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Code-Switching and the Variable Grammar Hypothesis: Evidence from Moroccan Arabic–French Bilinguals

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Abstract

This study investigates whether grammatical models of code-switching grounded in informal, linguist-generated judgments hold up when tested against formal acceptability ratings from bilingual speakers with varying second language (L2) proficiencies. Specifically, it evaluates the Functional Parameter Constraint (FPC), a syntactic model that predicts code-switching must preserve the hierarchical structure of functional heads. To test the FPC's generalizability beyond fluent bilinguals, 36 Moroccan Arabic–French bilinguals (split into high and low L2 proficiency groups—rated the acceptability of 23 constructed sentences, some adhering to the FPC and others violating it. Ratings were collected using a three-point scale, then analyzed quantitatively through match-rate comparisons and two-proportion z-tests, followed by a qualitative interpretation of the results. The results reveal that high-proficiency speakers aligned more closely with FPC predictions than low-proficiency speakers, but that neither group fully conformed to the model. In several cases, low-proficiency speakers produced acceptability patterns that contradicted the FPC, and even high-proficiency ratings diverged from those recorded in previous naturalistic corpora. These discrepancies suggest that grammatical judgments are influenced not only by linguistic structure but also by speaker proficiency and the elicitation method used. These findings challenge the assumption that code-switching constraints derived from fluent speakers can be applied universally. They underscore the importance of formal, experimentally controlled methods in bilingual syntax research and support the adoption of gradient models that account for speaker variability. The study contributes to refining grammatical theories of code-switching and highlights the need to incorporate L2 proficiency and methodological rigor into their formulation.

Keywords: Code-Switching, Functional Parameter Constraint, Bilingualism, Syntax, Second Language Proficiency, Gradient Grammaticality

1. Introduction

The debate over whether grammars remain universally fixed or adapt to each learner's developmental path finds a compelling test case in code-switching, where two linguistic systems intermingle within the same conversation. Sorace and Keller (2005, p. 18) describe how transitional grammars exhibit syntactic optionality—learners can produce more than one structure for a given input, and the relative acceptability of those variants shifts as proficiency grows. In bilingual contexts, this optionality becomes even more pronounced: speakers' judgments about what counts as "grammatical" hinge on their command of each language, especially their L2, so any model of code-switching grammar must account for such individual differences.

Drawing on Aabi's (1999) corpus-based analysis of Moroccan Arabic–French mixing, this study focuses on his Functional Parameter Constraint (FPC), which holds that code-switching must respect the continuity of functional parameter settings—speakers may not break the hierarchical integrity of functional heads like tense or agreement when inserting elements from another language. To assess whether Aabi's FPC can generalize beyond his fluent-speaker corpus, we will craft sentences that either obey or violate the constraint and collect acceptability judgments from informants with high versus low L2 proficiency. If both groups' ratings align with Aabi's original FPC predictions, a single inclusive grammar for code-switching seems plausible; if their judgments diverge, the results will lend weight to gradient models of grammaticality that Sorace and Keller advocate.

The thesis unfolds by first situating the reader in Morocco's multilingual landscape (defining key contact phenomena, outlining relevant typologies, and examining both Aabi's FPC and recent gradient-grammar proposals) then detailing the sampling strategy, questionnaire design, and other methodological choices. It proceeds to present the acceptability data and analysis before closing with a discussion of how these findings inform broader theories of mixed-language grammar and illuminate the roles of proficiency and optionality in shaping linguistic competence. In doing so, the study contributes to ongoing debates about whether bilingual grammars are governed by modular syntactic systems or shaped by gradient, usage-sensitive constraints.

2. Literature Review

This section opens by situating Morocco's linguistic environment, where bilingualism and diglossia operate under intertwined social, economic and political forces. It then defines bilingualism, reviews its established typologies and outlines methods for assessing L2 proficiency. Building on that, the discussion turns to code-switching: it examines its various typologies and explores the social motivations that drive speakers to alternate languages within a single utterance. The text next surveys a range of proposed constraints on code-switching before focusing on Aabi's (1999) Functional Parameter Constraint (FPC), which bars any insertion that disrupts the hierarchy of functional heads, such as tense or agreement, when two systems mix. From there, the section evaluates different methodological approaches to distinguishing grammaticality from acceptability, leading to the formulation of a gradient grammar model that accommodates varying speaker judgments.

2.1. Language Variation in Morocco

Morocco's sociolinguistic environment extends well beyond simple bilingualism, as Arabic and French dominate public and institutional spheres alongside native Amazigh varieties and a rapidly growing presence of English, effectively positioning the country as trilingual. Within Arabic itself, Standard Arabic governs formal domains (government, education and media) while Darija, shaped by centuries of language contact, functions as the everyday vernacular.

Socioeconomic structures further reinforce linguistic hierarchies: employers prize French proficiency, which both reflects and perpetuates social prestige, creating tension between Francophone elites and speakers of Arabic registers. Gender norms rooted in patriarchal traditions influence men's and women's speech patterns, suggesting that language choices mirror broader social roles. Meanwhile, regional dialects serve as powerful identity markers and can provoke inter-regional rivalries, prompting speakers to alter pronunciation or lexical items to align with perceived prestige. This intricate interplay of multilingualism, diglossia, social stratification, gender and regional variation renders Morocco an exceptionally rich site for quantitative sociolinguistic research and qualitative theoretical inquiries.

