattern and vocalic melody, for example CVCVC in the case of the active past tense for sound triliteral form-I verbs. Each consonantal root intercalated in this template gives a unique semantic denotation and yields a meaningful word that is part of the paradigm. It must be noted, however, that in the same paradigm, the vocalic melody intercalated may vary according to the quality of the root consonants. So for triliteral verb root I we have *katab* 'he wrote' from √k-t-b and *ləʕeb* 'he played' from √l-ʕ-b.

According to the above description, some functional features in LSA are represented via separate morphemes that are concatenated to either or both ends of the word, such as the plural marker and the feminine marker on nouns, and agreement marking on verbs, etc. Other functional features, such as tense and voice, are not separate morphemes. They are rather carried in the basic formation of the word, i.e. in the three essential non-continuous morphemes making up all words in LSA.

3.3 The role of features in determining the structure of complex words

The model of grammar assumed in this thesis proposes a universal set of semantic and syntactic features on which languages draw to create lexical items. Syntactic

features are those that are relevant to syntactic and morphological processes. For example, the feature [+Finite] specified on the Tense category is relevant to the syntactic operation that values the Case feature of the subject of the clause as Nominative. This Nominative Case feature can determine the morphological form of the subject; in English, for example, pronouns with human reference take a different form when they have a Nominative Case feature than when they have an Accusative Case feature (*I/he/she* versus *me/him/her*).

By hypothesis, semantic features are universally present in the grammars of all languages, even when they have a null morphological exponent. Universal semantic features do not necessarily have concomitant syntactic features in all languages. The presence of concomitant syntactic features of the universal semantic features is assumed only when the feature is overtly realized in the morphology of a language[42] or when it triggers syntactic and morphological processes. For instance, a semantic [±Past] is assumed to be universally a feature of the Tense category, while a syntactic [±Past] is a feature of the same category only in languages that express this feature morphologically, as with the case in English and LSA. It is proposed that MC lacks a syntactic [±Past] feature because no morphological exponent of this feature is available in this language.

Syntactic features give rise to different kinds of morphological realization. In English, for instance, this could be adding affixes (prefixes and suffixes), vowel change, or suppletion. In templatic morphology languages, like LSA, syntactic features affect

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[42] The morphological realization indicating the presence of an underlying syntactic feature does not have to appear on the inflected stem itself. In some cases, other morphological forms independent from the stem can have this indication in the language, such as the case of classifiers implicating the number feature in MC (see section 3.4.3.2).

the morphological outlay of words by modifying the arrangement of the template and vocalic melody rather than by affixation.

In the rest of this chapter, first an analysis will be presented about the morphosyntactic makeup of each of the functional features under investigation in each of the three languages that are of concern to this thesis (see section 3.1.1 for a motivation for the choice of this set of features). This will be followed by a synopsis about prosodic structure and how the assumptions made about it help analyse the prosodic representation of functional material in L2 English and L1s LSA and MC. The morphosyntactic and prosodic analyses of functional material presented in this chapter will be used to come up with a set of predictions by the hypotheses presented earlier in Chapter 2, and those predictions will be tested based on the study results reported in Chapter 5.

3.4   The morphosyntax of functional material in English, MC and LSA

3.4.1   Past tense marking

Tense (focusing on the time) and aspect (focusing on the event) are morphologically marked and used differently in different languages. The reason this is mentioned here is that an overlap can be traced in the use of the past tense and the perfective aspect in English on the one hand, and in the L1s LSA and MC (Po-Ching and Rimmington 2004). Verbs that are inflected for past tense in certain semantic contexts in English are expressed with an aspectual inflection in other languages like MC. As a matter of fact, the type of verb in MC decides whether it inflects for past tense or perfective aspect; only action verbs in this language can have a perfective aspect feature. The same morphological form of verb in LSA can be used to realize

what is equivalent to a past-tense or a perfective-aspect interpretation in English meaning that the use of English tense and aspect overlap in LSA.

The above analysis of tense and aspect is provided since the two features are semantically related and their uses are intertwined in many languages. A brief description of the use of past tense marking will be described in L2 English and each of the L1s. Uses of the perfective aspect in LSA and MC that are equivalent to the English past tense will also be pointed out as appropriate.

3.4.1.1   *English*

English is a language in which tense selects for the syntactic feature [±Past]; the influence of this selection is reflected in morphological modifications to the verb. English marks verbs for past tense in one of three ways:

(i)   a morpheme -*ed* suffixed to the infinitive form of the verb; this morpheme has three allomorphs according to the ending of the verb: /d/, /t/ or /əd/;

(ii)   vowel change, or ablaut, as in *see →saw* and *run →ran*, but some verbs in this group seem to add the past-tense suffix along with vowel change, such as *keep → kept*;

(iii)   suppletion as in *go →went*.

One syntactic account of past-tense inflection in English goes as follows. The functional category T hosts tense features (Adger 2003: 155), and [±Past] on T is a tense feature. While modals occupy T-head positions in TPs that contain them, and thus check the [±Past] feature of T, TPs with main verbs have null T heads. The tense feature in that case is checked on the head of VP, sister of T. These syntactic processes are translated into certain morphological alternations on the verb (presented in i-iii

above). Interface rules determine that if the tense feature is [+Past], it is spelled out either as the suffix -*ed* added to the (regular) stem, or as other forms of inflection like vowel change and suppletion (irregular stems), as explained earlier.

3.4.1.2   MC

Although tense is not expressed overtly in MC via inflectional morphology, Huang et al. (2009) assume that it is syntactically represented (see also Simpson and Wu 2002). In contrast, Hawkins and Liszka (2003) adopt an analysis where the syntactic feature [±Finite] is available for Tense in both English and MC, but [±Past] is represented only in English, not in MC.

However, there are other ways in which MC can express past events. With bare verbs, adverbs and time expressions can be used to disambiguate the tense of an event, as the comparison between (8a) and (8b), below, reveals.

(8).   a.   wǒ   *měitiān*   hē   kāfēi
              I   everyday   drink coffee
              'I drink coffee every day'

        b.   wǒ   *zuótiān*   hē   kāfēi
              I   yesterday   drink coffee
              'I drank coffee yesterday'

Aspect (perfective and experiential) is overtly marked in MC, and is one way for referring overtly to past events in this language. The perfective and experiential

morphemes in MC, *le* and *guo*,[43] respectively, are used with action verbs only[44] to indicate that an action is complete. *le* follows the verb or verb + unmodified object, as in (9) below (from Ross and Shen Ma 2014: 21, 72).

(9).   a.   wǒ   **kàn-***le*   nàge   diànyǐng

            I   see-PERF   that   movie

            'I saw that movie'

    b.   wǒ   yǐjing   **chī**   fàn   *le*

            I   already   eat   rice   PERF

            'I've already eaten rice'

The experiential aspect in MC overlaps with the perfective aspect in English, as (10) below shows:

(10).   wǒ   **qù-guo**   Zhōngguó

       I   go-EXP   China

       'I have been to China before'

Likewise, MC perfective aspect overlaps with English past tense in some cases, as the examples in (11) below show (from Ross and Sheng Ma 2014: 72). See also the example in (9a) above.

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[43] *le* and *guo*, along with the durative aspect marker *zhe* were originally used as verbs in MC. In Modern Chinese, however they are no longer considered to be lexical verbs for two main reasons: first that they do not affect the basic semantics of the verb they attach to, apart from expressing aspectuality, and second they cannot stand alone in an utterance (Huang et al. 2009: 33-4).

[44] Stative verbs cannot be inflected for aspect in MC. To denote pastness of a state, adverbs and time expressions are used.

(11).   a.   tā   mǎi   dōngxi   *le*

she   buy   things   PERF

'She bought things'

b.   tā   chī   *le*   liǎng   wǎn   fàn.

he   eat   PERF   two   bowl   rice

'He ate two bowls of rice'

The past vs. present distinction is indicated in MC in negation contexts. One negation

particle, *bù*, is used to negate an action in the present tense, but another particle,

méi,[45] is used to indicate that an action did not take place in the past. The only

difference in overt form between the two sentences (12. a) and (12. b) below is the

negation particle. Both sentences contain bare verb forms; nevertheless, the use of

distinct negation particles indicates that the first sentence contains a present tense

verb and the second a past tense verb.

(12).   a.   tā   ***bù***   **chī**   zǎofàn

he   not   eat   breakfast

'He does not eat breakfast'

b.   tā   ***méi***   **chī**   zǎofàn

he   not   eat   breakfast

'He did not eat breakfast'   (from Ross and Sheng Ma 2014: 95)

3.4.1.3   LSA

While English makes a distinction in its inflectional morphology between tense,

which denotes when the action occurs, and aspect, which is more concerned with the

way the event is viewed by the speaker, these two categories seem to overlap in the

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[45] The particle *yǒu* is used along with *méi* if a prepositional phrase is part of the action being negated, with *méi* preceding the prepositional phrase.

verb morphology of LSA. Both terms, tense (past/present) and aspect (perfective/imperfective), are used in the literature to describe verbs in Arabic. Although in Arabic grammar there is no reference to the use of aspect, it is in fact argued that both tense and aspect are represented by the same morphological means (vocalic melody and affixes). Different linguists adopt either of the two distinctions as the one that is dominant in Arabic grammar (see Aoun et al. 2010; Fassi Fehri 2004). Throughout this chapter, the term 'past tense' will be used to cover the perfective and past denotations of LSA verbs.

Since verbs in LSA overtly inflect for present and past tenses, this means that T in a TP with a main verb carries either of the tense features [+Past] or [-Past]. When T has the [+Past] feature, the verb is morphologically formed according to the following rule:

(13). When T bears the feature [+Past], organize root consonants in the template CVCVCV (in the case of verb form I).

Every verb in LSA is derived from a consonantal root that carries a broad semantic meaning to which all derived verbs are related. Consonantal roots are either triliteral, as in √k-t-b 'to write', which is the most common, or, less frequently, quadriliteral, as in √t-r-ʒ-m 'to interpret'. Ten derivational classes can be formed from every triliteral root, and four from every quadriliteral root, with every class conveying common semantic implications (Wightwick & Gaafar 2007; Ryding 2014).

For example, triliteral verb form II (CVCCVC) conveys intensive action and/or causation (e.g. *kattab* 'he caused to write'),[46] while triliteral verb form III (CVVCVC)

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[46] The citation form of verbs in Arabic is always the third person masculine singular active inflection of the verb, both in the past and present tenses, and this is probably because this inflected form, out

conveys reciprocal action (e.g. *kaatab* 'he corresponded'). Not every triliteral root is necessarily used to form all derivational classes (I to X).[47] Hypothetically, all verb classes (I to X) can be formed from any triliteral root, except that the resulting forms might be meaningless for some roots, or simply not used in the language. For instance, the tenth past-tense verb form (or form X) from root √k-t-b is [staktab-], meaning roughly 'to make write', is correctly derived according to the relevant template but is, however, not used in LSA.[48]

Different verb templates are formed via a number of mechanisms (or a combination of them). In addition to having a specific vowel organization, one of the root consonants might be geminated in some templates, and affixed consonants can also be added as prefixes or infixes. Here are some examples of these operations: *katab* 'he wrote' vs. *kaatab* 'he corresponded' (specific vocalic melody); *nazzal* 'he caused to go down' (gemination of a root consonant); *nkasar* 'he broke (intransitive)' (n- prefix); and *ʃtaka* 'he complained' (-t- infix).

Morphologically, past tense in LSA is represented by a unique stem for every derivational form of the verb to which agreement affixes are concatenated as in [ləʔəb-] → *lʔəb-na* 'we played' (the suffix -*na* here indicates first person and plural agreement features). Each of these unique stems is formed by inserting the root consonants into a pattern or a template that has a specific vocalic melody. For example, inserting the

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of the rest in the inflectional paradigm, is the one that most resembles the stem, being identical in the case of past tense stems ([katab-] → *katab* 'he wrote'), and with only an added prefix *ye*- in the case of present tense stems ([-ktub-] → *ye-ktub* 'he writes').

[47] Likewise, not every quadriliteral root is necessarily used to from the four derivational classes available.

[48] For the triliteral root √k-t-b, the derived verb form II [kattab-] serves the meaning of 'to make write', thus rendering the verb form X stem [staktab-] to be redundant in this dialect.

root consonants of √k-s-r 'to break' in the template of verb form II, CVCCVC, yields the stem [kassar-] 'to intensively cause to break', and inserting the same consonants in the template of verb form VII, nCVCVC, yields the stem [nkasar-] 'to break (intransitive)'.

The inconsistency in the shape of the vocalic melody observed along the paradigm of the same verb stem is accounted for by the fact that when the root consonants are intercalated into a particular template, "rules of phonology intersect and may clash with rules of morphology, so a modification of the word-structure occurs. When this happens, the rules of phonology are primary" (Ryding 2005: 436).The past-tense inflectional paradigms of verb form I of √k-t-b, [katab-] 'to write' and √l-ʕ-b [ləʕeb-] 'to play', and verb form X of √q-b-l, [staqbal-] 'to receive' are given in Table 3.1 below. The changing vocalic melody is in bold, and it can be noticed that not only the type of vowel might change, but also its place varies in relation to the root consonants which can be attributed to the process of vowel-zero alternation that is widely observed in this dialect (my personal observation).[49]

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[49] Vowel-zero alternations can also be found in singular → plural derivations, as in *ʕaa.mel.Ø* 'worker'→ *ʕaa.mØ.liin* 'workers', and when adding the feminine suffix *-e*, as in *Taa.leb.Ø* 'student.MAS' → *Taa.l Ø.be* 'student-FEM', among other derivations.

Table 3.1 Inflectional paradigms of past-tense stems [katab-], [ləʕeb-] and [staqbal-] in LSA

	[katab-]	[ləʕeb-]	[staqbal-]
he	katab	ləʕeb	staqbal
she	katb-et	ləʕb-et	staqəbl-et
they	katb-u	ləʕb-u	staqəbl-u
I	ktab-ət	lʕəb-ət	stəqbal-ət
we	ktab-na	lʕəb-na	stəqbal-na
you m.	ktab-ət	lʕəb-ət	stəqbal-ət
you f.	ktab-ti	lʕəb-ti	stəqbal-ti
you pl.	ktab-tu	lʕəb-tu	stəqbal-tu

Considering the description given above of morphological structure in LSA, it was suggested that words are built up with three basic morphemes, and one can argue that excluding the consonantal root morpheme, whose role is to convey the semantic meaning, past-tense in LSA verbs is signified in the templatic pattern and the vocalism intercalated in it.

3.4.2   Subject-verb agreement marking

Agreement features reflect the concord between the subject and the verb, and they are also referred to as phi-features (Chomsky 1995; Adger 2003). Which of the agreement features get mapped into the morphology varies among languages, if at all. For instance, person and number features on subject NPs decide the morphological shape of the verb stem in English, whereas verbs in LSA inflect for an additional agreement feature, gender. MC, on the other hand, has no overt realization of any of the above features. Therefore, the assumption is that agreement features

(person, number and gender, so far) are features of T in the underlying syntax only of languages that project those features on the morphological level.

At least hypothetically, there could be other features that qualify as agreement features between the subject and verb. For instance, whether the subject is [±Animate], or [±Abstract] (or alternatively [±Concrete]) is relevant to the interpretation of the utterance, and thus there is no reason why [±Animate] and [±Abstract] cannot be agreement features of T in the grammars of some languages.[50]

When required in a language, the verb stem is modified/affixed according to the values of agreement features on the functional head T. Those agreement features on T are not relevant to the semantic interpretation of the verb. They are only grammatically relevant, and their presence requires morphological modification to the verb stem. These uninterpretable agreement features on T are given a value by the corresponding features of the subject NP. Agreement features on NPs, including those in subject position, are semantically interpretable (Hawkins 2009).[51]

3.4.2.1   *English*

Subject-verb agreement in English is overtly realized in the morphology in the present tense only. Past tense verbs are void of morphological elements signalling subject-verb agreement. Agreement feature values that are overtly realized in English are number [*Agr*: Singular] and person [*Agr*: 3 Person] in the present tense. When the subject NP has the above-mentioned features simultaneously, their values

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[50] It is quite possible that there is a language that morphologically marks nominative pronouns for [±Animate] and/or [±Abstract], but personally I am not aware of any.
[51] For alternative discussions of underlying morphosyntactic representation of functional material see Adger (2003) and Kim & Sells (2008).

are assigned to the corresponding uninterpretable person and number features on T.
This translates into morphology as the following interface rule:

(14). Add the suffix -s to the verb stem when T carries the agreement features
[*Agr*: Singular] and [*Agr*: 3 Person], simultaneously.

This means that *he/she/it* **walks** is grammatical in English, whereas **he/she/it* **walk**
is not. The agreement morpheme -*s* has three allomorphs depending on the final
sound of the stem: /s/, /z/ or /iz/.[52] If the agreement features on the subject NP include
[*Agr*: Plural] then the interface rule dictates that no overt representation is required
on the verb stem. Likewise, if either of the person features [*Agr*: 1 Person] or [*Agr*: 2
Person] is part of the featural specification of the subject NP, the representation of
subject-verb agreement is morphologically null.

3.4.2.2   MC

There is no overt agreement marking on verbs in MC.[53] The assumption here is that
agreement features are part of the semantic specification of the subject NP, but T in
this language, unlike in English, does not have among its feature specification the
concomitant syntactic features [*Agr*: Person, Number, Gender, etc.], and hence no
syntactic operations ensue to require inflection to appear on the verb.

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[52] If the stem final consonant is voiceless then -*s* is realized as [s]; if voiced, -*s* is realized as [z]; and if
a sibilant, -*s* is realized as [iz].
[53] In contrast to English and LSA, gender distinction is not reflected on nominative pronouns in MC
at all, meaning that the equivalent for both *he* and *she* is *tā*. On the other hand, despite that gender
distinction on nominative pronouns is present in English and LSA, it is not similar in both these
languages: in English it is marked only in the 3rd person (*he* vs. *she*); in LSA it is marked in the 2nd
person singular (*ənət* 'you-MAS vs. *ənte* 'you-FEM) in addition to the 3rd person singular (*huwwe* 'he' vs.
hijje 'she').

3.4.2.3   LSA

Despite the fact that subject-verb agreement is morphologically marked in both English and LSA, the way the individual features (person, number and gender)[54] are combined and realized in the morphology in each of the two languages is quite different.[55] English and LSA also differ in that subject-verb agreement is overtly marked only in the present tense in the former, whereas it is marked in past and present tenses in the latter. Nevertheless, agreement inflection in LSA will be examined only in the present tense for the sake of comparison with the L2 English.

While subject-verb agreement in English is morphologically marked on verbs only when T has the agreement features [*Agr*: Singular, 3 Person], verbs in LSA add different affixes reflecting all values of the agreement features (Person, Number[56] and Gender, or PNG features, henceforth) in a variety of combinations. To clarify the difference between the two languages, it is best to look at nominative pronominals. LSA like English have the following set of pronominals *ʌnə*, *nəħnə*, *huwwe*, *hijje* and *hənne* which are equivalent to English *I*, *we*, *he*, *she* and *they*, respectively. With respect to second person pronominals, however, they are distinguished in LSA for gender and number, meaning that the equivalent of English *you* is *ənət* 'you.SG.MAS, *ənt-e* 'you.SG-FEM and *ənt-o* 'you-PL'. Verbs in LSA have distinct morphological forms for each of the feature combinations specified in the nominative pronominals in this

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[54] Grammatical gender in LSA is a feature with only two values, [Masculine] and [Feminine]; languages like German and Dutch have an additional [Neuter] value to their grammatical gender feature.

[55] In English agreement features that are morphologically realized are person and number only (see section 3.4.2.1 above).

[56] MSA requires verbs to inflect for the number feature [Dual] (e.g. *ya-ktub-aan* 'they DUAL.write.MAS). It seems that vernacular Arabic dialects (including LSA), which are, in many aspects, simplified versions of MSA, have lost the duality feature inflection on verbs (but not on nouns, however, as will be explained in section 3.4.3).

language, and those morphological forms can appear in the shape of prefixes and/or suffixes.

The presence of fully specified subject-verb agreement licenses pro-drop in LSA, like all other Arabic dialects, because the subject pronoun can be sufficiently identified through the affixes added to the verb.

For every verb form in LSA (I-X) there is a present tense template into which root consonants are inserted to form the present tense stem. For example, the present tense stem for the root √k-t-b is [-ktub-] 'write' for form I, [-katteb-] 'make write' for form II, [-kaateb-] 'correspond' for form III, and so on. Verb-subject agreement affixes are added to the present tense stem in order to form the inflectional paradigm. What affix(s) are added depend on the combination of agreement features carried on T that are valued by their counterpart features on the subject NP.

These features are mapped into morphology according to the following interface rule:

(15).   When T bears the PNG features [*Agr*: 3 Person, Plural, Masculine]
         simultaneously, add the prefix yə- to the present tense stem; when
         T simultaneously bears the PNG features [*Agr*: 3 Person, Plural,
         Masculine and/ or Feminine], add the prefix yə- and the suffix -u,
         and make the required changes to the vocalism; and so on for other
         feature combinations.

Table 3.2 below provides the inflectional paradigms for three present-tense verb stems: [-ktob-] 'write' and [-lʕab-] 'play' which are form I verbs, and [-staqbal-] 'receive' which is a form X verb. These three paradigms show that subject-verb agreement in LSA is represented by two morphemes concatenated to both ends of the present-tense stem as in the second person feminine singular (*tə-ktəb-e* 'you write'). In some cells

in the paradigm, agreement is marked by a prefix only as in the third person masculine singular (*yə-ktob* 'he writes') or the first person singular (*ʔə-ktob* 'I write'). This system for adding PNG agreement affixes is the same across all verb forms (I-X) and with all root types.[57]

Table 3.2 The agreement inflectional paradigms for present-tense stems [-ktob-], [-ʕab-] and [-staqbal-] in LSA

	[-ktob-]	[-lʕab-]	[-staqbal-]
he	yə-ktob	yə-lʕab	yə-staqbal
she	tə-ktob	tə-lʕab	tə-staqbal
they	yə-ktəb-**u**	yə-lʕab-**u**	yə-staqəbl-**u**
I	ʔə-ktob	ʔə-lʕab	ʔə-staqbal
we	nə-ktob	nə-lʕab	nə-staqbal
you m.	tə-ktob	tə-lʕab	tə-staqbal
you f.	tə-ktəb-**i**	tə-lʕab-**i**	tə-staqəbl-**i**
you pl.	tə-ktəb-**u**	tə-lʕab-**u**	tə-staqəbl-**u**

The last point to be discussed about agreement in LSA is related to collective plurals. When the subject is the collective plural form[58] of the noun, the type of subject-verb agreement is slightly different from the one discussed so far. Consider the examples in (16) below from LSA.

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[57] There are changes made to the root radicals with some root types. For example roots that start with Hamza (or a glottal stop) as in √ʔ-k-l 'to eat' have their first root consonant, i.e. the glottal stop, omitted when the agreement affixes are added to the present tense stem ([ye-] + [-ʔaakol-] → *y-aakol* not *yə-ʔaakol* 'he eats').

[58] Nouns that refer to names of plants, animals, inanimate material, and mass nouns may have two plural forms: the regular plural and the collective plural. See section 3.4.3.3 below for details about the collective plural in LSA.

(16). a.   l-ʒaaʒ   b-yaakol[59]   duud

chicken.*COL*.MAS   HAB-eat.3*SG*.MAS   worm.PL.MAS[60]

‘Chickens eat worms’

b.   ʃʃaʒar   b-yəħtaaʒ   may w   ʃams

tree.*COL*. MAS   HAB-need.3*SG*.MAS   water and   sun

‘Trees need water and sunshine’

While the LSA rule given in (15) states that verbs overtly inflect for person, number and gender features, the same subject-verb agreement rule does not seem to apply completely in the case of subjects that are collective plurals in LSA. The subject NP and the verb in the examples above agree with respect to person and gender but not number. For example, *l-ʒaaʒ* ‘chickens (collective)’ has the features [3 Person, Collective, Masculine] and the verb *b-yaakol* ‘eats’ agree with regard to the person and gender features; the number feature on T, however, maintains the [*Agr:* Singular] value regardless of the number feature of the subject NP. This is relevant to the current study because the equivalent of many LSA collective nouns, such as *l-ʒaaʒ* and *ʃʃaʒar*, are plural forms of nouns in English, *chickens* and *trees*, respectively, which require the verb to inflect for a [*Agr:* Plural] feature in the L2. Whether this difference between the L1 and L2 affects the L2 production of agreement morphology by LSA speakers was intended to be investigated in the current study. This could not be achieved, however, due to the insufficient number of occurrences of this case in the data,

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[59] The suffix *b-* in *b-yaakol* ‘eats’ and *b-yəħtaaʒ* ‘needs’ is an aspectual marker that indicates habituality in present tense verbs in LSA.
[60] In these examples, COL stands for collective, 3 for third person, and MAS for masculine.

3.4.3   Number marking on nouns

Although the assumption is that number is part of the semantic interpretation of every NP in all languages, not all languages overtly mark nouns (and adjectives in some languages) for this feature. Because the adjective appears to the left of the noun in some languages (as in English, e.g. *the Greek poet*) and to the right of the noun in other languages (as in French, e.g. *le poète grec*), it was suggested that the interpretable number feature is carried by an independent functional head (Num) rather than by the noun; this interpretable number feature assigns value to an uninterpretable number feature carried by the noun (Bernstein 1991; Ritter 1993). This analysis is explained in the morphosyntactic representation in Figure 3.2 below.

Figure 3.2 The morphosyntactic structure of number marking (adapted from Hawkins 2009: 212)
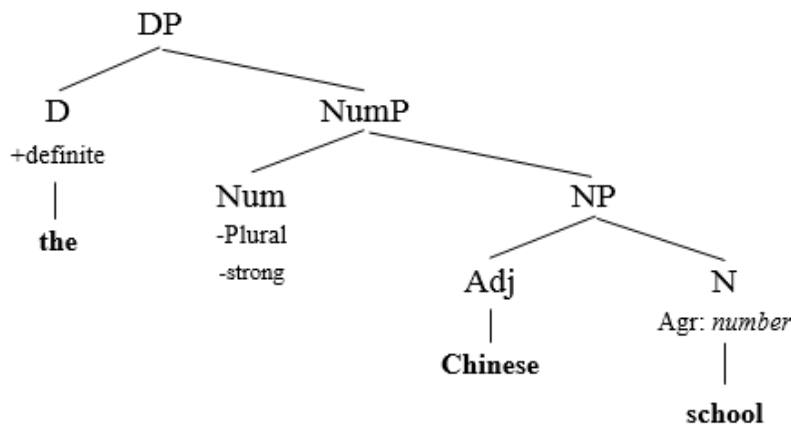
The noun moves into the Num position in languages such as French and Arabic and precedes the adjective that modifies it. In this type of language, where the noun is required to raise, the Num head is said to have a [+Strong] feature as opposed to a [-Strong] feature in languages like English that do not require noun-raising over adjectives.

3.4.3.1   English

Nouns in English can be singular or plural. On the syntactic level, the head Num can have either a [*Num*: Singular] feature or a [*Num*: Plural] feature. The value of this feature is assigned to the uninterpretable number feature on the noun, which may result in morphological modification to the noun stem. An interface rule dictates how the number feature on a noun is mapped into morphological representation.

(17). If the noun carries the number feature [*Num*: Singular] (whose value was assigned by the number feature on Num), no morphological change affects the stem. If the noun bears the number feature [*Num*: Plural], add the suffix -s to the noun stem.

When mapped into the morphology, the plural morpheme -*s* is realized as one of three allomorphs/s/, /z/ or /iz/ depending on the noun stem's final sound (see footnote 52). The above rule applies only to nouns that have regular plural forms. A different rule occurs for plural formation of irregular stems:

(18). For irregular noun stems, the rule is not to add the suffix -s when this noun is specified with the number feature [*Num*: Plural], but rather to pronounce the irregular plural form.

Because the Num head in English has a [-Strong] feature, the noun is not required to rise over the adjective to the Num position, and therefore, the adjective appears to the left of the noun in this language.

3.4.3.2   MC

Bare nouns in MC can be interpreted as singular or plural depending on context, as (19.a) below illustrates.[61] Linguistic clues that are generally used in MC to indicate

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[61] Regardless of the number reference, only an indefinite interpretation is possible in this example (see section 3.4.4.2 for a description of the definite/indefinite distinction in MC).

plurality are noun modifiers[62] like the numeral + classifier[63] phrase modifier, examples of which are given in (19b) and (19.c).

(19). a.   tā   chī-le   *píngguǒ.*

he   eat-PERF   *apple*

'He ate (some) apples'

'He ate an apple'

b.   tā   chī-le   yī-gè   *píngguǒ.*

he   eat- PERF   one-CL   *apple*

'He ate an/one apple'

c.   tā   chī-le   sān-gè   *píngguǒ.*

he   eat- PERF   three-CL   *apple*

'He ate three apples'

Although it is often claimed that MC lacks a number feature due to the absence of overt number marking on nouns, the assumption in this chapter is that this feature is present in the underlying syntax of this language but the way it is manifested in the morphology is different from languages such as English. This argument is based on the observation that, in spite of ambiguous contexts like the one in (19.a) above, sentence pairs like the ones in (20) below provide contexts where singularity vs. plurality can be detected in the morphology, though not on the noun itself.[64] A classifier must be used before the number and after the demonstrative, as the same

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[62] Nouns in MC can be modified by specifiers, numbers, nouns, pronouns, verbs and phrases (Ross and Ma 2014: 47-53). The first three modifiers only are relevant to the analysis of number marking in this language. The modifier always precedes the noun in MC.

[63] Classifiers in MC are also referred to as 'measure words' and they must be used between the noun and the modifying specifier and/or number. They need not be translated into English, even when they are meaningful (see the examples below). Different (groups of) nouns have particular classifers that must be memorized.

nà běn shū   (*lit*. that [volume of] book)   'that book'
nà zhāng zhuōzi   (*lit*. that [sheet of] table)   'that table'
zhè zhāng zhàopiàn   (*lit*. this [sheet of] photograph) 'this photograph'
sān liàng chē   (*lit*. three [classifier for cars] car) 'three cars'

[64] In (19.b and c) the number feature is encoded in the use of the numbers *yī* 'one'/*sān* 'three'+ classifier.

examples illustrate. Two different classifiers, however, are used with the same noun (*shū* 'book' in this case), one in the singular context (CL₁) and another in the plural context (CL₂) (*běn* and *xiē*, respectively, in the case of *shū* 'book'), which can be considered as a kind of morphological reflection of the number feature.

(20).   a.   nà-***běn***   shū   vs.   nà-***xiē***   shū
                  that-CL₁   book   that-CL₂   book
                  'that book'   'those books'

         b.   zhè-***běn***   shū   vs.   zhè-***xiē***   shū
                  this-CL₁   book   this-CL₂   book
                  'this book'   'these books'

If the noun modifier is a number or a number + specifier phrase, it is always CL₁ (or the singular form of the classifier) that is used even when the intended meaning is for the noun to be plural (see (21) below). This means that once the numeral is available to indicate the value of the number feature, no need remains for the classifier to signify this feature. Whereas when the noun is modified just by a specifier, as in (20) above, the singularity/plurality value of the noun has to be reflected in the choice of classifier.

(21).   nà-***xiē***   shū   vs.   (nà)   sān-***běn***   shū
              that-CL₂   book   (that)   three-CL₁   book
              'those books'   '(those) three books'

It is a possibility that MC has a Num category with the values [Singular], [Plural] that are realised directly by classifiers like *xiē* and *běn* that belong to the category Num. Numerals might be specifiers of the category Num. While *xiē* and *běn* are free morphemes, -*men* , which realizes the [Collective] value of the Num category, is a bound morpheme that lowers to attach to the noun.

Interface rules in English require nouns that carry the number feature [*Num*: Plural] to invariably reflect this feature on the morphological level, as argued earlier in section 3.4.3.1. Nouns that carry the [*Num*: Collective] feature in MC are morphologically modified in very limited contexts. Apart from contexts like the one in (19a), the suffix -*men*, usually labelled as a collective marker[65] rather than a plural marker, can attach to either a pronoun[66] or a human noun. The use of the collective marker -*men* is limited in MC to human nouns that have [+Definite] in addition to [*Num*: Collective] as part of their feature specification, and even in that case -*men* is used optionally in spoken MC. If used, -*men* definitely implies a collective plural context as in (22.b), whereas the use of a bare noun could indicate, depending on context, either a singular interpretation (in spoken MC) or an indefinite plural interpretation of the noun (22.a) (the examples are adapted from Lardiere 2008: 121).

(22).　a.　tā　　huì　dài　***xuéshēng***　huí　jiā
　　　　　　 he　　will　bring　***student***　　back　home
　　　　　　 'He will bring a student back home.' (only in spoken MC)
　　　　　　 'He will bring (some) students back home.'
　　　　　　 * 'He will bring the students back home.'

　　　　 b.　tā　　huì　dài　***xuéshēng-men***　huí　jiā
　　　　　　 he　　will　bring　***student-COL***　　back　home
　　　　　　 'He will bring the students back home.'
　　　　　　 * 'He will bring (some) students/the student back home.'

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[65] The collective marker -*men* is only used when reference is made to a group as a whole but never in a number phrases where reference is made to individuals (Iljic 1994), therefore, **sān-**gè** xuéshēng-**men** (lit. three-CL student-MEN) is ungrammatical in MC, but *sān-**gè** xuéshēng* (lit. three-CL student) is.
[66] The suffix -*men* in MC is added to singular pronouns in all persons in order to create plural pronouns, as explained below:

　　　 wǒ 'I' + -men　　　　　　→　　　 *wǒmen* 'we'
　　　 nǐ 'you.sg' + -men　　　　→　　　 *nǐmen* 'you.PL'
　　　 tā 'he/she/it' + -men　　　→　　　 *tāmen* 'they'

Pronouns in MC do not inflect for grammatical role, therefore, the same pronoun is used in nominative, accusative and possessive positions. For example, *wǒ* corresponds to English *I*, *me* and *my*, and so on for other pronouns.

The collective plural is not exclusively indicated by the *–men* suffix in MC. There is a group of nouns in this language that have the notion of plurality built in them and they are known as collective nouns (Po-Ching and Rimmington 2004: 4). They do not attach the collective marker *-men*. Those are nouns like *fùmǔ* 'father and mother' meaning 'parents', and *zǐnǚ* 'sons and daughters' meaning 'children'.

In some cases, if a noun needs to be used with a collective indication, i.e. with no reference to individual items, a collective form of this noun can be created by suffixing a classifier to the bare form, as in *chē-liàng* 'cars' (23.a). The classifier used is the same one that has to appear between a number/specifier and a noun as in (23.b) (see footnote 63 for an explanation of classifiers in MC).

(23).   a. chē-*liàng*

   car-*CL*

   'cars (collective)'

   b. sān-*liàng*   chē

   three-*CL*   car

   'three cars'

3.4.3.3   *LSA*

Both nouns and adjectives inflect for number marking in LSA. Whereas adjectives can be either singular or plural, nouns in LSA can also reflect another number feature, that of duality.[67] This means that the number feature in this language has three values [Singular], [Dual] and [Plural]. These interpretable features are carried

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[67] Adjectives in MSA are, like nouns, marked for duality. LSA maintained the duality feature on nouns but not on adjectives, therefore, the structure below where there is a feature clash between the noun and adjective is grammatical in LSA, but not in MSA.

   sayyart-iin   kbaar

   car-DUAL   big.PL

   'two big cars'

by a Num head which also has a [+Strong] feature that requires the noun to raise to it for feature checking. Therefore, the adjective in LSA appears to the right of the noun. The raised noun checks its uninterpretable number feature with its counterpart on the head Num and a corresponding value is given to it.

The singular is the base form in LSA, meaning that its templatic pattern is the stem to which duality and plurality affixes are added when required. There is one duality marker and two plurality markers in LSA. The dual marker is an affix *-een* concatenated to the right edge of the noun regardless of the gender feature carried by the word. Bearing in mind that nouns and adjectives are specified for grammatical gender in LSA (feminine and masculine), two markers are utilized to denote plurality accordingly: the suffix *-iin* for words with the gender feature [Masculine] and the suffix *-aat* for words with the gender feature [Feminine]. See Table 3.3 below for examples of how nouns and adjectives are marked for number in LSA.

Table 3.3 Dual and plural marking on feminine and masculine nouns and adjectives in LSA

	Singular	*Dual*	*Plural*	*Gloss*
Feminine words	faraaʃe	faraaʃt-een	faraaʃ-aat	"butterfly"
	warde	warədt-een	ward-aat	"rose"
	təffaaħa	təffaaħt-een	təffaaħ-aat	"apple"
	ʒamiile	-	ʒamiil-aat	"beautiful"
	ʃarike	ʃarikt-een	ʃarik-aat	"company"
Masculine words	fannaan	fannaan-een	fannaan-iin	"artist"
	naazel	-	naazl-iin	"heading down"
	ħəlu	-	ħəlw-iin	"handsome, sweet"
	mharreb	mharrb-een	mharrb-iin	"smuggler"
	ʒuuʕaan	-	ʒuuʕaan-iin	"hungry"

Based on what is discussed so far about the number marking morphology and features in LSA, it is suggested that interface rules in this language require the mapping of the three values of the number feature (Num) into the morphology according to the following rule:

> To a noun/adjective that bears the number feature [Singular], pronounce the stem with no modification; to a noun that bears the feature [Dual], add the suffix *-een*; to a noun/adjective with the number feature [Plural] and gender feature [Masculine], add the suffix *-iin*; to a noun/adjective with the number feature [Plural] and gender feature [Feminine], add the suffix *-aat* after deleting the singular feminine marker *-e*.[68] In all cases do the required phonological changes to the stem.[69]

The most common type of pluralization in LSA, however, is not the regular plural described in the rule above; the irregular plural, known mainly as the broken plural, is the most productive form for plural words in LSA.[70] There is no irregular marking for duality nor for plurals of feminine words in LSA. In the majority of cases, broken plurals are derived systematically from masculine words depending on the shape of the templatic pattern of the stem noun or adjective. This derivation is achieved according to a set of phonological processes affecting that template, such as gemination, vowel lengthening/shortening and affixation of certain consonants.

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[68] The explanation for this could be that the added plural feminine marker *-aat* reflects the gender feature [Feminine], which means that *-e* becomes semantically redundant in that case. In contrast, when the dual marker *-een* is added to a feminine noun, the feminine marker is maintained because *-een* is not specified for gender.

[69] The main two phonological changes that affect the stem when number marking morphology is added are: (i) the realization of the silent /t/ in the singular feminine marker *-et* when the duality marker *-een* is added (see the examples in Table 3.3 above); (ii) vowel-zero alternations that are observed in both dual and plural marking in LSA, e.g. *mhar.reb.Ø* 'smuggler' → *mhar.rØ.biin* 'smugglers' from the same table (see also footnote (49) earlier).

[70] This is the case in all the dialects of Arabic.

Usually nouns that share the same templatic pattern and other semantic features (such as whether they are human, animate, a place name, a tool name, etc.) have the same broken plural template. In Table 3.4 below,[71] although stems *1* and *2* share the same templatic pattern, their broken plural forms are different due to the fact that *ṭaaleb* 'student' is a human noun whereas *ʒaameʔ* 'mosque' is a name of place.

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[71] This is by no means an exhaustive set of broken plural derivation rules in LSA. In addition to semantic denotation, the formation of broken plurals is affected by many factors, such as whether the stem is a noun or adjective, a passive or active participle, the number of syllables making up the stem, etc. For more details about the broken plural in Arabic see Mccarthy and Prince (1990) and Ratcliffe (1998).

Table 3.4 Some broken plural derivation rules in LSA

	Singular	**Plural**	**Gloss**
1	ṭaaleb CaaCeC	ṭəllaab CəCCaaC	"student"
2	ʒaameʕ CaaCeC	ʒawaameʕ CawaaCeC	"mosque"
3	ʒabaan CaCaaC	ʒubanaaʔ CuCaCaaʔ	"coward"
4	safiir CaCiiC	sufaraaʔ CuCaCaaʔ	"ambassador"
5	ṣadiiq CaCiiC	ʔaṣdiqaaʔ ʔaCCiCaaʔ	"friend"
6	markab maCCaC	maraakeb maCaaCeC	"boat"
7	maʃruuʕ maCCuuC	maʃaariiʕ maCaaCiiC	"project"
8	təmsaal CəCCaaC	tamaasiil CaCaaCiiC	"statue"
9	qaanuun CaaCuuC	qawaaniin CawaaCiiC	"law"
10	ktaab CCaaC	kətob CəCoC	"book"

Some nouns in LSA have collective forms in addition to plural forms, thus implying the presence of a [*Num*: Collective] feature of the Num category. Collective forms are formed of nouns that refer to names of plants (e.g. trees, flowers, apples, grass, etc.), names of animals, especially ones whose meat is considered to be edible (e.g. cows, chickens, birds, fish but not crocodile or snake), names that are equivalent to mass nouns in English (e.g. wood, iron, sand, sugar, paper, etc.). Table 3.5 below provides examples of the collective form in LSA.

Table 3.5 Collective and plural forms of some nouns in LSA

Singular		Plural		Collective	
ʃa3r-a	'tree'	ʃa3r-aat	'a number of trees'	ʃa3ar	'trees'
təffaaħ-a	'apple'	təffaaħ-aat	'a number of apples'	təffaaħ	'apples'
3aa3-e	'chicken'	3aa3-aat	'a number of chikcens'	3aa3	'chickens'
təmsaaħ	'crocodile'	tamaseeħ	'corocodiles'	-	-
xaʃb-e	'a piece of wood'	xaʃb-aat	'pieces of wood'	xaʃab	'wood'
warq-a	'a paper'	wraaq	'several papers'	waraq	'paper'

Collective forms of nouns are used in contexts with generic reference in LSA and accompanying verbs and adjectives are realized with inflection of a [Singular] feature as opposed to the case with plural forms of nouns. The examples in (24) below illustrate the difference between the collective and plural forms of a noun.

(24).   ttəffaaħ   ṭayyeb

INDEF.apple.MAS.COL   delicious.MAS.PL

'Apples are delicious'

vs.   ha   ttəffaaħ-aat   ṭayyb-iin

this   DEF-apples-FEM.PL delicious-MAS.PL

'These apples are delicious'

3.4.4   Articles

Number and gender features - and case in some languages - are all features that can intertwine with the definiteness feature with respect to how articles are represented in the morphology. This means that in such languages articles and nouns they modify are required to agree in terms of some or all of features like [*Agr:* Number, Gender,

Case, etc.] which are uninterpretable on the article and are assigned a value by their interpretable counterparts that are carried by the noun.

Number and definiteness features are interconnected in English: *a* is used with indefinite singular nouns but no overt form is used with indefinite plural nouns (see 3.4.4.1 below). In French, in addition to the number feature, gender also decides the morphological shape of articles: in singular noun contexts, for instance, two different definite articles are used, *le* with masculine nouns and *la* with feminine nouns. Despite the fact that LSA is similar to French in terms of having overt number and grammatical gender inflection on nouns, the definite article in the former language does not morphologically reflect any of the agreement features mentioned above, and only one morpheme (l-) is used regardless of what the number and gender features of the noun are.

The presence of a [±Definite] feature as part of the feature specification of the NP is not the only trigger for the use of articles in languages, but also the semantic meaning/denotation of the noun affects whether a definite/indefinite article is used. Despite the fact that the generic/specific features are distinct from the definite/indefinite features, it is observed that in different languages nouns with a generic interpretation are morphologically marked for (in)definiteness in different ways.[72] On the morphological level, a generic noun in LSA, for instance, has the morphological representation of a definite noun, whereas in English, a generic noun can take the indefinite article, as the example in (25) below shows.

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[72] The assumption here is that there is a conflation in the morphological representation of the features [±Defintie] and [±Generic]. In many languages articles are used to realize values of both features; however, there could be a language (at least hypothetically) where these two features have distinct morphological representations.

(25). l-ḥamaam-e   fijj-a   ṭ-ṭiir

DEF-pigeon-FEM   can-FEM   3SG.FEM-fly.PRESENT

Lit: **the** pigeon can fly

'**a** pigeon can fly'[73]

3.4.4.1   English

English has two determiners that distinguish nouns and noun phrases for definiteness: a definite article, *the*, and an indefinite article, *a*. As mentioned above in 3.4.4, the number feature [*Num*: Singular, Plural] on NP interacts with the definiteness feature [±Definite] and both features affect the morphological realization of the article to be used in this language. If the NP bears a [*Num*: Singular] feature, then the article *the* is used with a [+Definite] NP (26.a) and the article *a* is used with a [-Definite] NP (26.b). If the NP bears a [*Num*: Plural] feature, the article, *the*, is used only in the case of a [+Definite] NP (26.c), whereas with a [-Definite] feature no overt article is used (26.d).

(26). a.   *The* book you gave to me is interesting.
      b.   I borrowed *a* book from the library.
      c.   She couldn't carry all of *the* books she borrowed.
      d.   There were books everywhere.

The feature [+Generic], which is distinct from the [±Definite] feature as discussed earlier in 3.4.4, is morphologically represented by the indefinite articles *a* (27b), a bare plural noun (27a), or the definite article *the* (27c) in English. The indefinite article *a* is used with singular count nouns (27.d), but never with a mass noun (27.e).

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[73] Generic reference in English can also be expressed via indefinite plural nouns, e.g. 'pigeons can fly', or by using the definite article, e.g. 'the pigeon can fly' (see 3.4.4.1 below).

(27). a.   books should not be expensive.

       b.   *a* book should not be expensive.

       c.   *the* giraffe has a long neck.

       d.   *a* book is missing from the shelf.

       e.   *we need *a* sugar, eggs and butter from the shop.

3.4.4.2   MC

Definiteness is not grammaticalized in MC. Outside context, a bare noun can be

definite or indefinite; therefore, the noun *shū* 'book' could mean 'the book/ books', 'a

book/books'.[74] Within context, nouns in this language can be identified as being

definite or indefinite without the use of overt articles, but rather depending on

previous information, the position of the noun phrase in the sentence (the

subject/object of the verb), the type of the sentence (affirmative, interrogative,

suggestion, etc.) and/or the type of the verb in the sentence (action, stative,

resultative, etc.) (Po-Ching and Rimmington 2004). This identification means that

the feature [±Definite] is present in the underlying syntactic representation of nouns

in MC in spite of the absence of any overt realization of this feature.[75]

Usually it is more than one of the above factors that help resolve the ambiguity of

whether the noun in question is definite or indefinite. Context, type of verb and the

position of the noun in relation to the verb decide whether a definite or indefinite

interpretation is assigned to the nouns in the following examples (adapted from Po-

Ching and Rimmington 2004: 7).

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[74] *shū* 'book' can have a singular indefinite interpretation 'a book' only in the spoken variety of MC.
[75] An alternative account could be that contextual interpretation occurs at the level of semantics or pragmatics and that there is not a definite feature in the syntax (personal observation). However, the assumption in this chapter is that definiteness is a feature of nouns in MC.

(28). a.   ***shū***   yǐjīng   huán-le

              book   already   return-PERF

              'The book(s) has already been returned'

        b.   wù   qu   jiè   ***shū***

              I   go   borrow   ***book***

              'I went to borrow a book /some books'

Generally, in utterances that contain action verbs (like in (28) above) preverbal nouns are perceived as being definite (28.a), whereas post-verbal nouns have an indefinite reference (28.b). However, if the context provides previous information about the noun in the object position, a definite reference may be assigned to the noun in question (Po-Ching and Rimmington 2004), as (29) below shows (compare with (28.b)) (adapted from the same reference above). The assumption in this example is that the context provides information about the child/ children who is/ are the object in this sentence.[76]

(29). tā   qù   zhàogù   ***háizi***

        she   go   look after   ***child***

        'She went to look after the child /children'

The post verbal noun in utterances containing the equational verb *shì* 'to be' can be assigned an indefinite interpretation by the use of the modifier phrase (numeral + classifier) (as in (30.a) below). However, spoken MC also interprets a bare noun in this post verbal position as being indefinite, hence (30.a) and (30.b) have the same meaning.