2.2. Bilingualism and Second Language (SL) Proficiency

Haugen's (1935) initial definition that bilingualism simply requires producing complete, meaningful sentences in a non-native tongue, proved overly broad; consequently, Baetens Beardsmore (1986) refined the concept by distinguishing societal bilingualism, which concerns communal language policy and its social rewards, from individual bilingualism, which MacSwan (1997, p. 39) characterizes as the mental representation and use of multiple languages. Building on this distinction, Cummins (1981) proposed that bilinguals may achieve native-like competence in both languages (proficient), exhibit full command in one and partial command in the other (partial), or, as some argue, possess limited ability in both; though the latter category remains controversial. Halliday and McIntosh's (1970) term "ambilingual" describes truly balanced speakers; however, Fishman et al. (1971, p. 40) point out that societal functions rarely allow equal fluency across all topics. Thus, most speakers fall into Cummins's partial category, a pattern corroborated by Hakuta (1986) and Romaine (1989), who observe complementary functional distributions that drive mixed-code usage according to varied experiences. Furthermore, Bley-Vroman's (1989) comparison of first- and second-language acquisition argues that L2 learning depends on the Universal Grammar parameters instantiated in L1, rendering second-language competence inherently variable and "parasitic" on first-language structures. To capture this variability, researchers commonly compile detailed case histories—documenting language dominance and loss, age of onset, sustained exposure, functional domains and overall verbal fluency—which together enable a nuanced classification of bilingual proficiency (MacSwan 1997). Recent studies have further refined this classification by integrating dynamic measures of language dominance and exposure across multilingual ecologies (Kupisch & van de Weijer, 2021), emphasizing the interplay between L2 proficiency and task-specific language control (Andersson, 2022).

2.3. Code Switching Definition and Typology

This section defines code-switching as the purposeful alternation of two or more languages within or between utterances (Aabi 1999, p. 4) and then differentiates it from interference and borrowing. Interference, according to Grosjean (1995, p. 262), occurs when elements of a non-target language intrude unintentionally into a monolingual context; whether as static traces

(permanent accents or semantic extensions) or dynamic slips (momentary syntactic intrusions). Romaine (1995) further separates interference into positive transfer, where L1 facilitates L2 acquisition, and negative transfer, where it impedes. In contrast, borrowing permanently integrates foreign items into a language's lexicon, typically signaled by phonological assimilation. For example, in the utterance ʃrit waħəd l-ʔan an 'eau de toilette', the French phrase adopts Moroccan Arabic phonotactics (Halmari 1997, p. 173), and in ki-souten-i la thèse, French morphology takes Arabic affixes; classic signs of lexical borrowing with morpho-syntactic integration.

By contrast, code-switching preserves the phonological integrity of each system while satisfying immediate communicative needs without assimilating the inserted elements into the recipient language (Aabi 1997, p. 6). Even when a French root acquires Moroccan Arabic morphology— as in y-pissi-w—speakers do not consider such hybrids part of the monolingual lexicon. Because phonological influence alone cannot reliably separate borrowing from switching, Poplack and Meechan (1995) and earlier Bentahila and Davies (1983, 1991) and Heath (1989) added morpho-syntactic criteria. Nevertheless, this research adopts Aabi's (1999) Functional Parameter Constraint: any French lexeme bearing Moroccan Arabic morphemes—whether or not it exhibits phonological or syntactic fusion—qualifies as code-switching rather than borrowing, since such forms reflect idiosyncratic bilingual strategies rather than community-wide adoption (p. 9).

2.4. The Social Motivation of Code Switching

This section challenges the pre-1990s view that code-switching constraints arise solely from syntactic structure and instead highlights how speakers' social and psychological contexts shape their mixing patterns. Myers-Scotton (1993, p. 475) observes that code-switching reflects community-specific conventions rather than universal rules, prompting Bentahila and Davies (1992, p. 444) to argue that ignoring factors like speakers' proficiency, usage domains, language attitudes and the social functions of each code has prevented the formulation of truly general constraints. Recent research supports this view by showing that multilingual speakers often engage in socially meaningful switching even when it conflicts with syntactic constraints, suggesting that pragmatic goals frequently override grammatical considerations (Parafita Couto & Gullberg, 2021). In a similar vein, Treffers-Daller (1991, p. 249) calls for a division of labor between grammatical and sociolinguistic forces to explain the diverse mixing patterns observed worldwide.

Building on these insights, Myers-Scotton introduces a "Negotiation Principle," illustrating with a bilingual exchange—where one interlocutor switches to a language associated with authority to distance himself—that speakers use code choices to negotiate their social position (1993b, p. 82). Her Markedness Model then accounts for this negotiation by showing how unmarked choices reinforce shared identity, marked choices amplify social distance, and exploratory choices allow speakers to test the social appropriateness of different codes.

2.5. Code Switching Constraints and their Application on MA-FR

Throughout the past 4 decades, the studies of CS phenomena exponentially increased, leading to abundance in the literature. Almost every aspect of CS is scrutinized, and one of them is the nature of the rules which dictate how two languages are ought or ought not to be mixed. These theories strive to explain the mechanisms that are at play when it comes to sentences' grammaticality in instantiations of bilingual speeches. This section first provides a brief survey discussing the prominent points of numerous approaches which tackled this issue. After that, we will adopt the Functional Parameter Constraint (FPC) which proved to be the strongest account, among these proposals, and apply its principles to MA-FR. Aabi's (1999) thesis tests the validity of the FPC on MA-FR and, indeed, its predictability and accuracy are not matched by any other theory.

2.5.1. Code Switching Constraints

This section contains a compilation of the major approaches that have been forwarded to regulate CS. The first constraints mainly developed by Poplack during 1980 and 1981 were relatively simple and claimed that switches may happen where languages' structures mirror each other. The next approach was postulated by Joshi (1985), in which he claimed that a distinction must be made between the Matrix Language and the Embedded Language. Following that, Di Sciullo, Muysken, and Singh's (1986) proposed an independently motivated theory, in which government plays a crucial role in determining possible switches. Mahootian's (1993) took the latter theory, and narrowed it down saying that heads are responsible for the allowed structures in bilingual and monolingual speeches alike. Finally, the Functional Head Constraint adds another feature, e.g. [+English], to functional heads and claims that their complements must match the language feature present in their heads. Although this theory has been criticized boisterously, applying slight modifications on it made it hold its ground and be considered one of the most accurate theories constraining code switching, later known as the Functional Parameter Constraint (FPC).

2.5.1.1. Poplack's (1980, 1981) Constraints

Poplack (1980, 1981) and Sankoff and Poplack (1981) advanced a theory which introduces two constraints known as the Equivalence Constraint and the Free Morpheme Constraint. The former predicts that codes will tend to be switched at points where the surface structures of the languages map onto each other. In other words, CS is allowed as long as the word order requirements of both languages are met at the S-structure. The latter claims that a switch may occur at any point in the discourse at which it is possible to make a surface constituent cut and still retain a free morpheme. Stated simply, it means that a code switch is forbidden to occur at the boundary of a bound morpheme. The examples below demonstrate the apparent validity of both constraints.

(1) *told *le*, le *told*, him *dije*, dije *him* (Poplack, 1981: 176)
told *to-him*, to-him *I-told*, him *I-told*, I-told *him*

'(I) told him'

(2) **estoy* eat-*iendo* (Poplack, 1980: 586)
I-am eat-ing

Because these Constraints are taken to be principles of the grammar, Poplack's theory implies that code switching is subject to what Mahootian (1993) called a "third grammar". This newly emerged grammar is active only when two systems are merged. The theory has also encountered various cases in which its predictability fails. Informants, in a study conducted by Belazi, Rubin and Toribio (1994:225), regarded sentences that are not disallowed by Poplack's theory as unacceptable.

(3) *The students had visto la película italiana
The students had seen the Italian movie

(4) *Los estudiantes habían seen the Italian movie
The students had seen the Italian movie

2.5.1.2. Joshi's (1985) Constraints

Joshi (1985) drew a distinction between the Matrix language (ML) and the Embedded Language (EL). He postulates that Code-Switching is an asymmetrical shift from a ML to an EL. The ML is defined as the sentence's frame, which dictates the proper permissible structures. The EL is considered as the outsider language which has to abide by the ML's grammar. In addition to this distinction, Joshi (1988) forwards the following constraint:

(5) Constraint on Closed-Class Items
Closed-class items (e.g., determiners, quantifiers, prepositions, possessives, Aux, Tense, helping verbs) cannot be switched.

As a case in point, Marathi postpositions cannot be switched for their English counterparts.

(6) *some chairs-*war* (Joshi,1985)
some chairs-on
'on some chairs'

Unfortunately, this approach does not hold up in the presence of many counter examples such as the ones described in (7) (Mahootian, 1993).

(7) Anyway, I figured *ke* if I worked hard enough, I'd finish in the summer
'Anyway, I figured that if I worked hard enough, I'd finish in the summer

In addition to the multitude of counter examples in many corpora, the approach's definition of the ML and EL is still vague and insufficient, leaving linguists constantly debating the criteria that set an ML and an EL.

2.5.1.3. Government Constraint

Advanced by Di Sciullo, Muysken, and Singh (1986), their constraint is:

(8) Government Constraint
a. If Lq carrier has index q, then Y_q^{max}
b. In a maximal projection Y^{max}, the Lq carrier is the lexical element that asymmetrically c-commands the other lexical elements or terminal phrase nodes nominated by Y^{max}

Unlike the previously mentioned approaches, this one actually refers to government, which is an independently motivated principle of grammar. However, the pitfall of this approach lays in its false banning of CS between verbs or prepositions and the complements they govern.