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[76] Po-Ching and Rimmington (2004) do not provide a context for the example in (29). The context could be, for instance, that *Shirun is babysitting Xiaoxi's children.*

(30). a. tā   shì   yī   gè   *xuéshēng*

          she   is   one   CL   *student*

          'She is a student'

       b. tā   shì   *xuéshēng*

          she   is   *student*

          'She is a student'

If the subject of an action verb has an indefinite reference, as in the English sentence

a book was placed on the table, the verb of existence *yǒu* 'there (be)' is used in MC to

indicate that the subject noun is indefinite (compare with (28.a) which has a bare

noun in the subject position) (adapted from Po-Ching and Rimmington 2004: 8).

(31). a. yǒu   yī   běn   *shū*   fang   zài   zhuōzishàng

          there was   one   CL   *book* place   at   table on

          'There was a book on the table'

       b. *yī   běn   *shū*   fang   zài   zhuōzishàng

          one   CL   *book* place   at   table on

          'A book was placed on the table'

The definite/indefinite reference of nouns in MC can also be resolved by the use of

noun modifiers such as demonstratives (*zhè* 'this' and *nà* 'that'), measure words (*jǐ*

'a few', *yīxiē* 'some', *xǔduō* 'many', etc.) and numeral-classifier phrases. As shown

earlier in (30.a) and (31.a) modifying the noun by a (numeral + classifier) phrase

always entails an indefinite interpretation of the noun.

Demonstratives are widely used in contexts where a definite reference needs to be

assigned to a post-verbal noun, as (32.a) below illustrates (adapted from Ross and

Ma 2014: 39). Compare it with (32.b) which contains a post-verbal bare noun.

(32). a. wǒ   yào   kàn   nà   ge   *diànyǐng*

        I   want see   that CL   *movie*

        'I want to see that movie'

     b. wǒ   yào   kàn   *diànyǐng*

        I   want see   *movie*

        'I want to see a movie'

On the other hand, measure words can be used to modify preverbal nouns so that they have an indefinite reference (33.a). Otherwise, a bare noun that is the subject of an action verb typically has a definite reference (33.b).

  (33). a. yīxiē   *xuéshēng*   chī-le   dàngāo

        some   *student*   eat-PERF cake

        'Some students ate cake'

     b. *xuéshēng*   chī-le   dàngāo

        student   eat-PERF cake

        'The student(s) ate cake'[77]

Plural nouns that have a [+Human] feature can optionally add a collective plural suffix -*men*, and this is possible only when the noun is definite. Hence, an indefinite interpretation of *xuéshēng-men* 'student-COL' in (34) below is not possible (adapted from Lardiere 2008: 121).

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[77] Standard MC only allows the singular interpretation of *xuéshēng* 'student' in this example; the form *xuéshēng-men* 'students-COL' is used for a plural interpretation. In spoken MC, however, the use of the collective marker -*men* is optional (see section 3.4.3.2 for number marking in MC) (Po-Ching and Rimmington 2004).

(34). tā   huì   dài   ***xuéshēng-men***   huí   jiā

      he   will bring *student-*COL   back home

    'He will bring the students back home'

    *'He will bring (some) students back home'

Generic reference is only pragmatically marked in MC (Snape et al. 2009) and
contexts containing a bare noun in a preverbal position can be ambiguous with
respect to whether a generic or specific reference is intended, as (35) illustrates
(adapted from Snape et al. 2009: 3).

(35). xiāo ***yǎzī*** yāo yāo bāi bāi   dé   zōu   lǔ

    little ***duck*** waddlingly   DE   walk road

     'The ducks are waddling'   or

     'Ducks waddle'

However, if a bare noun is the topic of a sentence, a generic rather than specific
reference is usually assigned to the noun, as explained in (36) below.

(36). ***diànnǎo***   shífēn   yǒuyòng

    computer   very   useful

    'Computers are extremely useful'

3.4.4.3   LSA

LSA marks definiteness on nouns and adjectives that have the [+Definite] feature by
prefixing the definite article morpheme *l-* to the nominal (37.a). The feature [-
Definite] is not morphologically realized in this language (37.b).

(37). a.   qree-t   lə-ktaab

       read.PAST-1SG   DEF-book

       Lit: read-I the book

       'I read the book'

b.   qree-t   ktaab

read.PAST-1SG   **INDEF**.book

Lit: read-I book

'I read a book'

A bare noun is always indefinite[78] except for when it is part of a construct state that contains a definite argument/possessor, in which case the whole structure has a definite interpretation in LSA (Ryding 2005), as (38) below shows.

(38).   ktaab   l-walad

INDEF.book   **DEF**-boy

Lit: book the boy

'the boy's book'

The definite article *l-*, like all affixes in LSA, is not located on the same morphological tier as the word it attaches to, even though the templatic units representing it are linear with the skeletal tier of the host (see Figure 3.3 below).[79]

Figure 3.3 The morphological tiers in lə-ktaab 'the book'

k t b	{'write'}	consonantal root
C V C C V V C	{noun}	template
a	{singular}	vocalic melody
l ə	{definitness}	prefix
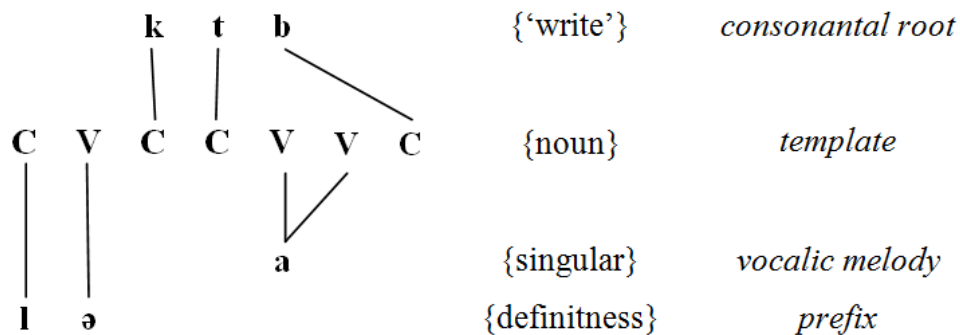
Nevertheless, the LSA definite article *l-* cannot be separated from the word it modifies, unlike its English counterpart *the*. *l-* and the following word are interconnected on the morphological level and cannot be separated from each other.

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[78] Nouns that denote names of people, cities or countries can be bare but they are definite.

[79] See also Figure 3.1 in section 3.2.2 above.

A comparison with the English definite article illustrates the point. While in English the adjective intervenes between the article and noun, this is not possible in LSA. Instead, the article remains adjacent with the noun it modifies and the adjective is morphologically marked for definiteness in concord with the head noun.[80] Marking adjectives for definiteness has an important function in LSA and that is to differentiate between attributive and predicative interpretations of the adjective. In the first case, the adjective is morphologically marked for definiteness, in the second it maintains its bare form.

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[80] LSA requires adjectives to be compatible with the nouns they modify with respect to definiteness (definite/indefinite), gender (masculine/feminine) and number (singular/plural) (see also footnote (67)). This feature-compatibility between nouns and adjectives is called 'concord'.

(39). a. lə-ktaab   l-mumteʔ

            DEF-book   DEF-interesting

            Lit: the book the interesting

            'the interesting book'

      b. lə-ktaab   mumteʔ

            DEF-book   INDEF.interesting

            Lit: the book interesting

            'the book is interesting'

Nouns that have a generic reference in LSA are morphologically marked for definiteness, unlike the case in English (see also example (25) earlier).

(40). l-waraq   m-nə-ṣnaʔ-u   mnə ʃʃaʒar

        DEF-paper.COL   HAB-2PL-make.PRESENT-it from DEF-tree.COL

        Lit: paper we make it from trees

        'Paper is made from trees'

3.4.5   Passive and perfective participles

English past participles[81] are verb forms that do not carry a tense feature and can be used as nouns, adjectives or part of verb compounds. The equivalent of these forms is used differently in different languages. For instance, past participles in languages like LSA inflect for number and gender features, whereas, languages like MC, do not have participial forms of verbs at all, as will be discussed in 3.4.5.1 below.

When used as part of verb compounds, what is known as the past participle in English can be used in both perfective and passive contexts. In languages like Arabic, many

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[81] Participles in English are distinguished as being *past* or *present*. Possibly, this distinction in title is due to the resemblance in form between past tense verbs and 'past participles'. This distinction, however, does not appear to have any relation to the tense of the structure containing the participle, as 'present participle' forms can be used in past tense constructions, such as *she was driving*, and 'past participle' forms can be used in present tense constructions, such as *the policeman is wounded*.

past participle forms have become lexicalized into nouns and in such cases they do not have any participial denotation. When they are part of a verb compound, past participles carry a [V] feature but not the tense feature [±Past]; the latter is carried by the auxiliary. The past participle can also function as an attributive and predicative adjective, which means that in such a case the feature [Adj][82] is part of the feature makeup of the participle form rather than the [V] feature. Whether used as an adjective, noun or part of a verb compound, past participles bear the morphological feature [+Participle] which requires the morphological modification to the verb stem which in turn yields the past participle form.

3.4.5.1   English

Past participles[83] in English can be used as part of a present perfect structure, (hence known as perfective participles, as in (41.a)), a passive structure (hence known as passive participles, as in (41.b and c)) or they can be used as adjectives (participles with an adjectival function, as in (41.d and e)).

(41).   a.   He has ***broken*** the window.
             [V; *Asp*: Perfective; *Voice*: -Passive; *M-form*:[84] +Participle][85]

        b.   The window has been ***broken***.
             [V; *Voice*: +Passive; *M-form*: +Participle]

        c.   This cake is ***made*** with butter, sugar and eggs.
             [V; *Voice*: +Passive; *M-form*: +Participle]

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[82] The [Adj] feature here is used to indicate that the past participle has an adjectival function. [Adj] here does not refer to the lexical category Adjective.

[83] See footnote (81) from earlier.

[84] M-form refers to the morphological form. With this we want to keep syntactic features (like [*Aspect*: Perfective, Imperfective] and [*Voice*: ±Passive]) distinct from morphological ones (like [±Participle]) (thanks to Maris Camilleri for pointing this out to me).

[85] Each of the sets of features provided throughout the chapter is by no means an exhaustive list of potential features of the item described. The focus is only on features that are for use of our argument.

      d.   The window is old and ***broken***.

             [Predicative Adj; *Voice*: -Passive; *M-form*: +Participle]

      e.   The ***broken*** window needs to be repaired.

             [Attributive Adj; *Voice*: -Passive; *M-form*: +Participle]

Past participles are distinguished by the morphological feature [+Participle] (Adger 2003). However, the different types of past participle in English (described above) have different featural make up, apart from [+Participle]. The past participle in (41.a) is used in a present perfect compound; therefore, it is assumed that a feature [*Asp*: Perfective] is carried by a perfective participle in addition to [V]. The participle form does not carry the tense feature [±Past]; the latter is located on the auxiliary form *have*.

Similarly in the passive constructions in (41.b) and (41.c), the tense feature is carried on the auxiliary form (*have* and *be*, respectively), whereas the past participle forms have the features [+Participle] and [V] in addition to the feature [+Passive], and this is the reason why they are known as passive participles.

In the last two examples (41.d) and (41.e), the past participle forms function as adjectives (predicative and attributive, respectively).[86] This use of the past participle is categorically different from its passive and perfective uses because in this case the past participle does not have a [V] feature but an [Adj] feature. The [V] and tense feature [±Past] are carried by the copular verb *be* and the modal verb *need to*, respectively, in the same two examples.

---

[86] They can be described as adjectives that have a participial form, or participles with an adjectival function.

On the morphological level, past participles in English are distinguished via a suffix *-ed* (the same as the past-tense marker) added to regular verb stems. Some irregular stems add a suffix *-en* to the present or past form, as in *take → taken* and *broke → broken*, respectively. Other irregular stems exhibit participiality via vowel change as in *begin → begun*.

3.4.5.1   MC

There are no past participle forms of verbs in MC in the sense of having morphologically modified forms of verb stems,[87] unlike in English where past participles are used in perfective and passive structures and as attributive and predicative adjectives (see the examples in (41) earlier). Verb forms in MC can be used to express all the above meanings without undergoing morphological modification, which implies the absence of the morphological feature [±Participle] in this language. For example, verb forms can be used as noun modifiers if accompanied by the particle *de*, and in that case they are described as verb forms with an adjectival function, as in (42).

(42). *pò*   de   chuāng
      break   of   window
      'the/a broken window' or
      'the/a window that is broken'

(43.b) is an example of how the phrase in (42) can be used in MC. In the same example, the verb form (the equivalent of which is a past participle in English) acts as an attributive adjective, and in (43.a) it acts as a predicative adjective. In both cases the verb form has an [Adj] feature, rather than a [V] feature, and, as explained

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[87] In fact, there are no participle forms at all in MC, neither present nor past participles. MC is in general a language that depends on contextual meaning rather than morphological inflection.

earlier, the morphological feature [±Participle] is not available (and not needed) in MC, unlike the case in English.

(43). a.   zhè-ge   chuāng   yǒu   lǎo   yǒu   *pò*

           this-CL   window   and   old   and   *break*

           'This window is old and broken'

           [Predicative Adj; *Voice*: -Passive]

       b.   *pò*   de   chuāng   yào   xiūlǐ

           break of   window   need repair

           'The broken window needs to be repaired'

           [Attributive Adj; *Voice*: -Passive]

The past participle in English is used in passive voice structures. Despite the fact that the passive voice is widely encountered in MC, its most common form is not marked but rather depends for its interpretation on an expository tone of the utterance, on the structure where the object is posed as the topic, and on the hearer's knowledge of the world, as the example in (44) below illustrates.

(44). xìn   *jì*   zǒu   le[88]

       letter   *send*   off   SFM

       'The letter has been sent off'

       '*The letter sends itself/something'

       [V; *Voice*: +Passive]   (Po-Ching and Rimmington 2004: 210)

There are three passive markers in MC: *bèi*,[89] *jiào* and *ràng*, that are used only when necessary, such as when the hearer's common sense is not sufficient to decide whether the topic under discussion is the receiver or the initiator of the action (see (45) below).

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[88] This *le* is a sentence final marker (SFM), and is not to be confused with the aspectual marker *le* which immediately follows the verb or verb + object.

[89] *bèi* is often used in written/formal contexts and does not have to be followed by an agent.

They all mean 'by' and, when needed in an utterance, they can be used interchangeably.[90]

(45). nèi-ge   jǐngchá   bèi   ***dǎshāng***   le
      that-CL   policeman   by   ***hit-wound***   SFM
      'That policeman was wounded (by someone)'
      [V; *Voice*: +Passive]   (Po-Ching and Rimmington 2004: 217)

If the passive particles *jiào* or *ràng* are used, the agent must be indicated in the sentence and in that case the passive construction is referred to as the "short passive", as in (46.a) below. Indication of the agent is optional when *bèi* is used (see (46.b) below), and if indicated, the construction is referred to as the "long passive" (Huang et al. 2009: 112).

(46). a. wǒ   de   chē   jiào/ràng   tā   ***tōuzǒu***   le
         my   of   car   by   him   ***steal***   SFM
         'My car was stolen by him'
         [V; *Voice*: +Passive]

     b. tā   bèi   (xuéxiào)   ***chèzhí***   le
         he   by   (school)   ***fire***   SFM
         'He was fired (by the school)'
         [V; *Voice*: +Passive]   (Ross and Ma 2014: 128-9)

The word *gěi* can occur before the verb to indicate the passiveness of the structure, as in (47.a) below, and is mandatorily needed in ambiguous utterances if neither of the passive particles (*bèi*, *jiào*, and *ràng*) is used, as in (47.b) below.

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[90] Unlike *bèi*, however, *jiào* and *ràng* have to always be followed by the agent.

(47). a. nà-běn   zìdiǎn   bèi   Xiǎo Lǐ   gěi   *jièzǒu*   le

          that-CL   dictionary   by   Xiǎo Lǐ   GEI   *borrow*   SFM

          'That dictionary was borrowed by Little Li'

          [V; *Voice*: +Passive]

       b. nà-ge   huaàirén   gěi   *zhuāzhù*   le

          that-CL   bad-person   GEI   *arrest*   PERF

          'That bad person was arrested'

          [V; *Voice*: +Passive]   (Ross and Ma 2014: 128-9)

English past participles are also used in present perfect constructions, the equivalent of which in MC is the perfective[91] and experiential aspects ((48.a) and (48.b), respectively) which are marked in MC[92] by the free particles *le* and *guo* (Ross and Ma 2014) rather than by inflectional morphology on the verb itself. It should be noted that aspect in MC is only marked on affirmative forms of action verbs, but not on modals, stative verbs or adjectival verbs (Ross and Ma 2014: 72).

(48). a. wǒ   kàn   *le*   nà-ge   diànyǐng

          I   see   PERF   that-CL   movie

          'I saw that movie'

          [V; *Voice*: -Passive; *Asp*: Perfective]

       b. wǒ   kàn   *guo*   nà-ge   diànyǐng

           I   see   EXP   that-CL   movie

          'I have seen that movie before'

          [V; *Voice*: -Passive; *Asp*: Experiential]   (Ross and Ma 2014: 94, 101)

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[91] The perfective aspect in MC indicates the completion of an action. Its use in MC overlaps with what is expressed via past tense marking in English.

[92] MC also marks the durative aspect with the particle *zhe* that follow the verb.

The perfective particle *le* appears after the verb or verb + object phrase(49.a) unless the object is modified by a specifier, a number + classifier, etc.; in the latter case *le* appears directly after the verb (49.b).

(49). a. tā   mǎi   dōngxi   *le*
           she   buy   thing   PERF
           'she bought things

       b. wǒ   kàn   *le*   nà-ge   diànyǐng
           I   see   PERF   that-CL   movie
           'I saw that movie'   (Ross and Ma 2014: 72)

3.4.5.2   LSA

Participles in LSA are based on a distinction in voice, i.e. active vs. passive, and the equivalent of the English past participle is the passive participle in Arabic dialects (Ryding 2005). Passive participles in LSA can be used as nouns, adjectives (predicative and attributive), or as part of passive constructions, but, unlike in English, they cannot be used in present perfect constructions, as will be shown later in the section. Passive participles in LSA inflect for number and gender features.

The presence of a passive participle paradigm of verbs in LSA denotes the presence of (and the need for) the morphological feature [±Participle]. In principle, the passive participle form in LSA can be derived from all transitive verb forms (I-X), but not all derived passive participles are necessarily meaningful or used in the language. Mainly, passive participles are derived from triliteral-root verb forms I, II, V, VIII and X, and from quadriliteral-root verb form I of transitive verbs via intercalating the root consonants and a verb-form specific vocalic melody[93] into a template denoting

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[93] This vocalic melody, though claimed to be the same for all derivations of one verb form, it actually varies according to the nature of the root radicals. Thus the standard template and vocalism is that of

the passive participle structure. See Table 3.6 below for examples of passive participle derivation in LSA.

Table 3.6 Passive participle derivation in LSA (sound roots)

Verb Form	Root	Past-tense Stem	Passive Participle	Gloss
I	$\sqrt{k\text{-}t\text{-}b}$	katab $C_1VC_2VC_3$	maktuub $maC_1C_2uuC_3$	"to write"
II	$\sqrt{ʒ\text{-}h\text{-}z}$	ʒahhaz $C_1aC_2C_2aC_3$	mʒahhaz $mC_1aC_2C_2aC_3$	"to get ready"
V	$\sqrt{w\text{-}q\text{-}ʕ}$	twaqqaʕ $tC_1aC_2C_2aC_3$	mutawaqqaʕ $mutaC_1aC_2C_2aC_3$	"to expect"
VIII	$\sqrt{ħ\text{-}r\text{-}m}$	ħtaram $C_1taC_2aC_3$	muħtaram $muC_1taC_2aC_3$	"to respect"
X	$\sqrt{w\text{-}r\text{-}d}$	stawrad $staC_1C_2aC_3$	mustawrad $mustaC_1C_2aC_3$	"to import"
Q-I	$\sqrt{z\text{-}x\text{-}r\text{-}f}$	zaxraf $C_1aC_2C_3aC_4$	mzaxraf $mC_1aC_2C_3aC_4$	"to embellish"

Morphologically, both level-one and level-two morphology contribute to the formation of the passive participle in LSA. The passive participle is manifested in the morphemic formation of the stem (level-one morphology), i.e. in the template and vocalism that are specific to the verb form.[94] The templates of all passive participle forms start with a prefix (m/mu-) (level-two morphology). The morphological tiers

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sound roots like k-t-b 'to write', where none of the root radicals is a vowel nor a Hamza (glottal stop). Final weak roots like r-m-a 'to throw', and hollow roots b-a-ʕ 'to sell' require different templatic patterns from the standard one.

[94] As can be noticed in the *Passive Participle* column in Table 3.6, the quality of the vocalism and the way it is organized in relation to the stem consonants in the template varies according to the verb form. For example, the vocalic melody for the passive participle of verb form I is /a-uu/, and the template is of the shape m-$aC_1C_2uuC_3$, whereas the vocalic melody for the passive participle of verb form II is /a-a/ and the template is of the shape m-$C_1aC_2C_2aC_3$.

constituting the passive participle *maktuub-e* 'written-SG.F' of the triliteral verb form

I *katab* of the root √k-t-b 'to write' are given in Figure 3.4 below.

Figure 3.4 The morphological tiers in the passive participle maktuub-e 'written-SG.FEM'
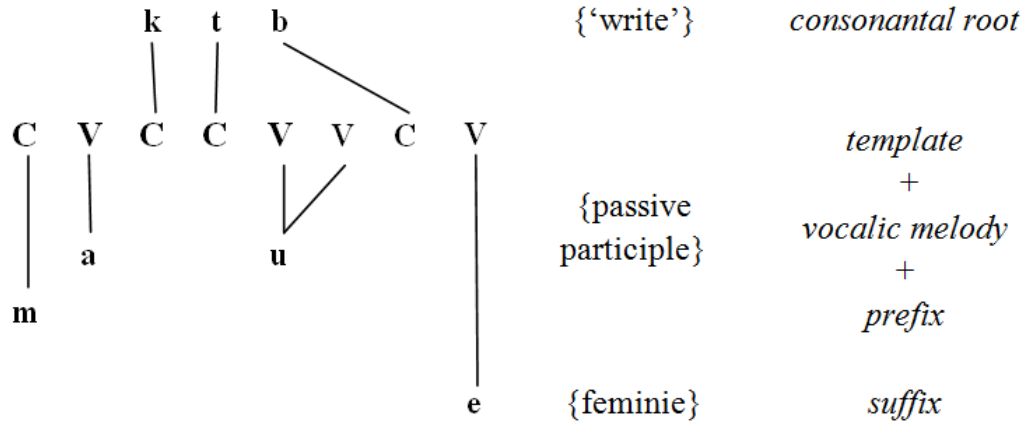
As mentioned earlier, passive participles in LSA may act as nouns. It is argued that some passive participle forms in LSA have lexicalized into nouns. When acting as nouns, passive participles may correspond to a variety of English nouns, such as *murabbaʕ* 'square' and *mwaẓẓaf* 'employee'. Passive participle in LSA also function as place names, such as *məstaʃfa* 'hospital/the place where people are healed' and *muxtabar* 'laboratory'. As nouns, passive participles have the featural specification [N; *M-form*: +Participle]

LSA passive participles can also act as predicative (50.a) and attributive (50.b) adjectives, in a similar manner to English past participles. In both cases, the passive participle has an adjectival function [Adj] and carries the morphological feature [+Participle].

(50). a. ʃ-ʃəbbaak   qadiim   w   *maksuur*
          DEF-window.SG.MAS   old.SG.MAS   and   *break.PART.SG.MAS*
          'The window is old and broken'
          [Predicative Adj; *Voice*: -Passive; *M-form*: +Participle]

    b.   ʃ-ʃəbbaak   *l-maksuur*   laazem   yə-t-ṣallaħ

         DEF-window.SG.MAS   *DEF-break.PART.SG.M AS*   need   3SG.MAS-PASS.fix

         'The broken window needs to be fixed'

         [Attributive Adj; *Voice*: -Passive; *M-form*: +Participle]

Passive participles in LSA are also used in passive constructions. However, the most common form of passive used in this language is the derivational passive, as opposed to the inflectional passive which involves the use of the passive participle. With the latter type, the inflectional passive, the passive participle form always requires an argument that is a prepositional phrase (see (51) below). The passive participle, in this case, is used as the part of the passive construction that carries the feature [V] but not the tense feature [±Past].

  (51). ha   l-keek   *maʕmuul*   bə   z-zəbde

        DEM.SG   DEF-cake.SG.MAS   *make.PASS.PART.SG.M AS*   with   DEF.butter

        'This cake is made with butter'

        [V; *Voice*: +Passive; *M-form*: +Participle]

Among the I to X derived verb forms in LSA, there is a subset of forms that carry a passive/reflexive meaning, and these verb forms are called mediopassive verbs (Ryding 2005: 530). For example, with regards to triliteral roots, verb form V acts as the mediopassive of verb form II; verb forms VII and VIII act as the mediopassive of verb form I. With the mediopassive, the agent cannot be indicated in the sentence and the focus is on the action itself rather than the agent, as in the examples in (52) below. With this derivational type of passive, the verb does not have the morphological form of a participle which implies that the verb form has a [-Participle] feature in this case.

(52). a.   ***nʒaraħ***   ʃ-ʃərṭi

           PASS-wound.PAST.3SG.MAS   DEF-policeman.SG.MAS

           'The policeman was wounded'

           *'The policeman was wounded by someone'

           [V; *Tense*: +Past; *Voice*: +Passive; *M-form*: -Participle]

     b.   ***n-baʕt-et***   r-risaale

           PASS-send.PAST-3SG.FEM   DEF-letter.SG.FEM

           'The letter was sent'

           *'The letter was sent by someone'

           [V; *Tense*: +Past; *Voice*: +Passive; *M-form*: -Participle]

The main difference between derivational and inflectional passives in LSA is not only in the morphological form (following from the [±Participle] distinction) but in the fact in that the tense feature is carried on the derivational mediopassive verb, whereas in the inflected passive participle form the tense feature is carried by the auxiliary (which is morphologically overt only in the past tense in LSA) (see (52) and compare with (51) earlier).[95]

Passive participles in LSA are not used in perfective/past tense structures that are equivalent to the present perfect in English. The verb form carries the Tense feature [±Past] and the morphological feature [-Participle], as shown in (53) below.

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[95] Compare (51) with the example below where the auxiliary is overt (past tense).

ha	l-keek	**kan**	maʕmuul	bə	z-zəbde
DEM.SG	DEF-cake.SG.MAS	**was**	make.PASS.PART.SG.M AS	with	DEF.butter

'This cake was made with butter'

[V; Voice: +Passive; M-form: +Participle]

(53). l-walad   **_kasar_**   ʃ-ʃəbbaak

DEF-boy.SG.MAS   **_break.PAST.3SG.MAS_**   DEF-window.SG.MAS

'The boy broke the window'   or

'The boy has broken the window'

[V; _Tense_: +Past; _Voice_: -Passive; _M-form_: -Participle]

3.4.6   Genitive structure

The genitive structure describes the relation between two elements: the _possessor_

and the _possessum_ (Rosenbach 2003: 380). The way these two elements are organized

in a sentence differs between languages and sometimes within the same language, as

will be explained below.

3.4.6.1   _English_

There are two types of genitive structure in English: the _s_-genitive (54.a) and the _of_-

genitive[96] (54.b), and the choice between the use of either structure depends primarily

on the type of the possessor noun. The _s_-genitive occurs with animate nouns that are

not a regular plural,[97] including proper nouns (e.g. _Jack_) and personal nouns (e.g.

girl, _father_). The _s_-genitive does not occur with inanimate nouns (e.g. *_the table's leg_)

except for cases including geographical nouns (e.g. _London's buses_, _the country's_

resources) and temporal nouns (e.g. _today's weather_) (Rosenbach 2003: 386). The _of_-

genitive can occur both with animate and inanimate nouns ((54.b) and (54.c)). The

choice between the use of the _s_-genitive and _of_-genitive also depends on factors like

topicality and possessive relation in addition to animacy (Rosenbach 2003: 379).

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[96] The _s_-genitive is also known as the Saxon Genitive and the _of_-genitive as the independent genitive
(Adger 2003: 211, 218).
[97] Regular plural nouns that occur in an _s_-genitive construction carry the [Genitive] case but are, for
phonological reasons, not morphologically marked for this feature, e.g. _the parents' letter_ not _the_
*_parents's letter_.

Depending on the interaction between these factors, there are contexts that prefer the use of the *s*-genitive and other contexts that prefer the use of the *of*-genitive. Sometimes the two types of genitive can be used interchangeably.

(54). a.   the ***girl's*** father.
          [N; *Case*: Genitive]

b.   the father of the ***girl***
     [N; *Case*: Accusative]

c.   the pages of the ***book***.
     [N; *Case*: Accusative]

d.   *the ***book's*** pages.

The two elements of the genitive construction, i.e. the *possessor* and the *possessum*, are linked by the relational markers -*s* and *of*. The grammatical function of the possessor depends on which relational marker is used. In the *s*-genitive structure, the possessor functions as a determiner, whereas in the *of*-genitive structure it functions as a complement (Huddleston 1984).

The genitive case in English is morphologically marked on nouns in the *s*-genitive and on pronominals (i.e. possessive pronouns) (Adger 2003: 44). In this type of genitive construction, i.e. the *s*-genitive, the possessor carries the case feature with the value [*Case*: Genitive], and this feature is represented in the morphology by the suffix -*s* (see (54.a) above). In the *of*-genitive construction, the possessor has an [*Case*: Accusative] case feature because it is the complement of a PP (see (54.b) and (54.c) above).

In English, the [*Case*: Genitive] feature is strong and entails that the possessor nominal is morphologically marked for this feature (via the -*s* suffix). The strength of

the [*Case*: Genitive] feature in English also requires the possessor to precede the dependant NP, unlike the case in LSA (see section 3.4.6.3). With respect to pronominals, English pronouns are also marked for the [*Case*: Genitive] feature when they occur in an *s*-genitive construction, e.g. *my book* not **I/me book*.

3.4.6.2   MC

The particle *de* in MC intervenes between the modifier (possessor) and the noun (possessum). The noun phrase containing the *possessor* and *possessum* has the following structure:

(55).   *possessor* + **de** + *possessum* [98]

The following examples explain the use of the above structure to express possession.

(56).   a.   háizi   de   yīfu
               child   DE   clothing
               'children's clothing'

         b.   chē   de   sùdù
               car   DE   speed
               'the speed of a/the car'   (Ross and Ma 2014: 48)

The particle *de* is the genitive marker in MC. The same overt form, however, can have different functions when in the same structure as in (55) above. In *verb* + *de* + *noun* (57.a) and *adjective* + *de* + *noun* (57.b) the particle *de* is a noun-modifier particle.[99] Possession can be argued to be a type of noun modification in MC.[100] Compare the examples in (57) below with those in (56) above.

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[98] This is based on the structure used for noun modification in general in MC: *modifier* + *de* + *noun*.
[99] Huang et. al. (2009) describe *de* as a pre-nominal modification marker used to signify that the sequence of two nouns do not form a compound. Therefore, *de* in MC is useful to distinguish structures like *the student book* from *the student's book*.
[100] Noun modifiers in MC include nouns, pronouns, verbs, or verb phrases (Ross and Ma 2014).

(57). a.   wǒ   xǐhuan   de   chē

            I   like   DE   car

            'a car that I like'

     b.   hěn   guì   de   chē

            very   expensive   DE   car

            'a very expensive car'   (Ross and Ma 2014: 49)

The same structure in (55) above is implemented when the head noun is modified by a pronominal. Thus, the equivalent of an English possessive pronoun is the sequence *personal pronoun + de* in MC, as shown in example (58) below.[101]

(58). wǒ-de   chē

       I-DE   car

       'my car'   (Ross and Ma 2014: 49)

3.4.6.3   LSA

Similar to English, LSA employs two structures to express possession: one called *Idafa* or 'annexation', and another which contains a prepositional phrase (see (59) below for examples).

(59).   The two genitive constructions in LSA

"Ahmad's book"

LSA		
Annexation	ktaab Ahmad	'book Ahmad'
Preposition "for"	ktaab-u la-Ahmad	'book-his for-Ahmad'

However, unlike in the English *s*-genitive (e.g. *John's hat*), the possessor in the LSA possession structure *Idafa* is not marked by a designated affix (60.a). A genitive structure in LSA is described as an 'annexation' relationship between two nouns

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[101] Ross and Ma (2014) point out that the omission of *de* is possible when the relationship between the pronoun and the modified noun is a close personal one, as in *wǒ **de** bàba* becoming *wǒ bàba* 'my father'.

where the first is added or annexed to the second and thus is identified by it. The two nouns come next to each other without an affix attached to either of them and they form a syntactic phrase. In the genitive structure containing a preposition (60.b), the possessum is required to agree in person, number and gender with the possessor, e.g. the suffix *-u* in *ktaab-u* 'his book' in (60.b) below.

(60).   a.   ktaab   *Ahmad*
              book.DEF.SG.MAS   *Ahmad*
              Lit: book Ahmad
              'Ahmad's book'
              [N; *Case*: Genitive]

         b.   ktaab-u   la   *Ahmad*
              book.DEF.SG.MAS-3SG.MAS.GEN   for   *Ahmad*
              Lit: book-his for Ahmad
              'the book of Ahmad'
              [N; *Case*: Accusative]

The possessum *ktaab* 'book' in (60) above is considered to be definite in spite of the absence of any morphological marking for this feature on this noun,[102] and this is because in LSA the possessum is inherently definite in possessive constructions containing a definite possessor, and likewise, is inherently indefinite when the possessor is indefinite. Compare the definite/indefinite marking on both parts of the genitive structure in examples (61.a) and (61.b) below.

(61).   a.   ħabbət   qaməħ
              grain.**INDEF**.SG.FEM   wheat.**INDEF**.COL.MAS
              'a grain of wheat'

---

[102] Nouns in LSA are marked for definiteness by the prefix *l-*, and bare nouns are indefinite (see section 3.4.4.3 for an explanation of articles in LSA).

b. ħabbət   l-qaməħ

grain.**DEF**.SG.FEM   **DEF**-wheat.COL.MAS

'the grain of wheat'

As the examples in (60) and (61) show, the order of the possessor and possessum in the annexation structure in LSA is the opposite of the English order of nouns in the *s*-genitive construction. Adger (2003) contends that sentences of the type *ktaab Ahmad* 'Ahmad's book' are called the construct state in languages of the Semitic family. The fact that the possessor follows the possessum can be explained as a result of the Case feature [Genitive] being a weak feature in LSA, in contrast to the situation in English (see section 3.4.6.1 above). The weak [Genitive] feature on *ktaab* 'book' does not require the possessor to precede the possessum, nor does it require overt morphological marking on the possessor.

As for pronouns, there are no free forms of personal pronouns inflected for the [Genitive] case feature.[103] However, this feature is morphologically marked on nouns via a suffix that agrees in number and gender with the possessor noun. This suffix is equivalent to the English possessive pronoun.

(62). Ahmad   hada ktaab-**ak**

Ahmad   this   book.SG.MAS-**2SG.MAS.GEN**

Lit: Ahmad this your-book

'Ahmad. This is your book'

The annexation genitive structure in LSA corresponds to a wider range of expressions than the genitive structure in English. These expressions do not particularly signify possession. They are rather equivalent to noun compounds in English. Ryding (2005)

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[103] The equivalent of which would be the possessive pronouns in English : *I → my*.

cites eleven categories in MSA that use the annexation structure where English does not, for which Table 3.7 below provides corresponding examples from LSA.[104]

Table 3.7 Uses of the genitive construction Idafa or 'annexation' in LSA

Type of annexation	LSA	Gloss	English
Identity relationship	ḍaabeṭ ʃərṭa	officer police	"police officer"
Possessive relationship	maṭaar Bayruut	airport Beirut	"Beirut airport"
Agent relationship	wṣuul əl-malike	arrival the queen	"the arrival of the queen"
Object relationship	ħall əl-maʃaakel	solution the problems	"the solution of the problems"
Composoitional relationship	rawdət ʔatfaal	nursery children	"kindergarten"
Contents relationship	ṣnaadiiq dahab	boxes gold	"boxes of gold"
Purpose relationship	biṭaaqət tahniʔa	card greeting	"a greeting card"

3.5 The prosody of functional material in English, LSA and MC

This chapter has so far provided a morphosyntactic analysis of the functional material and their corresponding functional morphology to be tested in the L2 English production by L2 learners who speak L1s LSA or MC. The morphosyntactic characteristics of functional material are essential for determining what kind of predictions representational deficit hypotheses make for L2 production.

The investigation of the role of L1 prosody in the acquisition of L2 English is also one of the major themes of this thesis because the predictions by the Prosodic Transfer Hypothesis (PTH) are also going to be tested against those of the RDH. Therefore,

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[104] The examples are all adapted from Ryding (2005: 206-10).

the rest of this chapter offers an account of the prosodic representation of functional material in the L1s (LSA and MC) and the L2 (English). First, the nature of prosodic structure is examined from the point of view of phonology.

3.5.1   The nature of prosodic structure

Selkirk (1978) and later Selkirk (1984, 1995) argue that prosodic structure is hierarchically organized and is distinct from morphosyntactic structure. The inventory of the prosodic hierarchy constitutes the following levels:

Phonological Utterance	U
Intonational Phrase	IP
Phonological Phrase	PPh
Phonological Word	PWd

Languages provide evidence for the above prosodic levels through the existence of phonological rules that apply only within a specific domain (or prosodic level) in the language (Dresher 1996: 43). For instance, the phonological utterance U is the domain of *t*-flapping in North American English (Khan 1980). The example below illustrates the point:

(63). a.   Turn up the hea[ɾ]. I'm freezing.
       b.   Turn up the hea[t]. I'm Frances.   (Nespor and Vogel 2001)

t-flapping occurs in (63.a) because it represents a phonological utterance involving two semantically related adjacent sentences but not in (63.b) which involves two semantically independent utterances.

The intonational phrase (IP) is the domain of an intonation contour. Lengthening and pausing occur at the boundaries of an IP. Certain syntactic constructions, such as parenthetical expressions, non-restrictive relative clauses, and lists, each form an IP.

In an Utterance that contains one of these I-phrases, the surrounding material is also grouped into their own IPs, as shown in (64) below.

(64).   (ᵢLions) (ᵢas you know) (ᵢare dangerous)
        (ᵢMy brother) (ᵢwho loves animals) (ᵢjust bought a cat)
        (ᵢThey brought milk) (ᵢeggs) (ᵢbread) (ᵢand cheese)

How big phonological phrases (the third level in the hierarchy) are differs from one language to another, i.e. it is parametric. Even languages that are similar in terms of syntax might vary considerably with respect to where the boundaries of a phonological phrase are, such as the case of the two sister Bantu languages Chizigula and Chimwiini. Data of tone distribution in these two languages suggest that a phrasal break is obligatory between the subject and main verb in Chimwiini, but is not necessary in the same position in Chizigula (Kenstowicz and Kisseberth 1990: 183-93). In some languages (e.g. Biblical Hebrew) context decides the size of a PPh. In others (e.g. certain dialects of Chinese), syntactic branchingness has the major effect.

A phonological word (or a prosodic word PWd) can correspond to one grammatical word or more, as the following expressions show: *Mary*, *want*, *I'm*, *Mary's*, and *wanna* (from Dresher 1996). Clitics, which are grammatically independent words but still need to join to a host in order to be phonologically realized, pose the major difficulty in defining the boundaries of a PWd. The formation of a PWd in some languages is also sensitive to lexical category membership, syntactic structure and branching. In Mandarin Chinese, for instance, the same subject pronoun may cliticise to the following verb or may not, depending on certain branching constraints that apply in the language.

The prosodic level that concerns us most is the PWd since the goal of this chapter is to locate affixes and clitics in relation to their hosts in the prosodic hierarchy. The analysis of prosodic structure that will be carried out in this chapter helps decide when the combination of a stem and affix is equal to a single PWd and when it is equal to a PWd + clitic, and what type this clitic is.

3.5.2   Lexical words and function words

Words belonging to lexical categories (nouns, verbs and adjectives) and those belonging to functional categories (auxiliaries, determiners, conjunctions, etc.) have different phonological behaviours. In English, for instance, monosyllabic function words have weak and strong forms depending on their position in the sentence, whereas content words are always unreduced and stressed. Differences in terms of tone bearing and accent occur in other languages between words of the two categories. It is suggested that such differences potentially play a role in helping L2 learners establish the syntactic distinction between lexical and functional categories (Selkirk 1996). In other words, the assumption is that there is "a possible relation between the learning of the phonology of the functional-lexical distinction in a language and the acquisition of syntax in this domain" (1996: 187).

The phonological word does not necessarily coincide with the syntactic word, in the sense that a phonological word may contain a syntactic word plus any clitics and/or affixes that attach to it. In the prosodic hierarchy, the stem (lexical word), in a word that contains affixes and/or clitics, is located between the prosodic word and the foot.

3.5.3   The prosody of function words

A lexical word that has no affixes attached to it is prosodically represented by a PWd. In phrases consisting of both lexical and function words, the latter may be represented by a PWd that is independent of that of the PWd of the stem (65).

 (65). Independent PWd $[[fnc]_{PWd} [lex]_{PWd}]_{PPh}$

A function word can also be represented as a prosodic clitic which is a morphosyntactic word that cannot be an independent PWd (Selkirk 1996: 188). A function word represented as a prosodic clitic can be organized in one of three ways in relation to the PWd/stem:

(66).   a. Free clitic $[fnc [lex]_{PWd}]_{PPh}$

        b. Affixal clitic $[[fnc [lex]_{PWd}]_{PWd}]_{PPh}$

        c. Internal clitic $[[fnc.lex]_{PWd}]_{PPh}$

A free clitic (67a) attaches immediately to the PPh and is, therefore, a sister to the PWd. In (67b), when the function word is an affixal clitic it adjoins to the lower PWd/stem and both are dominated by a higher PWd. As an internal clitic (67c), the function word and the content word both are dominated by one and the same PWd. The structure in (67d) corresponds to that in (65) which is a function word as an independent PWd.

(67). Prosodification of function words in relation to the PWd (from Selkirk 1996: 196)
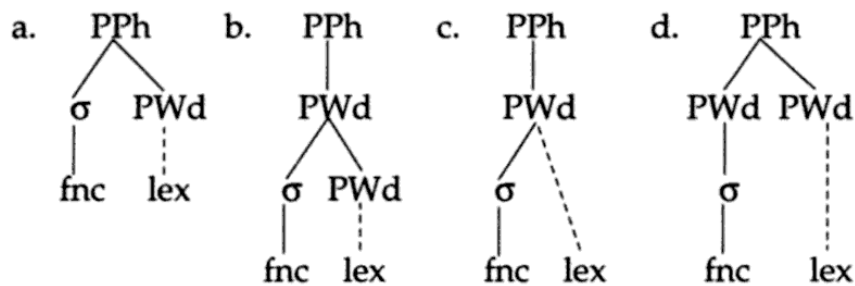
The expression 'function word' will be replaced by 'functional material' in the following discussion, because this category (function words) includes affixes that attach to lexical words and therefore 'words' would not be an appropriate description of them. The rest of this chapter attempts to establish how a subset of functional material is prosodified in relation to the PWd in the L1s (LSA and MC) and the L2 (English). This functional material includes the past tense, subject-verb agreement, number, articles, passive and perfective participles and genitive.

3.5.4   The prosodification of functional material in English

The following prosodic analysis of functional material is based on that of Goad et al. (2003) who argue that tense and agreement morphology in English adjoin to the PWd/stem, a type of clitic described as an 'affixal clitic' by Selkirk (1997) as shown in (67.b) above. The authors adopt Nespor and Vogel's (1986) and Selkirk's (1986) perspective on prosodic structure in which phonological constituents in English are prosodically organized into a hierarchy, as in Figure 3.5 below.

Figure 3.5 Prosodic hierarchy (partial) in English (from Selkirk 1986)

Phonological Phrase (PPh)
|
Prosodic Word (PWd)
|
Foot (Ft)
|
Syllable (σ)
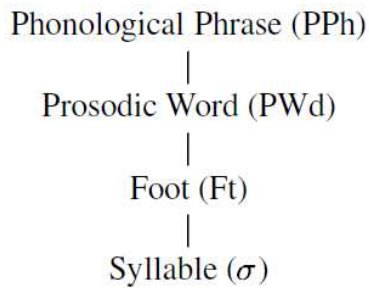
This prosodic organization is based on the Strict Layer Hypothesis which Selkirk (1997) suggested be analysed into four constraints,[105] two of which are relevant to this study; the first one, EXHAUSTIVITY (EXHAUST), ensures that a constituent can immediately dominate a constituent that is no more than one level below in the hierarchy (e.g. *PWd-Ft* but no **PWd-σ*); the second one, NONRECURSIVITY (NONREC), prevents a constituent from dominating a similar type constituent (e.g. **PWd-PWd*).

3.5.4.1   *The prosodification of tense, agreement, number and genitive markers in English.*

In the prosodic representation of the inflected form in (68) below a PWd immediately dominates a syllable (thus violating EXHAUST) and a PWd dominates a similar constituent – another PWd – (thus violating NONREC), thus yielding the adjunction-to-PWd structure. Goad et al. (2003) adopt Selkirk's analysis that the constraints EXHAUST and NONREC can be simultaneously violated in English inflected forms,[106] and that, therefore, English tense and agreement inflectional morphology

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[105] Selkirk adopts an Optimality Theory (OT) analysis. Within an OT frame, the ranking of conflicting constraints decides which linguistic outputs are well-formed and therefore get to be produced. Constraints could be violated in some cases (see Prince and Smolensky 2004).

[106] Different languages allow different types of constraint violation. The constraints EXHAUST and NONREC can only be independently violated in Mandarin, in three-syllable constructions and compounding, respectively (see section 3.5.5 for explanation).

are adjoined to the PWd as an affixal clitic (Selkirk 1996) and are both organized

under a higher PWd node. Under this analysis, inflectional morphology is different

from class 1 suffixes[107] which attach to the stem as a clitic internal to the PWd, and

thus their derived form would have a prosodic structure similar to that of

monomorphemes.

(68). The prosodic structure of English tense and agreement morphological markers
(from Goad et al. 2003: 248)

```
           PWd
          ／  ＼
       PWd     ＼
        |        ＼
       Ft         ＼
        |          ＼
        σ           σ
       ╱|＼          |
      j  ɛ  l      d/z     'yelled'/'yells'
```
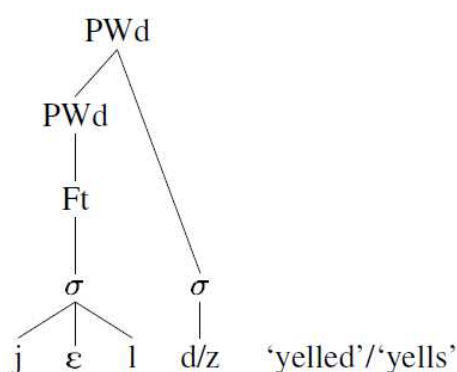
Assuming that the BINARITY constraint (Kaye et al. 1990), by which prosodic

constituents are maximally binary, applies to English internal-rhymes, Goad et al.

(2003) explain that two-position rhymes like *fran.tic* and *fric.tion* are licit, whereas

three-position rhymes like **frank.tion* and **freak.tion* are not. However, prosodic

words with final ternary rhymes, like *frank* and *freak*, are attested in English. Such

a contradiction in the segmental shape of the rhyme suggests that two- and three-

position rhymes have different prosodic representations, or otherwise ternary rhymes

would also be allowed word-internally. It is proposed that the final consonant in a

PWd-final ternary-rhyme is syllabified as the onset of an empty-headed syllable

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[107] In English, class 1 suffixes are derivational morphemes that affect the semantics and/or part of speech and very often the stress pattern of a stem (e.g. Adj *wide* + suffix [th]→ N *width*), as opposed to inflectional suffixes which only affect the grammatical classification of a stem (e.g. tense on verbs and number on nouns). Class 2 derivational suffixes are stress-neutral and are prosodically organized similarly to inflection in English.