(9) This morning mi hermano y yo fuimos a comprar some milk (Belazi et al., 1994)
This morning my brother and I went to buy some milk

(10) J'ai joué avec il-ku:ra
I.have played with the-ball

In these two examples, the governing heads and their complements come from two different languages, yet these sentences are judged acceptable.

2.5.1.4. Mahootian's (1993) Constraint

Mahootian (1993) based her approach on data collected in a naturalistic manner. Her subjects were Farsi-English bilinguals. These two languages contrast with basic word order; in English objects follow verbs, while in Farsi the opposite happens.

(11) You'll buy *xune-ye jaedid*
You'll buy house-POSS new
'You'll buy a new house'

Hence, she came up with the following constraint.

(12) The language of a head determines the phrase structure position of its complements in code switching just as in monolingual contexts.
Heads determine the syntactic properties of their complements in code switching and monolingual contexts alike.

Despite holding its ground in Farsi-English data, there exist counter examples which question the validity of this constraint. For instance, in example (6), although the complement of Marathi postposition occurs on the left of the phrase, the construction is still deemed unacceptable.

2.5.1.5 The Functional Head Constraint

The Functional Head Constraint, which was proposed by Belazi, and Toribio (1994), states that a code switch may not occur between a functional head and its complement. In a sense, it is similar to Mahootian's constraint, only this time narrower and limited to only functional heads. This approach gained some merit since it resorts to principles independently motivated in the grammar. The phenomenon of feature checking which is believed to be at work during the various stages of speech production is also active during the construction of bilingual sentences. This approach adds the component *language feature* to the already existing bundle of features. Thus, features such as [+English] or [Spanish], are checked along with others.

(13) The Functional Head Constraint

The language feature of the complement f-selected by a functional head, like all other relevant features, must match the corresponding feature of that functional head.

Notice that only functional heads are subject to the latter constraint, meaning that CS between lexical heads and their complements is free.

Despite the wide influence this approach had in its prime time, it is nonetheless incomplete especially in its initial construction. A prominent misconception in this approach is its use of [+Arabic] or [+French]…etc., as linguistic primitives. A label such as [+ Arabic] is not independently motivated, and it only serves to restate an obvious descriptive fact. Moreover, a feature [+Arabic], for instance, is itself a bunch of other primitive features. Languages are taken to be derivative and not primitive constructs, which implies that "A particular language is a set of parameter values over the range of variation permitted by universal grammar, so positing a label for a particular language as a primitive in syntactic theory leads to an ordering paradox." (MacSwan, p. 63).

To rescue the validity of this approach, an alternative analysis suggests breaking down a feature, e.g. [+ English], into its composing primitives. Indeed, the latter proposition corroborates the strength of the Functional Head Constraint and enhances its accuracy in predicting grammaticality.

2.5.1.6. The Functional Parameter Constraint

The Fictional Parameter Constraint or the FPC (Aabi, 1999) builds upon all the previous approaches and states:

(14) The Functional Parameter Constraint

The FPC: The selectional properties of functional heads for Spec and complement must be met in code switching and monolingual constructions alike. If properties are parametric (i.e. cannot be satisfied from the other language), code switching will be blocked.

The nuances brought about by this constraint are demonstrated using the pair of languages AR-FR in the next section.

2.5.2. FPC on MA-FR CS

This section demonstrates the parametric differences between FR and MA, and uses them to construct constraints following the FPC approach. For convenience's sake, this research does not go over all the differences, parameters, and CS constraints that exist between AR and FR. We limit ourselves to only the most relevant points for the purpose of this research.

2.5.2.1. The IP Parameters

The first apparent difference between the two languages is word order. While Moroccan Arabic allows for both VSO and SVO order, French is a strict SVO language. To account for the syntactic representation of these two variant languages, linguists have proposed to split the IP to its functional pieces; namely, AGRP, and TNSP. Thus, the IP structure of each language is sketched in the following manner:

Deriving the structure of the FR clause *le chat mangera* for instance would proceed as follows. The verb *mange* moves upward to TNS and attaches to –r forming *mange-r,* then it moves to AGR and attaches to the suffix –a deriving *mange-r-a.* Concerning an MA clause, the following utterance *Rʌjfrɪ*[1] is derived as follows. The verb *frɪ* first moves to AGR and adheres to the prefix *j-* forming *j-frɪ,* Then it continues upward and lands in TNS where it is attached to another prefix *Ra-*, forming *Rʌ-j-frɪ.*

AGRP dominates TNSP in FR while TNSP dominates AGRP in MA. Aabi (1999) argues that this distinction is further supported by the explanation it offers to the apparent word order differences existing between these two languages. On the one hand, MA is a pro-drop language which is assumed to have two positions for two different subjects: a null pro subject occupying the structural subject position (spec-AGRP), and a lexical subject filling the thematic subject position (spec-VP). On the other hand, FR provides only one thematic/structural subject position in (spec-AGRP). Not only does this difference in scope dominance explain the varied word orders, it also accounts for a natural derivation of morphemes placement (p.67).