(OEHS), (e.g. *frank* → [fræŋ.kØ], and *freak* → [frij.kØ]) in order to abide by the above-mentioned BINARITY constraint. The fact that rhyme shortening in stems is triggered by affixation of class 1 morphemes but not of inflectional morphemes is used to account for the difference in the prosodic shapes of inflected forms and derived forms.

English derived forms, similarly to monomorphemes (e.g. *crisp* [krɪs.pØ]), respect BINARITY in that no more than a two-position rhyme is permitted word-internally and therefore rhyme shortening occurs to maintain the above constraint, provided that the last consonant is prosodified as the OEHS, e.g. *wide* [waɪ.dØ]ₚWd becomes *width* [wɪt.ΘØ]ₚWd not *[waɪt.ΘØ]ₚWd.[108] Observation of how inflectional suffixes work reveals that rhyme-shortening does not occur and that BINARITY appears to be violated. In contrast to *wide* and *width*, we have *arrive* [əraɪ.vØ]ₚWd becoming *arrived/s* [əraɪv-d/z]ₚWd instead of the unattested *[ərɪv-d/z]ₚWd; *wife* [waɪ.f]ₚWd becoming *wives* [waɪv-z]ₚWd instead of *[wɪv-z]ₚWd; and *Mike* [maɪ.k]ₚWd becoming *Mike's* [maɪk-s]ₚWd instead of *[mɪk.s]ₚWd. If the past tense, 3SG agreement, number and genitive inflectional markers were PWd-internal then stem shortening would have certainly applied. This indicates that the prosodic organization of the inflection in relation to the stem it attaches to is different from that of class 1 suffixes.

It is suggested that the inflectional suffix is not dominated by the PWd of the stem it attaches to, but it actually attaches to a higher PWd in the hierarchy that also dominates the PWd/ₛₜₑₘ (see (68) above). This means that a PWd boundary occurs between the base and the suffix, as in *arrived* [[əraj.vØ]ₚWd dØ]ₚWd. A similar

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[108] However, words with internal ternary rhymes like *plank.ton* and *sanc.tion* are attested in English. This is related to the coda being made of the sequence ŋk (plaŋk.ton)

structure without the presence of a PWd edge, i.e. the illicit *[əraɪ.vØ.dØ], respects BINARITY without having to shorten the stem-internal rhyme, but is nevertheless rejected as a possible prosodification on the basis that it violates a constraint that follows from the Empty Category Principle (Kaye et al. 1990: 219), whereby adjacent empty nuclei are prohibited within the lower PWd/stem.

(69). The prosodification of class 1 suffixes vs. inflectional suffixes in English

wide+th	[waɪ.dØ]PWd → *width*	[wɪ.dθØ]PWd	not	*[waɪ.dØ.θØ]PWd
arrive+d/s	[ə.raɪ.vØ]PWd → *arrived/s*	[[ə.raɪ.vØ]PWdd/sØ]PWd	not	*[ə.rɪv.d/zØ]PWd
wife+s	[waɪ.fØ]PWd → *wives*	[[waɪ.vØ]PWd zØ]PWd	not	*[wɪv.zØ]PWd
Mike+'s	[maɪ.kØ]PWd → *Mike's*	[[maɪ.kØ]PWd sØ]PWd	not	*[mɪk.sØ]PWd

So far the structure where the two empty nuclei are dominated by two different PWds, as in [[əraɪ.vØ]PWd d/zØ]PWd, seems to be more tenable than a PWd-internal analysis of English inflectional morphology. However, a free clitic prosodification of English inflectional morphology is also a possibility that needs to be examined. As a free clitic, the inflectional morpheme links directly to the PPh, which means that 'arrived' would be prosodified as [[əraɪ.vØ]PWd d/zØ]PPh. Challenging the latter prosodic structure, Goad et al. (2003) report Hayes' (1989) comparison between different phonological consequences of varying prosodifications of clitics. As a case in point, the authors compare the aspiration of the stem-final [t] in *visit-ed* and in *visit it*. The [t] is lightly aspirated in *visit-ed* but not in *visit it*, which implies the two utterances have different prosodic structures, and that, therefore, the past-tense inflection is not prosodified as a free clitic, which is the structure used to represent *it* in *visit it*. Having eliminated a PWd-internal and a free clitic prosodification of tense and

agreement morphology in English, the remaining option is that of adjunction to the PWd, under which analysis EXHAUST (PWd-σ) and NONREC are simultaneously violated.

The above prosodic analysis of past tense morphology (-ed) and agreement morphology (-s) in English is assumed to be extendable to other inflectional material in English that have the same morphological shape of the last two morphemes such as number marking (-s), passive participles (-ed), perfective participles (-ed), and genitive marking (-s).

(70). The prosodification of English inflectional morphology
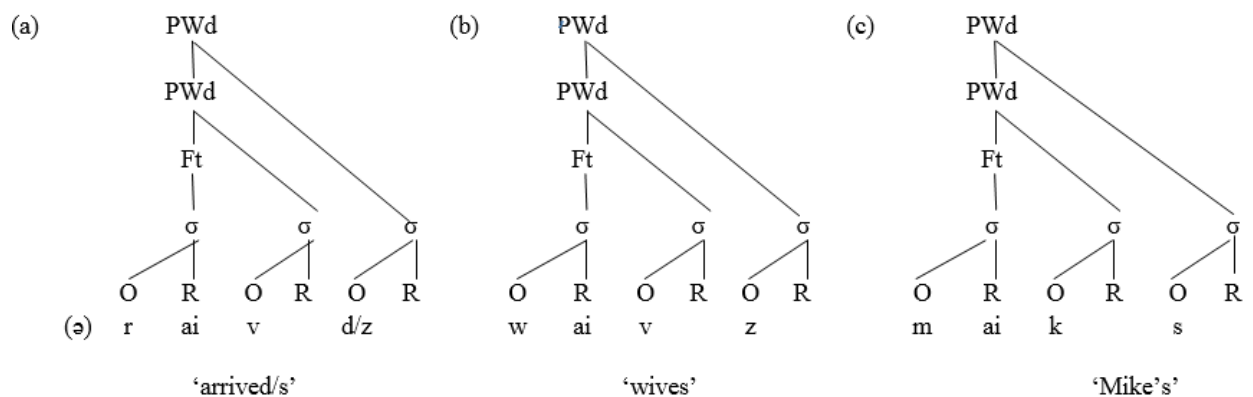
The above analysis applies to regular verbs in English, where prosodic structure seems to mirror underlying syntax in that functional and lexical material are represented differently in both components of the grammar. On the other hand, irregular inflection on verbs and nouns in English requires a different prosodic analysis from that of regular inflection. A subset of irregular verbs, such as pseudo-inflected forms, appear to comply with class 1 suffixes in that rhyme shortening is triggered by suffixing the past-tense morpheme, as in *keep* [ki.pØ]ₚwd → *kept* [kep.tØ]ₚwd. Ablaut forms, on the other hand, undergo vowel change in order to respect BINARITY, e.g. *ride* [raj.dØ]ₚwd → *rode* [rəu.dØ]ₚwd. The fact that rhyme-

shortening is triggered in irregular past-tense verbs implies that they are prosodified in a similar fashion to English uninflected monomorphemic words (e.g. *adept* [ə<u>dep</u>.tØ]PWd), and rather differently from regular verbs (see(71) below), which means that prosody in the case of irregular verbs does not reflect the syntax.

(71). The prosodification of regular vs. irregular past tense marking on verbs

'arrived'   'wept'
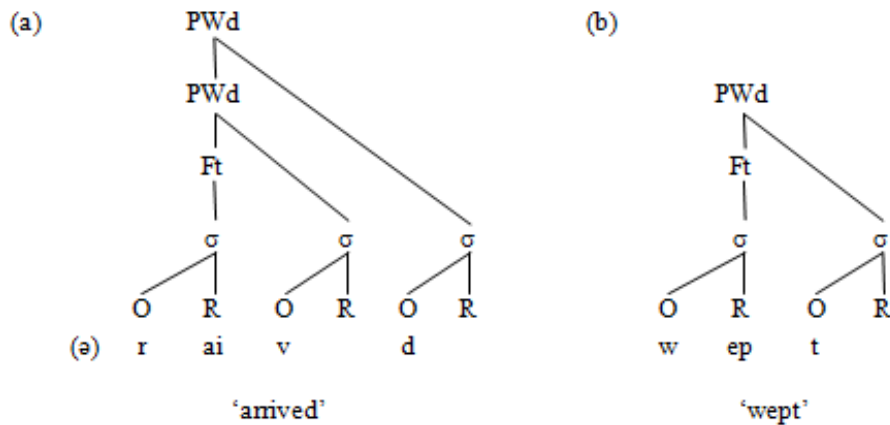
Similarly, (72) below provides an explanation of the prosodic structures of regular vs. irregular 3SG agreement inflection on verbs.

(72). The prosodification of regular vs. irregular 3SG agreement marking on verbs

'arrives'   'has'
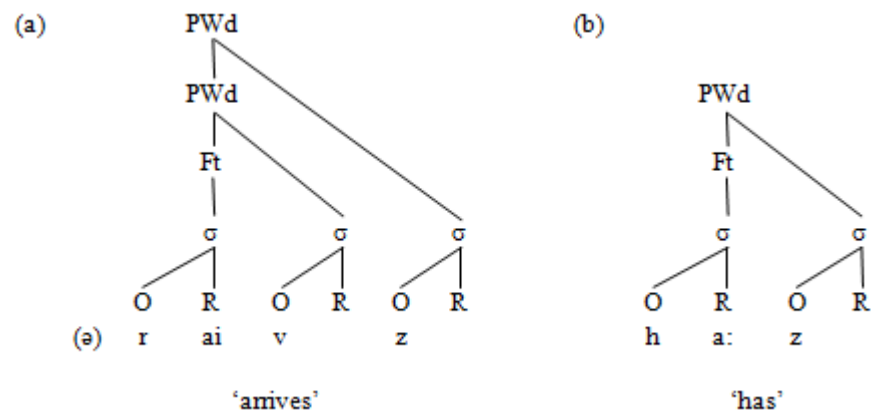
Nouns that have an irregular plural form also undergo rhyme shortening as in *child* [tʃ<u>ai</u>.ld]PWd becoming *children* [tʃ<u>il</u>.dren]PWd, or vowel change as in *mouse* [maus]PWd becoming *mice* [mais]PWd .

(73). The prosodification of regular vs. irregular number marking on nouns
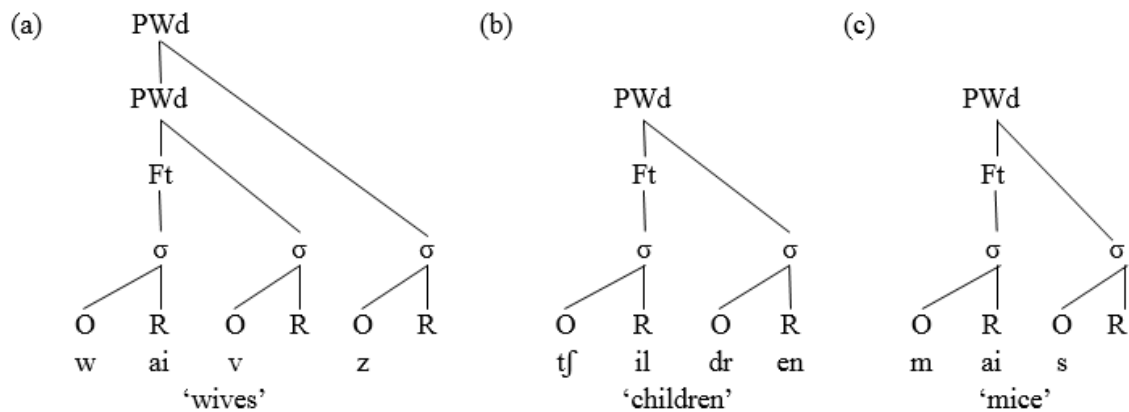
3.5.4.2   *The prosodification of articles in English*

With respect to prosodic structure, English articles differ from the inflectional morphology discussed in the previous section. The assumption is that English articles are prosodified outside the PWd of the noun they modify, and that they link directly to the PPh as free clitics. According to Goad and White (2004), internal and affixal clitic structures are eliminated as possible prosodifications as follows. English articles cannot be PWd-internal as they do not fall within the scope of stress assignment, which is the PWd in this language. A contrast of a four-syllable word such as *Màssachúsetts*, where the first syllable receives secondary stress, and a three-syllable word like *potáto* preceded by *the* supports this claim. *potáto* resembles the syllabic structure of *Màssachúsetts* as the penultimate syllable in both words bears main stress. However, the addition of the definite article *the* on the left edge of *potáto*, thus yielding a four-syllable sequence, still does not qualify *the* to receive secondary stress (*the potáto,* but not **thè potáto*), which means that *the* cannot be PWd-internal. Unlike articles in other languages, such as Turkish *bir*, English articles do not prefix to a following head noun, and hence are separated from it in adjective contexts (compare the examples in (74) below).

(74). Article, Adjective and Noun order in English vs. Turkish.

English	vs.	Turkish
a good man		iyi bir adám
*good a man		good a man
		'a good man'

Such a comparison indicates that articles in English cannot be affixal clitics. And thus the only prosodic structure remaining is that of a free clitic.

(75). The prosodification of articles in English with and without adjectives
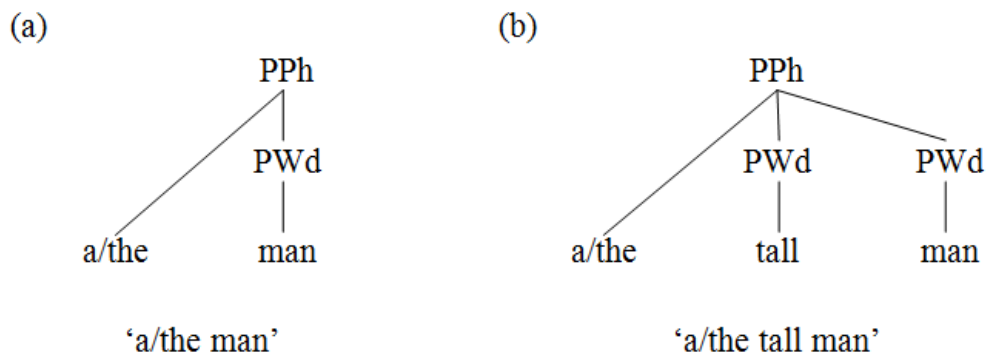
3.5.5 The prosodification of the aspectual marker *le* in MC

As mentioned earlier, the only overt verbal inflection in MC is that of aspect. There is no morphological representation of tense or agreement on verbs, neither are there participle forms of verbs. In MC, the closest inflection-like forms to English tense and agreement inflections are the aspectual markers *guo*, *zhe* and *le*.[109] While English adjoins tense and agreement inflections to the prosodic word as affixal clitics (see section 3.5.4.1 above), the MC perfective marker *le* is argued to be incorporated into the PWd of the base to which it attaches, similar to English class-1-suffixed forms, like *width*, (as in *mai-le* [mai3.lə5][110] shown in(76) below). Such a difference in

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[109] See section 3.4.1.2 for an illustration of aspectual marking in MC.
[110] MC is a tone language and the numbers refer to tones 1-4, whereas 5 refers to neutral-toned syllables.

prosodic structures is assumed by Goad & White to be causing difficulty for MC L1-speakers when learning English. They fail to represent English inflection in a prosodically target-like fashion (Goad et al. 2003).

(76). The prosodification of the aspectual marker le in MC (from Goad et al. 2003: 248)
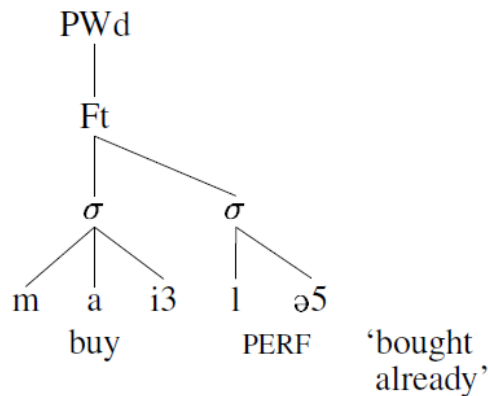
The motivation for the aspectual morpheme in MC being organized under the PWd/$_{stem}$ as an internal clitic is mainly based on a comparison of syllabic and morphemic structures among three constructions: aspect-inflected forms, derived forms and phonologically-structured compounds. Before making the comparison, an account is given of how MC builds words (Yip 1994, 1995; Shih 1997; Xu 2001; Duanmu 2000). Morphemes in MC are almost always monosyllabic; consonant clusters are prohibited in all word positions. Feet are left-headed and in a typical word the foot-initial syllable is bimoraic, stressed and tone-bearing, whereas any following syllables - not more than two are allowed - must be monomoraic, unstressed and tone-neutral. Figure 3.6 below illustrates what a MC word looks like in terms of syllabic structure and phonological characteristics bearing on that.

Figure 3.6 The syllabic structure of words in MC
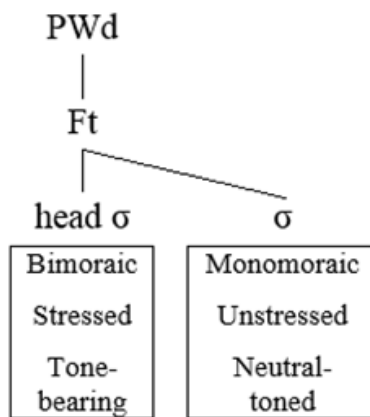
It is observed in MC that the above word structure applies to the three aforementioned word constructions which are repeated in (77) below together with examples explaining their structure.

(77). *The syllabic structure of inflected forms, derived forms and phonologically-structured compounds in MC (from Goad, White and Steele 2003: 251)*

a. Inflection:
   [mai3-lə5]$_{PWd}$
   buy-PERF
   'bought already'

b. Derivation:
   [muu4-t^{h}o5]$_{PWd}$
   wood-NOMINAL
   'wood'

c. Phonologically-restructured compounds:
   [[tʂ^{hw}ən1]$_{PWd}$ [t^{hj}an1]$_{PWd}$]$_{PWd}$ → [tʂ^{hw}ən1-t^{hj}ə̃5]$_{PWd}$
       spring   –   day
   'spring'

Such a similarity in syllabic structure of these three forms suggests that inflected and uninflected forms are prosodified in a similar manner in MC. Adjunction to the PWd/$_{stem}$ is not a possible prosodification of *le* because, although MC allows violation of the constraints EXHAUST and NONREC, it does not allow it simultaneously in

the same PWd. Hence aspectual inflection in MC is organized internal to the PWd/_{stem}, unlike English inflection which is adjoined to the PWd/_{stem}.

The above prosodic analysis of aspectual marking in MC is assumed to be extendable on other functional morphology in MC. As for nouns in MC, there is no overt number marking on nouns, but a suffix *–men* is restrictively used as a collective marker (see section 3.4.3.2). In genitive structures, the particle *de* follows the possessor. *–men* and *de* are not tone-bearing and therefore, they cannot be independent PWds. They are assumed to be similar to the aspectual marker *–le* in their relation to the stem. Hence the collective and genitive markers in MC are argued to have a PWd-internal analysis. The passive voice can be indicated in some structures in MC by the particle *gěi* which precedes the verb form. *gěi* is tone-bearing and is, thus, argued to be prosodified as an independent PWd.

Despite the fact that the adjunction-to-PWd structure is not observed as a way of representing functional material in MC, it is claimed that native speakers of this language are still able to build this structure when learning a second language that prosodify its functional material as affixal clitics, as in the case of L2 English. Goad & White (2006) argue that the two components of the target prosodic adjunction structure are both available in the prosody of MC. The PWd-PWd prosodic relation is required in MC for representing lexical compounds, as the prosodification of [he2-ma3] 'hippopotamus' in (78) below shows (from Li and Thompson 1981).

(78). The prosodification of lexical compounds in MC

```
        PWd
       /    \
   PWd      PWd
    |         |
   he2       ma3
   river     horse
```
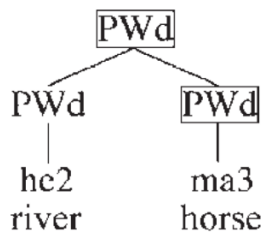
The second prosodic relation in the adjunction-to-PWd structure is that of the PWd immediately dominating a syllable at the right edge (PWd-σ). This structure is also used in MC in the prosodification of a category of nouns that contain three syllables and only one foot, as in [man4-man5-de5] 'slowly', which is shown in (79) below.

(79). The prosodification of three-syllable PWds in MC

```
   PWd
    |
   Ft
    |    \
   σ   σ   σ
   |   |   |
 man4 man5 de5
 slow slow ADV
```
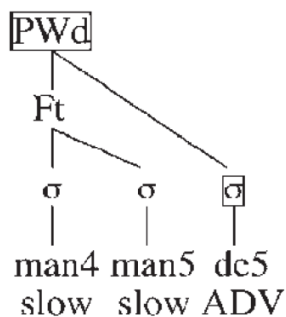
By combining the two components of the adjunction structure, i.e. the PWd-PWd and PWd-σ, MC speakers learning L2 English can attain the target structure (80) required for representing functional morphology in a target-like fashion.

(80). The adjunction structure as a result of combining PWd-PWd and PWd-σ in MC

```
   PWd
    |
   PWd   \
    |      \
   Ft       \
    |         \
   σ          σ
```
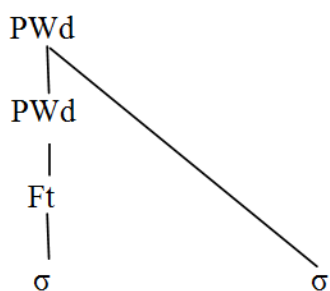
3.5.6   The prosodification of functional material in LSA

As proposed in section 3.2.2, words in LSA are composed of three discontinuous morphemes (the consonantal root, the vocalic melody and the templatic pattern) and possibly affixes that can attach to either or both edges of the template. The consonantal root and the vocalic melody are on different morphological tiers in the stem (see the morphological tiers in Figure 3.1). The consonants and vowels making an affix are on the same morphological tier. In order to yield a pronounceable linear string of segments, a two-step process called Tier Conflation is implemented (Watson 2005: 127).

Firstly, the Cs and Vs of the stem are conflated to produce the stem, and in the second step, the units representing affixes are conflated with the stem, and the phonological word is then formed. Although the stem and affixes are rather distinct representations on separate morphological tiers, they still have contact with each other on the same prosodic template (McCarthy 1981). In order to investigate the locus of functional material in the prosodic hierarchy in LSA, the syllable structure and stress assignment in this language will be examined first so that the latter can be used to determine whether a functional morpheme falls within the stress domain (the PWd) or outside it. A functional morpheme is assumed to be an internal clitic if its addition leads to modification of stress assignment in a word. If it does not, the possibility of the inflectional morpheme being an affixal or free clitic is explored.

3.5.6.1   Syllable structure in LSA

A syllable in LSA is minimally monomoraic and maximally bimoraic and it must have an onset. LSA syllables can be either a light CV, or a heavy CVC, CVV or CVG (G

refers to a geminate). Consonant clusters are not tolerated in coda position. The last consonant in a domain-final syllable, i.e. in CVC, CVVC or CVG, is extrametrical in a few languages including Arabic dialects (Watson 2005), and consequently, it is invisible to the weight-by-position condition, thus rendering this final syllable into a light syllable.[111]

The domain of syllabification in LSA is the phonological phrase, because syllable boundaries do not always coincide with PWd boundaries. This is based on the possibility of a syllable sharing melodic units from two adjacent PWds which is attested in LSA, as (81) below shows (the mutual syllable is in bold).

(81). a. [ramu]$_{PWd}$ [ṭṭaabe]$_{PWd}$→ [ra]$_\sigma$ [**muṭ**]$_\sigma$ [ṭaa]$_\sigma$ [be]$_\sigma$ "they threw the ball"

       b. [ʕaṭa]$_{PWd}$ [ktaabu]$_{PWd}$→ [ʕa]$_\sigma$ [**ṭak**]$_\sigma$ [taa]$_\sigma$ [bu]$_\sigma$ "he gave his book"

When words are divided into syllables, stem and affix boundaries get conflated and it is sometimes not possible to syllabify the stem independently from the affixes, as in *katb-et*→[kat]$_\sigma$ [bet]$_\sigma$ 'she wrote'.

Consonant clusters are not tolerated in coda position in LSA, therefore, schwa insertion occurs when a consonantal suffix is concatenated to a consonant-final stem, as in past-tense stem [xallaṣ-] 'finished' becoming [xəllaṣ-ət] 'I finished' rather than *[xəllaṣ-t] after the suffixation of the 1SG agreement morpheme -*t*. However, when a further suffix -*a* (accusative 3SG.FEM object pronoun) is added, the schwa is no longer required as the -*t* becomes the onset of the following syllable: /xəllaṣ-t-a/ 'I finished it'

---

[111] Only CVC is light when domain-final. CVVC and CVG remain heavy even when the final consonant is extrametrical.

3.5.6.2   Stress assignment in LSA

Since the PWd is the domain of stress in languages, looking at stress assignment patterns in LSA is very important for investigating the prosodic relations between stems and functional morphology and how the latter is prosodified in this language. Stress assignment in LSA is calculated from the end of the word, similar to other Eastern Arabic dialects (Ryding 2005) and it falls on a heavy syllable. It is noted that while CVC is heavy in domain-initial and -internal positions, it is light in a domain-final position, where it is considered to be prosodically light (because domain-final consonants in LSA are extrametrical as explained in section 3.5.6.1 above). A special case of CVC is that of CəC. A penultimate CəC is heavy, whereas it is light elsewhere in the phonological domain.[112] CV syllables are never heavy. Stress assignment in LSA is implemented according to the following set of rules given in (82) below.

(82).   Stress rules in LSA

    i.   Stress a heavy final syllable (except a CVC).

    ii.   If not, stress a heavy penultimate (including CəC).

    iii. If not, stress a heavy antepenultimate.

    iv.   If neither of the three final syllables in a word is heavy, stress falls on the penultimate syllable.

The examples below illustrate how stress assignment is implemented in LSA according to the above set of rules (the stressed syllable is always in bold):

<u>**Stress on the heavy final syllable**</u>: mak**tuub** 'written', xaṭ**iir** 'dangerous', məʕ**tazz** 'male name', maʃ**ruuʕ** 'project', maʃaa**riiʕ** 'projects', məʁ**tarr** 'arrogant', wa**ziir** 'minister'.

---

[112] A stressed CəC can be explained in a different way: a CəC is not heavy, yet it attracts stress when in penultimate position.

Stress on the penultimate syllable: ra-**sa**-ma 'he drew her', **ʒah**don 'their effort', ʒu**huu**don 'their efforts', **nəħ**na 'we', **mak**tab 'office', mak**tab**na 'our office', maktab**ət**na 'our library', **dras**na 'we studied', də**rras**na 'we taught', **ʕaaş**me 'capital', ʒaam**ʕa** 'university' and ʒaam**ʕət**na 'our university', **saa**maħ 'he forgave', ʕaaʔi**lət**na 'our family', ʕaa**ʔəl**ta 'her family', qa**ta**lu 'he killed him'.

Stress on the antepenultimate syllable: **mak**tabe 'library', mu**ħaa**dara 'lecture', **maʁ**sale 'lavatory', **ʕaa**ʔile 'family', saa**maħ**ta 'I forgave her'.

The pairs of LSA words in Table 3.8 are provided in order to explain the rationale behind the suggested stress system in LSA.

Table 3.8   Stress shift in word pairs in LSA

1	**mak**-tab	*'office'*	mak-**tab**-na	*'our office'*
2	**mak**-ta-be	*'library'*	mak-ta-**bət**-na	*'our library'*
3	maʃ-**ruuʕ**	*'project'*	ma-ʃaa-**riiʕ**	*'projects'*
4	**dras**-na	*'we studied'*	dər-**ras**-na	*'we taught'*
5	dər-**ras**-na	*'we taught'*	dər-ras-**naa**-ha	*'we taught her'*
6	**ʒaam**-ʕa	*'university'*	ʒaam-**ʕət**-na	*'our university'*
7	**saa**-maħ	*'he forgave'*	saa-**maħ**-ta	*'I forgave her'*
8	**ħaa**-dar	*'he gave a lecture'*	mu-**ħaa**-da-ra	*'a lecture'*
9	**maʁ**-sa-le	*'lavatory'*	ma-**ʁəs**-le	*'lavatory'*
10	**ʕaa**-ʔi-le	*'family'*	ʕaa-ʔi-**lət**-na	*'our family'*
11	**ʕaa**-ʔi-le	*'family'*	ʕaa-**ʔəl**-ta	*'her family'*
12	**ra**-sam	*'he drew'*	ra-**sa**-ma	*'he drew her'*

Comparing the two words in pair 3, the heavy final syllable receives stress in (maʃ-**ruuʕ**) 'project'. In the plural form, (ma-ʃaa-**riiʕ**) 'projects' the final heavy syllable still receives stress in spite of a heavy penult. The rest of word pairs provide examples of

stress falling on the heavy penultimate syllable, provided that the final is light. In pair 1, for instance, the heavy penultimate (mak-) is stressed in the un-suffixed form (**mak**-tab) 'office', and in (mak-**tab**-na) 'our office' the stress shifts from (mak-) (a heavy antepenultimate now) to the heavy penultimate (-tab-). Pair 5 also provides more evidence for this stress rule. Stress falls on the heavy penultimate (-ras-) in (dər-**ras**-na) 'we taught', and even after the suffixation of (-ha) in (dər-ras-**naa**-ha) 'we taught her' it is still the heavy penultimate (-naa-) that receives stress. Similar stress patterns are found in pairs 6, 7, 10 and 11.

Stress on a heavy antepenultimate is shown in word pairs 2, 8, 10 and 11. Stress falls on the heavy antepenultimate if neither the final nor penultimate syllables are heavy in a word, as in (**mak**-ta-be) 'library' and (**ʕaa**-ʔi-le) 'family'.

However, if a word is void of heavy syllables, stress falls invariably on the penultimate syllable, as in (ra-**sa**-ma) 'he drew her' in pair 12. Pair 9 presents one LSA word that can be pronounced in two ways in this language,[113] with different syllabification for each pronunciation: (ma-**ʁəs**-le) and (**maʁ**-sa-le) 'lavatory/sink'. With either pronunciation, the above stress rules seem to be implemented. Stress falls on the heavy antepenultimate in (**maʁ**-sa-le) but on the heavy penultimate in (ma-**ʁəs**-le).

Next, the prosodification of functional material in LSA will be discussed and the stress assignment rules proposed earlier will be used to determine whether LSA organizes functional morphology internal to the PWd/$_{stem}$ or not.

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[113] (**maʁ**-sa-le), which is the additional pronunciation of the word is imported from the city dialect.

3.5.6.3   The prosodification of past tense marking in LSA

In languages like English the past tense morpheme *-ed* is concatenated to the right edge of a regular verb stem. In LSA, however, it is the vocalic melody via which past-tense marking is partly represented. Therefore, whereas in English the question arises as to what type of clitic the past tense marker is, in LSA the question is more of whether the past tense marker (i.e. the vocalic melody) is a clitic at all. A significant motivation for such an analysis is that the vocalic melody is undoubtedly involved in the process of stress assignment, the domain of which is the PWd (Nespor and Vogel 1986).

The assumption here is that morphosyntactic representation of past tense in LSA is not that of a morpheme attached to a verb stem (see section3.4.1.3). Words (including verbs) in LSA are primarily composed of three non-continuous morphemes, the consonantal root, the vocalic melody, and the templatic pattern into which the first two components are intercalated. In LSA verbs, while the consonantal root carries the semantic meaning of the verb, the other two morphemes contribute to its grammatical and inflectional denotation, as discussed in section 3.2.2. Since no morpheme concatenation is involved in past tense marking in LSA, it is not a matter of whether past tense is prosodified as an internal, affixal or free clitic, because past tense does not appear to be a clitic in the first place. The tiers in Figure 3.7 show how past tense is morphologically represented in LSA via a non-continuous morpheme, the vocalic melody. In the triliteral verb form I of the root √l-ʕ-b 'to play' the vocalic melody is [ə - e].

Figure 3.7 The morphological tiers in ləʔeb 'he played'

l   ʕ   b   {'play'}   *consonantal root*

C   V   C   V   C   *template*

                                     {active, past}   +

        ə   e   *vocalic melody*
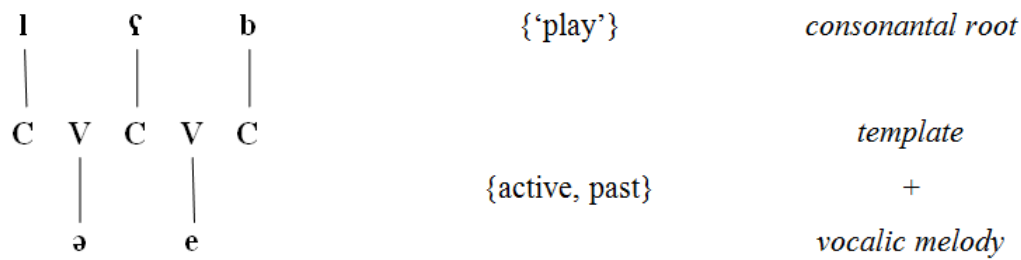
As proposed earlier in section 3.5.6.3, the past-tense marker in English is adjoined to

the PWd/stem in regular verbs, whereas in irregular verbs involving ablaut processes

(i.e. vowel change) past tense is not a clitic. Rather, the case is that an irregular past-

tense inflected verb is prosodified as one PWd, into which the past tense is

incorporated. Compare the prosodic structure of *played* and *kept* given in (83) below.

(83). Prosodic representation of past-tense inflection in English

(a)   PWd   (b)

        PWd   PWd

        Ft   Ft

        σ   σ   σ   σ

    O   R   O   R   O   R   O   R
    pl ei d   k   ep t

        Regular 'played'   Irregular 'kept'
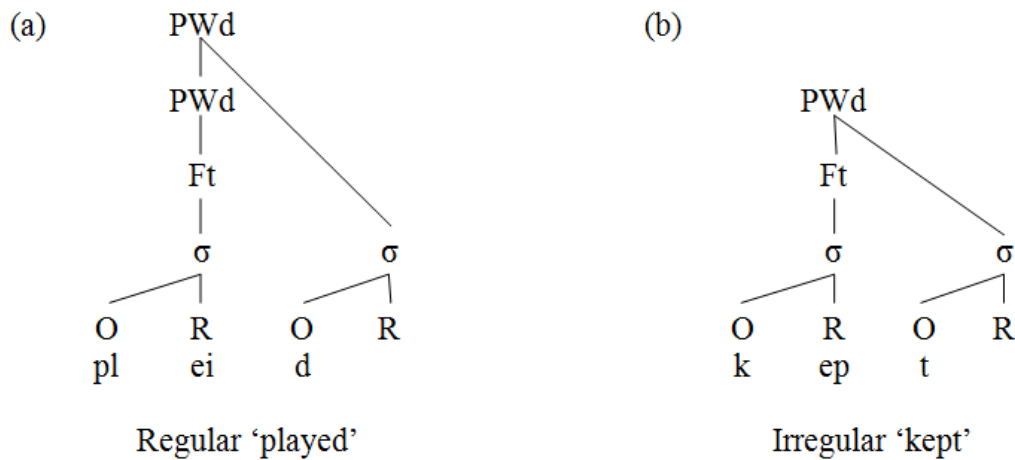
In line with this analysis, it is proposed that past-tense inflection in LSA, which is

indicated by a specific vocalic melody that is intercalated in a templatic pattern, is

similar to vowel change in English irregular verbs, and is, therefore, not prosodified

as a clitic. It is seen rather as part and parcel of the prosodic representation of the

verb stem. (84) below compares the prosodic representations of past-tense inflection

in the LSA past-tense verb *ləʕeb* 'he played' and the English irregular past-tense verb

kept.

(84).   *Past-tense prosodification in LSA verbs vs. irregular English verbs*

(a)

```
        PWd
         |
        Ft
       /  \
     σ      σ
    / |    / |
   O  R   O  R
   l  ə   ʕ  eb
```

LSA 'ləʕeb'

(b)

```
        PWd
       /   \
      Ft     \
      |        \
     σ          σ
    / |        / |
   O  R       O  R
   k  ep      t
```

Irregular 'kept'
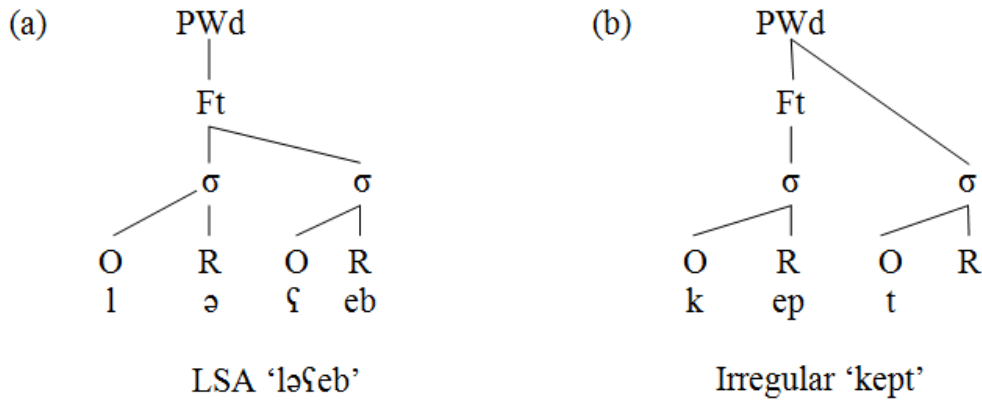
Based on the comparison above, it is claimed here that past-tense inflection in LSA

does not cliticize to the verb stem, but that it is incorporated within the PWd/$_{stem}$, and

that it contributes to the makeup of the prosodic structure of the past-tense stem.

3.5.6.4   The prosodification of subject-verb agreement in LSA

Taking into account that the PWd is the domain of stress in LSA, subject-verb

agreement morphology (PNG) in present tense verbs in LSA are proposed to be

internal clitics incorporated under the PWd of the verb stem. This proposal follows

from the fact that PNG agreement affixes affect stress assignment when added to the

verb stem.

In order to examine how the affixation of PNG agreement morphology influences

stress assignment in the verb stem, Table 3.9 provides an insight into the stress

pattern in the present-tense inflection for two triliteral present-tense stems: verb

form I [-ktub-] from √k-t-b to 'write' and verb form X [-staqbal-] from √q-b-l 'to

receive'. The stressed syllables are in bold.

Table 3.9 The stress pattern in two present-tense verbs in LSA[114]

	[-ktob-]	[-staqbal-]
he	**yək**tob	yə**staq**bal
she	**tək**tob	tə**staq**bal
they	yək**tə**bo	yəsta**qəb**l-o
I	**ʔək**tob	ʔə**staq**bal
we	**nək**tob	nə**staq**bal
you m.	**tək**tob	tə**staq**bal
you f.	tək**tə**be	təsta**qəb**le
you pl.	tək**tə**bo	təsta**qəb**l-o

Having in mind the stress assignment rules in LSA given earlier in (82), the variation in the stress position across verbs in the same inflectional paradigm supports the claim that PNG agreement morphology is internal to the PWd/$_{stem}$. For example, comparing (**yək**tob) 'he writes', in which the stress falls on the heavy penultimate syllable, with its suffixed form (yək**tə**b-o) 'they write', it is noted that the position of stress shifts in the suffixed verb and now it falls on the light penultimate due to the lack of a heavy syllable in the resulting word (rule (iv) in (82)).

The fact that affixation of PNG agreement markers do influence stress assignment in present-tense verbs means that these markers are prosodified within the scope of stress assignment, i.e. the PWd/$_{stem}$, and hence are organized as internal clitics in relation to the PWd/$_{stem}$ in LSA, as the structure in (85) shows.

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[114] The two verb inflectional paradigms in this table also exhibit vowel-zero alternation occurring with some affixed verbs, as in: yə-staq( )bal 'he receives' → tə-staqəb( )l-e 'you.FEM receive'.

(85). Prosodification of PNG agreement inflection in LSA present-tense verbs

"you f. receive"
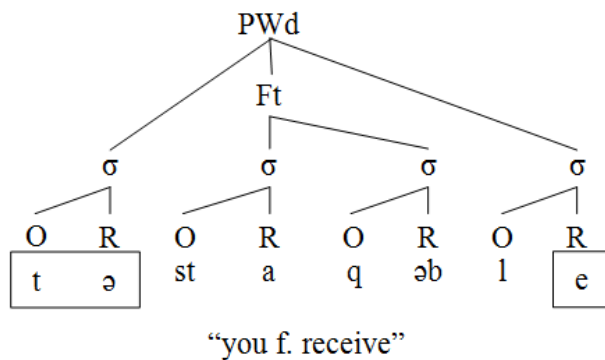
3.5.6.5   The prosodification of number marking in LSA

Stress assignment will be examined in nouns inflected for plural marking in LSA in order to determine what type of clitic this morphology is (see section 3.4.3.3 for a detailed description of the morphology of number marking in LSA).[115] If the regular masculine and feminine plural morphemes (*-aat* and *-iin*) appear to induce stress shift when suffixed to singular forms of nouns, it will be argued that these morphemes are prosodified as internal clitics in relation to the PWd/$_{stem}$. If plural morphology in LSA appears to be outside the scope of the PWd/$_{stem}$, the possibility of adjunction to the PWd (affixal clitic) or to the PPh (free clitic) will be explored.

In order to examine stress assignment in LSA masculine and feminine regular plural forms, Table 3.10 below provides a comparison between pairs of singular nouns and their plural counterparts with the stressed syllables shown in bold.

---

[115] Prosodification of duality marking in LSA will not be discussed because no equivalent for it is available in English.

Table 3.10   The stress pattern in LSA regular plurals

	Singular	*Plural*	*Gloss*
Feminine words	fa**raa**ʃe	faraaʃ-**aat**	"butterfly"
	warde	ward-**aat**	"rose"
	təf**faa**ha	təffaaħ-**aat**	"apple"
	ʒa**mii**le	ʒamiil-**aat**	"beautiful"
	ʃarike	ʃari**k-aat**	"company"
Masculine words	fan**naan**	fannaa**n-iin**	"artist"
	naazel	naaz**l-iin**	"heading down"
	ħəlu	ħəl**w-iin**	"handsome"
	mharreb	mharr**b-iin**	"smuggler"
	ʒuu**ʕaan**	ʒuuʕaa**n-iin**	"hungry"

Comparing pairs like (fa**raa**ʃe) 'butterfly' with its plural form (faraa**ʃ-aat**) 'butterflies', shows that in the singular form stress falls on the heavy penultimate; however, stress position shifts in the suffixed plural form and the feminine plural marker *-aat* receives stress now, since it is a heavy final syllable. The rest of the noun pairs in the table above exhibit similar behaviour. The implication, thus, is that the plural markers in LSA fall within the scope of stress, i.e. the PWd/stem. Therefore, the proposal that *-iin* and *-aat* are prosodified as internal clitics in relation to the PWd/stem in LSA is supported (see (86) below).

(86). Prosodification of plural markers (feminine and masculine) in LSA.

(a)

```
        PWd
       /
      Ft        Ft
      |        /
      σ       σ    σ
     /       /|   /|
    O   R   O R  O R
    w   ar  d aa  t
```

ward-aat 'roses'

(b)

```
           PWd
          /
         Ft          Ft
        /  \        /  \
       σ    σ      σ    σ
      /|   /|     /|   /|
     O R  O R    O R  O R
     f an n  aa  n ii n
```

fannan-iin 'artists'
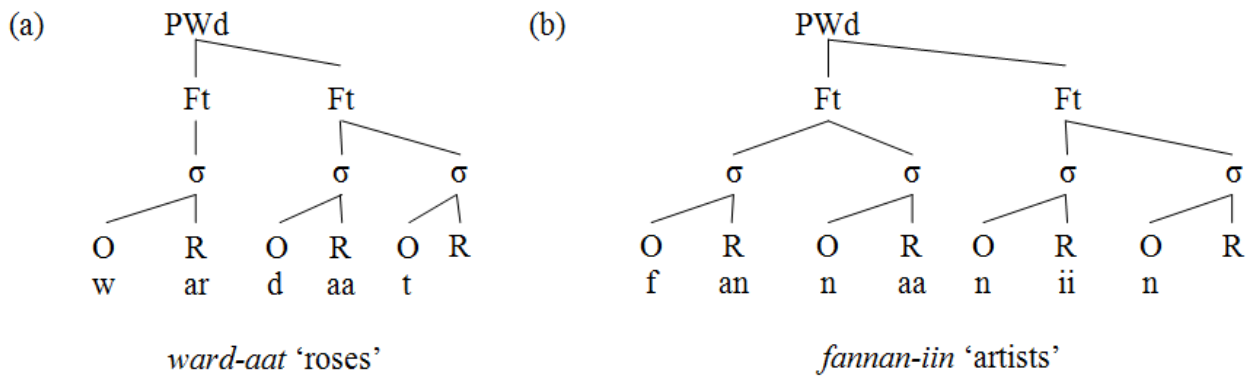
Irregular plural nouns in LSA (known as the broken plural) are assumed to have a prosodic structure similar to that of monomorphemes, since plurality in this type of words is not marked by an affix attached to the singular form but rather with a change in the vocalic melody and template shape (compare (87.b) below with (86)).

(87). The prosodification of the broken plural in LSA.

(a)

```
        PWd
        |
        Ft
       /  \
      σ    σ
     /|   /|
    O R  O R
    kt aa b
```

ktaab 'book'

(b)

```
        PWd
        |
        Ft
       /  \
      σ    σ
     /|   /|
    O R  O R
    k ə  t ob
```

kətob 'books'
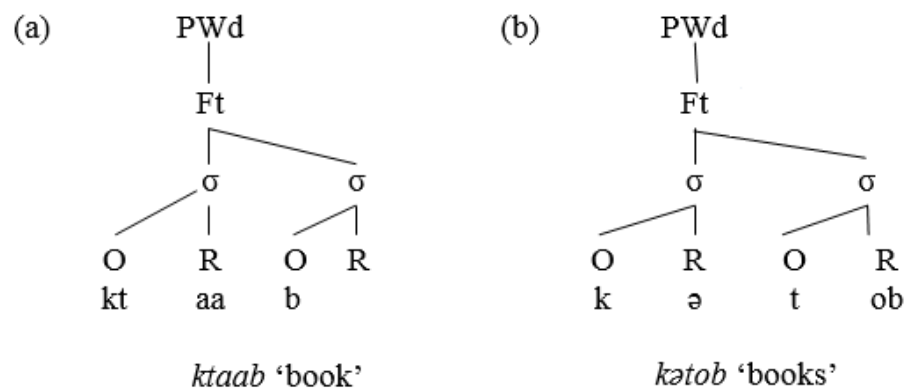
3.5.6.6   The prosodification of the definite article in LSA

The definite article /l-/ affixes to the left edge of the word (noun or adjective) in LSA.[116] The LSA definite article has three allomorphs, *l-*, *lə-* and an assimilated form when

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[116] There is no overt indefinite article in LSA.

prefixed to coronal-initial words. The first allomorph *l-* attaches to non-cluster-initial words and it forms a cluster with the word-initial consonant, as in:

[l-]+[**k**aamel] → [l-kaamel] 'the perfect'

The second allomorph *lə-* results from schwa insertion when the prefixed word already begins with a cluster, as in:

[l-]+[**kt**aab] → [lə-ktaab] 'the book'

The third form of the definite article is produced when the definite article *l-* assimilates to the word initial coronal, thus resulting in a geminate onset, as in:

[l-]+[**s**ama] → [s-sama] 'the sky'

As proposed in section 3.5.4.2, English articles are prosodified as free clitics. The LSA definite article, on the other hand, cannot be a free clitic adjoined to the PPh because it (a) cannot be separated from the word it modifies (see Hellmuth 2007 for a counter argument); (b) it cannot stand alone in an utterance; and (c) as a subminimal syllable, it can by no means receive stress.