Based on the distinction of selectional properties of AGRP and TNSP in both languages, Aabi (1999) formulates the following constraints:

(15)TNS/AGR Parameter

(i).TNS c-selects AGR in MA

(ii). AGR c-selects TNS in FR

Another parameter alludes to the formulation of an additional constraint on AGRP lays in the different subjects each language's AGRP subcategorizes for:

(16)AGRP Parameter

(i). AGRP selects null pro in MA

(ii). AGRP selects overt subjects in FR

Finally, since each language's IP is dominated by a different functional head, it is necessary that the CP if each language selects its complement differently. Therefore, a CPs and their immediate complements must be in the same language:

(17)CP Parameter
(i). CP c-selects a TNSP in MA
(ii) CP c-selects AGRP in FR

2.5.2.2. Definiteness and Determiners Parameters

Generally, the switches within DPs are less restricted since determiners c-select for nouns which are Lexical Categories. Thus, features have to be checked only one way, i.e. the complement nouns do not specify what the features of their specifiers ought to be; only determiners, which are functional heads, do.

The MA bound morpheme determiner *l-* does not have phi-features, so it can adhere to nouns from either language regardless of their gender, and number specifications:

(18) l -femme
the woman
l -patron
the boss
l -Rjam
the clouds
l -ʒʃa
the dinner

FR determiners are different, for they have gender and number features which have to match their noun complement, as Aabi (1999) demonstrates here:

(19) C'est le seul ustad
*C'est le seul ustada

MA and FR are also different when it comes to definiteness agreement between nouns and adjectives.

(20) *L' éléve le stupid
the student the stupid
t -təlmɪ:d l -mkʌləx
the student the stupid

As it is clear from these examples, FR nouns do not agree in definiteness with their adjectives, while they do in MA. The final difference between AR and FR this section touches upon is the presence of the double determiner constructions in MA and their complete inexistence in FR. It is unclear why MA uses the determiners *waħəd l-* which could be roughly translated as *one the.* Such use goes against the principle of economy, for even though both determiners are phonetically realized only *waħəd* is semantically active.

(21) waħəd l-ħa:ʒa

(21) is indefinite and the *l-* is considered to be expletive and vacuous. Hence, the MA determiner *waħəd* selects a DP and not an NP. Aabi (1999) claims that this determiner requires its DP to have a [-definite], [+ singular] features, and that switches are allowed as long as the selected DP satisfy those features (p79).

(22) waħəd le liquide (Bentahila & Davies 1983:317)
*waħəd les liquides

To sum up, the selectional requirements of all functional heads must be met in code switching and monolingual sentences alike.

2.6. Formal vs. Informal Judgements

Since Chomsky's Syntactic Structures (1957) established generative grammar, syntacticians have treated acceptability judgments as indispensable data. Researchers obtain such judgments either informally—drawing on their own binary grammatical/ungrammatical intuitions—or formally, by eliciting gradient ratings from large informant samples. Although many authors use acceptability and grammaticality interchangeably, Schütze (1996) clarifies that acceptability reflects a conscious report of an accessible sensation, whereas grammaticality remains inaccessible to introspection (Nisbett & Wilson, 1977). Consequently, the term "grammatical acceptability" conflates distinct concepts. Myers (2008) groups the various influences on judgment—often termed functional parameter constraints—into four broad categories[2]: sentence parsing, superficial analogy, discourse context, and lexical semantics, and he argues that these rarely dominate formal experiments (p. 407).

When linguists rely on armchair judgments, they benefit from speed and broad language coverage; a scholar can generate many data points in minutes, even for under-described languages. However, such judgments rest on too few sentences and a single informant, leaving results vulnerable to researcher bias. While matching and factoring control some nuisance variables, only systematic sampling and statistical analysis confirm reliability (Myers, 2008, p. 411). More recent work emphasizes integrating formal acceptability ratings with corpus-based variability models, revealing how gradient judgments reflect both individual processing factors and broader patterns of bilingual usage (Weskott & Hörnig, 2022). Moreover, the predominance of English in informal practice stems from the many native-speaker linguists working in that language, not from greater methodological soundness.

Formal experiments embed reliability at their core: they apply sampling to mitigate confounds, yield statistical significance levels, and expose subtle patterns that binary judgments miss. For instance, although "More people have been to Berlin than I have" hardly strikes speakers as meaningless at first glance (Montalbetti, 1984, p. 6), a gradient scale reveals intermediate

degrees of acceptability and thus captures Chomsky's insight that "sentence acceptability varies gradiently" (1965, p. 10–11). Crucially, explicit, replicable methodologies allow scholars from diverse linguistic backgrounds—whether Thai or Urdu speakers—to verify one another's findings[3] (Myers, 2008, p. 409).

Myers concludes that formal judgments "separate the wheat from the chaff" more effectively by reducing experimental noise (2008, p. 415). This superiority prompts a further question: if acceptability proves gradient, must grammars themselves adopt gradient architectures? Scholars such as Bard et al. (1996), Keller (2000), Sorace and Keller (2005), and Featherston (2005a,b, 2007) answer affirmatively, and Keller (2000) alongside Sorace and Keller (2005) offer concrete models of gradient grammar that the next section examines. Expanding on this, recent experimental studies have confirmed that gradient acceptability judgments remain sensitive to morphosyntactic alignment and interface conditions even in non-native bilinguals (Bayram et al., 2021), further validating gradient frameworks within generative grammar.