A PWd-internal analysis is also untenable for two reasons. First, despite the fact that the LSA definite article *l-* forms a syntactic unit with the word it modifies, in certain phonological contexts it can be linked to the preceding PWd. To be more precise, vowel-zero alternations can occur in the phonological domain including the *l-* and the straddling PWds, provided that the PWd to the right of *l-* is not cluster-initial. In the utterance below (ftaħət + l-baab) 'I opened the door', vowel-zero alternation occurs

after the prefixation of the definite article *l-* to the noun (baab) 'door', thus becoming

(ftaħtə l-baab).[117]

[ftaħ-ət]$_{PWd}$ + *l-* + [baab]$_{PWd}$ → [ftahət]$_{PWd}$ [l-baab]$_{PWd}$ → [ftaħtə-l]$_{PWd}$ [baab]$_{PWd}$

      'I opened the door'

Therefore, it can be argued that in such contexts the l- forms a syntactic unit with the following word, but, at the same time, it forms a prosodic unit with the preceding word, as shown in (88) below, which is a behaviour incompatible with that of an internal clitic.

(88). *The prosodic structure of the LSA definite article when it cliticises to the preceding PWd*

      PWd

ftaħət *l-baab*

syntactic word
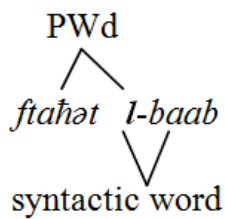
'I opened the-door'

The second reason a PWd-internal analysis cannot be supported is the fact that the definite article *l-* assimilates with coronals occurring in initial position in words following the *l-*. However, it seems that LSA allows the sequence (l + coronal) to occur PWd-internally, which is when both sounds are constituents of the word root, i.e. they are part of the same morpheme. This is proposed based on the comparison of the phonological realization of the (l + coronal) sounds when they are root radicals adjacent in the template vs. the context: article + coronal-initial word. As adjacent

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[117] If, in the same phonological environment, the word following the *l-* is cluster initial, vowel-zero alternation does not take place because the definite article in this case is realized as *lə-*. For example, (ftaħət lə-ktaab) 'I opened the book' is correct but *(ftaħtə lə-ktaab) is not.

root radicals, (l + coronal) do not result in assimilation; therefore, words like *lsaʕ-t-u* 'I stung him' from √l-s-ʕ, *ltaʁa* 'it was cancelled' from √l-t-ʁ and *lzuum* 'necessity' from √l-z-m are attested in LSA. In contrast, contexts involving *l-* + coronal-initial words, **l-sama* 'the sky', **l-tamər* 'dates (generic)' and **l-zahra* 'the flower' are erroneous; instead, assimilation of *l-* with the following coronal sound takes place, and the above *l-*prefixed words are realized as *ssama*, *ttamər* and *zzahra*, respectively.

Although the sequence (l + coronal) occurs in both stems and prefixed words, assimilation only happens in the latter context. If the definite article l- and the following coronal were components of the same PWd, assimilation would not be expected to take place, as in the case when the same two sounds are adjacent in a stem template. Hence, the LSA definite article is proposed to be adjoined to the PWd/host as an affixal clitic (89), rather than as an internal clitic.

(89). *The prosodification of the definite article in LSA.*

lə-ktaab 'the book'
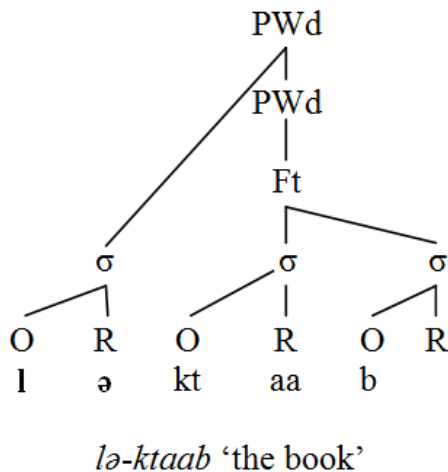
The fact that the adjunction-to-PWd is available in LSA on the left edge of the word is suggested by the PTH to be helpful for L2 learners of English who speak L1 LSA when attempting to represent English functional morphology that are prosodified as right-edge affixal clitics, since L2 learners in this case do not have to acquire a

completely new target structure, but they rather have to minimally modify their L1

prosodic structure so that it is similar to that of the L2. The LSA left-edge adjunction

structure can be licenced in a new position in the word, on the right edge (see (90)

below), and then used in the interlanguage to represent functional material like past

tense marking.

(90). The licencing of the left-edge affixal clitic on the right edge of the word in the English interlanguage of LSA speakers
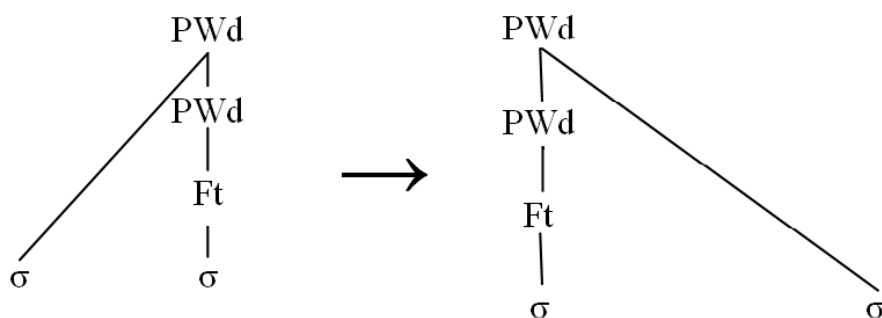
3.5.6.7   *The prosodification of the passive participle in LSA*

As explained earlier in section 3.4.5.2, passive participles in LSA are derived via

intercalating the root consonants and a verb form specific vocalic melody into an *m-*

initial template. Since the passive participle in LSA is not morphologically

represented by an affix that cliticises to a stem, it is proposed here that the passive

participle form corresponds to one PWd (see (91) below), just like monomorphemes,

and that no clitic of any sort is involved in its prosodic makeup.

(91). *Prosodification of the passive participle in LSA*

```
              PWd
               |
              Ft
               |
        σ           σ           σ
       /|          /|          /|
      O  R       O   R       O   R
      m  ak      t   uu      b
```
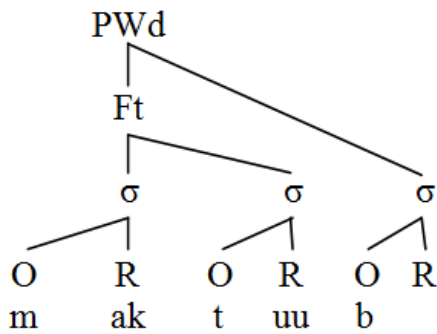
maktuub 'written'

3.5.6.8   The prosodification of the genitive marker in LSA

As discussed in section 3.4.6.3, the possessor in the LSA possession structure *Idafa* is not marked in the morphology, unlike the case in English. The two nouns in the genitive structure in LSA are annexed to each other without affixation taking place. Therefore, clitics are not involved in the prosodification of nouns in the genitive structure. In many languages, the two parts of a genitive structure are considered to have the prosodic structure of a compound, wherein each part is dominated by a PWd that is in turn dominated by a higher PWd. The genitive structure in LSA is claimed to be prosodified as a compound, as (92) below demonstrates.

(92). *Prosodification of genitive (annexation) structure in LSA*

```
                        PWd
                 /               \
            PWd                      PWd
             |                        |
        σ        σ               σ        σ
       /|       /|              /|       /|
      O  R     O  R            O  R     O  R
      kt aa    b               ʔ  aħ    m  ad
```
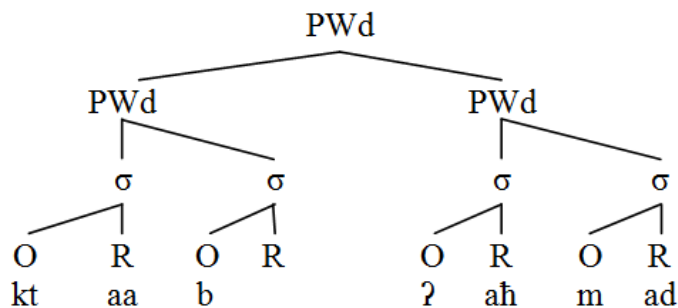
ktaab Ahmad 'Ahmad's book'

3.6   Summary of chapter

This chapter has covered two main issues that are crucial for examining the results obtained from the data collected for the study to be reported in the next chapter. First, an analysis was presented of the underlying syntactic structure including the featural makeup of functional morphology in the L2 English and L1s LSA and MC. After that a prosodic analysis of inflected forms was proposed in order to determine what type of clitic each of the functional morphemes is. Table 3.11 below provides a synopsis at the underlying functional features that make up the functional morphology of concern to this thesis together with information about the way the three languages represent this functional material in the syntax and prosody of the L1s and L2.

Table 3.11 Syntactic and prosodic representations of functional material in LSA, MC and English

	L1				L2	
	LSA		**MC**		**English**	
	Syntax	*Prosody*	*Syntax*	*Prosody*	*Syntax*	*Prosody*
Past Tense	√ [±Past]	√ Internal clitic	X	X	√ [±Past]	√ Affixal clitic
3sg Agreement	√ [*Agr*: Person, Number, Gender]	√ Internal clitic	X	X	√ [*Agr*: Person, Number]	√ Affixal clitic
Number Marking	√ [*Num*: Singular, Dual, Plural, Collective]	√ Internal clitic	√ [*Num*: Collective]	√ Internal clitic	√ [*Num*: Singular, Plural]	√ Affixal clitic
Articles	√ [±Definite]	√ Affixal clitic	√ [±Definite]	X	√ [±Definite]	√ Free clitic
Passive Participle	√ [+Participle] √ [±Passive]	√ Internal clitic	√ [±Passive]	√ PWd	√ [+Participle] √ [±Passive]	√ Affixal clitic
Perfective participle	√ [-Participle] √ [+Perfective]	√ Internal clitic	√ [*Asp*: Perfective, Experiential]	√ Internal clitic	√ [+Perfective] √ [+Participle]	√ Affixal clitic
Genitive -s	√[*Case*: Genitive, Accusative]	√ Compound (PWd-PWd)	√[*Case*: Genitive]	√ Internal clitic	√ [*Case*: Genitive, Accusative]	√ Affixal clitic

In both L1s, affixal clitics can be attained by combining existing L1 prosodic relations. Free clitics, however, are not available in the L1s and cannot be adapted from L1 structures.

The way functional material is represented in the L1s and L2 is important for testing predictions made by the RDH and the PTH about interlanguage production. It has been claimed in this chapter that all functional material under investigation is available in the grammars of L2 English and L1 LSA. In MC, on the other hand, not all functional morphology has underlying syntactic representation; past tense and subject-verb agreement are not grammaticalized in the grammar of this language. As for prosodic structure, it has been argued that functional morphology in L2 English is prosodified as affixal clitics apart from articles which are free clitics linking directly to the PPh. The L1s LSA and MC, in contrast to the L2, tend to organize their functional morphology as internal clitics, with the exception of the definite article in LSA which is prosodified as an affixal clitic on the left edge of the word. Such difference in prosodification of functional material between the L2 and L1 is claimed by proponents of the PTH to be the cause of the highly non-target like production of overt morphological realizations of functional features. The PTH, however, claims also that L2 prosodic structures that are not available in the L1 can still be attained by combining L1 structures or licencing them into new positions. This has been shown to be possible for both L1s in the case of right-edge affixal clitics. LSA speakers can licence an existing prosodic structure into a new position– the left-edge affixal clitic used to prosodify the definite article in this language can be licenced on the right-edge of the word and thus used to prosodify English functional material. MC speakers can combine in one structure two prosodic relations (PWd-PWd and PWd-σ) that are not allowed to occur simultaneously in one PWd in this language, thus yielding the right-edge affixal clitic required to represent English functional material.

In the next chapter (Chapter 4), a description is provided of the study conducted in order to collect the data required for testing the predictions of the hypotheses discussed in Chapter 2. This description includes information about the participants' profiles, how the data was collected, transcribed and analysed, and finally some descriptive statistics will be presented.

Based on comparisons made between the L2 English and each of the L1s LSA and MC with regard to the morphosyntactic and prosodic representations of functional material, a set of predictions will be suggested in Chapter 5 for each of the hypotheses discussed in Chapter 2 and results obtained from the study described in Chapter 4 will be used to test those predictions and to finally lend support to one or more of the hypotheses.

3.7   The research questions

Based on the claims and postulates of the hypotheses outlined in chapter 2, and on the discussion of morphosyntactic and prosodic representation of functional material in English, LSA and MC, a number of research questions will be posed to be addressed in the rest of this thesis. Recall that this thesis tests the oral performance of functional material in English second language by adult L2 learners of advanced proficiency. Those L2 learners belong to either of two L1 groups: a Latakian Syrian Arabic (LSA) group or a Mandarin Chinese (MC) group. Addressing the research questions will concentrate on the opposing predictions of hypotheses claiming representational deficits in L2 grammars (i.e. RDH and IH) and those claiming full access to UG grammars but problems in prosodic representation of L2 functional material (i.e. PTH). The claims and predictions of the FRH will also be examined in

a separate section in the discussion chapter. This thesis will endeavour to answer the following Research Questions.

Research Question 1: Will L2 learners in the two tested groups be more accurate on the production of L2 functional material that has syntactic representation in the L1 compared to material that is not grammaticalized in the L1?

Research Question 2: Will L2 learners be more accurate on the production of L2 functional material whose L2 prosodic representation is available in L1 prosody or can be attained using L1 existing prosodic structures/relations compared to material whose L2 prosodic organization is not attainable from L1 prosody?

Research Question 3: Will L2 learners be more accurate on the production of L2 functional material whose production involves fewer layers of mapping between the syntax and morphology?

Research Question 4: Will L2 learners be more accurate on the production of L2 functional material whose featural makeup is easier to assemble in the L2, and will accuracy in the L2 production be compatible with the Cline of Difficulty?

Research Question 5: Is the interlanguage grammar permanently defective or are target-like syntactic representations of functional features possible to acquire in the L2?

Research Question 6: Does variability in supplying functional morphology in the interlanguage reflect the L2 learners' actual grammatical competence, or is the syntactic competence of L2 learners native-like and variability is merely a case of missing surface morphology?

Chapter 4   The Study and Data Analysis

4.1 Introduction

Studies concerned with L2 acquisition of grammatical features of functional categories, some of which are reviewed in Chapter 2, show that variability in supplying morphological forms that realize these features is a phenomenon observed in the interlanguage production of L2 learners learning different target languages and who speak different native languages. Despite the fact that the more advanced the L2 learners are, the more accurate they are at the production of L2 functional morphology, research in L2 acquisition shows that variability remains a major characteristic of the interlanguage of very advanced and end-state learners. Another noticeable characteristic of variability is that it is more prevalent in oral than in written L2 production, possibly due to the lack of communication pressure in the latter medium. Another reason why written tasks present a more likely context for accurate production of L2 functional material is the time factor; L2 learners have more time to process their L2 knowledge and correct mistakes if made.

The aim of the current study is to attempt to find out what the underlying syntactic representation is for functional morphology produced by L2 learners in the interlanguage. Are L2 learners using functional features available in the L1 to represent L2 functional morphology whenever possible? Are L2 learners able to acquire L2 features that are not part of the L1 grammar via full access to the UG feature inventory? Is variability caused by extra syntactic factors such as transfer of L1 prosody? In order to attempt answering the above questions, comparing the

interlanguage production of groups of L2 learners who speak different L1s but are learning the same L2 could provide useful information. Knowledge about the featural makeup, and syntactic and prosodic presentations of functional morphology in the L1 and L2 is essential for the comparison of interlanguage production between L2 learner groups.

The hypotheses that will be discussed in Chapter 5 and tested through the results obtained from the data collected for the current study have different assumptions about the interlanguage production of functional morphology. The RDH and IH assume a permanent deficit in the L2 grammars whenever an L2 feature is not available in the L1, thus causing a drop in the production accuracy of its morphological realization by L2 learners. The PTH and the FRH, on the other hand, assumes that the syntactic competence of L2 learners is native-like and that non-native-like production of L2 functional morphology is the result of the absence of L2 prosodic structures necessary for organizing functional morphology in the L2, or to differences in the manner of assembling features, respectively.

Because the two approaches described above conflict in how they explain the phenomenon of variability exhibited by L2 learners, the interlanguage production comparison is best made between groups of learners of two languages that share some linguistic features but differ in others with the target language. The two native languages that were thought to be suitable for testing claims by the RDH, IH, FRH and PTH are Latakian Syrian Arabic (LSA) and Mandarin Chinese (MC) and the target language is English. The L1s LSA and MC are relatively similar in the way they prosodically represent functional morphology but are different with respect to how some functional morphology is represented in the underlying syntax, and how

functional feature are assembled. As for how they compare with English, both L1s are different from the L2 in terms of prosodification of functional material, therefore, similar accuracy rates in L2 production are expected by the PTH whether the L1 of the L2 learner is LSA or MC. In terms of syntactic representation of functional morphology, the LSA is a language where most functional features are overtly realized on the morphological level, and in that respect it is more similar to the L2 English compared to MC, in which language the interpretation of many functional features relies on contextual information rather than on morphological realization. On this ground, the RDH and IH predict that generally L2 learners who speak L1 LSA are going to be more accurate than those who speak L1 MC with respect to the production of L2 functional morphology. Similarly, the FRH predicts a more accurate L2 production by LSA speakers, compared to MC speakers, as the way functional features are assembled in LSA is more similar to the way they are assembled in English, as opposed to MC.

Therefore, how different or how similar the performances of L2 learners of both L1 groups are will be the criteria used to test the predictions of each hypothesis to evaluate which one(s) will be advocated. In the data collected from advanced-proficiency L2 learners, the production of a set of functional material is specifically examined; this set includes: past-tense marking, subject-verb agreement marking, number marking, genitive marking in possessive constructions, and passive and perfective participles. The regular and irregular forms of those functional morphemes (except for the agreement and genitive markers) are also observed, and in the case of regular inflected forms, the production of the functional morpheme was compared between cluster-final inflected forms (CF) and non-cluster-final inflected forms

(NCF). The production of final consonant clusters (CCs) is observed in monomorphemic forms so that it can be compared with how accurate L2 learners are in maintaining final CCs in inflected forms. Cluster final monomorphemes that end in clusters that are similar to inflection (or CFM CSI) are specifically examined in the data since they are phonologically similar to CCs that occur in inflected forms.

In order to eliminate the possibility of being exposed to the L2 at early age, all the L2 learners who took part in this study had started learning English around the age of 10 years old. All the L2 learners also had to be of advanced proficiency in the L2 so that the variability observed in their L2 production cannot be attributed to unawareness of the grammar of the L2.

In the rest of this chapter, information will be provided about the participants who took part in this study, the methodology used in collecting and analysing the data including how the study was designed and administered, and some essential statistical tests.

4.2   The issue of natural environment for L2 production

The majority of SLA studies depend when eliciting their data on structured and researcher-led tests, such as Grammaticality Judgement Tasks (GJT), picture/video describing tests, etc. Although the outcome of such tests may be relatively representative of the participants' competence in the L2, it can be argued that L2 production in real life situations, compared to in a test environment, is more representative of the L2 competence. Hence, the decision was made that no such methods will be used to collect data for the current study. An additional reason for

the decision of excluding such tests was that the majority of the participants in this study are postgraduate students in the Linguistics department (as will be explained later) who are very likely to be familiar with these tests. The assumption was that those participants may very well be aware that they are being tested for grammatical knowledge, though they might not know what specific grammatical features are being examined, which would have led to non-natural L2 performance.

Considering that the phenomenon of optionality continues to be observed in the spontaneous everyday speech of L2 learners, it was decided to elicit the data for this study in a way that is as similar as possible to a natural environment situation. It would have been ideal to be able to record L2 production in real life situations, such as friends chatting in a café, but because the data analysis in this study requires careful listening to the recorded speech of each of the participants, and accurately transcribing what they say, the recordings had to be carried out in a linguistics lab at the University of Essex. Keeping in line with the goal of having the most spontaneous production possible where the participant's attention is diverted from the real aim of the study, the participants were told that the title of the project was 'Investigating conversational strategies used by advanced second language learners'. Two main goals were in mind when this title was given to participants: first that the participants would be totally oblivious to what is really examined in the data, assuming that it is conversation strategies rather than grammatical knowledge that we are interested in; and second and most importantly that any level of test-related stress or over-concentration is brought to a minimum. For achieving the second goal, the participants were told that they themselves could suggest topics they prefer to discuss with the interviewer.

Each of the participants was interviewed separately and their spontaneous speech was recorded. A story recall task, where the participant had to read a written short story and then recall and describe the events depending on key words on flash cards, was contemplated in the pilot study but was discarded when analysis showed that participants were in many cases repeating exact chunks of the story they had just read. This contradicts the major aim of this study which is to obtain L2 production that is as spontaneous as possible.

4.3   Age and gender of participants

10 LSA-speaking and 10 MC-speaking learners of English took part in the current study.[118] The 10 participants in the MC group were selected from a pool of 37 university students based on achieving an 80% score in the Oxford Quick Placement English Proficiency Test. The 10 LSA speakers asked to participate in the study all complied with the English Proficiency Test participation criteria (i.e. achieving a minimum score of 80%) and hence were all interviewed for the study.

The ages of participants in the LSA group ranged between 28 and 36 years with a mean age of 31 years. Although all care was taken to get the same number of participants of each gender, there were six female and four male participants in this group. In the MC group, the youngest participant was 21 and the oldest was 33 with a mean age of 27, so participants in both groups were quite consistent in terms of the age factor. As in the LSA group, the MC group consisted of six female and four male participants. Information about the participants' profiles given in Table 4.2 below

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[118] Initially, the plan was to interview 20 LSA speakers and 20 MC speakers, but due to the abundance of data from each of the participants, the number had to be restricted to 10 participants in each group.

shows that the ages of 8 of the participants in the group ranged between 28-31 years old, but the ages of two participants were 33 and 36 years old. Statistical tests will be presented in the next chapter (section 5.1.1) in order to detect whether the difference in mean age between the two groups is affecting their L2 performance.

4.4   Academic background

In the design of the current study every care was taken to have two very coherent and comparable groups with a minimum influence of confounding variables. Therefore, on the basis of having a unified academic background for participants in both groups, the target population was recruited from university students doing postgraduate courses (MA or PhD) in a variety of fields of study at the University of Essex. Undergraduate students were not considered for this study because piloting showed that they are more likely to be of upper-intermediate proficiency rather than of advanced proficiency level.

4.5   Second language background

The participants in both study groups started learning English as a second language in their home countries, China, Taiwan or Syria, at around the age of 11 or 12 years in the form of classroom tuition at school. Based on discussions during the interviews between the interviewer and the participants about English teaching methods in the participants' home countries, it was found that those methods used in schools in China and Syria were very similar in that they mainly depended on teaching explicit grammar rules with little or no chance of listening to or interacting with native speakers of the L2, or of practising conversation skills. Therefore, although in

principle all participants started learning English around the age of 10 years old, they only had significant exposure to native English input after the age of 18. In fact, all of the participants have only lived in an English speaking country after the age of 20, except for two Chinese participants who spent around two months in the USA for a short study course before they became 20 years old.

All of the participants studied English during their school and university years as a test-based module with concentration being mainly on reading and writing skills. Depending on their field of study in their home-country universities, participants may have differed from each other with respect to how much English was involved in their curriculum. Nonetheless, at the point of their arrival in the UK for their postgraduate study, they had all taken English courses either in their home countries or in the UK, and subsequently got the equivalent of an IELTS score of a minimum of 6.5[119] which meant that all the participants in this study had relatively matching L2 backgrounds. Furthermore, as will be discussed in section 4.5 below, all participants had to undertake a proficiency test as a unified measure of L2 abilities prior to the interview.

At the time of the interviews, participants in the LSA group had a mean length of residence (LOR) in an English speaking country (UK) of 51 months, which is equal to 4.25 years. The mean LOR in an English speaking country (UK or USA) for participants in the MC group was 25 months, which equals 2.08 years (see Table 4.1 for more information about LOR). The Mann-Whitney U Test was used to detect whether this difference in LOR between the two groups is significant, and indeed the

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[119] An IELTS 6.5 (paper-based test) equals a score over 550 in the TOEFL paper-based test, and a score over 79 in the TOEFL internet-based test.

LSA group seem to have a significantly longer period of living in an English speaking community than the MC group does (U = 14.000, N$_1$ = 10, N$_2$ = 10, p= .006, two-tailed), a fact that might influence the difference in accuracy scores between the participants in the two groups.

4.6   English proficiency test

As mentioned before, the phenomenon of optionality is observed even with advanced learners of English who are supposed to have mastered the majority of grammatical rules in the language. Data from SLA research show that L2 learners tend to variably supply the L2 functional morphology. For lower proficiency learners, many reasons are assumed in this thesis to cause optionality, such as insufficient input, the pressure of speaking in the L2 or the fact that not all grammatical rules have necessarily been learnt yet. Thus optionality in the L2 production of functional morphology among advanced learners is the more compelling case to investigate, since the above mentioned reasons affecting less proficient learners can be assumed to have little effect on learners who are of advanced proficiency in the L2.

In order to eliminate the lack of linguistic knowledge of L2 grammatical rules as an issue that might influence L2 production of functional morphology, each L2 learner who participated in the study was required to undertake an English proficiency test, the Oxford Quick Placement Test (Version 2), that rated grammar and vocabulary abilities. Only participants with a score of 80% or more were selected for the interview, and thus all participants were either of advanced or very advanced (a score over 90%) proficiency in L2. The two learner groups were matched for English proficiency as shown by the group scores: the LSA group had a mean score of 87.29%,

and the MC group a score of 86.29%. Evaluating the proficiency test scores with the Mann-Whitney U Test revealed that there was no significant difference between the mean scores of the two groups (U = 41.500, N_1 = 10, N_2 = 10, p= .517, two-tailed). Table 4.1 below provides information about LoR and English proficiency levels for participants in both groups in addition to other information about where and when the L2 was learnt.

Table 4.1 LoR and English proficiency test results for the LSA and MC groups

Language	Number of Participants	Where L2 was first learnt	Age L2 was first learnt	Proficiency Test Score Range (%)	LoR in an English speaking country
LSA	10	home (Syria)	10-12 years	80-93.3	2 - 6 years or 28 - 67 months
MC	10	home (China/Taiwan)	7-13 years	80-91.6	1 month to 3 years or 1 – 48 months

4.7   Participants' profiles

Detailed information about each of the participants in this study were compiled and organized in two separate tables, one for the participants in each L1 group. The tables provided information about the gender, occupation, L2 proficiency level, and place where the L2 had been learnt. They also provided the actual age of each of the L2 learners at the time of the study, the age they started learning the L2, how long they have lived in an English-speaking country, as well as the scores they achieved in the proficiency test they undertook. At the bottom of each table, the mean age when the L2 was learnt, the mean age of the participants in the group, the mean score in the proficiency test, and the mean LOR are all stated.

To recap, Table 4.2 below shows that participants in the LSA group were four male and six female postgraduate students in the University of Essex whose ages ranged between 28-36 years, with a mean age of 31, and the mean age for their first exposure to the L2 in a classroom environment was 10.7 years, and that was in their home country, Syria. 7 of the participants in this group were of advanced proficiency and 3 were very advanced in the L2. At the time when the data was collected, the time the participants had lived in the UK for ranged between 2-6 years, with a mean of 4.25 years.

Table 4.2 The profiles of participants in the L1-LSA group

Code	Gender	Occupation	Where L2 was first learnt	L2 Proficiency level	Age L2 was first learnt	Proficiency Test Score (%)	Age (years)	LoR(months)
S-MA	F	PhD student	school/Syria	advanced	11	88.3	31	58
S-NB	F	PhD student	school/Syria	very advanced	12	93.3	31	59
S-AI	F	PhD holder	school/Syria	very advanced	10	93.3	33	76
S-IM	M	MA holder	school/Syria	advanced	12	86.6	36	76
S-AM	M	PhD student	school/Syria	advanced	10	80	29	29
S-LH	M	PhD student	school/Syria	very advanced	10	93.3	30	51
S-MR	F	MA student	school/Syria	advanced	10	81.6	30	36
S-SB	F	PhD student	school/Syria	advanced	10	86.6	28	28
S-RM	M	PhD student	school/Syria	advanced	11	86.6	28	44
S-AS	F	PhD student	school/Syria	advanced	11	83.3	30	57
				Mean	**10.7**	**87.29**	**31**	**51**

As for participants in the MC group, Table 4.3 shows that they are also four male and six female postgraduate students at the University of Essex who were first exposed to classroom instruction of the L2 in their home countries (China or Taiwan) at around the age of 10.8 years. Similarly to the case in the LSA group, 7 of the participants in the MC group were of advanced proficiency and 3 of very advanced proficiency in the L2.[120] On the whole, participants in this group were slightly younger than those in the LSA group; their ages ranged between 21-33 years with a mean age of 27 years. The time they had spent in an English speaking country (the UK or the USA) is also less compared to the LSA participants; apart from two participants who spent one and two months in the UK, the LoR for the MC group ranged between 1-4 years with a mean of 2.08 years.

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[120] Recall that the classification into 'advanced' vs. 'very advanced' is determined by the score achieved in the Oxford Quick Placement Test each of the participants had to take (a minimum of 80% or 90%, respectively).

Table 4.3 The profiles of participants in the L1-MC group

Code	Gender	Occupation	Where L2 was first learnt	L2 Proficiency level	Age L2 was first learnt	Proficiency Test Score (%)	Age (years)	LoR (months)
C-WW	M	MA student	school/ Taiwan	advanced	12	81.6	27	2
C-CH	F	MA student	school/ Taiwan	advanced	10	80	29	48
C-FH	F	PhD student	school/ China	very advanced	13	91.6	33	13
C-SD	F	PhD student	school/ China	advanced	11	86.6	30	37
C-IW	M	PhD student	school/ Taiwan	very advanced	8	91.6	29	48
C-LC	F	PhD student	school/ Taiwan	advanced	11	83.3	26	25
C-YM	M	PhD student	school/ China	very advanced	7	91.6	29	38
C-RF	F	MA student	school/ China	advanced	12	85	21	1
C-KQ	M	MA student	school/ China	advanced	13	81.6	27	14
C-SZ	F	MA student	school/ China	advanced	11	90	23	24
				Mean	**10.8**	**86.29**	**27**	**25**

4.8   The interview

Postgraduate students at the University of Essex who responded to a recruitment email advertisement were asked to attend an interview with the researcher. The interview was conducted in a small lab in the Language and Linguistics Department at the University of Essex, and it lasted (including the time assigned for the placement test)[121] for approximately 90 minutes. The conversation between the researcher and the participant was recorded on a Sony recording device and later

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[121] The Oxford Quick Placement Test was marked on the spot so that those who did not score highly enough were identified immediately and not allowed to participate any further.

transferred to a laptop. Prior to the conversation part of the interview, the participant was asked to read and sign a consent form (see Appendix C) which provided some details about the study[122] and asked for personal information about the participant. That was followed by the participant taking the Oxford Quick Placement, which is a 30-minute English placement test (see appendix D). Participants who achieved a score of 80% or higher qualified for taking part in the interview part of the study.

At the beginning of the interview, the researcher would explain that the interview was going to be in the form of a friendly conversation where any topic that was of interest to the participant could be discussed, and that at any point the participant can ask to change the topic, or even end the interview. After that was established, the interview began with the researcher asking about the participant's current domain of study or research. In spite of having the opportunity to suggest topics for the interview, participants generally left this task to the researcher. For that purpose, a set of questions, given in (93) below, was prepared for the interview. Those questions were based on topics assumed to be familiar for overseas students at UK universities. This set is reported in the following section, together with the rationale of the question when applicable.

4.8.1   The interview questions

Despite the fact that some functional material looked at in this study, such as past tense marking, plural marking and articles have a high number of occurrences in a normal conversation, other forms do not seem to be as abundant in everyday speech.

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[122] Recall that the time of the interview the participant was not given any information about the aim of the study in order to guarantee spontaneous L2 production. However, participants who wanted to obtain more information were sent a detailed description about the study after the data collection stage had been completed.

For that reason, questions such as (*93*f), and (*93* h-i) for example, were devised specifically to obtain sufficient data containing subject-verb agreement marking. The set of questions asked to each of the participants is presented in (93) below. These questions were only a guide for the researcher to fall back on whenever the discussion of a topic comes to an end, but in between many related topics and questions were brought up for the conversation either by the researcher or the participant.

(93). Interview questions:

a. What are you currently studying?

b. Can you give me a glimpse of what your research is mainly about?

c. What places have you visited in the UK and Europe?

d. How was your experience when you first lived in a new country away from your family?

e. What things do you enjoy in this new culture?

f. Who is your idol/ someone you admire? Please tell me about this person.

g. Can you tell me about your family?

h. What does your mother/father/sister/brother/partner, etc. do?

i. Can you describe what the daily routine is for your father/mother/sibling at work?

j. How do you compare the education system in your country to that in the UK?

k. How would you describe your English when you first came to the UK?

l. How were you taught English back in your home country?

m. Do you think these were useful methods for teaching a second language? Why?

The topic of English teaching methods in the home country was intentionally discussed in the interview in order to divert the conversation in the direction of second language teaching, which allowed the researcher to introduce the picture-story-telling task, details about which are given in the following section.

4.8.2   The picture-story-telling task

In order to secure a minimum number of occurrences for each of the main functional morphology under observation (past tense, 3SG agreement and plural marking), a picture-story-telling task was included as part of the study. This task was covertly incorporated into the interview to preserve the main principle of the study, which is obtaining unprompted and spontaneous L2 oral production. Questions *l* and *m* in (93) above created the context into which the task could be introduced. The two questions were concerned with English teaching methods in the home country of the participant. From there, the researcher would move to the issue of teaching L2 English to children at an early age and whether the participant thought that such a method was useful or not. The following step was to tell the participant that part of the current research was to design an exercise to help children with their oral production in L2 English, and that their help, i.e. the participant's, was needed to judge whether the exercise was good in their opinion.

The task was in the form of two picture stories describing the life of two characters 'James' and 'Alex'. The first picture-story showed a series of events and was introduced by the question 'can you tell me what happened with James yesterday?',

therefore, providing past-tense contexts. The second picture-story was designed to secure a minimum production of 3SG agreement-inflected present-tense forms, and for that purpose the question addressed to the participant was: 'can you tell me about James's daily routine?'. The two picture stories also contained many contexts for the production of plural nouns. After the participant had read the questions and looked at the pictures, they started to orally describe what they thought was going on with the characters. The researcher then would ask the participant to suggest possible modifications or improvements to the exercise which is supposed to be for teaching kids L2 English conversation skills. The picture-story-telling task is provided in Appendix B.

4.9   Analysing the data

This section presents a description of how the final results of this study were obtained. The recorded conversations between the researcher and each of the participants were transcribed and analysed. In order to get an accurate idea of the volume of data that the study is based on, Table 4.4 below provides the total word count along with the total numbers of occurrences for each of the participants in this study and also for each of the L1 groups.

Table 4.4   Total word count and total numbers of occurrences in conversations

Participant ID	Total Word Count in Conversation	Total Number of Occurrences in Conversation							
		Past Tense	3sg Agreement	Number	Articles	Passive Participle	Perfective Participle	Genitive 's	CFM
S-MA	6510	106	47	170	191	20	10	11	179
S-NB	5343	232	12	120	172	35	9	1	141
S-AI	7624	214	45	136	192	44	17	5	193
S-IM	6663	63	44	134	258	44	39	6	261
S-AM	5404	88	37	132	197	23	8	0	238
S-LH	6890	177	72	171	234	54	23	26	190
S-MR	6957	94	36	165	192	31	16	5	221
S-SB	6332	152	27	178	234	53	34	4	286
S-RM	5320	32	55	94	325	93	54	9	225
S-AS	5754	162	28	150	191	11	5	2	215
	62797	1320	403	1450	2186	408	215	69	2149
C-WW	4195	38	17	87	129	21	6	1	154
C-CH	4328	76	22	81	164	11	5	3	138
C-FH	7111	138	20	194	242	46	39	5	242
C-SD	3855	79	32	94	122	39	20	4	150
C-IW	3659	30	34	110	145	23	12	3	127
C-LC	5374	48	27	205	249	37	4	5	194
C-YM	4003	66	20	129	164	33	7	4	166
C-RF	3905	78	28	82	168	24	3	0	136
C-KQ	4417	29	8	144	153	25	15	1	153
C-SZ	4813	55	20	171	164	28	8	3	183
	45660	637	228	1297	1700	287	119	29	1643

(L1: LSA for the first group; L1: MC for the second group)

Contexts were eliminated from the analysis when they involved any of the following situations: suffixal inflection being followed by homophonic sounds, e.g. *the kids sat on the floor*; instances when bare and inflected forms are identical, e.g. *cut* and *sheep*; with instances of self-correction by the participant, e.g. *he open… opens the door*; and repetitions, e.g. *they went back … went back to China*, were counted as one instance of correct/missing inflection. Before eliminating those instances from the transcribed data, the analysis process was carried out in the following chronological order:

a. Initially the researcher listened to the conversation and wrote it down without phonologically transcribing it.

b. The researcher listened to the conversation for a second time and transcribed every word or construction that represented a categorical context for any of the functional elements the study is looking at. Transcribed items were underlined and bolded and missing functional morphology was indicated between square brackets; for instance a missing past-tense morpheme in 'played' would be indicated as follows '**play[ed]**'.

c. As a measure of rater reliability, the PRAAT software was used to determine difficult cases where it was not clear in the recording whether a participant produced an inflection or not.

d. Next, the written conversation ended up with having the whole oral production of the participant in the form of individual sentences, each containing one or more tokens of categorical contexts, as in the following sentence: *there **were** like mainly two **type[s]**.*

e. Because tokens for each of the forms or functional morphemes studied had to be grouped together and counted, the next step in the analysis was to copy each sentence containing more than one token according to the number of tokens present in that sentence, so that the result would be as follows for the example sentence in *d* above: *there **were** like mainly two type[s]*, and *there were like mainly two **type[s]**.*

f. The outcome of the previous stage of the analysis process was having every token in an individual sentence. Therefore, the following step was to make a list of tokens for each of the forms and functional morphemes examined in the study. For instance all sentences containing a categorical context for a *be* form, such

as *there __were__ like mainly two type[s]*, were listed together; and all sentences containing a categorical context for plural marking, such as *there were like mainly two __type[s]__*, were organized in a separate list, and so on.

g. After that, the total number of occurrences and contexts of missing suppliance for each form and functional morpheme were counted and percentages of suppliance calculated.

h. In addition to calculating suppliance percentages for the forms and functional morphology in this study, tokens of those forms and morphemes were further divided into subcategories (e.g. regular vs. irregular forms), as shown in section 4.1 earlier, and subsequently suppliance percentages were calculated for each of those subcategories.

The raw scores obtained from the above analysis of the data were entered into the SPSS statistics software programme[123] in the form of correct tokens, total tokens and suppliance percentage (correct/total*100) for each of the functional elements tested. A variety of statistical tests were used. The mean accuracy of the suppliance percentages of all participants in a group was calculated for each of the functional material examined. The Mann-Whitney U Test was used when comparing mean accuracy scores between the two groups and the Wilcoxon Signed-Ranks Test was used when the accuracy scores were compared within the same group with regard to the production of two or more functional morphemes. In the tables presented

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[123] All the raw scores for the L2 production of every functional element in this study are provided in Chapter 5 together with all the results including *p* values from the statistical test applied.

throughout Chapter 5, the results are always in the following format: (Correct tokens/ Total tokens) and underneath it the percentage for correct suppliance is given.

4.10 Summary of chapter

This chapter has provided an insight into the rationale behind collecting the data in a method of free conversation with participants rather than structured tests. Detailed participant profiles have been presented including information about the age, gender, LoR, L2 proficiency level of each participant. Results from statistical tests have also been provided to show whether any of the above participant-related conditions are affecting the L2 production of functional material. In addition to that, this chapter has provided a glimpse into how the data was analysed and organized.

In the following chapter, the results from the study herein described will be presented, compared and discussed with relation to the claims and predictions by each of the hypotheses introduced in Chapter 2, which are the Representational Deficit Hypothesis (RDH), the Interpretability Hypothesis (IH), the Prosodic Transfer Hypothesis (PTH) and the Feature Re-assembly Hypothesis (FRH).

Chapter 5   Results

5.1   Introduction

This thesis has so far provided a review of the literature on the L2 acquisition of functional material in Chapter 2, in which a description of the most influential hypotheses in this domain was presented. In order to test the predictions of those mainstream hypotheses, a study was designed to investigate the acquisition of the syntactic and prosodic properties of functional material in English by native speakers of Latakian Syrian Arabic (LSA) and Mandarin Chinese (MC). Chapter 3 provided an account of the relevant properties in the three varieties. Chapter 4 outlined the methodology and modes of analysis that were used to obtain the data needed to address the research questions.

The main distinction between the two groups of approaches to be tested, based on the results obtained in this study, is their assumption about the initial stage of L2 acquisition. The Prosodic Transfer Hypothesis and the Feature Re-assembly Hypothesis assume that L2 functional categories and their features are available for L2 learners through access to UG, whereas the Representational Deficit Hypothesis and the Interpretability Hypothesis believe that L1 forms are the starting point for L2 acquisition and that features of functional categories that are not instantiated in the L1 are not acquirable after a critical period has passed.

The current chapter presents the results from the current study described in chapter 4 along with a discussion of their implications from the perspective of each of the accounts given by the hypotheses outlined earlier. Finally, an argument based on the

results will be made to tackle each of the research questions and possibly support one or more of the tested hypotheses.

5.1.1   The effect of gender, L2 proficiency, age and LoR on L2 performance

The effect of the following four factors: age at testing, length of residence, gender of participant and their L2 proficiency level on accuracy rates in each of the two L1 participant groups is shown to be non-significant for all of the four factors, as the results from the Mann-Whitney U and Partial Correlation tests[124] reported in Table 5.1 below reveal.

The distribution of accuracy was the same across the categories of gender and length of residence (p is over 0.05 for all functional material tested).[125] Correlation tests, where the impact of the L1 is partialled out, show that there is no positive correlation between overall accuracy scores of each functional morpheme, on the one hand, and the gender and L2 proficiency of the participants, on the other hand (p is below 0.006 for all functional material tested).[126]

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[124] We should be cautious with interpreting correlation results from a study with such a small number of participants, some of whom with extreme scores, which could skew the data and, therefore, prevent a correlation from being revealed when it does exist.

[125] The p value reported in this thesis is the asymptotic significance rather than the exact significance, and it is always set to <0.05, unless indicated otherwise.

[126] The level where significance starts for all correlation tests applied in this study is adjusted according to the Bonferroni Correction as follows: 0.05/9 where 9 is the number of correlation tests used. This means that only p values below 0.006 are significant.

Table 5.1 The distribution of accuracy across the categories of gender and L2 proficiency, and the correlation between accuracy and age and LoR at the time of testing.

	Distribution across		Correlation with	
	Gender	L2 Proficiency	Age	LoR
Past Tense	U = 38.000 p =.440	U = 39.000 p = .805	r = .279 p = .247	r = -.104 p = .673
Agreement	U = 41.000 p =.589	U = 20.500 p = .076	r = .530 p = .020	r =.106 p = .666s
Number	U = 47.000 p =.939	U = 30.000 p = .322	r = .471 p = .042	r = -.022 p = .930
CFM	U = 47.000 p =.939	U = 39.000 p = .805	r = -.052 p = .832	r = -.437 p = .062
Passive Participle	U = 44.000 p =.754	U = 39.000 p = .802	r = .069 p = .778	r = -.469 p = .043
Perfective participle	U = 37.000 p =.353	U = 31.000 p = .321	r = .233 p = .338	r =.131 p = .592
Genitive -s	U = 27.000 p =.283	U = 18.000 p = .082	r = .293 p = .254	r =.114 p = .664
Definite Articles	U = 41.500 p =.616	U = 41.500 p = .967	r = -.120 p = .625	r = -.390 p = .099
Indefinite Articles	U = 39.000 p = .487	U = 33.000 p = .458	r = -.079 p = .748	r = -.095 p = .700

Descriptive statistics are provided in Appendix A that show the mean, median, range and standard deviation for each of the functional elements examined in this study.

5.1.2   Research questions and predictions

Recall that the research questions posed in chapter 3 (section 3.7) were the following:

Research Question 1: Will L2 learners in the two tested groups be more accurate on the production of L2 functional material that has syntactic representation in the L1 compared to material that is not grammaticalized in the L1?

Research Question 2: Will L2 learners be more accurate on the production of L2 functional material whose L2 prosodic representation is available in L1 prosody or can be attained using L1 existing prosodic structures/relations compared to material whose L2 prosodic organization is not attainable from L1 prosody?

Research Question 3: Will L2 learners be more accurate on the production of L2 functional material whose production involves fewer layers of mapping between the syntax and morphology?

Research Question 4: Will L2 learners be more accurate on the production of L2 functional material whose featural makeup is easier to assemble in the L2, and will accuracy in the L2 production be compatible with the Cline of Difficulty?

Research Question 5: Is the interlanguage grammar permanently defective or are target-like syntactic representations of functional features possible to acquire in the L2?

Research Question 6: Does variability in supplying functional morphology in the interlanguage reflect the L2 learners' actual (non-target-like) grammatical

competence, or is the syntactic competence of L2 learners native-like and variability is merely a case of missing surface morphology?

The above research questions are tackled through testing the predictions of hypotheses made on the basis of comparing the syntactic and prosodic representations of English and each of the L1s (LSA and MC). Table 5.2 below provides information about the status of each item of functional material tested in the L2 and each of the L1s in terms of prosodic and syntactic structure (repeated from section 3.6).

Table 5.2 Syntactic and prosodic representations of functional material in LSA, MC and English

	L1				L2	
	LSA		**MC**		**English**	
	Syntax	*Prosody*	*Syntax*	*Prosody*	*Syntax*	*Prosody*
Past Tense	√ [±Past]	√ Internal clitic	X	X	√ [±Past]	√ Affixal clitic
3sg Agreement	√ [*Agr*: Person, Number, Gender]	√ Internal clitic	X	X	√ [*Agr*: Person, Number]	√ Affixal clitic
Number Marking	√ [*Num*: Singular, Dual, Plural, Collective]	√ Internal clitic	√ [*Num*: Collective]	√ Internal clitic	√ [*Num*: Singular, Plural]	√ Affixal clitic
Articles	√ [±Definite]	√ Affixal clitic	√ [±Definite]	X	√ [±Definite]	√ Free clitic
Passive Participle	√ [+Participle] √ [±Passive]	√ Internal clitic	√ [±Passive]	√ PWd	√ [+Participle] √ [±Passive]	√ Affixal clitic
Perfective participle	√ [-Participle] √ [+Perfective]	√ Internal clitic	√ [*Asp*: Perfective, Experiential]	√ Internal clitic	√ [+Perfective] √ [+Participle]	√ Affixal clitic
Genitive -s	√[*Case*: Genitive, Accusative]	√ Compound (PWd-PWd)	√[*Case*: Genitive]	√ Internal clitic	√ [*Case*: Genitive, Accusative]	√ Affixal clitic

In both L1s, affixal clitics can be attained by combining existing L1 prosodic relations. Free clitics, however, are not available in the L1s and cannot be adapted from L1 structures.

Based on whether and how functional morphology is represented in the morphosyntax and prosody of each of the three languages (see Chapter 3 for a detailed analysis), a set of predictions was produced based on the claims of the Representational Deficit Hypothesis (RDH), the Interpretability Hypothesis (IH), on the one hand, and of the Prosodic Transfer Hypothesis (PTH), on the other. Claims

made by the Feature Re-Assembly Hypothesis (FRH) will be examined in a separate section towards the end of the chapter.

Since most of the functional material examined in this study has underlying syntactic representation in the L1 LSA and L2 English, but not in L1 MC, the general prediction made by the RDH and IH is that L2 learners in the LSA group will be more native-like than L2 learners in the MC group with respect to the production of functional morphology in the interlanguage. The general prediction by the PTH is quite different from that of the RDH and IH. Despite the fact that functional material is prosodified differently in the L1s LSA and MC, on the one hand, and the L2, on the other, the PTH predicts that L2 learners in both L1 groups will be equally successful in the L2 production of all the functional morphology in this study except for articles. The L1s LSA and MC prosodify functional morphology as internal clitics (except for the definite article in LSA), whereas the L2 English organizes functional morphology as affixal clitics (except for articles which are free clitics). The PTH claims that the adjunction-to-PWd structure (i.e. the affixal clitic) required to represent the majority of English functional material can be attained by L2 learners in both L1 groups by modifying prosodic structures that are available in those L1s.

The results from data analysed in this study will be compared for the two L1 groups in order to test the above predictions by the RDH and IH against those by the PTH and provide support for the more tenable claims. The results will be presented in this chapter in the form of charts which contain the mean accuracy scores. For raw scores (correct/total instances), the reader can refer to the tables which will also be provided throughout the Chapter.

5.2   Overall accuracy scores

The overall accuracy scores of the two L1 groups in this study are given in Chart 5.1 below for the L2 production of all the functional material examined. As can be seen from this chart, accuracy scores of the LSA group are generally higher compared to those of the MC group on all forms except for the genitive -s structure. The overall accuracy score for production of word-final consonant clusters in Cluster-Final Monomorphemes (CFMs) are also provided in the same chart. Nevertheless, the L2 data in this study contained fewer occurrences than desired of past participle forms and of genitive marking in possessive constructions.

Chart 5.1 Mean accuracy scores for L2 production of functional morphology and final CCs in CFMs by the LSA and MC groups
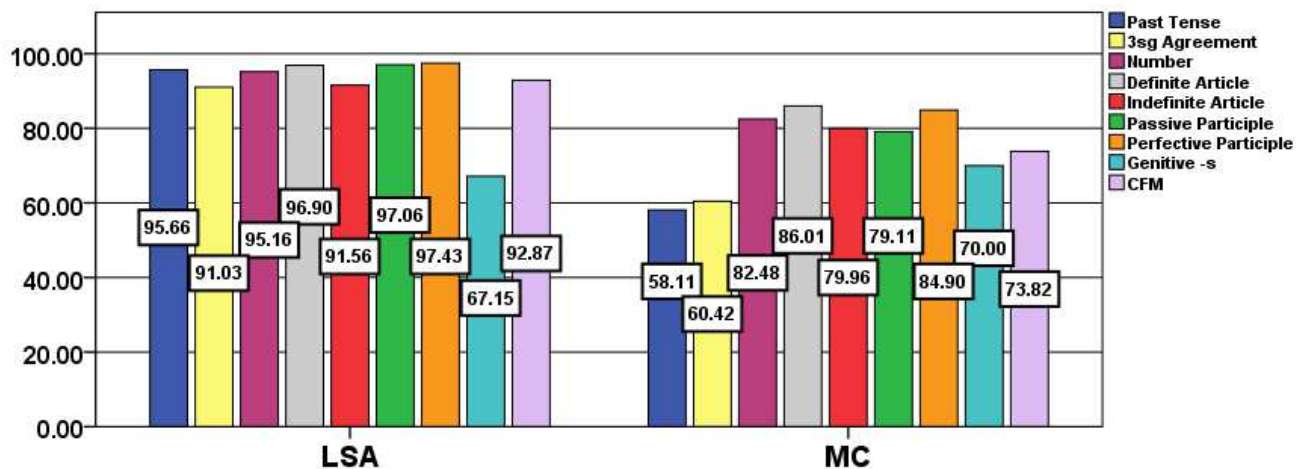
The Mann-Whitney U test reveals that the overall accuracy scores of the LSA group are significantly higher than those of the MC group with regard to supplying past tense marking, 3SG agreement marking, number marking, passive participle marking, and definite and indefinite articles in the interlanguage, as the *p* values in

Table 5.3 below show. The two L1 groups have statistically equal accuracy scores for perfective participle marking and genitive marking.[127]

The same test reveals that the performance of the LSA group on the production of final consonant clusters in CFMs is significantly more accurate than that of the MC group, even though both languages do not allow consonant clusters in final position. The implications drawn from this outcome will be explored later in the chapter in section 5.10 and are considered important in order to establish whether deletion of inflectional morphology in CC-final inflected forms is a result of an L1 constraint on final CCs or of other phonological/prosodic restrictions (such as the non-availability of adjunction-to-PWd in the L1).

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[127] It should be noted that there is a small number of obligatory contexts for genitive marking in the data from both L1 groups (LSA: 69; MC: 29); therefore, the results for this category need to be treated with caution.

Table 5.3 Significance results for the difference in performance between the two L1 groups

	L1		
	LSA (n = 10)	MC (n = 10)	
Past Tense	1272/1320 (95.66)	398/637 (58.11)	U = 1.000 p < .001
3sg Agreement	369/403 (91.03)	136/228 (60.42)	U = 6.000 p = .001
Number Marking	1390/1450 (95.16)	1082/1297 (82.48)	U = 12.000 p = .004
CFM	1991/2149 (92.87)	1224/1643 (73.82)	U = 4.000 p = .001
Passive Participle	391/408 (97.06)	235/287 (79.11)	U = 12.500 p = .004
Perfective participle	210/215 (97.43)	108/119 (84.90)	U = 28.000 p = .069
Genitive –s	52/69 (67.15)	20/29 (70)	U = 38.000 p = .820
Definite Article	1174/1208 (96.90)	878/1005 (86.01)	U = 2.000 p < .001
Indefinite Article	902/978 (91.56)	545/695 (79.96)	U = 17.000 p = .013

In the following sections, the performances of the two L1 groups will be looked at in more detail with regard to the L2 production of each individual functional morpheme and predictions of the RDH, IH and PTH will be tested throughout. Afterwards, the production of consonant clusters in CFMs and inflected forms, and the employment of schwa insertion and stem-consonant deletion as potential behaviour for coping with the production of final CCs in the L2 will be examined. Finally, the predictions of the RDH, IH and PTH will be revisited and discussed thoroughly followed by an analysis of the results from the perspective of the mapping problems approach and the FRH.

5.3   Past tense marking

Past tense is a feature of T in L2 English and L1 LSA and has morphological representation in both languages. MC grammar does not grammaticalize this feature. In order to test the claims of the main hypotheses in this thesis, more information about the availability of syntactic, morphological and prosodic representations of the past tense feature in L2 English and each of the two L1s is summarized in Table 5.4 below. In terms of prosodic structure, English past tense marking is adjoined to the PWd/$_{stem}$, which is not the way inflectional morphology in the two L1s is prosodified

Table 5.4 The morphosyntax and prosody of past tense marking

	Syntax	**Morphology**	**Prosody**	
English	√ [±past]	√ -ed; ablaut	√ adjunction to PWd	
MC	X	X	X	*Adjunction to PWd can be built from existing L1 prosodic structures*
LSA	√ [±past]	√ template and vowel melody	√ internal clitic	

The predictions for the performance of the participants in the two L1 groups by the RDH, IH and the PTH are given below:

Prediction 1a (Past Tense, RDH): Since [±Past] is available in the grammars of L1 LSA and L2 English, but not in that of L1 MC, the RDH predicts that LSA-speaking L2 learners of English should be more accurate in their production of English past tense marking compared to MC-speakers learning English.

Prediction 1b (Past Tense, IH): The IH, on the other hand, differs from the RDH in that [±Past] is a semantically-related and interpretable feature in both L1s, with the difference between LSA and MC being that a syntactically-related [+Af] is

part of T only in LSA, which is reflected on the morphological level by the template shape and vocalic melody of the past tense stem. The [+Af] feature is also part of T in L2 English, and is reflected in the suffix *-ed* and stem modification in irregular forms. The lack of [+Af] on T in MC means that past tense verbs in this language do not add morphological affixes. Consequently, MC speakers are expected to omit past-tense inflection even though [±Past] is part of their interlanguage grammar, and LSA-speaking learners of English are expected to be more accurate in the L2 production of past tense marking compared to L2 learners in the MC group.

Prediction 1c (Past Tense, PTH): Despite the assumption that LSA past tense marking and MC perfective marking are both prosodified as internal clitics in these languages, i.e. differently from the target structure (affixal clitic), the PTH predicts that the L2 learners from both L1 backgrounds (i.e. LSA and MC) should be relatively equally accurate on the production of past tense marking as the prosodic structure required for representing the latter morpheme in the L2, adjunction to the PWd/$_{stem}$, can be built by minimally adapting existing L1 prosodic structures in each of the L1s.

Chart 5.2 below shows that the LSA group, compared with the MC group, have a higher mean accuracy score for the suppliance of past tense marking in obligatory contexts. This difference in the performance between the two groups is highly significant ($U = 1.000$, $N_1 = 10$, $N_2 = 10$, $p < .001$, two-tailed).

Chart 5.2 Mean accuracy scores of past tense marking by the two L1 groups
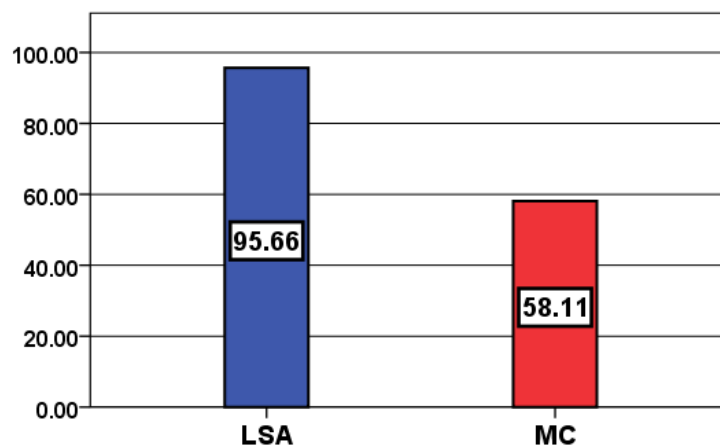
It is difficult to decide whether the disparity between the accuracy scores of the two L1 groups is due to the fact that the [±Past] feature is non-grammaticalized in the L1 MC (as suggested by the RDH) or to the fact that even though the latter feature is available and interpretable in L1 MC, the absence of [+Af] on T in this language is causing the omission of the L2 past-tense morphology by L2 learners in this group. Nevertheless, on the whole the outcome of L2 production of past tense marking conforms with the predictions of the RDH and the IH, and contradicts the prediction of the PTH that L2 learners whose L1 is either LSA or MC should both be able to build the PWd-adjunction structure required for representing past tense marking in English by using existing L1 prosodic structures and relations. According to such a claim, participants in both L1 groups should have had similar accuracy profiles on L2 production of past tense marking, which is not borne out in the results from this study.

The PTH may account for such an outcome by suggesting that the L2 learners in the MC group are not yet at a stage in their L2 competence that allows them to minimally adapt L1 prosodic relations and structures in order to build L2 structures, whereas

those in the LSA group are. This, however, does not provide an explanation for why some L2 learners from certain L1 backgrounds develop the ability to adapt L1 prosodic structures while others do not, or can take a longer time to do that, nor how the L1 itself is affecting this ability.

The accuracy in supplying English past tense marking by participants in the two L1 groups was examined with regards to contexts involving auxiliary and copular *be* forms against contexts involving thematic verbs. This was done to test the claims of Lardiere (1999) and Haznedar and Schwartz (1997) that L2 learners of English tend to associate morphological agreement with verb raising, leading to the acquisition of the inflection of copula and auxiliary *be* before that of non-raising thematic verbs. Table 5.5 below provides accuracy scores for L2 learners in each of the L1 groups for past tense marking on thematic verbs versus copula and auxiliary *be* verbs.

Table 5.5 Mean accuracy scores of past tense marking in thematic verbs vs. copula and auxiliary be forms

	L1 (LSA) (n = 10)	L1 (MC) (n = 10)
Auxiliary *be* (past)	156/156 (100)	63/67 (87.67)
Past Tense	1272/1320 (95.66)	398/637 (58.11)
	z = -2.666 p = .008	z = -2.701 p = .007
Copula *be* (past)	634/638 (95.81)	200/206 (95.53)
Past Tense	1272/1320 (95.66)	398/637 (58.11)
	z = -1.599 p = .110	z = -2.803 p = .005

Comparing accuracy scores of the two groups seems to support the above premise. Performance by L2 learners in the MC group shows that indeed, when compared with production of past-tense marking on thematic verbs, they were significantly more accurate in the L2 production of past-tense marking on auxiliary *be* (z = -2.701, N - Ties = 10, *p* = .007, two-tailed), and in the production of copula *be* (z = -2.803, N - Ties = 10, *p* = .005, two-tailed). Chart 5.3 presents further illustration of the above results.

Chart 5.3 Mean accuracy scores of past tense marking in thematic verbs vs. copula and auxiliary be forms
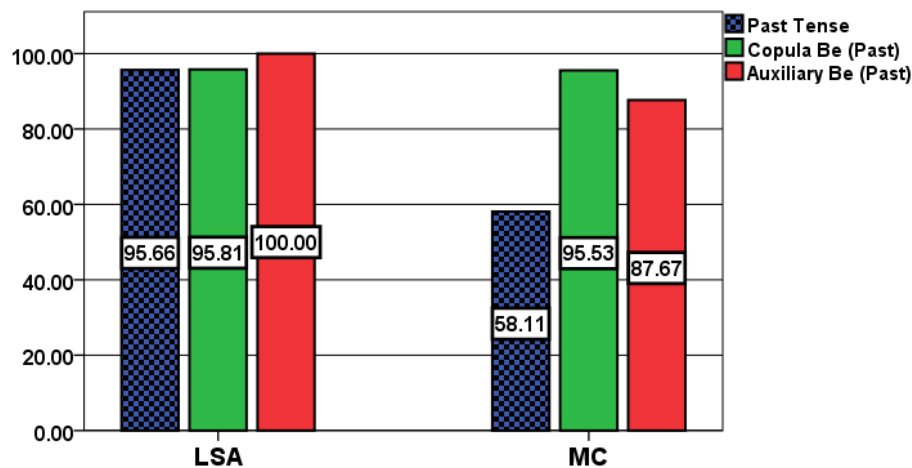
As for participants in the LSA group, they also were significantly more accurate in the production of L2 past-tense auxiliary *be* forms compared to past-tense thematic verbs (z = -2.666, N - Ties = 9, *p* = .008, two-tailed). Whereas the MC group had a significantly higher score on copula *be* in past tense contexts compared to past tense marking on thematic verbs (as shown above), the LSA group did not show a significant effect of correctly producing one form over the other (z = -1.599, N - Ties = 9, *p* = .110, two-tailed). The general implication here would be that the participants in both groups on the whole displayed better performance on supplying past tense inflection in copula and auxiliary forms compared to supplying past tense inflectional morphology on thematic verbs.

5.3.1   Past tense marking in regular vs. irregular stems

This study also looks at the performance of the two groups on the suppliance of past tense marking in regular and irregular stems. The aim of this comparison is to test whether affixation in regular past tense verbs in English poses a greater difficulty for L2 learners compared to non-suffixed irregular forms. This is going to be looked at from the perspective of two approaches. First, from the perspective of the PTH, regular past tense verbs are expected to pose more difficulty for the L2 learners in this study since their prosodic representation in the L2 requires adjunction to the PWd, whereas past tense in irregular forms is prosodified within the PWd/$_{stem}$, as shown in (94) below. Second, from the perspective of L2 research which proposes that irregular forms are stored as unanalysed forms in the lexicon, while regular stems are stored in the lexicon, but there is a morphological rule that applies to regular stems to generate the past tense form (e.g. the declarative/procedural model (Ullman 2013); the dual mechanism model (Pinker and Ullman 2002)). It is presumed that the L2 acquisition paths of these two inflected forms (i.e. regular vs. irregular forms of verbs) might be different with the irregular forms being easier to acquire since their production requires accessing a single already-inflected item from the lexicon, whereas the production of regular past tense forms requires accessing the stem from the lexicon and applying a morphological rule to it.

(94). The prosodification of regular vs. irregular past tense marking on verbs

(a) PWd tree for 'arrived'; (b) PWd tree for 'wept'
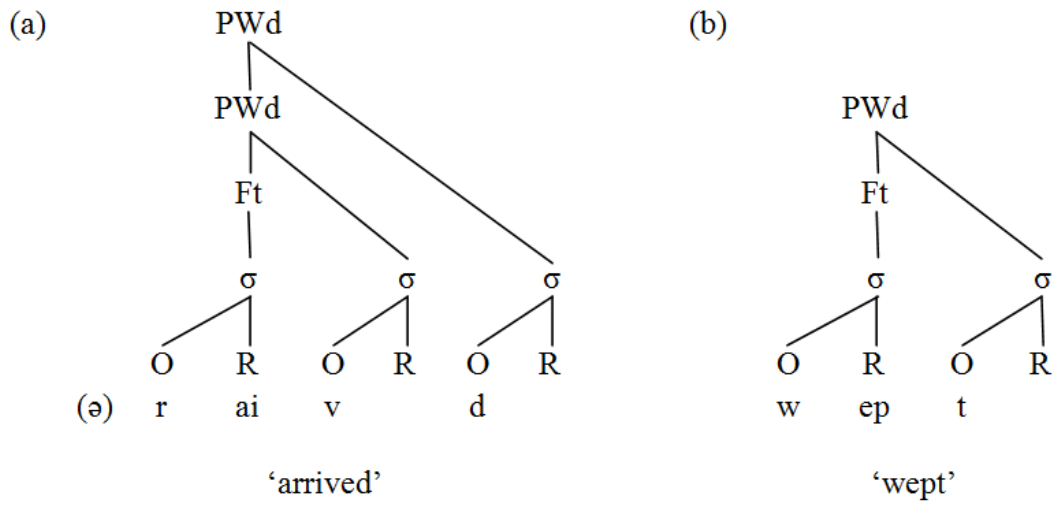
The accuracy scores for each of the L1 groups on the L2 production of past-tense marking in regular and irregular verbs are given in Table 5.6 below.

Table 5.6 Mean accuracy scores of regular vs. irregular past tense marking for the two L1 groups

L1	Past Tense		
	Regular	**Irregular**	
LSA (n = 10)	445/477 (93.23)	826/843 (96.60)	Z = -1.599 p = .110
MC (n = 10)	128/258 (46.99)	273/379 (69.10)	Z = -2.191 p = .028
	U = 1.000 p < .001	U = 1.000 p < .001	

The same results are also represented in Chart 5.4 below.

Chart 5.4 Mean accuracy scores of regular vs. irregular past tense marking for the two L1 groups
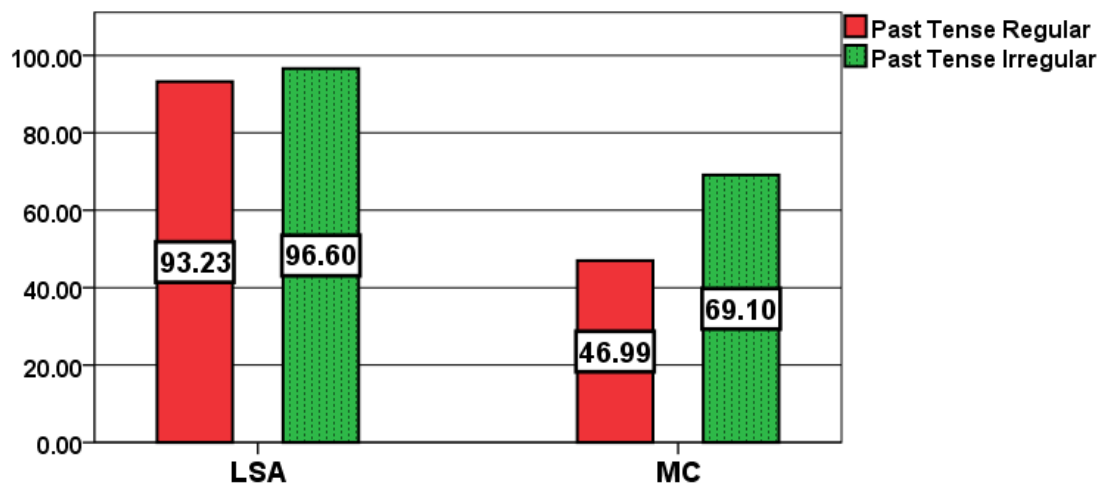
Similar to the status of the overall accuracy scores of the production of past tense marking between the L2 groups, the LSA group has significantly higher accuracy scores than those of the MC group on the production of both regular past tense forms (U = 1.000, N_1 = 10, N_2 = 10, p < .001, two-tailed) and irregular past tense forms (U = 1.000, N_1 = 10, N_2 = 10, p < .001, two-tailed).

Comparing the above accuracy scores also reveals that there was no significant difference in the production of regular and irregular past tense forms by L2 learners in the LSA group (z = -1.599, N - Ties = 9, p = .110, two-tailed) which implies that whether inflecting for past tense involves adjoining the inflection to the PWd or within the PWd does not affect the accuracy rate of L2 learners in this L1 group for this functional category, and that production of the past tense inflection is not affected by how regular and irregular forms are stored in the lexicon. This also implies that the L1 ban on final CCs is not influential in the interlanguage of learners in this group. If it was influential, it would have been more likely for those L2 learners to be more accurate in the production of past tense marking in irregular forms since

in English not many irregular verbs end in clusters (see section 5.10 for a detailed discussion).

On the other hand, the L2 learners in the MC group show a different behaviour with respect to the production of past tense marking of regular and irregular verbs. This group had a significantly higher accuracy score in the production of past tense marking in irregular stems compared to regular stems (z = -2.191, N - Ties = 10, p = .028, two-tailed). Such a finding supports the PTH's claim that L2 structures that do not involve affixal clitics are easier to acquire. It also supports the claims made by the declarative/procedural model which suggests that irregular forms of inflected verbs are stored as separate entries in the lexicon from the stem, whereas the stems of regular past tense verbs alone are stored in the lexicon. Their past tense forms are produced by applying a morphological rule.

Therefore, the PTH's claim that irregular verb forms in English are easier to represent in the prosody since they have the same prosodic representation as monomorphemes[128] can account for the results in the MC group. But still the same claim provides no explanation for why this is not the case for the LSA group.

Considering the more recent claim by the PTH wherein adaptation of L1 prosodic structures is possible in order to build L2 prosodic structures required to represent functional material in the L2, the prediction would be that production of regular past tense forms should pose no extra difficulty compared to that of irregular past tense forms for L2 learners in neither of the L1 groups since attaining new L2 prosodic structures that are unavailable in the L1 is possible. This could provide the

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[128] Monomorphemes are prosodically simpler compared to inflected forms, since they do not require adjunction-to-PWd.

explanation for the difference in the performance on past tense inflection in regular vs. irregular forms between the two L1 groups. It could be argued that the L2 learners in the LSA group are able to minimally adapt existing L1 structures to build the adjunction structure required to represent past tense inflection in L2 English, whereas the L2 learners in the MC group, who as shown earlier are significantly more accurate in the production of past tense marking in irregular forms, do not seem to have reached this stage in the L2 acquisition process. This account, however, does not provide an explanation for this difference between the L2 groups.

5.4   Subject-verb agreement marking in present tense verbs

Subject-verb agreement marking corresponds to a feature that has different values in the languages in this study. Information about the status of subject-verb agreement in English, MC and LSA with regards to the syntactic, morphological and prosodic representations is summarized in Table 5.7 below.

Table 5.7   The morphosyntax and prosody of subject-verb agreement marking

	Syntax	Morphology	Prosody	
English	✓ [*Agr*: Person, Number]	✓ -s	✓ affixal clitic	
MC	X	X	X	*Adjunction to PWd can be built from existing L1 prosodic structures*
LSA	✓ [*Agr*: Person, Number, Gender]	✓ prefixes: yə-, tə-, ʔə-, nə- Suffixes: -u, -i	✓ internal clitic	

The predictions of the RDH, IH and PTH for the participants in the two L1 groups are given below:

Prediction 2a (Subject-Verb Agreement, RDH): Subject-verb agreement is grammaticalized in both L1 LSA and L2 English and marked in the morphology by affixation to the present-tense stem. There is no overt morphological representation of this feature in MC, and it is assumed to be unavailable in the grammar of this L1. According to the RDH, L2 learners of English whose L1 is LSA are predicted to be highly accurate on the production of subject-verb agreement in the L2, and that they will be significantly more accurate than the L2 learners in the MC group.

Prediction 2b (Subject-Verb Agreement, IH): The IH's account, as explained earlier, is based on the concept of feature interpretability. Subject-verb agreement features on T in LSA and English are only syntactically relevant. They are semantically relevant only when they are features of (subject) nouns. Agreement features on T are uninterpretable and only mark a syntactic dependency, and therefore, they are expected to be difficult to acquire for L2 learners whose L1 (like MC) lacks these features on T. Therefore, the IH predicts that the L2 learners in the LSA group will be more accurate in the production of English 3SG agreement morphology in present-tense inflected verbs.

Prediction 2c (Subject-Verb Agreement, PTH): Despite the fact that subject-verb agreement morphology is prosodified differently in L2 English (affixal clitic) and L1 LSA (internal clitic), and despite the absence of any overt representation of it in L2 MC, L2 learners in both L1 groups in this study are predicted by the PTH to have relatively similar accuracy rates on the production of the L2 morpheme since the adjunction-to-PWd structure can be minimally adapted from existing L1 prosodic structures in both LSA and MC.

Results from the current study support the predictions of the RDH and IH against those of the PTH (see Chart 5.5 below). Participants from the LSA group had significantly higher mean accuracy scores compared to those of participants in the MC group with respect to supplying English 3SG agreement marking (U = 6.000, N_1 = 10, N_2 = 10, p = .001, two-tailed). It cannot, however, be discerned whether the explanation for this behaviour is the fact that agreement features are not available on T in MC, while, in contrast, they are in LSA and English, or whether the fact that those features are uninterpretable means they are difficult to acquire for MC speakers. Something that can be certain, however, is that the PTH's prediction is not borne out. Despite the assumption that the L2 adjunction-to-PWd structure required to prosodify English 3SG agreement marking can be minimally adapted by L2 learners who speak L1 LSA or MC, L2 learners in the latter group are more successful in the L2 production of this inflectional morpheme.

Chart 5.5   Mean accuracy scores of 3SG agreement marking by the two L1 groups
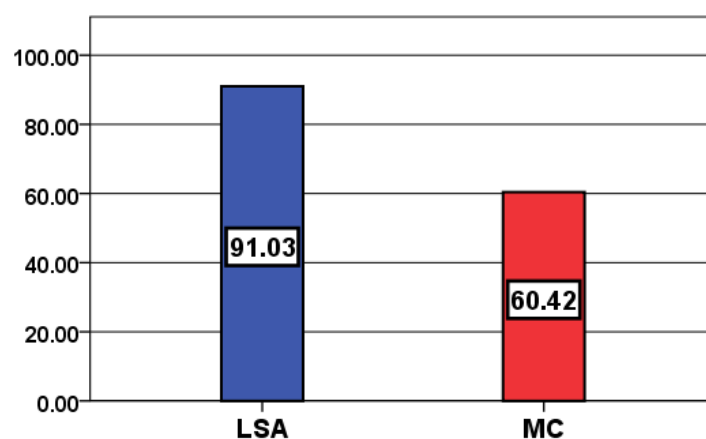
5.4.1 Influence of Subject-Verb distance on suppliance of 3SG agreement marking

Results showed that the L2 learners who participated in this study had more difficulty in marking present tense verbs for 3SG agreement when the subject was not directly followed by the verb in the utterance as Table 5.8 reveals.

Table 5.8 Mean accuracy scores for 3SG marking in subject - verb vs. subject....verb contexts.

L1	Agreement in Subject…..Verb	Agreement in Subject-Verb	
LSA (n = 10)	51/68 (73.31)	318/335 (94.31)	z = -2.100 p = .036
MC (n = 10)	19/46 (36.40)	109/160 (69.81)	z = -2.666 p = .008
	U = 15.000 p= .013	U = 11.000 p= .004	

A main effect was detected between the two contexts in both the LSA group (z = -2.100, N - Ties = 8, p = .036, two-tailed) as well as the MC group (z = -2.666, N - Ties = 9, p = .008, two-tailed). The implication from this behaviour is that the semantic association between the features of the subject noun and the verb can be lost if the verb and subject were separated by other linguistic items. Chart 5.6 also reflects the above results.

Chart 5.6 Mean accuracy scores for 3SG marking in subject - verb vs. subject....verb contexts.
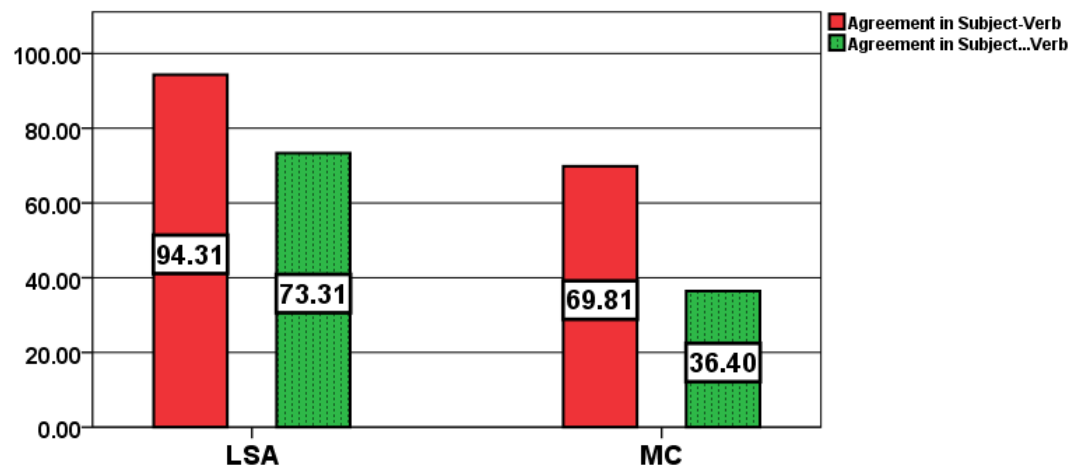
5.4.2   Suppliance of 3SG agreement marking in different stem shapes

This section considers Goad et al.'s (2003) prediction that instances of present-tense stems that allow a PWd-internal prosodification of 3SG agreement –s would be less problematic for L2 learners whose L1 prosodifies inflectional morphology as internal clitics is considered. The results provided in Table 5.9 do not fully support this claim.

Table 5.9 Mean accuracy scores of 3SG agreement marking according to stem shape

	Agreement as				
	Onset	**Coda**	**OEHS**	**No Option**	
LSA (n = 10)	63/68 91.80	39/41 96.82	111/122 87.93	152/166 91.68	$x^2 = 4.676$ df = 3 p = .197
MC (n = 10)	34/52 58.58	6/18 35.71	39/62 57.17	58/95 65.49	$x^2 = 6.750$ df = 3 p = .080
	U = 15.000 p = .011	U = 5.000 p = .002	U = 14.000 p = .006	U = 15.500 p = .008	

L2 learners in neither of the two L1 groups in this study appear to prefer stems that allow a PWd-internal analysis to stems where such an analysis is not possible[129] as Chart 5.7 below illustrates.

Chart 5.7 Suppliance of 3SG agreement marking according to stem shape
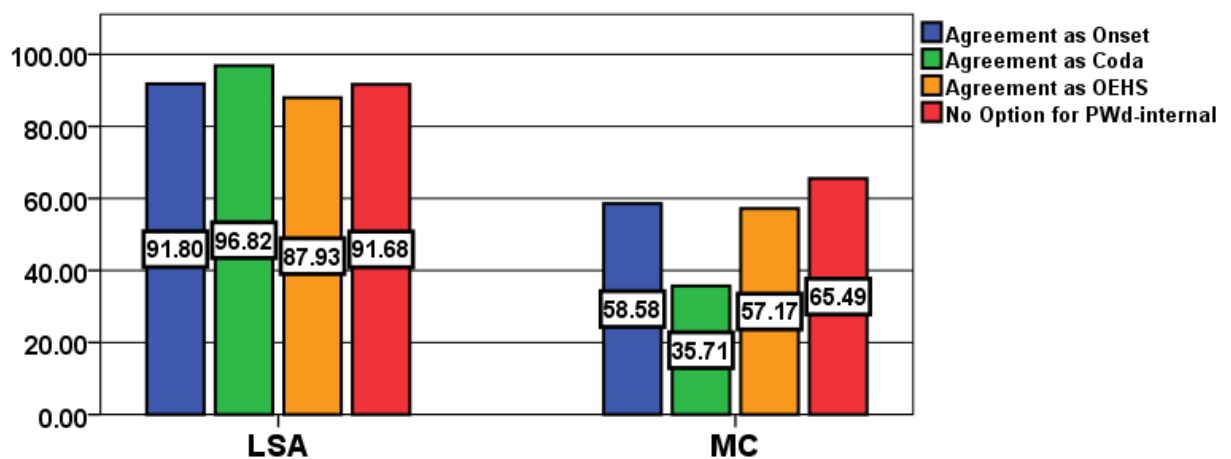
This contradicts the group results from Goad et al. (2003) (reported in Table 2.5) where Chinese-speaking learners of English in the variable deletion group had higher scores for contexts of agreement as onset [bɪldzɒn] 'builds on', agreement as coda [rejsəz] 'races' and agreement as onset of an empty-headed syllable [fɪlz] 'fills', compared to contexts where there is no option of agreement inside the PWd/$_{stem}$ [bɪldz] 'builds'.

The only recognizable discrepancy in the scores occurs in the MC group, where L2 learners seem to experience more difficulty in the production of agreement marking in sibilant-final stems, e.g. [rejsəz] 'races'. Such an unexpected outcome echoes that of Goad et al.'s (2003: 258) participants in the Variable deletion group. Table 2.5 shows that the accuracy scores of those L2 learners are comparatively low for sibilant-

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[129] Comparing accuracy scores of the production of 3SG agreement in thematic verbs vs. main/modal/auxiliary *have* would be very indicative of whether a problem in constructing the adjunction-to-PWd structure occurs for the L2 learners. However, due to the very small number of occurrences of *have* forms, the results for this comparison are not reported in this chapter.

final stems (27 %), considerably lower than agreement as onset stems (75%) and agreement as OEHS (68%). Goad et al.'s account for this phenomenon is that the native-like production of agreement in a sibilant-final stem requires a coda to occur in an unstressed syllable, which is marked in the L1 MC, and it appears that the MC-speaking learners of English in the current study and in Goad et al.'s (2003) study have transferred this L1 constraint into their interlanguage. Otherwise, neither group preferred contexts allowing stem-internal prosodification of inflectional morphology.

5.5   Number marking on nouns

Number on nouns is grammaticalized in L2 English and L1 LSA and is marked in the morphology on plural nouns by the suffixes -s in English and -iin and -aat in LSA. The only manifestation of the notion of number in MC is in the collective form of some nouns, which means that a number feature is also part of the MC grammar but with different values to those in English and LSA. A synopsis of the morphosyntax and prosody of the number feature in the three languages is given in Table 5.10 below.

Table 5.10 The morphosyntax and prosody of number marking

	Syntax	Morphology	Prosody	
English	✓ [*Num*: Singular, Plural]	✓ -s; ablaut	✓ affixal clitic	
MC	✓ [*Num*: Collective]	✓ -men	✓ Internal clitic	*Adjunction to PWd can be built from existing L1 prosodic structures*
LSA	✓ [*Num*: Singular, Dual, Plural, Collective]	✓ -iin, -aat, -een; template and vowel melody	✓ internal clitic	

Below are the predictions of each of the hypotheses examined in this study:

Prediction 3a (Number, RDH): Number as a feature of nouns is grammaticalized in

L2 English and L1s LSA and MC. LSA-speaking learners of English are not

expected by the RDH to experience a difficulty in the acquisition of the L2 number

feature with the values [*Num*: Singular, Plural] since this feature is instantiated

in the L1 LSA, whereas speakers of MC are expected to be less accurate in the

production of number morphology in English due to the corresponding feature in

the syntax of this L1 not having the same values of English number. Only definite

nouns with human reference in MC reflect the feature [*Num*: Collective] in the

morphology.

Prediction 3b (Number, IH): The [*Num*: Singular, Plural] feature is semantically

relevant when it is part of the specification of Num, and therefore, it is an

interpretable feature that is claimed by the IH to be acquirable by L2 learners

even if no counterpart is available in the L1. There is, however, an impediment

to the acquisition of number marking by L2 learners in the MC group. The reason

why native speakers of English suffix plural inflected nouns with -s is that Num

in English has an uninterpretable [+*Af*] feature. This feature, while part of Num

in LSA as well, does not seem to be part of the featural specification of Num in

MC. Therefore, the IH's prediction with regards to the production of English

plural morphology is that L2 learners in the LSA group will have relatively higher

accuracy scores than those in the MC group would have.

Prediction 3c (Number, PTH): Despite the fact that plural marking is prosodified as

an affixal clitic in L2 English, while the plural markers in LSA and the collective

marker in MC have a stem-internal analysis, the PTH still predicts successful

acquisition of the English plural marker due to the claim that the affixal clitic

structure is available in both L1s through minimal adaptation of existing L1 prosodic structures. Hence, no significant difference in performance is expected to arise between the LSA and MC L1 groups.

Comparing mean accuracy scores of the two L1 groups in this study (see Chart 5.8 below) shows that the L2 learners in the LSA group have higher accuracy scores in the production of English plural morphology, and are, therefore, more native-like in their L2 production than the L2 learners in the MC group. This difference between the scores of the two groups is statistically significant ($U = 12.000$, $N_1 = 10$, $N_2 = 10$, $p = .004$, two-tailed). Such an outcome supports the RDH's claim that MC speakers would find it difficult to acquire the English feature [*Num*: Singular, Plural] as this feature is not instantiated in the grammar of their L1 MC.

The IH's prediction is also borne out in the results of the current study. MC speaking learners of English in this study are significantly less accurate than speakers of LSA learning English due to the lack of a [$+Af$] in L1 MC. In spite of the difference of the morphosyntax between L2 English and L1 MC, the L2 learners in this group still managed to achieve a relatively high mean accuracy score (82.48%).

As for the PTH, the observed behaviour of the L2 learners in the two L1 groups is not foreseen by this hypothesis. The L2 structure required for representing English number marking, i.e. the right-edge affixal clitic, is, as argued earlier, attainable by licensing prosodic structures in LSA and MC into new positions, supposedly leading to similar levels of accuracy in the L2 production of this inflectional morpheme by the two groups. Still, the results from this study contradict this prediction with one group (LSA) being significantly more native-like than the other (MC).

Chart 5.8 Mean accuracy scores of English number marking by the two L1 groups
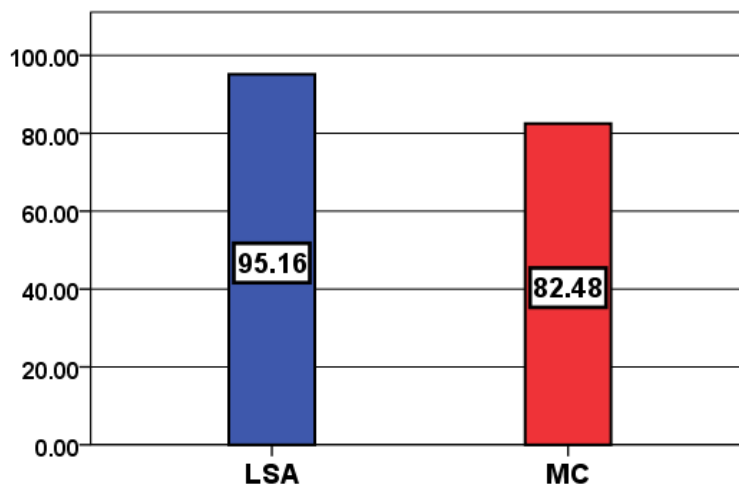
5.5.1   Number marking in regular vs. irregular stems

Comparing mean accuracy scores of the two groups on the production of L2 plural morphology in regular and irregular forms (Table 5.11 below) reveals that the significant main effect found in the overall performance of the two groups is due to the fact that the LSA group is significantly more accurate than the MC group in the production of number marking in regular forms (U = 10.000, N_1 = 10, N_2 = 10, p = .002, two-tailed), whereas number marking in irregular forms seems to be equally unproblematic for both groups (U = 35.000, N_1 = 10, N_2 = 10, p = .068, two-tailed).

Table 5.11 Mean accuracy scores for number marking production in regular vs. irregular stems

L1	Number Marking		
	Regular	Irregular	
LSA (n = 10)	1146/1206 (94.55)	244/244 (100)	z = -2.805 p = .005
MC (n = 10)	833/1039 (79.12)	247/258 (96.49)	z = -2.803 p = .005
	U = 10.000 p = .002	U = 35.000 p = .068	

The implication of such a result from the point of view of the PTH is that L2 learners in the MC group face more difficulty than those in the LSA group in constructing the prosodic structure required for representing functional material in the L2, the adjunction-to-PWd structure. LSA speakers seem to be more successful in minimally adapting L1 structures to attain the required L2 structure. The PTH, however, provides no explanation why it is the case that some L2 learners are able to build the new structure more consistently and more often than other L2 learners.[130]

Chart 5.9 Mean accuracy scores for number marking production in regular vs. irregular stems
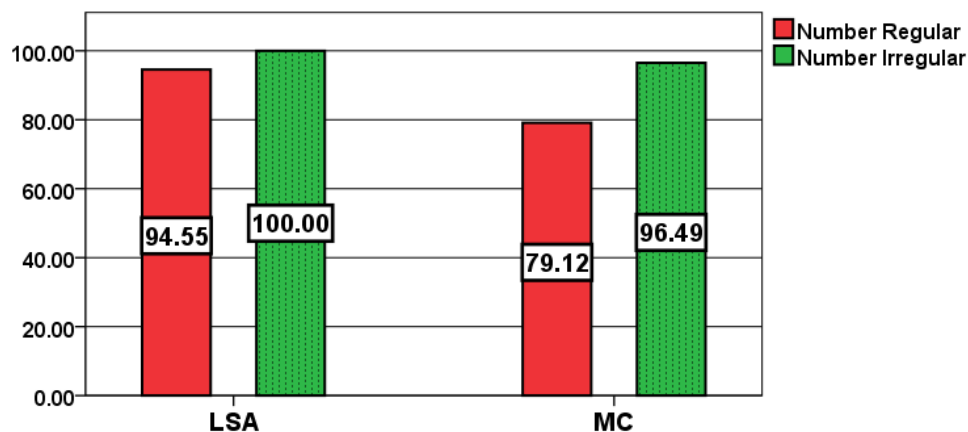
The claims of the PTH can also be tested by comparing the suppliance of number marking for each of the two L1 groups between regular and irregular stems. L2 learners in this study had significantly higher accuracy scores on suppliance of English plural marking in irregular stems compared to regular stems (see Chart 5.9 above), and this applies for learners in the LSA group (LSA: $z = -2.805$, N - Ties = 10, $p = .005$, two-tailed) as well as for those in the MC group ($z = -2.803$, N - Ties = 10, $p = .005$, two-tailed). Such a finding further supports the PTH's claim that L2 inflected

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[130] It is important to note here that the total number of irregular plural tokens is considerably lower than the number of regular plural tokens for both groups.

forms which involve adjoining inflectional morphology to the PWd/$_{stem}$ are more problematic for L2 acquirers whose L1s have a stem-internal analysis of inflectional morphology.

5.6   Definite and indefinite articles

The assumption made earlier in chapter 3 is that definiteness is part of the featural specification of nouns in all languages, regardless of whether there is an overt morphological realization of this feature. Therefore, the [±Definite] feature is assumed to be present in the syntax of the three languages in this study,[131] as shown in Table 5.12 below. Information about the morphological and prosodic representations of articles is also available in the same table.

Table 5.12 The morphosyntax and prosody of definiteness

	Syntax	**Morphology**	**Prosody**	
English	√[±Definite]	√ the/a	√ free clitic	
MC	√ [±Definite]	X	X	*The structure required for a free clitic (PPh-σ) is available in neither of the L1s*
LSA	√ [±Definite]	√l-	√ affixal clitic	

The predictions of the RDH, IH and PTH are given below based on the above information about the status of definiteness in each of the three languages.

---

[131] Definiteness is part of the universal inventory of semantic features, but the reason behind assuming it part of the syntax of the three languages, including MC, is that in the latter language there are syntactic processes that indicate the presence of an underlying [+/-Definite] feature.

Prediction 4a (Articles, RDH): The RDH predicts a relatively similar performance of L2 learners in the LSA and MC groups with regards to the L2 production of articles, since the [±Definite] feature is available in the syntax of both L1s.

Prediction 4b (Articles, IH): The IH considers the [±Definite] feature to be interpretable and semantically-related, and therefore acquirable even for L2 learners whose L1 (e.g. MC) does not grammaticalize this feature and represent it in the morphology. The [±Definite] feature in L2 English is not morphologically realized as an affix but as an independent particle. This implies that there is no [+Af] on D in this language. In contrast, the LSA definite article is prefixed to the noun, meaning that [+Af] is a feature of D in this language. Since MC does not have morphological equivalents of the [±Definite] feature, it is argued that D in this language lacks the [+Af] feature. L2 English and L1 LSA still both have some kind of representation on the morphological level for [±Definite], whereas L1 MC does not. On the basis of the above claim, the IH predicts that the production of L2 articles would be more problematic for L2 learners in the MC group than for those in the LSA group.

Prediction 4c (Articles, PTH): The prosodic structure required for representing articles in English, the free clitic, is not available in LSA or MC. It is also not possible in either of the L1s to minimally adapt existing L1 prosodic structures in order to build the L2 free clitic structure, due to the fact that the PPh-σ relation (required for building the free clitic) is not part of the prosody in these languages. Therefore, the PTH predicts that L2 learners from both L1 groups will be unsuccessful to a relatively similar degree in the production of English articles. The PTH also predicts that some L2 learners might treat English articles as

independent PWds and therefore they are expected to receive stress in this case. The data does not contain any instances of stressed articles.

Chart 5.10 below reports the mean accuracy scores of the LSA and MC groups on the production of English definite and indefinite articles. There is a significant difference in performance between the two groups in supplying the definite article (U = 2.000, N_1 = 10, N_2 = 10, p < .001, two-tailed) as well as the indefinite article (U = 17.000, N_1 = 10, N_2 = 10, p = .013, two-tailed), with the LSA group having significantly higher scores in both cases. This result is in agreement with the prediction of the IH and against those of the RDH (all L2 learners are equally successful) and PTH (all L2 learners are equally unsuccessful).

Chart 5.10 Mean accuracy scores of definite and indefinite articles by the two L1 groups
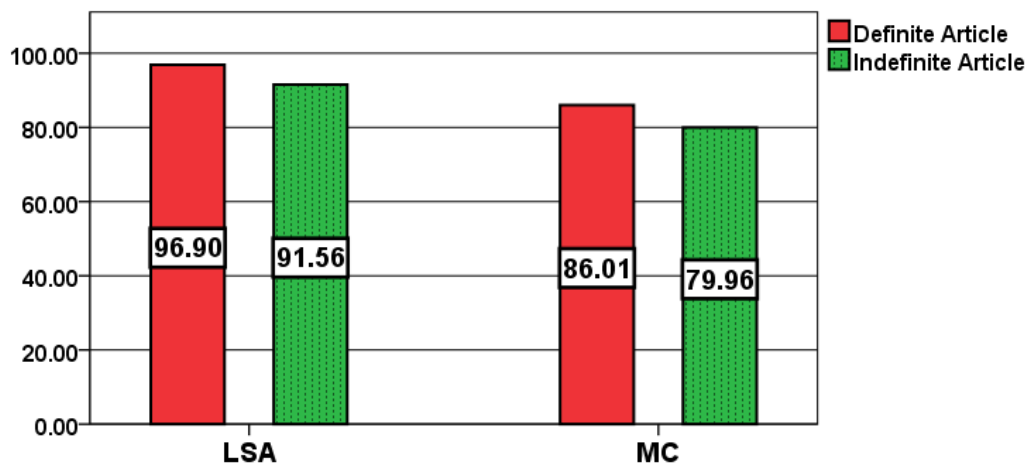
5.6.1   Suppliance of definite vs. indefinite articles

Away from prosodic structure implications, indefinite articles are argued to be more likely to be dropped in English interlanguage production compared to definite articles due to the claim that they encode number and countability features in addition to definiteness, which means that greater computational resources are required for

their production than for definite articles (Trenkic 2007). From Lardiere's perspective, the production of the English indefinite article involves more layers of feature mapping thus leading to the often observed less native-like production of indefinite articles.