2.7. Gradient Grammaticality

This section first explains why linguists have embraced acceptability judgments in generative grammar. Sorace and Keller (2005) argue that sentences defy simple acceptable/unacceptable labels, since examples often occupy intermediate zones of well-formedness (p. 2). Schütze (1996) further defends acceptability judgments by noting that they let us test sentences absent in corpora, provide the rare negative evidence so crucial for theory, distinguish genuine grammatical patterns from slips or incomplete utterances, and isolate structural properties from communicative and representational functions (p. 2).

Researchers link gradient acceptability to the nature of violated constraints—often called functional parameter constraints. Keller (2000b) differentiates hard constraints, whose breach produces strong unacceptability (for instance, violations of the Empty Category Principle), from soft constraints, whose infringement elicits only mild degradation (as in subjacency effects). Chomsky (1975) anticipated this approach, insisting that "an adequate linguistic theory will have to recognize degrees of grammaticalness," since speakers reliably order novel utterances by their degree of belongingness to the language (pp. 131–132). Consequently, gradient grammars can broaden linguistics' empirical reach and enhance predictive precision without abandoning empirical rigor, provided a framework remains permissive enough to capture diverse data yet restrictive enough to yield precise, testable analyses (Sorace & Keller, 2005, p. 3).

Integrating a gradient model into generative theory poses challenges. The original Principles and Parameters framework left little room for gradience (Fukui, 1993), but the advent of Minimalism and Optimality Theory has legitimized suboptimal candidates as grammatically grounded (Sorace & Keller, 2005, pp. 2–3). This evolution suggests that current generative grammar offers a fertile environment for developing and refining gradient models.

3. Methodology

3.1. Research Questions and Hypothesis

Myers-Scotton (1993) argued that "many speakers who frequently engage in CS become rugged individualists when they report on their own CS performance, insisting that their form of CS is a law unto itself" (p.475). Thus, grammaticality in CS is in the eye of the beholder. During the past few decades, studies on the syntactic constraints of Code Switching were almost always based on conversational data from bilinguals with a mastery command on two or more languages. The findings of this research method could be biased and not complete for two reasons:

i. Contemporary Syntactic theories were initially developed to study the combination of words of monolingual utterances. Therefore, applying the same apparatus to judge the grammaticality of sentences containing multi languages is potentially biased.

ii. Researchers base their CS constraints using data from fluent bilinguals, excluding a large number of speakers with varying competencies of the second language who consider themselves bilinguals and, nevertheless, resort to Code Switching when in need.

As a result, most CS studies implement various theories that are widely applied in monolingual speech into bilingual speech, and consequently miss the point of investigating the linguistic-social phenomena of code switching, while focusing on the validity of the syntactic theories themselves.

3.1.1. Research Questions

For the objectives of this study, a number of research questions are advanced:

-Could grammaticality in mixed codes, i.e. bilingual sentences, be weighed using the same scale applied in monolingual speech?

-Are judgments of grammaticality in bilinguals of varying competencies uniform?

-To what degree would the proficiency in a second language affect the grammaticality judgments of bilinguals?

3.1.2. Hypothesis

CS constructions mirror the degree of proficiency in L2 and make their grammaticality relative to the speaker's‟ knowledge of the languages at use; therefore, the acceptability of syntactic structures in bilingual speeches should not be accounted for using the same degree of objectivity practiced in monolingual speeches.

3.2. Research Design

This study tests whether speakers' judgments across different L2 proficiencies align with the Functional Parameter Constraint (FPC). To this end, we designed a two-part questionnaire: its first section assesses each informant's language background, while the second asks them to judge the acceptability of the 23 sentences constructed in section 3.4. against FPC

predictions. Grounded in the formal procedures advocated in section 2.5., this approach meets the reliability and validity standards that informal, arm-chair methods often overlook.

We recruited thirty-six college students and divided them into high- and low-proficiency groups. We gauged proficiency through standard Case History questions and by noting each student's department of instruction: three departments teach exclusively in French and another three in Standard Arabic (Moroccan Arabic's closest variety), so we selected six informants from each department. This yielded eighteen participants whose studies immerse them in French and eighteen whose courses use only Standard Arabic. Finally, each participant rated the 23 FPC-tested sentences, allowing a direct comparison of their intuitions with the constraint's predictions.

3.3. Bilingualism Evaluation and Informants

The objective of the study necessitates an evaluation of the subjects" L2 proficiency. Therefore, in addition to classifying them according to their departments, a Case History questionnaire, made by Gullberg and Indefrey (2003), is borrowed. The speakers are asked about language dominance, exposure to L2, functional specificity of each language, and general verbal fluency (MacSwan, 1997, p.48). Some major changes had to be applied on their questionnaire so that it better serves the purpose of this research.

The informants of this research are college students from various fields of studies. They were asked for their collaboration in Madinat Al Irfan – Rabat. As it has been mentioned earlier, this research compiles judgments from six departments chosen by their teaching language (three for French and three for SA/MA). The following chart presents the departments involved in this research:

Departments with L1 or a related variety are at use	(SA;MA) Departments with L2 at use (FR)
Arabic Studies	Computer Sciences
Sociology	Economy
History and Geography	Physics

The following charts exhibit the average score of each department's participants. This information was collected from the first part of the research questionnaire in which informants were given three Case History questions. The first question extracted the average ratings of L2 proficiency.

Department	Spk	Lis	Wri	Read	Gram	Pron
SA-medium instruction						
Arabic Studies	2.14	2.87	2.00	2.00	1.66	3.16
Sociology	2.66	2.88	2.65	3.00	2.00	3.45
Geog/History	2.33	2.56	2.12	2.88	1.96	3.69
FR-medium instruction						
Computer Sciences	3.88	4.46	4.16	4.78	4.22	4.78
Economy	4.22	4.56	4.66	4.78	4.66	5.00
Physics	3.46	4.44	4.00	5.00	3.56	5.00

The second one counted the languages at use with different groups of people. Finally, the third one acquired, for this research, the languages at use during different types of activities.

Across the SA-medium departments, Arabic Studies, Sociology, and Geography and History share a consistent profile: Moroccan Arabic (MA) is the default language in all face-to-face interaction (parents, siblings, friends, classmates), whereas academic reading is carried out in Standard Arabic; leisure viewing shows some French seepage—minimal in Sociology, substantial in Geography & History—while online communication splits, staying in Standard Arabic for Arabic Studies and Sociology but shifting to French in Geography & History. In contrast, the FR-medium departments—Computer Sciences, Economy, and Physics—display a transitional pattern at home (family talk roughly balanced between Moroccan Arabic and French) yet move decisively into French for peer interaction, reading, entertainment, and digital activity; Economy and Physics push this dominance even further, with French virtually monopolising every non-domestic domain

3.4. Grammaticality Test Stimuli

After classifying the informants' proficiency, they are provided with bilingual sentences containing violations of the FPC, and others free from any distortions. Their task is to pick up the sentences which seem acceptable. They are also instructed that they could cast one of three judgments, where: [0] = Unacceptable [1] = Not sure [2] = Acceptable.

For statistical analysis, these three-point judgments were later collapsed into a binary outcome to test alignment with the Functional Parameter Constraint (FPC): judgments of [2] (Acceptable) for sentences that respected the FPC and [0] (Unacceptable) for those that violated it were classified as "Match," while all other responses were coded as "Non-match." This binary distinction allowed for clearer hypothesis testing using two-proportion z tests, as described in Section 3.5.2. Descriptive statistics of the original trichotomous responses are also reported to preserve transparency and capture intermediate speaker intuitions.

This continuous valued scale is thought to be the golden standard in formal judgments (Bard et al. 1996; Cowart 1997; Sorace and Keller 2005; Featherston 2005a,b, 2007).

This exhibits whether informants' judgments with varying proficiencies coincide with the judgments of the FPC. In other words, this step checks whether the FPC constraints are visible to all levels of proficiency or not.

The questionnaire contains various sentences constructed in such a way highlighting aspects of the FPC. Due to the limited scope of this research, the given sentences contain only the parameters mentioned in the literature review section 2.5. For convenience's sake, French morphemes are in Italics while Moroccan Arabic morphemes are in the normal font.

The sentences were not drawn from naturally occurring corpora but were instead theoretically manipulated to reflect specific syntactic contrasts predicted by the Functional Parameter Constraint (FPC). Each item was designed to either conform to or violate one or more FPC-based constraints—such as functional head agreement, word order, or determiner selection—based on distinctions discussed in section 2.5. The goal was to isolate and test these parameters systematically across proficiency levels. While the sentences were not formally pilot-tested, their construction was guided by established grammatical principles and earlier code-switching research, ensuring theoretical validity within the scope of this study.

Interlinear morpheme-by-morpheme glosses are confined to verbal forms in both languages, since verbs represent the principal locus of the Functional Parameter Constraint contrasts under investigation. Glossing additional categories—such as copular constructions—would introduce extraneous detail without contributing to the analysis. The fully aligned example below illustrates the conventions of segmentation, alignment, and abbreviation; subsequent sections will refer back to this model to preserve brevity and maintain analytical clarity.

3.4.1. IP

The grammaticality of the following sentences is judged based the parametric differences between Moroccan Arabic (MA) and French IP constituents. We have postulated that the internal components of an IP are different in terms of their sequencing and subject placement.

1. tʌ -j *-fonction* -i f- ʂ- ʂbaʌːħ
   pres.3sg.masc-function-3SG in the morning
   'he works in the morning'

This sentence is acceptable since its IP structure comes from one language. The lexical verb could be freely switched since it does not have requirements to impose on its specifier.

2. **nous* mʃ-*on* *-s* *le* *soir*
   we go-pres.1pl the evening
   'we go in the evening'

The latter sentence is similar to (1) in all accounts, except that this time the IP is FR while the lexical verb is MA. Therefore, theoretically, its status has to be grammatical. However, as Aabi (1999) noticed, such structures are totally absent from his corpus. The reasons behind this asymmetry, or one way allowed code switching instances, are still obscure to researchers till this day.