Table 5.13 Mean accuracy scores for Definite and Indefinite articles by the two L1 groups

L1	Definite Article	Indefinite Article	
LSA (n = 10)	1174/1208 (96.90)	902/978 (91.56)	z = -2.293 p = .022
MC (n = 10)	878/1005 (86.01)	545/695 (79.96)	z = -2.073 p = .038
	U = 2.000 p< .001	U = 17.000 p = .013	

Results from the current study (reported in Table 5.13 above) show that L2 learners in the LSA group had significantly higher scores on the production of the English definite article compared to the production of the indefinite article (z = -2.293, N - Ties = 10, *p* = .022, two-tailed) and so did the L2 learners in the MC group (z = -2.073, N - Ties = 9, *p* = .038, two-tailed). This result is interesting because for MC-speaking learners of English both articles (definite and indefinite) are not overtly realized in the morphology of MC, but they still seem to be more accurate in the production of the English definite article.

5.6.2   L2 production of articles in adjective vs. no-adjective contexts

Production of L2 articles in contexts where the article and the noun are not separated by an adjective is supposed to be easier for L2 learners than in contexts where the adjective intervenes between the article and noun. Goad and White (2004) claim that, according to the PTH, L2 learners of English whose L1 prosody does not have the free

clitic structure cannot represent English articles in a target-like fashion in their interlanguage production (see (95) below, repeated from (75) in chapter 3).

(95) The prosodification of English articles in adjective and no-adjective contexts

(a)

```
              PPh
             /  |
           PWd  |
            |   |
         a/the  man
```

'a/the man'

(b)

```
                PPh
               /  |  \
             PWd PWd PWd
              |   |   |
           a/the tall man
```
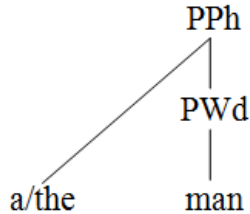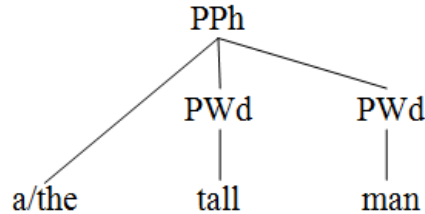
'a/the tall man'

It has been observed, though, that some L2 learners (like SD) might be able to use non-target-like prosodic structures to represent English articles, like adjunction to the PWd of the noun, as in (96.a) below; this kind of prosodic analysis of articles is not possible when an adjective is present in the structure (96.b), because adjunction to the PWd/$_{noun}$ cannot overpass the intervening adjective and thus is no longer possible as a means for representing English articles.

(96). The prosodification of English articles as affixal clitics by L2 learners

(a)

```
          PPh
           |
          PWd
          / \
      a/the  man
```

'a/the man'

(b)

```
              PPh
              |  \
            PWd   PWd
            / ×    |
       a/the tall  man
```
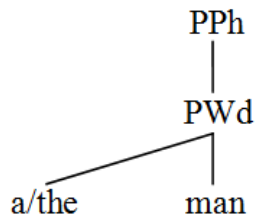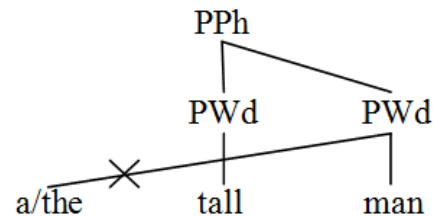
'a/the tall man'

The results from this study for both L1 groups support this claim by the PTH (see Table 5.14 below). L2 learners in the LSA group have significantly higher accuracy scores on the production of L2 articles when the noun immediately follows the article

compared to contexts involving an adjective between the article and noun (z = -2.090, N - Ties = 10, p = .037, two-tailed), and so do the L2 learners in the MC group (z = -2.090, N - Ties = 10, p = .037, two-tailed).

Table 5.14 Mean accuracy scores for (Article + Adjective + Noun) vs. (Article + Noun) contexts

	Articles		
	Art+N	**Art+Adj+N**	
LSA (n = 10)	1590/1642 (99.25)	486/544 (89.21)	**z = -2.090** **p = .037**
MC (n = 10)	1048/1221 (89.09)	375/479 (76.87)	**z = -2.090** **p = .037**
	U = 12.000 **p = .003**	**U = 18.000** **p = .015**	

The significant differences between accuracy scores of the LSA and MC groups with respect to the above results are further illustrate in Chart 5.11 below.

Chart 5.11 Mean accuracy scores for (Article + Adjective + Noun) vs. (Article + Noun) contexts
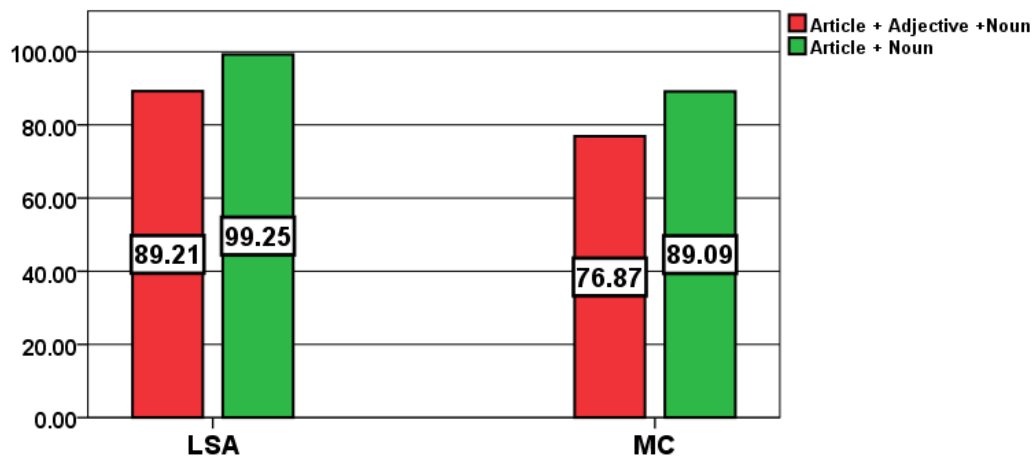
The PTH claims that in instances of accurate L2 production of articles in DPs with adjectives, L2 learners may resort to other non-target techniques. For example, they might treat articles as other English determiners that are independent PWds, thus leading to production of stressed articles, as shown in (97). This behaviour was

attested with L2 learners whose L1 is Turkish (e.g. Goad and White (2004; 2006; 2009a, b)). Stressing is not attested in the data used to obtain results for this study as a method to overtly realize English articles by L2 learners in either of the L1 groups.

(97). A non-target prosodification of English articles by Turkish-speaking L2 learners

```
               PPh
          ┌─────┼─────┐
        PWd    PWd    PWd
         │      │      │
       á/thé   tall   man

          'a/the tall man'
```
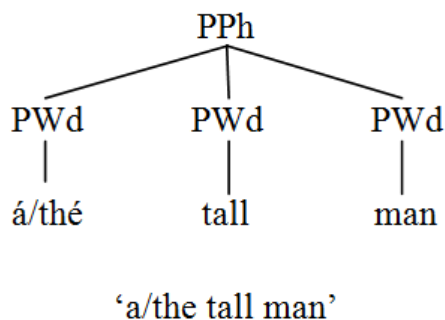
Such an argument leaves the PTH unable to provide an account for the relatively high scores that L2 learners in this study have for producing articles in (Article + Adjective + Noun). If the L2 learners are unable to prosodify articles as free clitics, and also they do not treat them as independent PWds, the question remains of what kind of prosodic structure they are using.

5.7   Passive participles

While the concept of passive voice might be considered linguistically universal, the way this concept is expressed morphologically differs among the three languages in this study (English, MC and LSA). In English and LSA, verb forms can have two morphological forms: [-Participle] when the verb has a T feature, or [+Participle] when T is carried by an auxiliary, while the verb form denotes a passive meaning. In MC, on the other hand, passive voice is indicated via particles that accompany the verb form, but participiality is not part of the morphology in this language. Chart 5.12

below provides information about the morphosyntactic and prosodic representations of the passive in the three languages.

Chart 5.12 The morphosyntax and prosody of the passive participle

	Syntax	Morphology	Prosody	
English	✓[*M-form*: +Participle] [*Voice*: ±Passive] [*Function*: V/Adj]	✓-ed, -en; ablaut	✓affixal clitic	
MC	✓ [*Voice*: ±Passive] [*Function*: V/Adj]	✓*Passive*: bèi, jiào, and ràng	✓PWd	*Adjunction to PWd can be built from existing L1 prosodic structures*
LSA	✓[*M-form*: +Participle] [*Voice*: ±Passive] [*Function*: V/Adj/N]	✓m-, template and vocalic melody	✓internal clitic	

The status of the passive in the three languages in this study is unprecedented in any of the functional morphology looked at so far in this chapter. The passive is represented on the syntactic, morphological and prosodic levels in L2 English and both L1s LSA and MC. The predictions of the RDH, IH and PTH are given below:

Prediction 5a (Passive Participle, RDH): As the feature [±Passive] is part of the syntax in English, MC and LSA, the RDH predicts that the acquisition and production of L2 English passive participles should be facilitated for L2 learners whose L1 is either LSA or MC. The morphological feature [±Participle] is, however, not available in MC and the passive voice is indicated by independent particles rather than by affixes. This might influence the accuracy scores of MC-speaking learners of English since their L1 does not require participiality to be reflected on the verb form.

Prediction 5b (Passive Participle, IH): The IH has similar predictions to those of the PTH. The [±Passive] feature is interpretable and, therefore, acquirable for L2 learners regardless of its availability in the L1, meaning that L2 acquisition of

this feature should not be problematic for learners in either of the L1 groups. A morphological [+Participle] feature seems to require verb forms in the L2 English and L1 LSA to add suffixes that reflect the passive meaning, whereas MC does not require affixality on verbs that carry the [+Passive] feature. This may cause L2 learners in the MC group to be less accurate than those in the LSA group with respect to producing L2 passive participles.

Prediction 5c (Passive Participle, PTH): Despite the fact that the passive participle is not prosodically represented as an affixal clitic (the L2 prosodification of the passive participle) in either of the L1s, the PTH predicts that L2 production of the passive participle should be highly accurate for both L1 groups. This is based on the claim that for L2 learners from these L1 backgrounds (LSA and MC) the adjunction-to-PWd is an attainable structure by modifying existing L1 structures.

The results from the current study run counter to the prediction of the PTH. The two L1 groups do not have similar performance with respect to the L2 production of the passive participle. The LSA group is shown to be significantly more accurate than the MC group (U = 12.500, N_1 = 10, N_2 = 10, p = .004, two-tailed), as Chart 5.13 below reveals. The main prediction of both the RDH and IH is similar to that of the PTH: L2 learners in both groups are expected to successfully acquire the L2 passive participle, a prediction that is not borne out in the results of this study. These two hypotheses could still account for the results by arguing that despite the relative similarity in the syntactic structure of the passive participle between the L2 and each of the L1s, the lack of affixality in L1 MC may cause L2 learners difficulty in consistently recognizing the need for an affix to represent the L2 feature, thus giving LSA speakers an advantage over MC speakers since the passive participle is

morphologically marked by affixation (and a special template and vocalic melody) in this L1.

Chart 5.13 Mean accuracy scores of passive participle forms in the two L1 groups
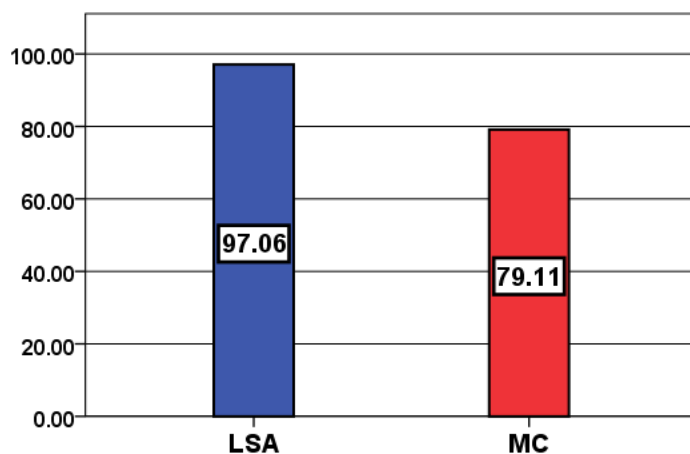
5.7.1   Suppliance of passive participle marking in regular vs. irregular forms

The fact that the LSA group is overall more accurate than the MC group with regard to the L2 production of the passive participle is more due to the former group being more accurate in the production of regular forms of the passive participle than the latter group (U = 12.500, N_1 = 10, N_2 = 10, p = .004, two-tailed). The results (given in Table 5.15) show that there is no significant difference between the two groups' performances on irregular forms (U = 40.000, N_1 = 10, N_2 = 10, p = .292, two-tailed).[132] A similar situation has already been observed in the results of the production of number marking in regular and irregular stems.

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[132] It should be noted here that the total number of irregular passive participle forms is very small compared to that of regular forms for each of the two groups (see Table 5.15 for the exact numbers).

Table 5.15 Mean accuracy scores for passive participle in regular vs. irregular stems

L1	Passive Past Participle		
	Regular	Irregular	
LSA (n = 10)	343/360 (96.75)	48/48 (100)	z = -2.023 p = .043
MC (n = 10)	198/250 (76.87)	33/37 (96.30)	z = -1.960 p = .050
	U = 12.500 p = .004	U = 40.000 p = .292	

The same results (also reported in Chart 5.14) reveal that L2 learners in the LSA group found that suppliance of the passive participle marker is significantly easier in irregular forms compared to regular forms (z = -2.023, N - Ties = 5, *p* = .043, two-tailed), whereas L2 learners in the MC seem to have a relatively similar performance on both stem shapes of the passive participle (z = -1.960, N - Ties = 8, *p* = .050, two-tailed). This may indicate that L2 learners in the LSA group experience less difficulty in the production of inflected forms in this case when adjunction-to-PWd is not involved, which contrasts with the type of performance L2 learners from this group have shown so far. As for L2 learners in the MC group, rather than them having no difficulty with using the target affixal clitic structure to represent interlanguage functional material, the reason for showing no difference in performance across regular and irregular stems will be argued to be due to extra prosodic factors in Chapter 6 below.

Chart 5.14 Mean accuracy scores for passive participle in regular vs. irregular stems
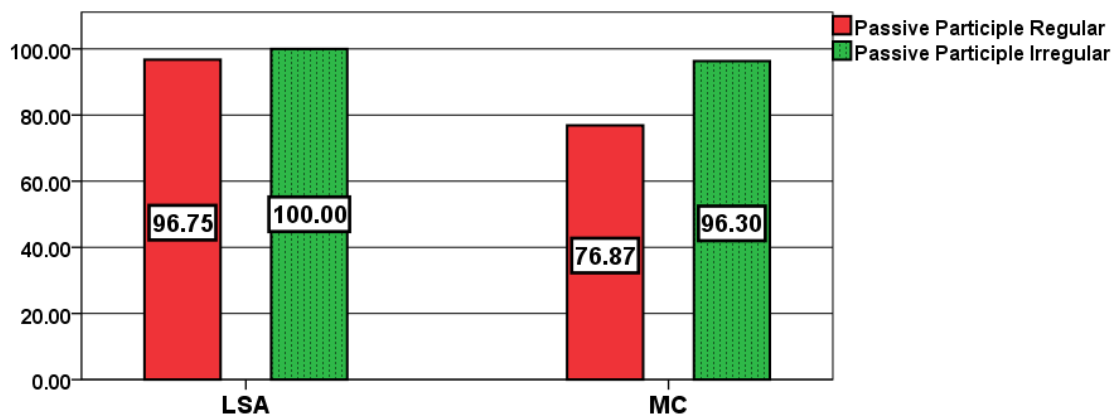
5.8   Perfective participles

The discussion in this section is going to be relatively similar to that in the previous section about passive participles. The perfective aspect is morphologically marked in English, MC and LSA, in different ways, however (see Table 5.16 below). In L2 English, perfectivity is marked via the participle form of the verb while the auxiliary has the T features. In MC, perfectivity is represented by particles that can be argued to be clitics due to their lack of tone, although they are orthographically independent from the verb form. LSA is different from English in that the perfective aspect is not reflected in the morphology by a participle form. Rather, it is argued that its use is intertwined with that of the past tense and, therefore, it is morphologically marked via a specific template and vocalic melody. T can be carried by an auxiliary or by the verb stem itself.

Table 5.16 The morphosyntax and prosody of the perfective participle

	Syntax	Morphology	Prosody	
English	√[*M-form*: +Participle] [*Asp*: +Perfective] [*Voice*: -Passive] [*Function*: V]	√-ed, -en; ablaut	√affixal clitic	
MC	√[*Asp*: Perfective/Experiential] [*Voice*: -Passive] [*Function*: V]	√*Perfective:* le, guo	√internal clitic	*Adjunction to PWd can be built from existing L1 prosodic structures*
LSA	√[*M-form*: -Participle] [*Asp*: +Perfective] [*Voice*: -Passive] [*Function*: V]	√template and vocalic melody; adverb	√internal clitic	

The predictions by the RDH, IH and PTH are given below:

Prediction 6a (Perfective Participle, RDH): While aspect and tense have separate morphological realizations in L2 English and L1 MC, the two features are frequently represented by the same morphology in L1 LSA, which means that MC-speaking learners of English might be expected to experience less difficulty in the production of L2 perfective participles than L2 learners in the LSA group. There are other factors that influence the nature of the predictions made by the RDH for the performance of L2 learners in this study. First, in terms of morphological form, neither of the L1s uses the participle verb form in perfective contexts, and, therefore, both L1s differ from the L2 in that respect. Second, both L1s have a [*Asp*: Perfective] feature just like the L2 does. The last two similarities between the two L1s suggest that the RDH predicts that L2 learners from both L1 groups should have a relatively similar and accurate production of the perfective participle in their English interlanguage. This is specifically based on the availability of the crucial [*Asp*: Perfective] feature in each of the two L1s and the L2.

Prediction 6b (Perfective Participle, IH): The IH, like the RDH, predicts relatively similar behaviour by the L2 learners in the LSA and MC groups. The [*Asp*: Perfective] feature is acquirable for L2 learners since it is interpretable, and is anyway available in L1s MC and LSA. With respect to morphological representation, the fact that both L1s differ from the L2 supports the above claim. A [*M-form*: +Participle] feature requires inflection to appear on the verb part of the perfective structure in English. In MC perfectivity is signified by an independent particle whereas the verb remains bare, and in LSA verb forms that have a [*Asp*: Perfective] feature have a [*M-form*: -Participle]. This difference between the L2 and each of the L1s leads to the prediction that L2 learners in both L1 groups are going to experience a degree of difficulty with regard to the production of English perfective participles.

Prediction 6c (Perfective Participle, PTH): Despite the difference in how the perfective participle marker is prosodically represented between the two L1s (internal clitic) and the L2 (affixal clitic), the PTH predicts that L2 prosodic structure is buildable by using L1 existing structures, which means that L2 learners are expected to be able to successfully produce the L2 inflectional morpheme in question.

The results from this study (Chart 5.15) show that there is no significant effect for the suppliance of the perfective participle marker between the two L1 groups ($U = 28.000$, $N_1 = 10$, $N_2 = 10$, $p = .069$, two-tailed). In this instance, the results match with the claims of each of the three tested hypotheses. The interpretation of this match between the prediction and the result is not the same for the three hypotheses. The PTH and the RDH predict high accuracy scores for L2 learners in both groups, which

can be seen in the results: 97.43% and 84.90% for the LSA and MC groups, respectively. These high accuracy scores contradict what the IH predicts: relatively similar but low accuracy scores for both groups.

Chart 5.15 Mean accuracy scores of perfective participle forms in the two L1 groups
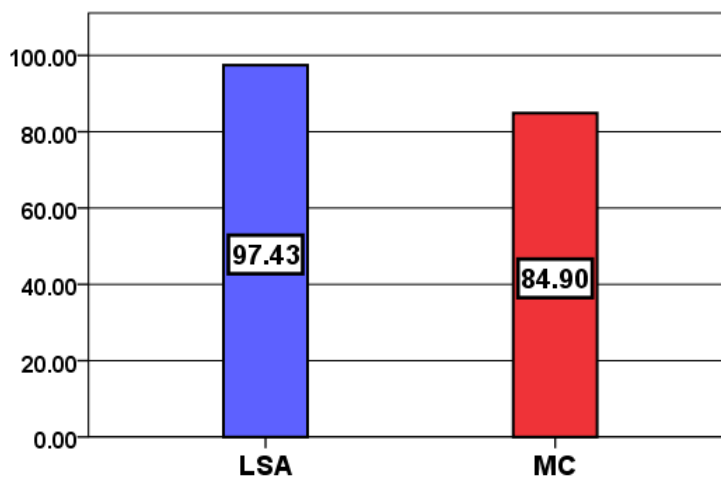
5.8.1   Suppliance of perfective participle marking in regular vs. irregular forms

Exploring whether suppliance of inflectional morphology is less problematic in irregular stems in L2 English for L2 learners in this study shows that while those in the LSA group had relatively similar accuracy scores regardless of stem type (z = -.535, N - Ties = 3, p = .593, two-tailed), L2 learners in the MC group were more accurate with irregular-stem contexts compared to those involving adding inflection to regular stems (z = -1.997, N - Ties = 6, p = .046, two-tailed) (see Table 5.17 below).

Table 5.17 Mean accuracy scores of regular vs. irregular perfective participles

L1	Perfective Past Participle		
	Regular	Irregular	
LSA (n = 10)	64/67 (96.49)	146/148 (97.50)	z = -.535 p = .593
MC (n = 10)	24/31 (63.23)	84/88 (94.35)	z = -1.997 p = .046
	U =26.500 p = .092	U =36.500 p = .180	

The PTH's interpretation of such results (also reflected in Chart 5.16 below) is that the MC group might be experiencing a difficulty in consistently constructing the adjunction-to-PWd structure required for representing the L2 morpheme in regular forms. Irregular forms do not involve affixal clitics as the inflection is incorporated within the PWd_{stem}, which means that direct transfer of L1 structures is required rather than minimal adaptation of those structures. This, however, does not account for why L2 learners in the LSA group do not differ in the two conditions.

Chart 5.16 Mean accuracy scores of regular vs. irregular perfective participles
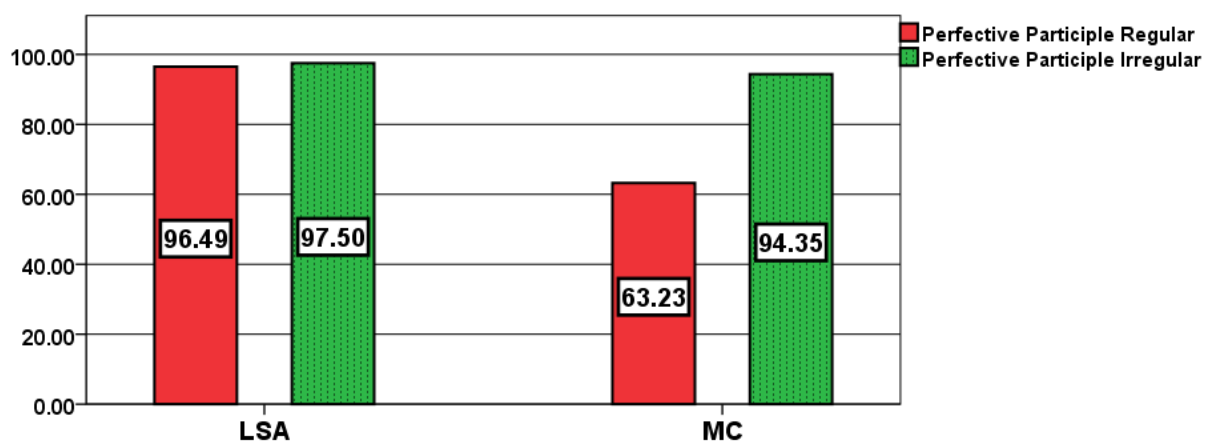
5.9   Genitive -s

Genitive marking is claimed to be represented in the syntax, morphology and phonology of L2 English and each of the L1s (LSA and MC), as shown in Table 5.18 below. While the three languages are similar in terms of having the syntactic feature [*Case*: Genitive], the way this feature is represented in the morphology varies among these languages. In L2 English, the possessor is suffixed by -*s*; in MC, a particle *de* intervenes between the possessor and the possessum; in LSA, a suffix -*u* attaches to the possessum and a prefix *la*- attaches to the possessor. As for prosody, the L2 structure required for the representation of [*Case*: Genitive], the affixal clitic, can be built by L2 learners via minimally adapting existing L1 structure.

Table 5.18 The morphosyntax and prosody of the genitive feature

	Syntax	**Morphology**	**Prosody**	
English	✓[*Case*: Genitive, Accusative]	✓ -s	✓ affixal clitic	
MC	✓[*Case*: Genitive]	✓ de	✓ internal clitic	*Adjunction to PWd can be built from existing L1 prosodic structures*
LSA	✓[*Case*: Genitive, Accusative]	✓-u & la-	✓ internal clitic; PWd-PWd compound	

The fact that the [*Case*: Genitive] feature is available in the grammar of each of the three languages, and that this feature has morphological and prosodic representations in these languages means that the predictions of the three hypotheses examined here are quite similar.

Prediction 7a (Genitive -s, RDH): The RDH's prediction for the performance of the L2 learners in the MC group and LSA group is that they will both be relatively

highly accurate in their L2 production of the genitive morpheme, since the [*Case:* Genitive] feature is grammaticalized in both L1s.

Prediction 7b (Genitive -s, IH): The [*Case:* Genitive] feature is interpretable and therefore acquirable for L2 learners, as predicted by the IH. It is assumed that a [+Af] feature is part of the featural specification of the possessor in L2 English, thus requiring affixation of morphology to reflect the [*Case:* Genitive]. The syntactic feature [+Af] is also available in the L1s LSA and MC, which guarantees that the interpretable feature [*Case:* Genitive] is realized in the morphology by an affix (or particle, as in MC) in both L1s. This leads to the prediction that L2 learners from both L1 groups will be highly accurate in the production of the English genitive -s.

Prediction 7c (Genitive -s, PTH): The PTH also predicts that L2 learners in both groups will be highly accurate in the suppliance of the L2 genitive -s, despite the fact that the genitive feature is prosodified as an internal clitic in both L1s.[133] This prediction is based on the PTH's claim that the L2 adjunction-to-PWd structure can be attained by L2 learners in this study by minimally adapting prosodic structure they already have in their L1s.

The results in this section need to be treated with caution since the data from both groups contained a small number of contexts involving the genitive structures. This means that there is a chance that the results in Chart 5.17 below might be an inaccurate representation of what the L2 learners' competence in the L2 actually is. The results show that there is no significant difference between the performance of

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[133] This is true for the LSA genitive structure involving a preposition, whereas the annexation structure is prosodified as a compound (see section 3.4.6.3 for an explanation).

the LSA and MC group with respect to the production of English genitive -s (U = 38.000, N_1 = 10, N_2 = 10, p = .820, two-tailed). This outcome partly upholds predictions made by the RDH, IH and PTH, in that the two groups seem to have relatively equal accuracy levels. The above three hypotheses, however, all predicted high accuracy scores for both L1 groups, which does not appear to be the case with 67% and 70% overall scores for the LSA and MC groups, respectively. The L2 learners in the LSA group had significantly higher suppliance rates of other functional morphology looked at previously in the chapter. For instance, their performance on the production of English past tense was significantly better than that of the genitive -s (z = -2.100, N - Ties = 8, p = .036, two-tailed) despite the two features [*Tense*: $\pm$Past] and [*Case*: Genitive] both being available in the grammar of LSA. The MC-speaking L2 Learners' score of 70% is statistically as high as scores they have on other morphological forms, e.g. with past tense marking (z = -1.244, N - Ties = 9, p = .214, two-tailed) and with plural marking (z = -.770, N - Ties = 9, p = .441, two-tailed). As said earlier in this section, keep in mind the fact that the results below are based on a relatively small number of occurrences.

Chart 5.17 Mean accuracy scores of genitive -s forms in the two L1 groups
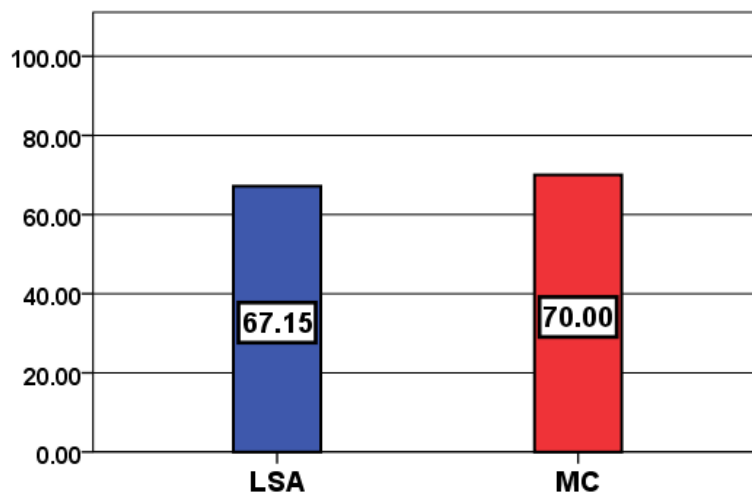
5.10 Do L2 learners have a problem with production of word-final consonant clusters and/or the adjunction-to-PWd structure?

After having examined the interlanguage production of functional morphology of L2 learners in each of the L1 groups (LSA and MC) through the predictions of the RDH, IH and PTH, the next step is to check whether a prohibition on final consonant clusters (or *CC) is also influencing the L2 production of L2 learners in the study. This ban is part of the phonology of each of the L1s LSA and MC and it being transferred into the interlanguage of at least a subset of L2 learners is something expected and deserves looking at.

In order to find out whether a *CC constraint is transferred from either of the L1s and, if so, whether it is more persistent in the interlanguage of one group over the other, the groups' overall accuracy scores for the production of final CCs in monomorphemes will be compared. A point that needs to be made clear before proceeding is that Cluster-Final Monomorphemes (CFMs) found in the data are

divided into two main categories and only the first one of them is included in the comparison to be made next. The first category includes final clusters that are phonologically similar to clusters in inflected forms, and are thus called CFM Cluster-Similar-to-Inflection (CSI). These are words that end in one of the following clusters: {voiced consonant/sonorant + d/z}, e.g. [kaɪnd] *kind* and [sʌmtaɪmz] *sometimes*; or {voiceless consonant + t/s}, e.g. [fækt] *fact* and [fɪks] *fix*. The second category includes words ending in any other cluster type, e.g. [pəfɔːmʌns] *performance*, [frænk] *frank*, [maɪself] *myself*, [pɔɪnt] *point*, [kæmp] *camp*, etc. and they are known as CFM Cluster-Not-Similar-to-Inflection (CNSI). The accuracy scores for the production of both types of CC are reported in Table 5.19.

The rationale behind using the first category only (i.e. CFM (CSI)) in the comparison is two-fold: first, to rule out the effect of sonority differences and other phonological factors in consonant combinations; and, secondly, to be able later in the chapter to compare the performance of the participants on the production of phonologically-similar consonant clusters in two syntactically different environments: one involving inflection, e.g. *signed* [saɪnd], against one that is an uninflected stem, e.g. *bind* [baɪnd]. Below the performance of L2 learners in each of the L1 groups will be discussed separately.

Table 5.19 Mean accuracy scores of the two L1 groups for production of final CCs in CFM (CSI vs. CNSI)

L1	Cluster-Final Monomorphemes		
	CSI	CNSI	
LSA (n = 10)	1000/1076 (92.86)	995/1073 (93.24)	$z = -.153$ $p = .878$
MC (n = 10)	593/841 (69.64)	632/802 (77.93)	$z = -1.886$ $p = .059$
	$U = 4.000$ $p = .001$	$U = 16.000$ $p = .010$	

Results from this study (reported in Chart 5.18 below) reveal that the performance of L2 learners in the LSA group is significantly more native-like than that of the MC group with respect to producing final CCs in CFM (CSI) (U = 4.000, N1 = 10, N2 = 10, p = .001, two-tailed). The implication of such a difference in performance is that L2 learners in the MC group do suffer from a transfer of their L1 ban on final-CCs within PWd boundaries. The prosodic structure of monomorphemes does not involve adjunction to the PWd, therefore the inability to produce this structure cannot be argued to cause the attested final-CC reduction. This argument can at least lead to the assumption that for L2 learners in the MC group, *CC constrains their L2 production to a significantly higher degree than it does for L2 learners in the LSA group. It can also be strongly argued that the influence of this constraint is very limited in the LSA group since the mean accuracy score of L2 learners reached 92.86%, a highly near native-like performance.

Chart 5.18 Mean accuracy scores of the two L1 groups for production of final CCs in CFM (CSI)
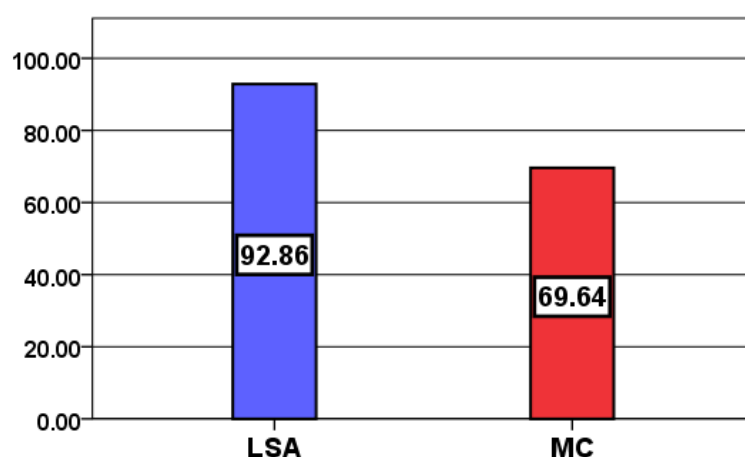
Proponents of the PTH propose (Goad et al. 2003) that the reduction of final CCs by L2 learners does not happen for the same reason in L2 inflected and non-inflected

forms. Within the boundaries of the PWd/$_{stem}$ CC reduction may be caused by the L1 *CC constraint transferred into the L2. This constraint is argued to be effective only within the lower PWd, (i.e. in monomorphemic forms: [bɑɪnd] *bind*). Inflected forms ending in a stem-consonant + inflection (e.g. [wɔkt] *walked*) are argued by Goad et al. (2003) to require adjunction to the PWd/$_{stem}$ as a means for prosodically representing inflection in L2 English. L2 learners who reduce final CCs in inflected forms are assumed by the PTH to be doing so due to their inconsistent ability to build the prosodic structure required to represent English inflectional morphology (or a transfer of a *adjunction-to-PWd constraint when the L1 is a language like MC that does not use this structure at all to represent its functional material), rather than the transfer of the L1 prohibition of final CCs.

The SLA literature shows that some L2 learners from L1 backgrounds such as MC, like Lardiere's (2003) Patty, consistently reduce consonant clusters across the board (in both inflected and non-inflected forms) implying that *CC and *adjunction-to-PWd are both transferred from the L1 into the English interlanguage of those learners, whereas other L2 learners from the same L1 background, like Hawkins and Liszka's (2003) two Chinese speakers, appear to have overcome the L1 ban on final CCs in the lower PWd (or PWd/$_{stem}$), since they reduce clusters more frequently in inflected forms (37% omission of inflection in past-tense verbs) compared to contexts involving monomorphemic words (18% reduction of final CCs), suggesting that a *adjunction-to-PWd only is prevalent in their interlanguage.

For the sake of exploring what constraints are transferred into the interlanguage of L2 learners in each of the L1 groups in this study, and whether they behave like

Lardiere's Patty or like Hawkins and Liszka's Chinese participants, the following subsections are going to provide two comparisons of L2 performance. The first one is between the L2 productions of final CCs in: regular inflected forms (e.g. [wɔks] *walks* and *cats* [kæts]) vs. CFM (CSI) (e.g. [baɪnd] *bind*). Such a comparison allows us to learn whether L2 learners have a *CC constraint transferred from their L1. The second one is between the L2 productions of inflection in regular consonant-final stems (e.g. [wɔks] *walks* and *cats* [kæts]) vs. regular vowel-final stems (e.g. [pleɪz] *plays* and *stories* [stɔrɪz]). This comparison allows us to see whether L2 learners prefer contexts where absence of a final CC helps organize the added inflection PWd internally without violating *CC in the lower PWd.

5.10.1   L2 learners in the LSA group

Comparing the mean accuracy scores reported in Chart 5.19 below shows that while L2 learners in the LSA group were highly native-like with regard to the production of final CCs in both CFM (CSI) (e.g. [baɪnd] *bind*) and regular inflected forms (e.g. [saɪnd] *signed*) (z = -.663, N - Ties = 10, *p* = .508, two-tailed), their production of inflectional morphology was significantly more accurate in contexts that do not involve final CCs in inflected forms (e.g. [pleɪd] *played*) (z = -2.803, N - Ties = 10, *p* = .005, two-tailed) compared to contexts involving inflected verbs ending in a CC (e.g. [saɪnd] *signed*).

Chart 5.19 Mean accuracy scores of CF vs. NCF regular inflected forms and of CF regular inflected forms vs. CFM (CSI) in the LSA group
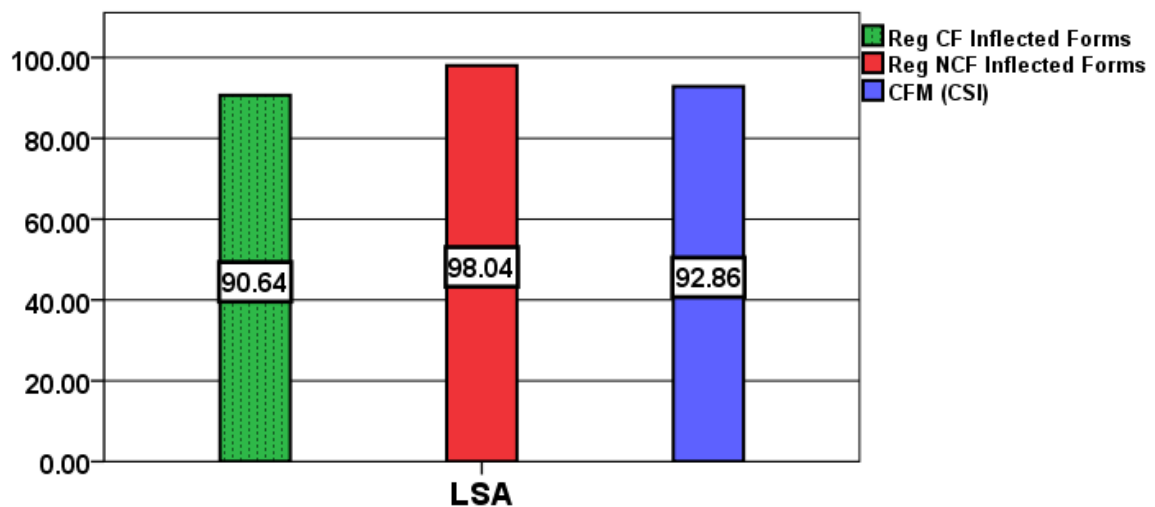
Chart 5.20 below provides a comparison of production of word-final CCs in CFM (CSI) vs. each of the categories of regular inflected forms ending in consonant clusters that are examined in this study. This is a breakdown of the overall results reported in Chart 5.19 above. The results below show no significant difference of L2 production of final CCs between CFM (CSI) and any of the categories of inflected forms: past tense, 3SG agreement, number, passive participle, perfective participle, and the genitive inflected forms.

Chart 5.20 Mean accuracy scores of CFM (CSI) vs. regular cluster-final inflected forms in the LSA group
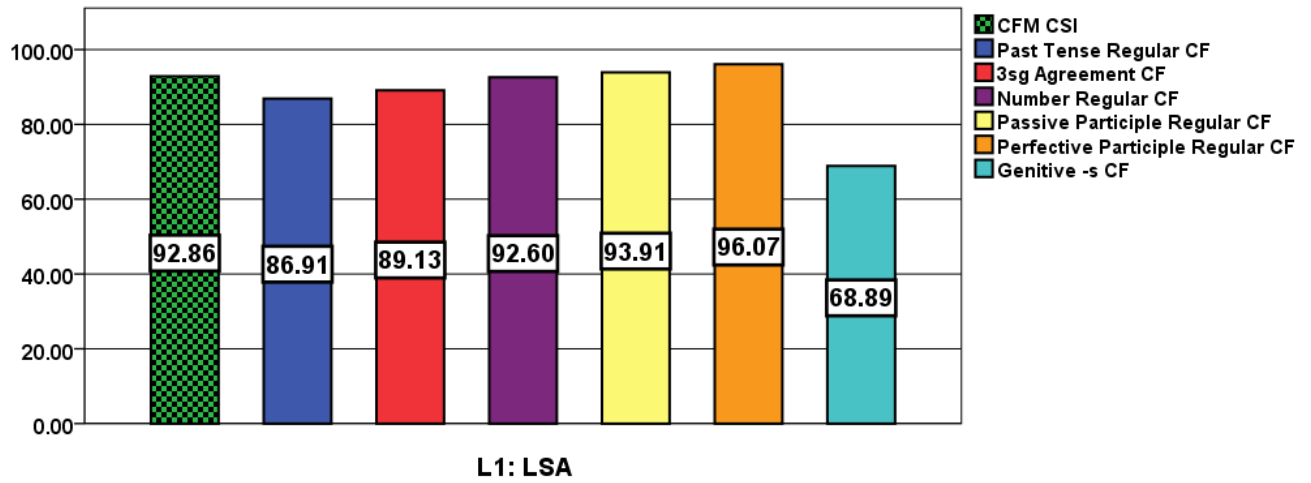
In terms of comparing accuracy scores for supplying inflectional morphology between inflected forms that end in a CC, e.g. *walked*, and those that do not, e.g. *played*, a breakdown is also given in Table 5.20 below.

Table 5.20 Mean accuracy scores for CF vs. NCF Regular inflected forms in the LSA group

	Past Tense		3SG Agreement	Number		Passive Participle		Perfective Participle		Genitive -s
	Regular	Irregular		Regular	Irregular	Regular	Irregular	Regular	Irregular	
CF	185/209 (86.91)	169/172 (96.77)	274/305 (89.13)	763/813 (92.60)	-	143/158 (93.91)	16/16 (100)	33/35 (96.07)	13/13 (100)	36/46 (68.89)
NCF	261/268 (97.74)	657/671 (96.47)	95/98 (97.62)	383/393 (97.62)	244/244 (100)	200/202 (99.17)	31/31 (100)	31/32 (97.78)	133/135 (96.67)	16/23 (62.50)
	$Z = -2.380$ $p = .017$	$Z = -.169$ $p = .866$	$Z = -2.240$ $p = .025$	$Z = -1.423$ $p = .155$	-	$Z = -1.753$ $p = .080$	$Z = -.000$ $p = 1.000$	$Z = -.535$ $p = .593$	$Z = -1.000$ $p = .317$	$Z = -.921$ $p = .357$

The goal is to show which of the categories tested is particularly causing the observed discrepancy in the suppliance rate of inflection between consonant-final and vowel-final stems by L2 learners in the LSA group. The results show that this discrepancy is observed only in two categories: past tense marking (z = -2.380, N - Ties = 8, *p* = .017) and 3SG agreement marking (z = -2.240, N - Ties = 8, *p* = .025, two-tailed) (see the same results also in Chart 5.21 below).

Chart 5.21 Mean accuracy scores for CF vs. NCF Regular inflected forms in the LSA group
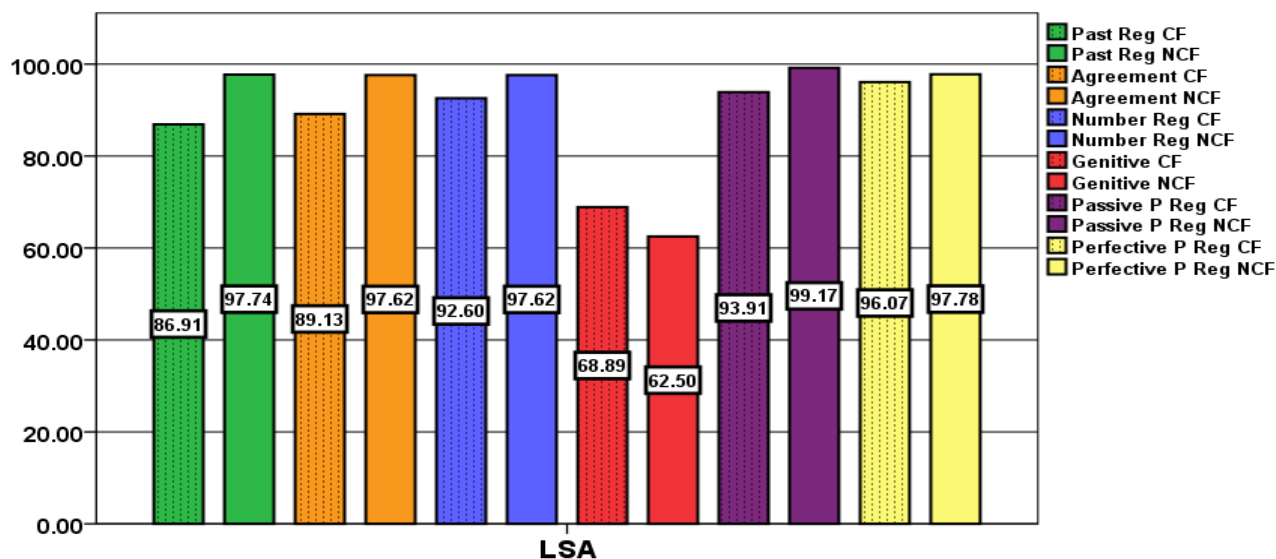
This outcome is very important for portraying the L2 competence of L2 learners in this group. The above results show L2 learners' production of inflectional morphology in the LSA group to be significantly more facilitated in vowel-final stems like *play*, as opposed to in consonant-final stems like *walk*, and at the same time the L1 constraint *CC does not seem to be transferred into the L2 grammar since the L2 learners in this group have a near-native-like accuracy profile on production of final CCs in monomorphemic forms. One would think that those L2 learners have a difficulty recognizing the need for the PWd-adjunction structure to represent some inflectional morphology in the L2 whose equivalents have a PWd-internal analysis in L1 LSA (e.g. past tense and 3SG markings). This leads L2 learners in this group to preferring vowel-final stems that allow PWd-internal prosodification of L2 inflectional morphology. If that was true, however, then an explanation would be needed for why the L2 production of word-final CCs is not less problematic in CFM (CSI) contexts like *bind* (whose prosodification does not involve adjunction-to-PWd) compared to

regular inflected forms like *signed* (where the PWd-adjunction structure is crucial for prosodic representation).

The most plausible explanation for the behaviour of L2 learners in the LSA group goes as follows. In their interlanguage, those learners have largely overcome the L1 prohibition of word-final consonant clusters (*CC) (92.86% production of final CCs in CFM (CSI)) and have developed a near-native-like ability to use adjunction-to-PWd for representing inflectional morphology (90.64% accurate suppliance of inflection in consonant-final stems); therefore, neither of the above L1 constrictions constitutes a major difficulty in the L2 for LSA speaking learners. Nevertheless, *CC and the need for using the adjunction-to-PWd structure both remain an obstacle when they occur, and both have a minimal negative effect on L2 production. Most of the time, L2 learners in the LSA group are successful in overcoming the obstacle, but on a few occasions they are not. Environments that require no or little adaptation to L2 rules, such as *play* and *story*, create much easier contexts for accurate L2 production. In those words there is no *CC to overcome nor a need for affixing the inflection to PWd/$_{stem}$ since the former can be incorporated within the latter, hence the observed significantly higher accuracy score for supplying inflection in vowel-final stems (98.04%). More evidence for the minimal negative effect of these two L1 conditions on L2 learners in the LSA group comes from looking at accuracy in supplying inflection in forms like [fɪlz] *fills* where a PWd-internal analysis is possible, since the inflection can be treated as an onset of an empty-headed syllable: [fɪl-zØ]$_{PWd}$. This adaptation of L2 structures to suit L1 prosody is similar to the case with inflected verbs like [pleɪ-zØ]$_{PWd}$ *plays*. Nevertheless, the fact that L2 learners whose L1 is LSA have to overcome *CC in structures like that in [fɪl-zØ]$_{PWd}$ *fills* (since the inflected verb in the

current format constitutes just one PWd), but not in inflected verbs like [pleɪ-zØ]$_{PWd}$ *plays*, means that the production of the latter type of inflected verbs is even less problematic. This is supported by the results reported in Chart 5.19 above.

5.10.2   L2 learners in the MC group

It has already been established, based on results from the current study, that L2 learners in the MC group are more variable in producing final CCs in CFM (CSI) (with a 69.64% production score) and that they are less accurate in supplying L2 inflectional morphology compared to L2 learners in the LSA group, and that is true even when the inflected stems are vowel final.[134] This implies that they have a problem in consistently building the adjunction-to-PWd structure to represent target inflectional morphology. The results reported in Table 5.21 below will help further support the above conclusion about the MC group.

Table 5.21   Mean accuracy scores of CF vs. NCF regular inflected forms and of CF regular inflected forms vs. CFM (CSI) in the MC group

	Past Tense		3SG Agreement	Number		Passive Participle		Perfective Participle		Genitive -s
	Regular	Irregular		Regular	Irregular	Regular	Irregular	Regular	Irregular	
CF	71/151 (46.28)	46/68 (73.80)	118/183 (65.68)	599/742 (79.60)	-	65/101 (67.22)	11/11 (100)	23/29 (62.40)	3/5 (62.50)	15/20 (75.93)
NCF	57/107 (50.40)	657/671 (96.47)	31/51 (60.76)	235/297 (77.58)	247/258 (96.49)	113/127 (86.75)	37/38 (100)	22/24 (75)	70/72 (94.67)	5/9 (42.86)
	Z = -.663 p = .508	Z = -.357 p = .721	Z = -1.376 p = .169	Z = -.561 p = .575	-	Z = -2.366 p = .018	Z = -1.000 p = .317	Z = -1.342 p = .180	Z = -1.069 p = .285	Z = -1.105 p = .269

There is no significant difference detected for the rate of maintaining word-final CCs between regular inflected forms (e.g. [saɪnd] *signed*) and CFM (CSI) (e.g. [baɪnd] *bind*) (z = -.968, N - Ties = 10, *p* = .333, two-tailed) nor for the accuracy in producing

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[134] With this type of stem, the inflected form does not end in a CC, e.g. *played*, and it is, therefore, possible to prosodify the inflection as an internal clitic: [pleɪ-dØ]$_{PWd}$.

inflection in regular consonant-final (e.g. [saɪnd] *signed*) vs. vowel final stems (e.g.

[pleɪd] *played*) (z = -1.172, N - Ties = 10, *p* = 241, two-tailed). These results are also

reflected in Chart 5.22 below.

Chart 5.22 Mean accuracy scores of CF vs. NCF regular inflected forms and of CF
*regular inflected forms vs. CFM (CSI) in the MC group*
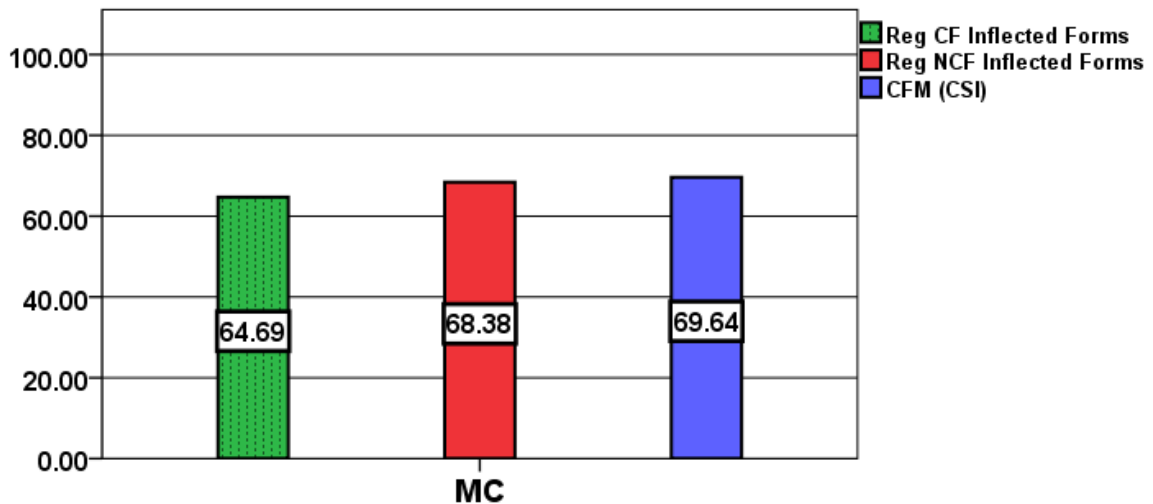
The above results are further broken down in order to explore whether certain

functional morphology is causing more difficulty than others. Results in Chart 5.23

below provide a comparison of final-CC production between CFM (CSI), on the one

hand, and regular inflected forms of each of the categories tested, on the other. The

results show that word-final CCs are accurately supplied to the same extent in both

CFM (CSI) and regular inflected forms (3SG agreement, number, passive participle,

perfective participle, and the genitive), except for past tense, in which case word-final

CC reduction appears to happen more frequently compared to in CFM (CSI) (z = -

2.191, N – ties = 10, *p* = .028, two-tailed). This significant drop in accurately producing

word-final CCs in regular inflected forms cannot be attributed to just a difficulty

building the target adjunction-to-PWd structure, since the results also show that MC-

speaking learners of English in this study actually maintain higher accuracy scores

with other inflected forms whose prosodification in English also involves the adjunction-to-PWd structure (e.g. 3SG agreement and number markers). Such an outcome supports the argument that what is causing less accuracy in supplying past tense marking is not merely prosodic in nature, and that another factor(s) is involved in the acquisition process. This seems to support the assumption that the absence of certain L2 syntactic features or representations in the L1 restrains L2 production, and that representational deficit hypotheses rather than the PTH can provide an explanation for the L2 behaviour of MC-speaking learners of English.

Chart 5.23 Mean accuracy scores of CFM (CSI) vs. regular cluster-final inflected forms in the MC group
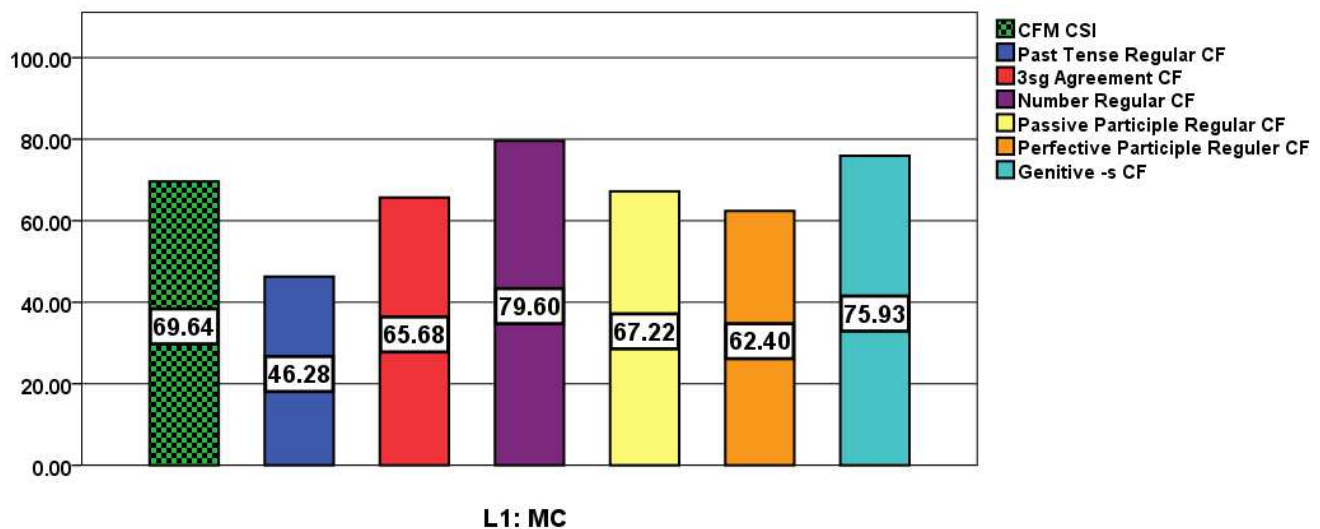
A breakdown of the accuracy scores on supplying inflection in CF vs. NCF regular inflection forms is provided in Chart 5.24 and it shows that, in line with the overall results discussed earlier, the L2 learners in the MC group do not prefer contexts that involve supplying inflection in vowel-final stems over consonant-final stem when it comes to past tense, 3SG agreement, number, perfective and genitive markings. The only exception is with passive participles where the results reveal that vowel-final stems on this occasion facilitate inflection production compared to consonant-final

stems (z = -2.366, N – ties = 10, *p* = .018, two-tailed). The general assumption would

be here that L2 learners in this group recognize the need for adjunction-to-PWd to

represent inflection in the L2, and they are sometimes successful in building this

structure, but, unlike L2 learners in the LSA group, they do not realize that when

the stem is vowel-final it is possible to incorporate the inflection inside the PWd/stem

without violating the L1 *CC constraint. Again, claims based on prosody cannot

provide an explanation for such behaviour by L2 learners. The question as to why,

with passive participles, they tend to supply inflection significantly more frequently

in vowel-final stems still remains.

Chart 5.24 Mean accuracy scores for CF vs. NCF Regular inflected forms in the MC
group
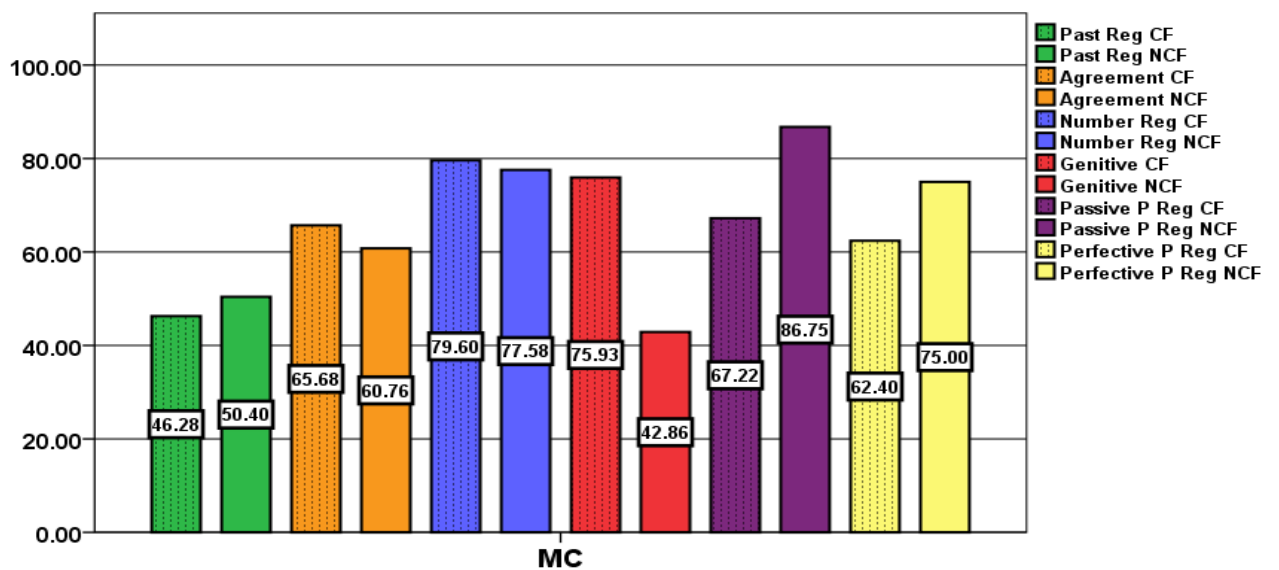
The results discussed so far with respect to the MC group can help paint a picture of

the interlanguage competence of L2 learners in this group. As argued earlier a *CC

is transferred into the interlanguage and is frequently effective, thus causing the

production of final-CCs in CFM (CSI) to drop to 69.64%. On the other hand, with

regard to supplying inflectional morphology, a difficulty in constructing the

adjunction-to-PWd also seems to be prevalent in the interlanguage of those L2 learners thus resulting in just above mediocre accuracy scores for inflection suppliance in CF (64.69%) and NCF (68.38%) inflected forms.

5.10.1 Schwa insertion and stem-consonant deletion

It has been shown so far in the chapter that the L2 production of L2 learners in this study is relatively constrained by the L1, mainly the transfer of restrictions on producing word-final CCs and affixal clitics. The latter L1 influence leads L2 learners to employ non-target methods to facilitate L2 production. The most common type of behaviour observed with L2 learners in this study (and with L2 learners in general) is omission of inflectional morphology and of the final consonant in a CFM. L2 learners, however, sometimes resort to other methods when they do produce word-final CCs in inflected forms and CFMs. It has been observed in the data used in this study that some L2 learners tended to use schwa epenthesis in both CFM and inflected forms, and omission of a stem-final consonant in inflected forms to compensate for the suffixation of the inflectional morpheme. This behaviour occurs to different degrees with L2 learners from different L1 backgrounds. In order to make sure the accuracy scores reported in this chapter are not affected by such methods being used by the L2 learners, this section provides information about the number of instances that are recorded as successful production of final CCs in CFMs and regular inflected forms, but are actually cases of vowel epenthesis or of stem-final consonant deletion.

As for vowel epenthesis, it is observed that the epenthetic vowel (the schwa) can occur in either of two positions: intervening between the two constituent consonants of the

cluster, i.e. CəC, or can be inserted in final position, i.e. CCə. The results in Table 5.22

below reveal an insignificant number of cases where epenthesis occurred in either of

the L1 groups.

Table 5.22 Mean accuracy scores of the LSA and MC groups on schwa insertion in CFMs and correctly inflected regular forms

| | Schwa Insertion in | | | |
| | Monomorphemes | | Correctly Inflected Forms | |
	CəC	CCə	CəC	CCə
LSA (n = 10)	0/1991 (0)	0/1991 (0)	5/1631 (0.36)	0/1631 (0)
MC (n = 10)	0/1224 (0)	12/1224 (1.34)	3/946 (0.67)	6/946 (0.77)

In terms of dropping a stem-final consonant when an inflectional morpheme is added,

the data show that some participants did just that rather than omitting the

inflectional morpheme in correctly inflected forms. This means that inflected forms

like *hoped* and *nails* were produced by those L2 learners as *[həu-t] and *[nei-z]

instead of [həup-t] and [neil-z], respectively. Again the number of times when the L2

learners in this study resorted to such a behaviour is insignificant compared to the

number of times when they did not, as shown in Table 5.23 below.

Table 5.23 Mean accuracy scores of the LSA and MC groups on final-cluster reduction via stem consonant deletion in correctly inflected forms

Stem-Consonant Omission in Correctly Inflected Forms (ho[p]ed, hi[t]s, childre[n]'s)	
LSA (n = 10)	15/671 (2.24)
MC (n = 10)	17/292 (5.82)

Based on the results in the above two tables, schwa insertion and stem-consonant deletion are not going to be discussed any further as factors influencing the L2 production of word-final CCs in CFMs and correctly inflected forms.

5.11   Comparing L2 performance within the L1 groups

Some of the features of functional categories studied in this thesis have similar morphological realizations, but differ with respect to their underlying syntactic representation in the L2 English, e.g. the -*s* suffix which realizes 3SG agreement marking on present-tense verbs, number marking and the genitive case on nouns, and the -*ed* suffix which realizes past-tense marking on verbs and participiality on verb forms in passive and perfective structures. Comparing the accuracy scores in producing each of the above inflectional morphology within each of the L1 groups (LSA and MC) enables us to detect whether features with similar morphological representation and different featural makeup present similar or varying levels of difficulty for L2 learners who all have the same L1 and are of the same L2 proficiency. Also, performance on suppliance of functional material that differs with respect to morphological and/or syntactic shape but may share similar prosodic representation in the L2 can be telling about the predictions of the PTH. The rest of this section is going to provide a comparison between all the overall accuracy scores of L2 production of functional material and this comparison will be carried out separately within each of the L1 groups.

In the LSA group, the overall accuracy scores for all functional categories (given in Chart 5.25) were submitted to the Friedman test which revealed that statistically there is no significant difference in the performance of the L2 learners in this group

depending on the inflectional morpheme produced (x^2 = 7.817, df = 6, p = .252). The result of the Friedman test indicates that none of the possible pairs of the functional categories tested would yield a significant difference in performance within this group. This means that the L2 learners in the LSA group did not experience any particular difficulty or facilitation in the production of any of the L2 inflectional morphology compared with the production of the rest of the morphology tested. The fact that L2 learners in the LSA group are not more successful in the L2 production of some functional morphemes compared to others does not help in testing and comparing between the claims of the RDH, IH and PTH. The situation is different with the performance within the MC group, as will be argued below.

Chart 5.25 Mean accuracy scores of all tested inflectional material categories in the LSA group
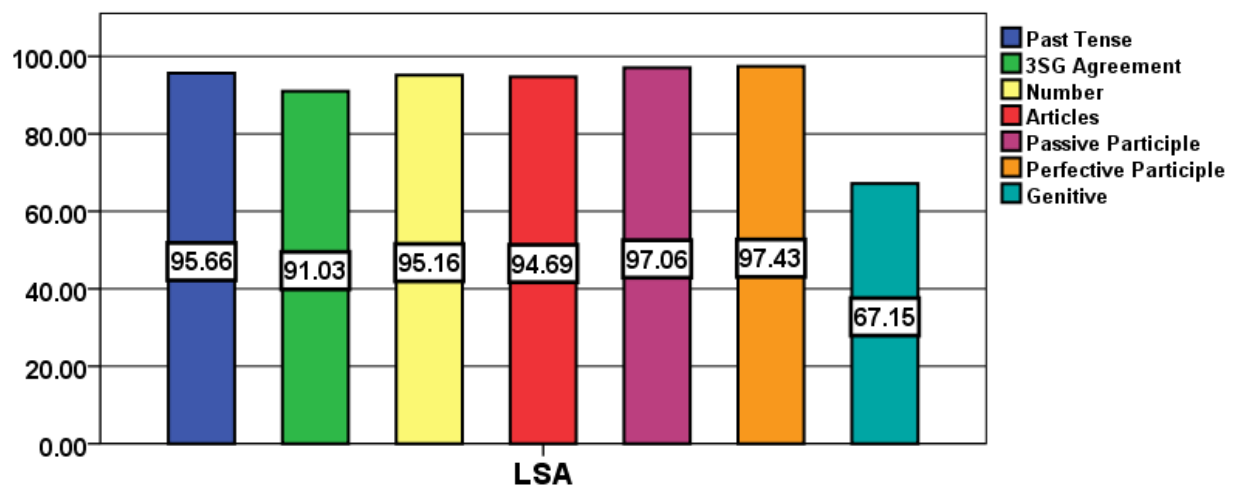
L2 learners in the MC group seem to behave quite differently from those in the LSA group with respect to their within-group comparisons (see group results in Chart 5.26 below). The Friedman test in this case revealed a highly significant effect for the type of functional morphology on the L2 performance of this group (x^2 = 18.599, df = 6, p = .005). The Wilcoxon Signed Ranks test was applied in order to detect which pairs

of functional material are causing this significant effect to emerge. The results from this test showed a significant difference in performance between components of the following pairs: past tense vs. number (z = -2.803, N – ties = 10, p = .005, two-tailed); past tense vs. passive participle (z = -2.599, N – ties = 10, p = .009, two-tailed); past tense vs. perfective participle (z = -2.701, N – ties = 10, p = .007, two-tailed); past tense vs. articles (z = -2.701, N – ties = 10, p = .007, two-tailed); 3SG agreement vs. number (z = -2.701, N – ties = 10, p = .007, two-tailed); 3SG agreement vs. passive participle (z = -2.497, N – ties = 10, p = .013, two-tailed); 3SG agreement vs. perfective participle (z = -2.701, N – ties = 10, p = .007, two-tailed); 3SG agreement vs. articles (z = -2.599, N – ties = 10, p = .009, two-tailed).

Chart 5.26 Mean accuracy scores of all tested inflectional material categories in the MC group
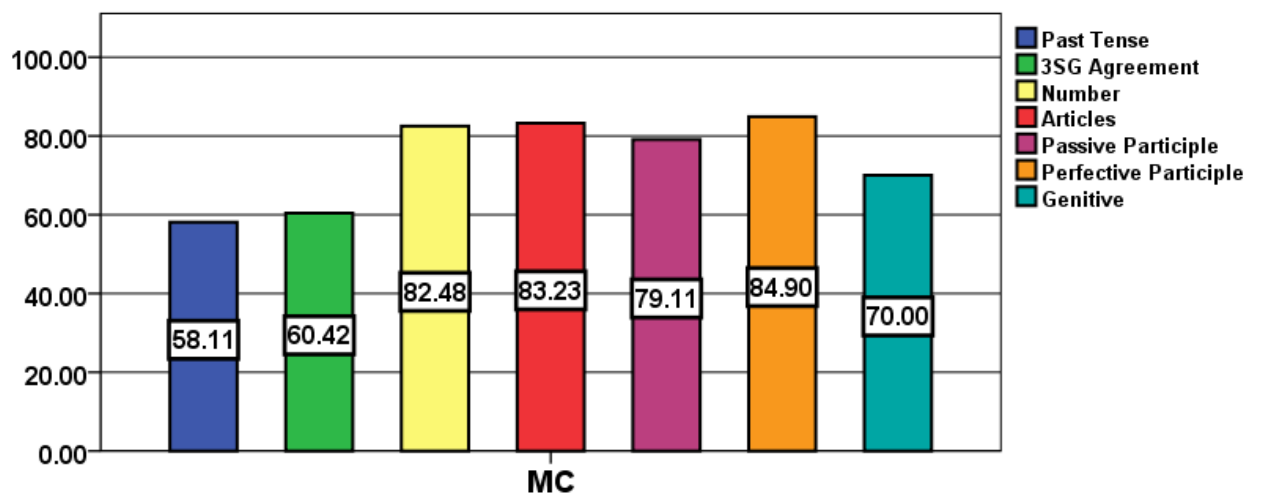
The results reported above make it clear that the major difficulty L2 learners in the MC group have is with the production of past tense marking and 3SG agreement marking. There is no significant difference between the suppliance accuracy of these two categories themselves (z = -.051, N – ties = 10, p = .959, two-tailed). However, each of the latter two categories has a significantly lower accuracy score compared to

that of number marking, articles, passive participles, perfective participles. The genitive -*s* is the only category whose suppliance rate is statistically equal to those of past tense and 3SG agreement marking (z = -1.244, N – ties = 9, p = .214, two-tailed; z = -1.007, N – ties = 9, p = .314, two-tailed, respectively). The results showed no significant difference in L2 performance between any pair of the following functional material: number marking, passive participles, perfective participles, articles and genitive marking. Looking again at the results reported in Chart 5.26, accuracy scores of past tense marking and 3SG agreement marking are close (58.11% and 60.42%, respectively) and are both relatively lower than those of number marking (82.48%), articles (83.23%), passive participles (79.11%), perfective participles (84.90%), and genitive marking (70%). Such results strongly contradict predictions of the PTH, since the same morphological forms (i.e. −*s* and −*ed*) are supplied very consistently when they realize features associated with number marking, passive and perfective participles, but are omitted more frequently when they realize features associated with past tense marking and agreement marking. The L2 production of those markers is predicted by the RDH to be particularly difficult for L2 learners whose L1 is MC.

Chapter 6   Discussion

6.1   Introduction

It is important to recall here that the three main hypotheses whose predictions we are testing for L2 production of functional material are fundamentally different in their views about what drives L2 development. The two representational deficit hypotheses being examined (i.e. RDH and IH) claim that the initial stage in L2 acquisition is characterized by full transfer of the L1 and partial access to UG, and that learning L2 overt inflectional morphology paradigms is essential for the acquisition of the underlying syntactic features (hence they are called Morphology-before-Syntax approaches). On the other hand, the PTH (and the Feature Re-assembly Hypothesis (FRH) which will be discussed below) claim Full Access to UG, meaning that L2 syntactic features are readily accessible for the L2 learner in the initial stage of L2 acquisition (even when they are not part of L1 grammar) and the acquisition of L2 morphological representations follows after that. Figure 6.1 below illustrates the direction of L2 acquisition between the syntax and morphology according to the different hypotheses in this study.

Figure 6.1 Order of L2 acquisition from the perspectives of Full Access and of Partial approaches

Therefore, the task the L2 learner has is different from the perspectives of both approaches. In the case of Full Access hypotheses, the task does not involve acquiring

functional categories or their features. The task of the L2 learner involves acquiring target morphological representations of functional features, and/or recognizing that L2 features can have different combinations from how they are in the L1 thus requiring the re-assembly of individual L1 features in a way that coincides with the target language. From the perspective of the representational deficit approach, the task of the L2 learner involves, in addition to associating underlying L2 syntactic representations with morphological exponents and learning this association, the acquisition of functional features that are semantically uninterpretable and/ or are not grammaticalised in the L1 grammar.

The main predictions by each of the three hypotheses were concerned with which L1 group will have more native-like performance with regard to the functional morphology looked at in this study. Table 6.1 below provides a general overview of cases when those predictions were borne out in the results obtained from the data in this study. A tick (✓) means that the prediction of how the L2 performance compares between the LSA and MC groups was borne out in the results while a cross (✗) means that it was not.

Table 6.1 *The outcome of the predictions by the three hypotheses for the production of each of the functional morphemes compared between the two groups*

	RDH	IH	PTH
Past Tense	✓	✓	X
3SG Agreement	✓	✓	X
Number	✓	✓	X
Articles	X	✓	X
Passive Participle	✓	✓	X
Perfective Participle	✓	X	✓
Genitive	✓	✓	✓

In the following sections the claims by each of the main hypotheses (RDH, IH and PTH) will be discussed in light of the results presented so far in this chapter. Following that will be a discussion of the predictions of the Feature Re-assembly hypothesis (FRH), also carried out based on the results so far.

6.2   The Representational Deficit Hypothesis (RDH)

Let us recall first that the general prediction of the RDH is that L2 suppliance of functional morphology will be highly target-like for features of functional categories that are grammaticalized in the L1 (i.e. features that do not require parameter resetting after a critical period has passed).

The comparisons made between the overall accuracy scores of L2 learners in the two L1 groups show that the predictions of the RDH are largely corroborated. The L1 MC and L2 English differ in the way they represent features of functional categories in the morphosyntax. In the grammar of MC some features are not grammaticalized and are, therefore, not realized in the morphology of the language, like [±Past] and

[*Agr*]; other features are part of the L1 syntax but still might not have morphological realizations, like [±Definite], have values that are different from those of the L2 feature, like [*Num*], or are tied with additional morphological features, like [*Voice*: ±Passive] and [*Asp*: Perfective]. The [*Case*: Genitive] feature is represented in a similar manner in the syntax of L1 MC and L2 English. All of the above mentioned features have morphosyntactic representations in L1 LSA and L2 English. Hence the prediction of the RDH that L2 learners in the LSA group will be more target-like in their production of functional morphology compared to those in the MC group is borne out.

Table 6.1 above shows that indeed the predictions of the RDH are supported for all functional material except for the case with articles. L2 learners in the LSA group were more accurate than those in the MC group with the L2 production of past tense marking and 3SG agreement marking since the features of the latter morphology are non-grammaticalized in the L1 MC. The reason why LSA speaking learners of English are more successful with producing L2 number marking is the fact that the [*Num*] feature in MC has a different value, [*Num*: Collective] from that of L2 English [*Num*: Singular, Plural]. The L2 learners in the LSA group also achieve higher accuracy rates with respect to supplying passive participle marking despite the [±Passive] feature being available in the L1 MC. This is assumed to be the result of the lack of the morphological [+Participle] feature that requires the inflection to be reflected in the morphological shape of the verb form in LSA and English. In MC the passive voice is indicated in the morphology by an independent particle whereas the verb maintains its bare form.

As for cases when the L2 performances of the two L1 groups were statistically similar, this was also predicted by the RDH. There was no significant difference in how accurate L2 leaners in the LSA and MC groups were in their production of genitive marking in possessive constructions since the [Case: Genitive] feature is part of the morphosyntax of the two L1s and the L2. English perfective participles did not seem to be more problematic for either of the groups despite the fact that the similar case of passive participles did pose a greater difficulty for L2 learners in the MC group. The difference between the cases of passive and perfective participles is to do with the (non)availability of the [*M-form*: +Participle] feature. In the case of passive participles, MC, contrary to LSA and English, does not have the latter feature that requires verb forms to reflect participiality. On the other hand, with the perfective participle, the [*M-form*: +Participle] feature is absent in both L1s compared with the L2. This lack of difference in the morphosyntax of the L1s leads to similar accuracy scores for producing English perfective participles.

The only case where the prediction of the RDH is not supported by the results is that of L2 production of articles. The [±Definite] feature is argued to be available in the grammars of both LSA and MC, as well as in the L2 English. Therefore, the prediction was that suppliance of L2 articles should be equally facilitated for L2 learners in both L1 groups. The RDH cannot offer an explanation for why this is not the case in the results from the current study.

The fact that the principle claim by the RDH is that L2 features that are non-parameterized in the L1 grammar are unacquirable after a critical period has passed means that whether the L2 stem being inflected is regular or irregular should not affect the acquirability of the concomitant syntactic feature, and consequently

suppliance of inflection is not predicted to be higher for one type of stem over the other. Looking at the results in Table 6.2, we can see that the above prediction by the RDH is not completely supported on this occasion.

Table 6.2 Suppliance of inflectional morphology in regular vs. irregular stems

	LSA	MC
Past Tense	Irreg = Reg	Irreg > Reg
Number	Irreg > Reg	Irreg > Reg
Passive Participle	Irreg > Reg	Irreg = Reg
Perfective Participle	Irreg = Reg	Irreg > Reg

In 5 out of 8 times when accuracy scores of inflection suppliance were compared in regular and irregular stems, L2 learners in the LSA and MC groups experienced greater difficulty in producing inflection in one type of stem compared to the other. The above results reveal that whenever there is a disparity in the L2 performance of inflection suppliance in regular vs. irregular stems, it is not random. It is always the case that inflection is supplied significantly more often in irregular stems.

Such an outcome cannot be explained by the RDH, but, however, does not imply that the RDH's assumptions about acquisition and production of inflectional morphology in the interlanguage are not sustainable. It probably means that there are other factors not acknowledged by the RDH that influence the L2 production of functional material in addition to the status of features in the L1 and L2, possibly the manner the features are represented in the prosody of the two languages (i.e. whether adjunction-to-PWd is involved), or the fact that irregular inflected forms are stored as separate lexemes in the lexicon making them easier to process.

6.3   The Interpretability Hypothesis (IH)

Features of functional categories that are semantically interpretable are claimed by the IH to be acquirable for L2 learners even when those features are not grammaticalized in the L1 syntax. From the perspective of IH, semantic interpretability of features is sufficient for the L2 acquirability of those features, but not for successful production of their morphological exponents. It is proposed that certain functional categories can simultaneously have a semantically-interpretable feature and an accompanying syntactic feature [+Af] (as proposed by Hawkins (2009) in the case of the English tense feature) dictating that the interpretable feature needs to be realized in the morphology of the language as an affix. Interpretable features accompanied by [+Af] in the L2 are supposed to be problematic for L2 learners whose L1 lacks this [+Af] feature in its grammar. Table 6.3 below provides information about the availability of a [+Af] feature with each of the functional morphemes under investigation in each of the L1s and L2.

All of the functional morphology examined in this thesis are associated with features that are interpretable and semantically-related, except for the subject-verb agreement feature [*Agr*: Person, Number] which is only syntactically-related when a feature of T. The latter feature, though uninterpretable, is part of the syntactic structure in L1 LSA and is paired with the syntactic feature [+Af] in this language; hence no difficulty in the L2 production of 3SG agreement marking by L2 learners in this group is expected according to the claims of the IH. L2 learners in the MC group cannot acquire the uninterpretable L2 feature, which causes their interlanguage production to significantly diverge from the L2. The results show that L2 learners in the MC group are indeed significantly less accurate in producing 3SG agreement

marking compared to those in the LSA group. Predictions of L2 performance made
based on the IH's claims are generally endorsed by results from this study (see
Table 6.1 above).

*Table 6.3 The availability of the [+Af] feature in relation to functional morphology in
LSA, MC and English*

	Availability of [+Af]			
	LSA	MC	English	Interpretability
Past Tense	✓	X	✓	Interpretable
3SG Agreement	✓	X	✓	Uninterpretable
Number	✓	X	✓	Interpretable
Articles	✓	X	X	Interpretable
Passive Participle	✓	X	✓	Interpretable
Perfective Participle	X	X	✓	Interpretable
Genitive	✓	✓	✓	Interpretable

In the cases of past tense marking, number marking, articles, passive participles and
genitive marking, all of which have interpretable features, a [+Af] feature is also part
of the featural specification of each of the latter functional categories in the L1 LSA.
Therefore, the resemblance with the status of those categories in the L2 English
(except for articles where [+Af] is not a feature of D) means that the L2 production of
functional morphology that realizes those features is facilitated for L2 learners in the
LSA group. It is a different case with L2 learners in the MC group whose L1 lacks
the [+Af] feature for all categories (except for genitive marking) and are thus expected
to be less successful at using affixes to realize L2 functional features. It has to be
noted here that despite the fact that English D does not have a [+Af] feature in
English, unlike in L1 LSA, L2 learners from the latter L1 background are still

predicted by the IH to be highly accurate in production of English articles due to the fact that the L2 is syntactically less complex with regard to articles.

Results for suppliance of perfective participles are slightly problematic for the IH because they only partly support its claims. Recall that perfectivity is interpretable but is not accompanied by the syntactic feature [+Af] in either of the L1s, unlike the situation in L2 English where the perfective participle is called so due to the requirement of the verb form, which carries a [*M-form*: +Participle] feature, to have the participle morphological shape. The IH's prediction in this case indicated that neither of the L1 groups will be more successful than the other in producing English perfective participle marking. The results from this study are supportive of the latter part of the prediction. The IH also maintains that both groups should experience a degree of difficulty in producing this functional morpheme due to the lack of [+Af] in their L1 grammars, which is not upheld by the high accuracy scores achieved by the two groups (LSA: 97.43%; MC: 84.90%).

The claims of the IH can also be tested by comparing how target-like the production of different functional morphology by L2 learners from the same L1 background is. If two or more functional features are (un)interpretable and are similar in terms of (not) having a concomitant [+Af] feature in each of the L1 and L2, the IH would then predict a similar degree of difficulty/ease in the L2 production of their overt morphological realizations by all L2 learners from that L1.

The L2 behaviour by L2 learners in each of the L1 groups raises some questions about the above claims of the IH. Results presented in section 5.11 earlier show that L2 learners in the LSA group have statistically equal accuracy scores on all functional

morphology produced. The prediction of the IH was not met in one case only; that of perfective participles which are supposed to be more problematic compared to the rest of the functional morphology since the L2 [+Af] feature does not have a counterpart in L1 LSA with this functional morpheme. Based on the results in this study, LSA speakers learning English do not experience any extra difficulty in the production of English perfective participles.

Further evidence that can be considered contradictory with the IH comes from the MC group. L2 learners in the latter group have statistically equal accuracy scores for the L2 production of past tense marking and 3SG agreement marking despite the fact that the former is an interpretable feature while the latter is not. The same L2 learners are significantly more successful in their L2 production of the rest of functional morphology (number marking, articles, passive participles and perfective participles) compared to L2 production of past tense marking and 3SG agreement marking. It is in line with the IH's claims that English 3SG agreement marking poses more difficulty for L2 learners whose L1 is MC, but, on the other hand, those claims provide no explanation for why past tense marking is less acquirable than say number marking or passive participles.

6.4   The Prosodic Transfer Hypothesis (PTH)

With functional features claimed to be in place when learning a second language via full access to the UG inventory, the task of the L2 learner from the perspective of the PTH is to acquire overt realizations of the underlying L2 features. Transfer of L1 prosodic structures into the interlanguage may cause a mismatch between how the L1 and L2 represent functional material, thus ending in non-target-like performance.

Recall that inflectional morphology in English is prosodified as right-edge affixal clitics, while articles are free clitics on the left edge. The same inflectional morphology is prosodified PWd-internally in LSA, while articles are left-edge affixal clitics in this language. In MC, the only overt inflectional morpheme, that of aspect, is also an internal clitic, i.e. incorporated within the PWd/$_{stem}$. Different versions of the PTH have different claims for L2 performance. The reader is reminded of the four versions of the PTH in Table 6.4 below (repeated from chapter 2).

Table 6.4 The chronological development of the PTH claims

PTH Version I *(GWS 2003)*	1) L1 prosodic structures restrict L2 production 2) If L2 structure is not available in L1 → Low suppliance is predicted 3) Some phonological environments may facilitate L2 production
PTH Version II *(GW 2004)*	1) L1 prosodic structures restrict L2 production 2) L1 prosodic structures can be minimally adapted to yield required L2 structures 3) Most languages can build the adjunction to PWd structure but not that of a free clitic
PTH Version III *(GW 2006)*	Same as Version II + 1) At early L2 acquisition stages, minimal adaptation is not used 2) In later stages, learners employ the minimal adaptation technique
PTH Version IV *(GW 2009a, b)*	Same as version III + If the required L2 structure is not available nor buildable from L1 prosody, it is predicted that: 1) Low proficiency learners invariably delete L2 functional material 2) More proficient learners become aware of the difference in representation between L1 and L2 and use non-target-like methods to represent L2 functional material. 3) Very proficient learners acquire the target structure (it is not specified how this could be achieved)

Based on the claims in the above table, Version I of the PTH predicts that L2 learners of English in the LSA and MC groups will both be highly non-native-like in their L2 production of functional material due to the lack of the required L2 prosodic

structures. This prediction is not borne out in the results since L2 learners in the LSA group are highly native-like in their performance, and are significantly more successful compared to those in the MC group in producing 5 out of 7 functional morphemes (in the cases of perfective participles and genitive marking the PTH's prediction is met).

Versions II and III, on the other hand, predict that L2 learners in both L1 groups will be equally highly accurate due to their ability to minimally adapt L1 structures or to use non-target structures to represent L2 functional material. Some of the results support those two versions. For instance, the fact that L2 learners in the MC group actually have relatively high overall accuracy scores for suppliance of number marking (82.48 %), passive participles (79.11%), perfective participles (84.90%) and articles (83.23%) is in line with the above-mentioned prediction of the PTH. The L2 performance of the LSA group is also in line with the prediction of the II and IV versions of the PTH. What is not predicted by these two versions of the PTH is the fact that despite the high accuracy scores achieved by L2 learners in the MC group, those achieved by L2 learners in the LSA group are still significantly higher. If L2 learners are able to attain the required L2 structure (adjunction-to-PWd, on this occasion) then why is one group more consistent in using the attained L2 structure? The PTH does not provide an answer to this question.

Further evidence against the PTH comes from the performance of the MC group. It has been proposed that all right-edge inflectional morphology in English is prosodified as affixal clitics that adjoin to the stem, which means production of all those morphemes should be equally challenging for L2 learners who have the same L1 background. The results again show exactly the opposite of the latter statement.

Past tense marking and 3SG agreement marking appear to be particularly problematic for L2 learners in the MC group and the overall accuracy scores for supplying those two morphemes are shown to be significantly lower than those of number marking, passive participles and perfective participles. Even articles, whose L2 prosodic presentation is the free clitic, which can by no means be attained from existing L1 prosodic relations, are supplied significantly more often than past tense marking and 3SG marking in the MC group.

Version IV goes as far as claiming that very advanced L2 learners arrive at a stage where they realize that the L2 uses different prosodifications from those in the L1 and they eventually acquire the target-like structures, even those that are not attainable by modifying L1 structures such as free clitics, and actually use them consistently in their interlanguage production. That cannot be true for all L2 learners who took part in the current study. If acquiring L2 structures is eventually predicted then why do L2 learners in the MC group have very low accuracy scores on supplying past tense and 3SG agreement marking in particular, in spite of them being prosodified as affixal clitics just like the rest of right-edge inflectional morphology in English.

At the same time it has already been found that both L1 groups had relatively high accuracy scores for supplying articles without treating them as independent PWds (no instances of stressed articles) nor as left-edge affixal clitics (high accuracy scores in [Art + Adj + N] contexts). The highly native-like performance of the two groups when it comes to supplying articles in contexts involving adjectives actually lends support to Version IV claims. The only way to represent articles in this situation is as free clitics since affixal clitics cannot be separated from their host by an

intervening component (i.e. the adjective). Nor are articles treated as independent PWds since no stressing of articles is detected in the data. This implies that the free clitic structure could have been acquired after all by the advanced learners in this study. If that is the case, the results show that those learners, nevertheless, prefer using the L1 based structure (affixal clitic) whenever permissible rather than using the free clitic structure. This can be supported by the fact that production of English articles has been found to occur more consistently in contexts that do not involve adjectives where the article can adjoin to the PWd/$_{noun}$, e.g. [[ðə]$_{PWd}$ buk]]$_{PWd}$ *the book*.

The only way the predictions of the PTH can be considered borne out in the results of the current study is by adopting the assumption that the L2 learners in the LSA group are generally more successful than L2 learners in the MC group because in the former group the L2 learners develop the ability to adapt L1 prosodic structure to suit the requirements of the L2, whereas those in the latter group prefer to stick to L1 prosodification. This assumption, nevertheless, has its flaws and is still insufficient for explaining the L2 behaviour in this study. The main issue concerns why L2 learners from certain L1 backgrounds (e.g. MC) are, unlike those from other L1 backgrounds (e.g. LSA) not capable of recognizing the need for using non-L1 prosodic structures to represent L2 functional material. And if they do recognize this, why they cannot translate this recognition into the use of non-target structures where using minimally-adapted L1 structures is not possible without violating crucial L1 constraints.

The strongest piece of evidence against the exclusivity of L1 transfer of prosodic structure as the cause of variability is that functional morphology that has exactly the same overt realization in the morphology and undergoes the same phonological

rules when affixed to stems still present different levels of difficulty for learners of the same L2 and from the same L1 background. Table 6.5 provides information about the behaviour of L2 learners in each of the L1 groups with regard to L2 functional features that share the same overt morphological form. Results from this study show that L2 learners in the MC group are significantly more accurate in the production of English number marking compared to that of 3SG agreement marking despite the fact that both are represented on the morphological level by the -*s* suffix. This means that there must be factors other than prosodic rules shaping the L2 production of functional material. The results also show that for the same group the –*ed* morpheme is supplied significantly more consistently when it realizes the passive and perfective participle inflections compared to contexts when it realizes the past tense inflection. The PTH cannot provide a valid explanation for this discrepancy in L2 suppliance of the same inflectional form across different grammatical functions by L2 learners in the MC group, nor for the discrepancy in the L2 performance between the two groups, since L2 learners in the LSA group have statistically similar suppliance rates of –s whether it marks 3SG agreement on verbs or number on nouns, and of -*ed* in past tense, passive and perfective participle contexts.

Table 6.5 The difference in suppliance of inflectional material that share the same morphological shape

	LSA	MC
3SG Agreement -*s* VS. Number -*s*	*Not Significant*	*Significant*
3SG Agreement -*s* VS. Genitive -*s*	*Not Significant*	*Not Significant*
Past Tense -*ed* VS. Passive Participle -*ed*	*Not Significant*	*Significant*
Past Tense -*ed* VS. Perfective Participle -*ed*	*Not Significant*	*Significant*

6.5   Mapping problems and the Feature Re-assembly Hypothesis (FRH)

The last approach to be examined in this chapter claims that variability in supplying L2 functional material is the result of a difficulty in mapping between levels of the grammar or in assembling functional features in a target-like manner. Lardiere (2000; 2008), like proponents of the PTH, proposes that features of functional categories are acquirable for L2 learners through full access to the UG inventory (Syntax-before-Morphology). Therefore, the task for the L2 learner when acquiring a feature that is either unavailable or has a different assembly between the L1 and L2 does not involve acquiring the feature itself nor a parameter resetting for it. The L2 learner's task is to recognize the differences between how features are assembled and whether they are morphologically realized in the L1 and L2. The degree of variability in supplying L2 functional morphology depends on how different the featural configurations between the L1 and L2 are, i.e. whether they are interpreted through context or via morphological representations, and whether their interpretation is intertwined with other features, such as the case with definiteness and number in English.

Problems in mapping are described by Lardiere (2000; 2007) as a difficulty in consistently accessing correct morphological forms. L2 learners might experience a difficulty in mapping abstract functional features into morphological or phonological realizations. The more layers of mapping between components of the grammar are involved in the L2 production of a functional morpheme, the more difficult it is for the L2 learner to maintain consistent suppliance of the morpheme in question.

Lardiere (2007) argues that the production of English 3SG agreement marking is more problematic for Patty than the production of nominative case marking and overt subjects because the production of the former requires an additional layer of mapping, that of number.

Mapping problems, however, are not sufficient to explain the L2 behaviour of L2 learners in this study. If functional morphology whose production requires additional layers of mapping are assumed to cause more difficulties for L2 learners, the prediction would then be that all L2 learners experience a similar degree of difficulty in the L2 production of this functional morpheme regardless of their L1 background. L2 production of 3SG agreement marking does not pose the same amount of challenge for L2 learners in the LSA and MC groups, even though L2 learners in both groups have to implement the same mappings as part of the production process; L2 learners in the LSA group have significantly higher accuracy scores than those in the MC group. This means that how complex the mapping is between components of the grammar cannot be the only reason causing variability in supplying L2 functional material.

Although the degree of mapping complexity falls short of providing an account for variability, it is still a vital part of the explanation presented by Lardiere's Feature Re-assembly Hypothesis (FRH). Extra difficulty is, indeed, expected when the L2 production of a functional morpheme requires extra layers of mapping between feature and form; the crucial factor, however, is whether a similar degree of mapping complexity occurs in both the L1 and L2. Lardiere (2008) describes this as a difference in how languages configure functional features. A morpheme can correspond to one functional feature, or to a bundle of features that may or may not be semantically

related. Some features do not even have morphological representations in some languages and depend on contextual information for their interpretation. If the featural configuration of the L2 morpheme is of the same complexity or more complex in the L1, then higher accuracy levels are expected because either no feature re-assembly is required or, if so, the L2 assembly is less problematic. If the L1's featural configuration is simpler, difficulty in L2 production is expected as the L2 learner has to assemble features in a different and more complex way than they are in the L1.

The above idea is best explained by Slabakova's (2009a) Cline of Difficulty continuum (see Figure 6.2 below). Features that are interpreted through context rather than form in the L1 are the hardest type of feature to acquire when the L2 requires morphological realization of this feature. The easiest features to acquire are those whose assembly is similar in the L1 and L2, meaning that no re-assembly is demanded from the L2 learner. Features that require morphological realization in both the L1 and L2 but are assembled differently in the two languages are acquirable but the L2 learner has to first disassemble the L1 featural configuration and then re-assemble it in a way that matches that of the L2. A few additions are suggested to the Cline of Difficulty to make it more capable of accounting for L2 behaviour of L2 learners in the current study (see Figure 6.3 towards the end of this section).

Figure 6.2 The Cline of Difficulty in the L2 acquisition of functional material (repeated from Chapter 2)

Harder to acquire		*Easier to acquire*
←		→
$F_{context}$ to $F_{morpheme}$	$F_{morpheme}$ to $F_{morpheme}$ but re-assembly required	$F_{morpheme}$ to $F_{morpheme}$ no re-assembly required
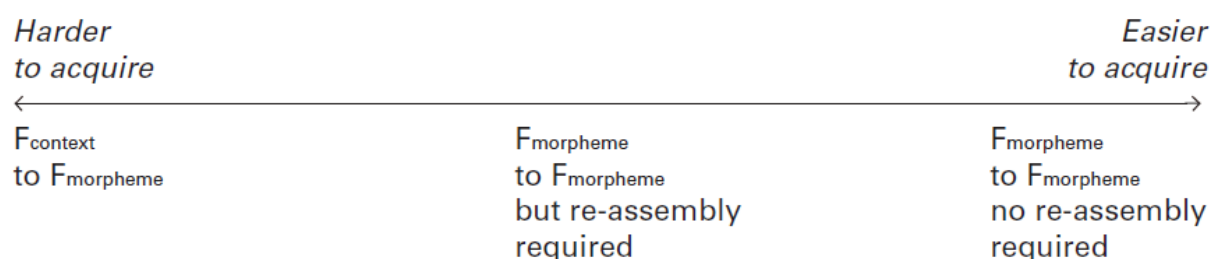
The results from the current study will be examined from the perspective of the FRH and used to test the viability of Slabakova's (2009a) Cline of Difficulty.

In order to describe the task of the L2 learner with respect to each of the functional features that are of concern to this study, information is provided in Table 6.6 below about the nature of the overt realization (if any) of those features in the L2 English and L1s LSA and MC, together with the type of task the L2 learner is expected to have: assembly of the L2 feature(s) or re-assembly of the L1 feature(s) to suit the L2 configuration.

Table 6.6 The status of functional feature configuration in English, LSA and MC

	L2 English	L1 LSA	Assembly or Re-Assembly		L1 MC	Assembly or Re-Assembly	
Past Tense	**F**morpheme	**F**morpheme	Re-Assembly	Easy	**F**context	Assembly	Difficult
3SG Agreement	**F**morpheme	**F**morpheme	Re-Assembly	Easy	**F**context	Assembly	Difficult
Number	**F**morpheme	**F**morpheme	Re-Assembly	Easy	**F**context	Assembly	Difficult
Articles	**F**morpheme	**F**morpheme	Re-Assembly	Difficult	**F**context	Assembly	Difficult
Passive Participle	**F**morpheme	**F**morpheme	Re-Assembly	Easy	**F**morpheme	Re-Assembly	Difficult
Perfective Participle	**F**morpheme	**F**morpheme	Re-Assembly	Easy	**F**morpheme	Re-Assembly	Easy
Genitive	**F**morpheme	**F**morpheme	Re-Assembly	Easy	**F**morpheme	Re-Assembly	Easy

To begin with, the results show that, for the LSA group, there is no significant difference between the overall accuracy scores of L2 functional morphology suppliance by L2 learners in this group, whereas L2 learners in the MC group are particularly inconsistent in their suppliance of the past tense and 3SG agreement markers.

It can be seen from the information in Table 6.6 above that the task of L2 learners in the LSA group involves a simple mapping of L1 and L2 morphemes since none of the

examined functional features has its interpretation fixed through context in this L1. All the functional features are interpreted via morphological realizations in both the L1 LSA and L2 English. This is the case with a few functional features in L1 MC (passive participle, perfective participle and genitive). Other features, however, mainly those associated with past tense, subject-verb agreement, number and definiteness, are interpreted through context only in this language. Therefore, it would be compatible with the Cline of Difficulty continuum if the L2 learners in the MC group were less accurate in the production of L2 functional morphology realizing the latter features.

The L2 performance of the LSA group supports the Cline of Difficulty since high accuracy scores are achieved for the production of all L2 functional morphology. As for the MC group, the prediction of the FRH and Cline of Difficulty is partly borne out. The L2 production of the past tense and 3SG agreement inflectional morphemes is particularly problematic for L2 learners in the MC group, which is in line with the prediction. On the other hand, the L2 production of number marking and articles are not shown to be as problematic for the same L2 learners as past tense and 3SG agreement morphology are despite the fact that the interpretations of features underlying all four L2 morphemes are contextually determined in the L1 MC. Such an outcome contradicts the Cline of Difficulty. The suggested addition to the Cline of Difficulty may, however, provide a way for accounting for the L2 performance of the MC group. But first, an overview will be made of how features and feature-bundles are configured in the L2 and L1s in order to establish what the L2 learner's acquisition task is.

Past and present tense verbs in LSA inflect, in addition to tense, for agreement features (person, number and gender or PNG) with the subject NP. This means that the featural configuration of tense and of subject-verb agreement in this language is far more complicated than that in English. Therefore, L1 LSA speakers learning L2 English have to disassemble this L1 feature bundle and then re-assemble the component features according to the L2 requirement. English past tense verbs do not (overtly) inflect for agreement features (person and number). The morpheme –*ed* is suffixed to all regular stems inflecting for past tense regardless of the subject features. The agreement features are still present in the underlying syntax of English. Thus, the re-assembly of the L2 past tense feature is much simpler than that of the L1[135] and, hence, highly accurate production is predicted. The same applies to subject-verb agreement features. While verbs in L1 LSA affix various morphological representations depending on a set of combinations of person, number and gender features, English present tense verbs affix the –s morpheme only with one person-number feature combination: 3rd person and singular; in all other cases the verb stem remains bare. Again, the task of L2 learners from an LSA L1 background is to disassemble the PNG agreement features from the tense feature and then re-assemble them in a target-like fashion that is less complicated than that of the L1. No difficulty is expected for LSA native speakers since the feature assembly in the L2 is somewhat simpler than that of the L1.

L2 learners in the MC group are on the other end of the dichotomy. Their task is the hardest one an L2 learner can have. The Tense feature [±Past] is contextually

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[135] It could also be argued that the process of re-assembly is not simpler but that it is the resulting L2 feature set that is (presumably) simpler than the L1 feature set.

determined in the L1, whereas when it comes to the L2 the same feature has to be assembled in the L2 with other uninterpretable features, [*Agr*: Person and Number]. This is followed by learning the morphological forms associated with the newly assembled features. This long process that precedes the L2 production of past tense and 3SG agreement markings by L2 learners who speak L1 MC, makes it quite predictable that MC speakers learning English will experience greater difficulty in the L2 production of past tense and 3SG agreement inflectional morphology compared to L2 learners from an LSA L1 background.

The interpretation of number marking in LSA involves additional layers of mapping compared to the way it is in English. The gender feature is intertwined with that of number on LSA Num. Nouns that have a [*Gender*: Feminine] feature suffix a different plural morpheme from nouns that are [*Gender*: Masculine]. The number feature itself in this language incorporates a value that is not individually marked in English, that of duality [*Num*: Dual], which is marked in the morphology by a separate suffix – een from that of the plural morphemes –iin and –aat. The English number feature [*Num*: Singular, Plural] has no other features assembled with it, and [*Num*: Plural] corresponds to one morphological form, the suffix –s. MC interprets the same feature through information available in the context. Based on the FRH claims, the L2 learners in the LSA group have to disassemble the L1 number and gender features and then eliminate the latter feature when performing feature reassembly to suit the L2 featural configuration. This means that the L2 way of assembling the number feature is simpler than that of the L1. The L2 learner in the LSA group just has to recognize that the number feature [*Num*: Plural] is mapped into the morphology by a single morpheme regardless of the gender of the noun. L2

learners in the MC group, on the other hand, have to recognize that the L2, unlike the L1, does not rely on context to determine the number quality of nouns but rather on overt morphology and that this morphology is embodied by the –s suffix. The Cline of Difficulty predicts that the L2 learners in the LSA group will be more successful than learners in the MC group since the process required to produce English number marking is simpler and involves fewer layers of mapping than the way it is in L2 English.

Now, despite the fact that number, past tense and 3SG agreement marking are all context fixed in MC, the results show that L2 learners from this L1 group are significantly more native-like in their suppliance of the former morpheme. It is proposed here that what the Cline of Difficulty calls $F_{context}$ to $F_{morpheme}$ feature mapping (on the 'Harder to acquire' end of the continuum) incorporates two degrees of difficulty. Figure 6.3 below is a modified version of the Cline of Difficulty with further details about the types of mapping. When the mapping between L1 $F_{context}$ to L2 $F_{morpheme}$ involves the assembly of a single feature (e.g. English number for MC speakers), the production of the corresponding L2 inflectional morpheme is expected to be more facilitated than when the mapping involves the assembly of a bundle of features (e.g. English tense and agreement for MC speakers). Therefore, the significantly higher accuracy in producing number marking compared to past tense and 3SG agreement marking by L2 learners in the MC group is accounted for by the FRH and Cline of Difficulty.

Figure 6.3 A more detailed Cline of Difficulty continuum[136]

| Harder | | Easier |
| to acquire | | to acquire |

←——→

Fcontext
to Fmorpheme

Fmorpheme
to Fmorpheme
but re-assembly
required

Fmorpheme
to Fmorpheme
no re-assembly
required

←——————————————→   ←——————————————→

| Assembly of a bundle of L2 features | Assembly of one L2 feature | | L2 feature assembly is more complex | L2 feature assembly is less complex |
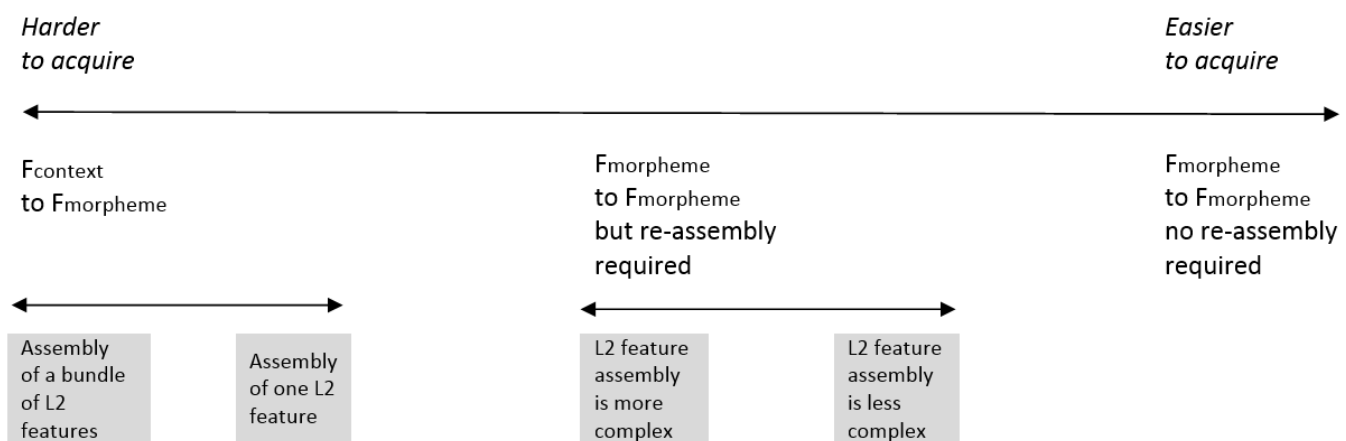
The validity of the further details proposed for the Cline of Difficulty continuum is further supported by the results from the current study. The only three features that are interpreted through overt morphology in the L2 and both L1s are [*Voice*: +Passive], [*Asp*: Perfective] and [*Case*: Genitive]. The assembly of the former feature in the three languages is more complex than that of the other two features. Forms used in passive constructions can function as verbs but also as adjectives in English and MC, and additionally as nouns in LSA. Disassembling L1 features and re-assembling them in a manner that corresponds to the L2 configuration occurs in the interlanguage of L2 learners in both L1 groups. Yet, the L2 learners in the LSA group are more successful in the production of English passive participles. This could be explained by the fact that passive participles in LSA inflect for additional features (number and gender) making the L2 re-assembly in this case an easier process for LSA speakers compared to how it is in their native language. Another factor that might be causing L2 learners in the MC group to omit passive participle marking more often than L2 learners in the LSA group is that passive voice is marked in their

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[136] Slabakova probably envisaged the cline as a scale of continuous gradation in the first place, and not as a series of discrete points. This modification of the cline is intended to illustrate what different points along the cline could look like, beyond those that Slabakova explicitly referred to.

L1 by independent particles rather than affixes. Independent particles are more prominent and easier to process than affixes. The situation could be that L2 learners in the MC group do not recognize the fact that L2 English, differently from MC, marks the passive participle by a suffix, and that they associate the passive interpretation with the auxiliary part of the passive construction.

The case is different with L2 production of perfective participles; they function only as verb forms in English, LSA and MC. Therefore, mapping between the L1 feature and L2 feature is straightforward for L2 learners in both groups. This also applies to L2 production of the genitive marker. L2 learners in both groups have statistically similar performances with respect to the above two functional morphemes.

Articles are another example of functional material that is fixed through context in L1 MC but through overt morphology in L1 LSA (for [+Definite] only) and L2 English. The first prediction by the FRH would thus be that the L2 learners in the LSA group are going to supply English articles more consistently than those in the MC group, which is indeed supported by results in this study. However, based on how the definiteness feature is assembled in each of the three languages, the prediction by the FRH is that L2 learners in each of the LSA and MC groups should experience more difficulty in producing articles compared to production of number marking. The feature [±Definite] in English interacts with other features of the noun, mainly countability and number. In LSA this feature is not assembled with any other feature and the same definite article, the prefix, *l*– is used with all nouns and no overt form is used to represent [-Definite]. [±Definite] in MC is interpreted through contextual information.

Consequently, re-assembly is required for the L2 production of articles when the L1 is LSA, and this re-assembly is on the 'Harder to acquire' direction of the continuum because the L2 way of assembling the features is more complex and involves more layers compared to the way it is in the L1s. For L2 learners in the MC group the degree of difficulty is on the far end of the continuum with having to map $F_{context}$ to $F_{morpheme}$, and in the case of articles it is mapping a bundle of features rather than the one [±Definite] feature on its own, thus placing this on the 'Harder to acquire' end of the Cline of Difficulty continuum.

On this account, articles should be more challenging than number marking for LSA and MC speakers. The results contradict the above prediction for L2 production of articles versus number within each of the L1 groups. LSA speakers and MC speakers do not find English articles to be particularly difficult to produce in the interlanguage compared to the production of number marking.[137]

6.6   The research questions revisited

This section will attempt to provide possible answers to the research questions that were posed at the end of Chapter 2 based on the SLA literature in the domain of L2 acquisition of functional morphology, and that will be done by reviewing how the study results from the LSA and MC groups reported above are viewed by each of the tested hypotheses.

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[137] For more results that do not support the FRH see the study of English-German interlanguage by Slabakova and Gajdos (2008).

Research Question 1: Will L2 learners in the two tested groups be more accurate on

the production of L2 functional material that has syntactic representation in the

L1 compared to material that is not grammaticalized in the L1?

The general idea one can get by comparing between the overall accuracy scores of the

LSA and MC groups is that the claims made by RDH are well-founded since the L2

learners in the LSA group are more accurate than those in the MC group with respect

to the production of English functional morphology that is grammaticalized in L1

LSA but not in L1 MC, i.e. past tense, 3SG agreement and number marking, and in

the production of the English passive participle which, though grammaticalized in

both L1s, is accompanied by a morphological feature [*M-form*: +Participle] in both L1

LSA and L2 English but not in L1 MC. Results that further support the RDH are that

the two groups displayed no difference in their L2 performance when the features

being acquired were assumed to have similar syntactic representation in the L1s and

L2, as with the case of perfective participles and genitive marking. The only case

when the RDH could not provide an account for the observed result was with the L2

acquisition of articles. In spite of the similarity between both L1s and the L2 as far

as the availability of the [±Definite] feature is concerned, the LSA group still

managed to exhibit a higher mean accuracy score than that of the MC group.

The viability of the second representational deficit hypothesis, the IH, is also

supported. The results could be interpreted differently from the RDH's interpretation

by assuming that although the features [±Past], [*Num*: Singular, Plural], [±Definite]

and [±Passive] are all semantically interpretable and therefore acquirable for adult

L2 learners whatever their L1 is, the LSA group still had higher mean accuracy scores

than those of the MC group with regard to the production of the morphological

realizations of those features since the syntactic feature [+AF] requiring the affixation of functional morphology is available only in the case of L1 LSA as far as the above-mentioned functional features are concerned. The production of overt morphology realizing the interpretable feature [*Case*: Genitive] that is accompanied by the syntactic feature [+Af] in the L2 and each of the L1s did not pose extra difficulty for one group compared to the other. Similarly to the RDH, the IH is not able to account for only one case, that of [*Asp*: Perfective]. The L2 behaviour of the two groups with regard to this functional feature is completely in contrast with the IH's prediction that, due to the absence of a [+Af] feature in both L1s, the L2 production of perfective participle morphology should be relatively problematic for L2 learners who come from either L1 group.

The results often showed that the predictions of the RDH and IH were similar with respect to the performance of the L2 learners in the two groups, therefore, when the predictions were borne out it was difficult to decide the claims of which hypothesis are actually correct.

One observation that may be considered as a counter argument of the RDH and IH is related to how the suppliance of inflectional morphology compares between contexts involving regular stems and those involving irregular stems. With respect to suppliance of inflection in regular vs. irregular stems in four cases (past tense, number, passive participle and perfective participle morphology) the LSA group was more accurate in irregular contexts in two cases out of four (number and passive participle marking), whereas the MC group was more accurate in three cases out of four (past tense, number and perfective participle marking). Despite the fact that there are three cases when no difference was detected in the suppliance of inflection

between regular and irregular stems (see Table 6.2), it is observed that whenever a difference occurred it was always the case that irregular stems appeared to pose easier contexts for suppliance of inflection. This means that the RDH and IH are not sufficient for explaining the L2 production of functional material. Other factors, possibly related to prosodic structure or to how lexical items are stored in the lexicon, in addition to the status of syntactic features, might also have an impact on interlanguage performance.

Research Question 2: Will L2 learners be more accurate on the production of L2 functional material whose L2 prosodic representation is available in L1 prosody or can be attained using L1 existing prosodic structures/relations compared to material whose L2 prosodic organization is not attainable from L1 prosody?

Considering that the claims of the PTH have been continuously modified, whether this hypothesis can account for the behaviour of L2 learners might depend on which version of the hypothesis is being adopted. As far as the results obtained from this study are concerned, whichever version of the PTH is adopted it can account for the L2 performance of one group but not the other. Version I accounts for the L2 production by the MC group only since L2 prosodic representations that are not available in the L1 are assumed to cause omission of functional material. The LSA group's high mean accuracy scores, despite the fact that it prosodically represents functional material in a similar way to MC, cannot be explained by this version of the PTH. Versions II and III, which state that non-native prosodic structures needed in the L2 could still be attained by modifying L1 structures, account for the L2 production of the LSA group but not the MC group. If that statement was correct, the two groups should have had similar L2 performance. Version IV of the PTH explains

the L2 production of the LSA group but not the MC group. The claim that very proficient learners not only modify L1 prosodic structure to attain the required L2 prosodic structures but also eventually acquire the target L2 structures is not borne out in the L2 performance of the MC group. In short, how the L2 production of functional material compares between the LSA and MC groups does not lend support to the PTH since the LSA group has higher mean accuracy scores than the MC group with respect to past tense, 3SG agreement, number and passive participle morphology although the adjunction-to-PWd structure is available in neither of the L1s. The case of articles further refutes the PTH's predictions. The free clitic structure used to prosodify English articles is neither available in nor attainable from the L1s; still the LSA group achieved a higher mean accuracy score compared to the MC group. Among the seven functional elements examined in this study, perfective participle and genitive marking are the only two functional morphemes whose suppliance accuracy scores are in line with the PTH's prediction.

This thesis is not claiming that the difference in the prosodic organization of functional material between the L1 and L2 is completely eliminated as a cause of variability in L2 performance, but it assumes that this difference is not the major factor shaping the interlanguage of the L2 learners in this study.

Research Question 3: Will L2 learners be more accurate on the production of L2 functional material whose production involves fewer layers of mapping between the syntax and morphology?

The results from this study do not completely support the claim that the accuracy in L2 production of functional morphology is relevant to how many layers of mapping

exist between the syntactic representation of functional features and their overt morphological representations. Past tense and subject-verb agreement marking both involve more layers of mapping between feature and form in the L2 compared to that of number, passive participle and perfective participle morphology; nevertheless, contradictory results are obtained from the two groups in this study. While L2 learners in the MC group do experience more difficulty in the L2 production of past tense and 3SG agreement morphology (which require more layers of mapping), L2 learners in the LSA group are relatively accurate in the production of all the tested functional elements to a similar degree.

Although this thesis does not adopt the view that mapping problems are solely responsible for the variability observed in the production of L2 functional morphology, it assumes that the notion of mapping between syntax and morphology and the number of layers involved in this mapping are significantly relevant once the way a functional feature (or a bundle of features) is mapped from the syntactic component onto the morphological component is compared between the L1 and L2, in the sense that how less/more complex the L2 mapping is determines the level of difficulty L2 learners are going to experience in representing L2 features in the syntax and realizing them in the morphology. The latter view (involving comparison of feature-to-form mapping between the L1 and L2) is that of the FRH, discussed below.

Research Question 4: Will L2 learners be more accurate on the production of L2 functional material whose featural makeup is easier to assemble in the L2, and will accuracy in the L2 production be compatible with the Cline of Difficulty?

As argued above, acquisition of L2 features that involve multiple layers of mapping between syntax and morphology is assumed to be problematic for L2 learners whose L1 has a more simplistic mapping for the same features. This is what the FRH calls the need for a feature (re-)assembly to be carried out by L2 learners when encountering situations of mismatch of feature configuration between the L1 and L2. The claims made by the FRH are supported by results obtained from the LSA and MC groups. The LSA group's more target-like L2 performance compared to that of the MC could be accounted for by the fact that the way features required to represent functional morphology are assembled is more symmetrical between LSA and English, whereas with the case of MC a big difference from English is due to the fact that many functional features whose interpretation is fixed by overt morphology in English (and LSA) are context-dependent in MC. According to the Cline of Difficulty such types of mapping are the most difficult to acquire, which is supported by the results showing that MC speakers learning English are particularly highly non-native-like in the production of past tense and 3SG agreement morphology in English, since the production of both morphemes imposes the need for, first, recognizing that the L2 is different from the L1 and cannot just depend on contextual information to fix the meaning, and, second, the ability to figure out which features to assemble together in order to associate with the L2 form. In the case of 3SG agreement marking MC speakers seem to encounter a degree of difficulty in recognizing that person and number features need to be assembled with that of present tense and that only contexts involving singular and 3rd person features need to be mapped into overt morphology. This task is considered to be facilitated for speakers of LSA since this L1's mode of assembling tense and agreement features is

more complicated than that of the L2 due to the presence of an additional feature that need to be morphologically realized, the grammatical gender feature. LSA speakers when learning L2 English do not need to recognize any difference in terms of the need for overt morphology to represent subject-verb agreement morphology nor do they need to recognize that different values of the person and number features combined together require different overt forms (-s if [*Agr*: Singular, 3 Person] and bare verb forms for any other person-number feature combination). The only task LSA speakers have is to recognize that the suffix *–s* is associated with two underlying syntactic features [*Agr*: Singular, 3 Person]. Hence, the L2 mapping process for MC speakers is significantly more complicated compared to the L1, and is the other way round for LSA speakers, significantly simpler.

While, the RDH could not account for the fact that the performance of the LSA group was more target-like than that of the MC group with regard to articles, principles of the FRH offer an account for this results. Assembly of features is required from L2 learners in both groups when producing English articles, especially with the case of the indefinite article since its production entails the assembly of features related to the countability and number of the NP alongside the [-Definite] feature, which is the case in neither of the L1s. The LSA speakers are more consistent in their production of articles than the MC speakers, as expected by the FRH, because they recognize, based on their L1 knowledge, the need for a kind of overt form to realize the [±Definite] feature. The complexity of feature assembly in the case of the indefinite article is also reflected in the results showing that both groups have higher mean accuracy scores when it comes to the production of the English definite article which is used with NPs regardless of what countability or number features they have. The

case that the FRH does not appear to have an explanation for is that of why the production of articles by LSA speakers is not significantly more problematic than the production of other morphology whose feature assembly in the L2 is relatively simpler than that of the L1 (e.g. number marking) and therefore their acquisition task falls on the 'Easier to acquire' end of the Cline of Difficulty, while the task of acquiring articles falls around the middle of the continuum.

Research Question 5: Is the interlanguage grammar permanently defective or are target-like syntactic representations of functional features possible to acquire in the L2?

Before attempting to answer this research questions, a distinction needs to be made between two types of functional features. Interpretable semantic features are assumed by this thesis to be part of the UG inventory, e.g. the tense feature [±Past] and the [±Definite] feature, and are therefore available for all L2 learners regardless of whether these semantic features are morphologically represented in the L1. When a semantic feature is associated with an overt form or when it motivates syntactic computations in a language, it is assumed that in that case a corresponding syntactic feature is part of the grammar of that language. The semantic feature [±Past] is available in English, LSA and MC, but its syntactic [±Past] counterpart is available only in the first two of the three languages. The semantic feature [*Num*] is part of the featural specification of NPs in English, LSA and MC, but its syntactic counterpart varies among the three languages dependent on which of its values is realized, hence, in English the syntactic number feature is [*Num*: Singular, Plural], in LSA it is [*Num*: Singular, Dual, Plural, Collective], and in MC it is [*Num*: Collective]. There is a third type of feature that is neither semantically interpretable nor syntactically related to

a semantic counterpart. Features that only serve a syntactic purpose and reflect a syntactic dependency in the underlying structure are considered to be the most difficult for L2 learners to acquire when they are not part of the L1 grammar because the L2 acquisition cannot be aided by semantic interpretation to associate the feature with the overt form. Person and number agreement features on T in English are a good example of such feature as well as the grammatical gender feature in languages like LSA, French and Dutch. It is particularly interesting with the gender feature on nouns in Dutch which assigns a [Masculine] gender feature to the word equivalent for *woman* (the masculine article form is used with this word, ***de vrouw*** not *****het vrouw***).

The view this thesis adopts is that semantic features are universal but their concomitant syntactic features and the way they are assembled are language-specific (see Figure 6.4 below) and are learnt on the basis of exposure to the target language. This assumption entails that interlanguage grammars are defective only in the case of uninterpretable grammatical features that are not part of the UG inventory of semantic features and are not represented in the L1 grammar. Otherwise, semantic features are acquirable for L2 learners regardless of their L1 background, and their counterpart syntactic features are far more easily acquirable[138] when the L1 and the L2 share the availability of this syntactic feature in the underlying syntax, keeping in mind that the degree of feature (re-)assembly required from the L2 learners greatly affects the accuracy rate in the production of the corresponding overt form.

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[138] This is to say that syntactic features unavailable in the L1 are not utterly unacquirable for adult L2 learners.

Figure 6.4 The various possible configurations of semantic features across different languages[139]
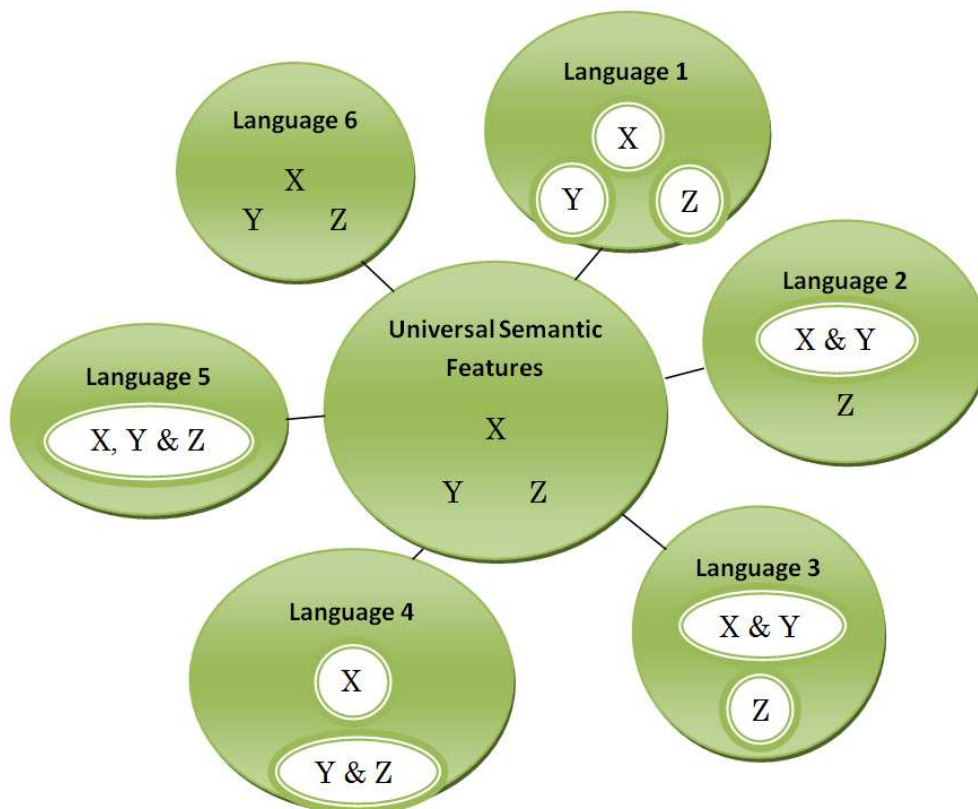
Research Question 6: Does variability in supplying functional morphology in the interlanguage reflect the L2 learners' actual grammatical competence, or is the syntactic competence of L2 learners native-like and variability is merely a case of missing surface morphology?

Building on what has been discussed so far in this thesis, it seems that variability in supplying functional morphology in the interlanguage does not reflect the actual L2 competence because L2 learners omit functional morphology even when the underlying semantic and syntactic features are available in their interlanguage

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[139] X, Y and Z represent features that differ in how they are assembled and whether they are realized at all across languages. Features that are circled indicate that they are interpreted though morphology, whereas features that are floating in the bubble representing a language are the ones that remain context-fixed.

grammars; this omission is assumed to be partly due to difficulty in mapping and assembly of L2 features, and partly to L1-L2 prosodic differences and to communication pressure. At the same time, interlanguage grammars cannot be described as being native-like since there are no two languages that, in spite of sharing the same universal semantic features, assemble these features in exactly the same way to express grammatical functions. The latter idea is best described in Lardiere's (2003: 187) words:

> [U]nless the same features or properties are always clumped in exactly the same way crosslinguistically such that they are uniformly realized by the same (PTM)[140] morphological means in that language – which does not appear to be the case – it is doubtful we can speak of that amalgamated feature as being *parameterized* in the sense intended by Hawkins, such that some languages have it and some don't.

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[140] Lardiere uses PTM as an acronym for Past Tense Marking.

Chapter 7   Conclusion and Future Research

7.1   Conclusion

All of the hypotheses that have been explored in this thesis provide compelling claims and evidence in their pursuit of explaining the ubiquitous phenomenon of variability in the suppliance of functional morphology in interlanguage production. The results obtained from the L2 data collected for the study carried out in this thesis revealed that an analysis based merely on identifying inconsistencies in how functional material is prosodified between the L1 and L2 could not provide an adequate account for the contrast in L2 behaviour of the LSA and MC groups. Therefore, claims made by the Prosodic Transfer Hypothesis are not advocated in this thesis. Hypotheses concerned with analysis of underlying syntactic structure and featural makeup of functional material are, on the other hand, supported by the results from this study, since claims made by each of the Representational Deficit Hypothesis, the Interpretability Hypothesis and the Feature Re-assembly Hypothesis were reflected in the L2 performance of the LSA and MC groups in the majority of the cases when mean accuracy scores of the two groups were compared. This is intriguing because the first of those two hypotheses (the RDH and IH) have conflicting assumptions with the last one (the FRH), especially with the issue of (not) having Full Access to UG when acquiring an L2. The perspective of this thesis is that the principles of both approaches complement each other. This thesis supports the view of the FRH that semantic features are universal and that L1-L2 feature-assembly mismatches are the major cause of variability. Nonetheless, this thesis also supports the RDH and IH's view that not all features are accessible for adult L2 learners through UG and that

features which are purely syntactic in nature are parametric rather than universal, and are thus the locus of difficulty in L2 acquisition. This thesis proposes that this type of feature, the purely syntactic feature, is not acquirable after a critical period has passed, hence adopting the stance of the RDH on that matter. It is proposed though that such features can be learnt with their associated overt forms. How learnable those features and forms are probably varies depending on (a) how much this form is influential for the meaningful construction of the utterance; (b) the appetite of L2 learners for detecting inflectional morphology in L2 input, for example, MC speakers learning English are assumed to have the expectation, based on their L1 intuition, that the interpretation of functional features can be fixed by context and therefore L2 morphological forms would be redundant for those L2 learners; and (c) how salient the overt form is in the morphology of the L2, thus assuming that an L2 syntactic feature realized as an independent particle should be more learnable than a feature realized as an affix, e.g. *a/the* vs. *-s/-ed*. Even among affixes, a feature realized as an affix that is a whole syllable is expected to be more recognizable and thus more learnable than an affix that is made up of just one sound.

7.2   Limitations of the current study and possible future research

Although the L2 acquisition of each of the functional morphemes examined in this thesis deserves a whole thesis dedicated to investigating its syntactic, morphological and prosodic characteristics, the advantage of having them studied in one work is the ability to test the accuracy in L2 production of all these functional morphemes in the interlanguage of the same population of L2 learners who share similar L2

backgrounds and are examined under similar conditions. Nevertheless, future research could be carried out to provide more insight into the syntactic and prosodic makeup of functional features in the three languages in this study – English, LSA and MC – and this in turn might lead to more insight into how these features are acquired.

The most important future research aimed for after this thesis is that of second language acquisition of functional morphology by naturalistic acquirers. The L2 learners who took part in this study were postgraduate students who all were first taught the L2 English through classroom instruction. This must have influenced their conscious and subconscious knowledge of functional morphemes in English. Students in Chinese and Syrian schools learning English as a foreign language are taught about, for example, verb conjugation in English. They are explicitly instructed that the English rule for inflecting verbs for past tense is by adding the suffix –ed to regular stems, and then they are required to rote-learn the inflection of irregular stems. When exposed to English input in a naturalistic environment, e.g. living and studying in the UK, those L2 learners, regardless of whether their L1 marks verbs for past tense, know that English verbs require this inflection to be overt, and, therefore the question that arises here is related to how much this previous knowledge about the need for an –ed suffixed stem does influence what the L2 learner recognizes in the L2 input and consequently uses in the L2 output. The big question is: if a naturalistic acquirer who speaks L1 MC had never had classroom instruction, or any other kind of instruction, about English grammar, is exposed to L2 English in the UK (or for that matter any other English speaking country), would they ever recognize the difference in how functional features are represented in the morphology

between their L1 and L2? And even if they did, would they realize the need for this morphology (which is basically redundant in the L1) in the L2, and would they actually use it in their interlanguage? That will be very interesting to investigate.

Another aspect that could benefit from a study carried out on a naturalistic acquirer is related to how able are such L2 learners to disentangle L2 features that are clumped together in a way that is different from the L1. If an L2 learner whose native language is LSA (or any other Arabic dialect) acquires L2 English naturalistically, provided that they have never been taught explicit English grammar rules, would they be able to recognize that the way English uses morphology to distinguish tense and aspect denotations is different from how their L1 does the same thing? My view is that many LSA speakers use English past tense inflection more often and more accurately compared to how they use the English present perfect inflection because the case for them is one of: 'the clue is in the title'. The fact that students in Syrian schools are taught about Arabic past tense conjugation, but nothing about the notion of aspectual reference in this language, and about English past tense and present perfect inflections, I assume that they associate the past tense usages in the L1 and L2, and therefore tend to use the English past tense morphology to cover past and perfective contexts in their L2, since both are called past tense in Arabic. Present perfect morphology, whose name is somehow misleading with respect to time reference, is perceived as a redundant form that is used by them only in very limited contexts.[141] LSA speakers end up thinking that English past tense is equivalent to what is known as Arabic past tense (which in reality encompasses perfective aspect

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[141] For example, we were taught at school to use the present perfect with structures containing adverbials such as *since 1997* and *for three months*.

reference), and that is why an experiment involving the observations of an LSA speaker naturally acquiring English would be extremely informative about what really goes in the mind of the L2 learner and how the L1 and L2 grammars interact together to yield the interlanguage grammar when no previous instruction or knowledge are involved.

Finally, the idea that there are languages that depend widely on contextual information to interpret functional features of lexical items is extremely fascinating in the sense that it evokes many questions about the evolution of human languages, and about how languages might develop in the future. Since there are native languages that are spoken by people who can have perfectly meaningful conversations without the need for overt forms to realize every feature of functional categories (e.g. Mandarin Chinese), does this mean that the basic form of human language (or what can be described as a universal template for all languages) contains just functional features but no functional morphology? And is the process involving different languages opting to realize different features and feature combinations a redundant process, meaning that if this basic human language (with functional features but no functional morphology) really existed it would be an adequately intelligible language? On the other hand, since, at least hypothetically, languages can parametrize any kind of semantic feature and grammaticalize it in their grammars, it would be expected that in the future (which could be hundreds or thousands of years) new functional morphology could appear in some languages arising from new life needs, inventions or social organization emerging and developing over time. What motivated the latter idea is the interesting case of

Japanese verbs that inflect for a politeness feature,[142] which seems to be relevant to the social code requirements of the Japanese culture, hence the proposal that non-linguistic factors could prompt the need and invention of new functional morphology that is otherwise redundant.

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[142] For more information about verb conjugation in Japanese see Lampkin (2010).

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Appendix A: Descriptive Statistics

	LSA			
	Mean	**Median**	**Range**	**Standard Deviation**
Past Tense	95.66	95.53	12.50	3.81
3SG Agreement	91.03	94.04	27.28	9.60
Number Marking	95.16	97.01	18.56	5.89
Passive Participle	97.06	98.57	9.68	3.79
Perfective Participle	97.43	100.00	18.75	5.88
Genitive	67.15	90.90	100.00	39.42
Articles	94.69	95.03	13.32	3.69

	MC			
	Mean	**Median**	**Range**	**Standard Deviation**
Past Tense	58.11	53.44	55.64	16.51
3SG Agreement	60.42	61.61	55.00	19.47
Number Marking	82.48	85.68	38.95	12.44
Passive Participle	79.11	80.73	54.55	16.95
Perfective Participle	84.90	94.94	50.00	18.83
Genitive	70.00	80.00	100.00	35.98
Articles	83.23	85.49	30.07	8.17

Appendix B: Picture Story Telling Task

Tell me about James's life.

Appendix C: Participant Consent Form

UNIVERSITY OF ESSEX

Participant Information Sheet and Consent Form

CONFIDENTIAL

Title of project: Investigating conversational strategies used by advanced second language learners.

Name of principal investigator: Woroud Melhem

What is the project about?

In this study I am interested in finding out what conversation strategies are used by English learners when in a relaxed environment and talking about subjects closely related to them. .

What does participating involve?

In addition to performing a quick placement test, the study involves nothing but a free conversation between the researcher and the participant. No specific subject is required to talk about, whatever the participant prefers.

Further details of the project will be sent to the participant (if they wish to receive them) after finishing the data collection.

Participant's consent

Please tick the appropriate boxes   **Yes**   **No**

The details of the project have been fully explained to me and described

  in writing.   ☐   ☐

I have been given the opportunity to ask questions about the project.   ☐   ☐

I agree to take part in the project. Taking part in the project will include

  being interviewed and audio-recorded.   ☐   ☐

I understand that my taking part is voluntary; I can withdraw from the

  study at any time and I do not have to give any reasons for why I no

  longer want to take part.   ☐   ☐

Phone number will not be revealed to people outside the project. ☐ ☐

I understand that my words may be quoted in publications, reports,
  web pages, and other research outputs and will be used for academic
  purposes only. ☐ ☐

I agree for my recordings to be stored and remain available for academic
  use for an unlimited period of time. ☐ ☐

Name and contact details of the principal investigator:

Name: Woroud Melhem

Institution: University of Essex

Position: PhD Student

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_____   _____

    _____

Name of participant [printed]   Signature   Date

_____   _____

    _____

Name of researcher [printed]   Signature   Date

Additional information

Name:

Age:

Gender:

Age started learning English:

Where was English learnt? home country/an English speaking country?

IELTS or TOEFL score:

Occupation:

For how long did/have you lived in an English speaking community?

Placement test result:

Appendix D: Oxford Quick Placement Test

Oxford University Press
and
University of Cambridge Local Examinations
Syndicate

Name: ....

Date: ....

quick
placement
test

Version 2

This test is divided into two parts:

Part One (Questions 1 – 40) – All students.

Part Two (Questions 41 – 60) – Do not start this part unless told to do so by your test supervisor.

Time: 30 minutes
Part 1

Questions 1 – 5

- Where can you see these notices?
- For questions 1 to 5, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

1

You can look, but don't touch the pictures.

A   in an office
B   in a cinema
C   in a museum

2

Please give the right money to the driver.

A   in a bank
B   on a bus
C   in a cinema

3

NO
PARKING
PLEASE

A   in a street
B   on a book
C   on a table

4

CROSS BRIDGE FOR TRAINS TO EDINBURGH

A   in a bank
B   in a garage
C   in a station

5

KEEP IN A
COLD PLACE

A   on clothes
B   on furniture
C   on food

Questions 6 – 10

- In this section you must choose the word which best fits each space in the text below.
- For questions **6** to **10**, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

THE STARS

There are millions of stars in the sky. If you look (6) .... the sky on a clear night, it is possible

to see about 3000 stars. They look small, but they are really (7) .... big hot balls of burning

gas. Some of them are huge, but others are much smaller, like our planet Earth. The biggest stars are

very bright, but they only live for a short time. Every day new stars (8) .... born and old stars

die. All the stars are very far away. The light from the nearest star takes more (9) .... four

years to reach Earth. Hundreds of years ago, people (10) .... stars, like the North star, to know

which direction to travel in. Today you can still see that star.

---

6   **A**   at   **B**   up   **C**   on

7   **A**   very   **B**   too   **C**   much

8   **A**   is   **B**   be   **C**   are

9   **A**   that   **B**   of   **C**   than

10   **A**   use   **B**   used   **C**   using

Questions 11 – 20

- In this section you must choose the word which best fits each space in the texts.
- For questions **11** to **20**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

Good smiles ahead for young teeth

Older Britons are the worst in Europe when it comes to keeping their teeth. But British youngsters

(11) .... more to smile about because **(12)** .... teeth are among the best. Almost

80% of Britons over 65 have lost all or some **(13)** .... their teeth according to a World

Health Organisation survey. Eating too **(14)** .... sugar is part of the problem. Among

(15) .... , 12-year olds have on average only three missing, decayed or filled teeth.

---

11   **A**   getting **B**   got **C**   have **D**   having

12 **A** their   **B** his   **C**   them   **D** theirs

13 **A** from   **B** of   **C**   among   **D** between

14 **A** much   **B** lot   **C**   many   **D** deal

15 **A** person   **B** people   **C**   children   **D** family

Christopher Columbus and the New World

On August 3, 1492, Christopher Columbus set sail from Spain to find a new route to India, China and Japan. At this time most people thought you would fall off the edge of the world if you sailed too far. Yet sailors such as Columbus had seen how a ship appeared to get lower and lower on the horizon as it sailed away. For Columbus this (16) .... that the world was round. He (17) .... to his men about the distance travelled each day. He did not want them to think that he did not (18) .... exactly where they were going. (19) ...., on October 12, 1492, Columbus and his men landed on a small island he named San Salvador. Columbus believed he was in Asia, (20) .... he was actually in the Caribbean.

16   A   made   B   pointed   C   was   D   proved

17   A   lied   B   told   C   cheated   D   asked

18   A   find   B   know   C   think   D   expect

19   A   Next   B   Secondly   C   Finally   D   Once

20   A   as   B   but   C   because   D   if

Questions 21 – 40

- In this section you must choose the word or phrase which best completes each sentence.
- For questions **21** to **40**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

21   The children won't go to sleep .... we leave a light on outside their bedroom.

   A except   **B** otherwise   **C** unless   **D** but

22   I'll give you my spare keys in case you .... home before me.

   A would get   **B** got   **C** will get   **D** get

23   My holiday in Paris gave me a great .... to improve my French accent.

   A occasion   **B** chance   **C** hope   **D** possibility

24   The singer ended the concert .... her most popular song.

   A by   **B** with   **C** in   **D** as

25   Because it had not rained for several months, there was a .... of water.

   A shortage   **B** drop   **C** scarce   **D** waste

26   I've always .... you as my best friend.

   A regarded   **B** thought   **C** meant   **D** supposed

27   She came to live here .... a month ago.

   A quite   **B** beyond   **C** already   **D** almost

28   Don't make such a ....! The dentist is only going to look at your teeth.

   A fuss   **B** trouble   **C** worry   **D** reaction

29   He spent a long time looking for a tie which .... with his new shirt.

   A fixed   **B** made   **C** went   **D** wore

30   Fortunately, ... from a bump on the head, she suffered no serious injuries from her fall.

   A other   **B** except   **C** besides   **D** apart

31   She had changed so much that .... anyone recognised her.

   A   almost   B   hardly   C   not   D   nearly

32   .... teaching English, she also writes children's books.

   A   Moreover   B   As well as   C   In addition   D   Apart

33   It was clear that the young couple were .... of taking charge of the restaurant.

   A   responsible   B   reliable   C   capable   D   able

34   The book .... of ten chapters, each one covering a different topic.

   A   comprises   B   includes   C   consists   D   contains

35   Mary was disappointed with her new shirt as the colour .... very quickly.

   A   bleached   B   died   C   vanished   D   faded

36   National leaders from all over the world are expected to attend the .... meeting.

   A   peak   B   summit   C   top   D   apex

37   Jane remained calm when she won the lottery and .... about her business as if nothing
      had happened.

   A   came   B   brought   C   went   D   moved

38   I suggest we .... outside the stadium tomorrow at 8.30.

   A   meeting   B   meet   C   met   D   will meet

39   My remarks were .... as a joke, but she was offended by them.

   A   pretended   B   thought   C   meant   D   supposed

40   You ought to take up swimming for the .... of your health.

   A   concern   B   relief   C   sake   D   cause

Part 2

> *Do not start this part unless told to do so by your test supervisor.*

Questions 41 – 50

- In this section you must choose the word or phrase which best fits each space in the texts.
- For questions **41** to **50**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

CLOCKS

The clock was the first complex mechanical machinery to enter the home, **(41)** ………………….. it

was too expensive for the **(42)** ……………….. person until the 19th century, when

(43) ……………….. production techniques lowered the price. Watches were also developed, but

they **(44)** ……………….. luxury items until 1868 when the first cheap pocket watch was designed

in Switzerland. Watches later became **(45)** ……………….. available and Switzerland became the

world's leading watch manufacturing centre for the next 100 years.

---

41 **A** despite   **B** although   **C** otherwise   **D** average

42 **A** average   **B** medium   **C** general   **D** common

43 **A** vast   **B** large   **C** wide   **D** mass

44 **A** lasted   **B** endured   **C** kept   **D** remained

45 **A** mostly   **B** chiefly   **C** greatly   **D** widely

Questions 51 – 60

- In this section you must choose the word or phrase which best completes each sentence.
- For questions **51** to **60**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

51   If you're not too tired we could have a .... of tennis after lunch.

    A match   **B** play   **C** game   **D** party

52   Don't you get tired .... watching TV every night?

    A with   **B** by   **C** of   **D** at

53   Go on, finish the dessert. It needs .... up because it won't stay fresh until tomorrow.

    A eat   **B** eating   **C** to eat   **D** eaten

54   We're not used to .... invited to very formal occasions.

    A be   **B** have   **C** being   **D** having

55   I'd rather we .... meet this evening, because I'm very tired.

    A wouldn't   **B** shouldn't   **C** hadn't   **D** didn't

56   She obviously didn't want to discuss the matter so I didn't .... the point.

    A maintain   **B** chase   **C** follow   **D** pursue

57   Anyone ...... after the start of the play is not allowed in until the interval.

    A arrives   **B** has arrived   **C** arriving   **D** arrived

58   This new magazine is .... with interesting stories and useful information.

    A full   **B** packed   **C** thick   **D** compiled

59   The restaurant was far too noisy to be .... to relaxed conversation.

    A conducive   **B** suitable   **C** practical   **D** fruitful

60   In this branch of medicine, it is vital to .... open to new ideas.

    A stand   **B** continue   **C** hold   **D** remain