3. **elle* ka -d -dɪːr *sport*
   she pres.3sg.fem-do sports
   'she does sports'

As it has been demonstrated in section: 2.5.2.1, the two languages differ in their subject placements. MA has a null subject position in spec AGRP, and in the case where the subject is phonetically realized as a distinct word, i.e. not deduced from AGRP, it occupies the spec-VP. French proceeds by a simpler manner where subjects are always realized and positioned in spec-AGRP. Sentence (3) has an overt FR subject positioned in spec-AGRP, while the IP in MA leaves that position empty, i.e. headed by null element. Therefore, this sentence is unacceptable.

4. *C'est quoi* hia *elle pens-e*?
   that is what she she think-pres.3sg.fem?
   'what does she think?'

Despite the apparent double object presence in sentence (4) it was nonetheless present in parts of Aabi's (1999) collected corpus. He provided the explanation that the MA pronoun *hia* is actually a dummy constituent bearing no thematic role (p.128). Thus, this sentence is acceptable.

5. *b-ʃħal howa *achet-er* *-a* *la* *maison* ?
   with how much he buy -fut.3sg the house ?
   'how much would he buy the house for?'

Following the same argument proposed for sentence (4), we can deduce that sentence (5) lacks a subject which can bear a theta role, for the MA pronoun *howa* cannot be assigned a thematic role. Hence, the sentence ends up with an unassigned dangling theta-role, which ultimately leads to its unacceptability.

3.4.2.CP

The parameter states that Comps and IPs must belong to the same language to be grammatical. This section targets embedded CPs in bilingual French (FR) – Moroccan Arabic (MA) speech.

6. *j'espèr-e* bəlɪ ʔa-j -kuːn l -ʒaw məzjaːn
   I hope-pres.1sg that fut.3sg.masc-be the weather good
   'I hope that the weather will be good'
7. **tu* *pens-e* *-s* *que* Ra -j -rbaħ ?
   you think-pres.2sg that fut.3sg.masc-win do you think that he will win?

8. *ta- j- gul-u bəlli *il est en bonne santé*
   pres.3pl-say-3pl that he is in good health 'they say that he is in good health'
9. *le fait que tu* *mang-e* *-s* *trops* ki- ʕassəb-ni
   the fact that you eat -pres.2sg alot pres.ipvf.3sg.masc-angry -1sg.obj
   'the fact that you eat a lot is making me nervous'
10. *Elle di* *-t* bəlli ka-t-stahlek bəza:f
    she say-pres.3sg that pres.3sg.fem-consume a lot 'she says that she consumes a lot'

3.4.3. DP

Determiners in Moroccan Arabic (MA) do not have phi-features while determiners in French (FR) can specify for phi-features and therefore must agree with their complements. Also, the contrast in definiteness agreement between adjectives and nouns has been considered. On the one hand, adjectives and nouns must agree in definiteness in MA. On the other hand, they do not agree in French (FR).

11. *r -rʌʒəl *le* ʃaref
    the man the old
    'the old man'
12. *xti *la* dakıja f -l -qism
    sister-my the smart in the class
    'my smart sister in the class'
13. **l 'homme le rich* ʒa ʕəndna
    the man the rich past.3sg.masc-came to us
    'the rich man came to us'

The three sentences above are extremely odd for a native speaker of MA. The reason lays in the French (FR) determiners in front the adjectives, and it has been previously argued that they cannot occur in agreement with the definiteness of nouns. Interestingly, an insertion of the adverb *seul* between the determiners and what follows them seem to lessen the deviancy of these sentences, as showed in (14):

14. xti *la seul* dakıja f -l -qism
    sister-my the only smart in the class
    'my sister is the only smart (person) in the class'

There has been no theory accounting for this strange linguistic behavior yet in (14).

15. mʃa ʔənd *la* *femme*
    past.3sg.masc-go at the woman
    'he went to the woman'
16. l *-football* f -l -məRrib məzja:n
    the football in-the-Morocco good
    'football in Morocco is good'
17. suwəl l *-gérante* dıal ʃ-ʃarıka
    ask-imp.2sg the manager of the company
    'ask the manager of the company'

All three sentences above are correct and in accordance with the parameter set by the FPC.

18. *suwəl *la* *fumeur* wa:ʃ ʕənd-o brıka
    ask-imp.2sg the smoker if pres-have-3sg.masc lighter
    'ask the smother if he has a lighter'
19. *ka -n -qələb ʕla *le* ʃarıka
    pres.ipfv.1sg search about the company
    'I am looking for the company'

In sentences (18) and (19), the NPs do not satisfy the gender features of their determiners.

The existence of double determiners in MA has been mentioned earlier. It has also been demonstrated that the cluster of determiners *waħəd l-* is registered as only one indefinite determiner bearing the features [-definite] and [+singular].

20. * waħəd *les telephones*
    one the phones
    'some phones'
21. waħəd *la chance*
    one the chance
    'a chance'
22. waħəd *l -rapport*
    one the report
    'a report'
23. * waħəd d -drari
    one the boy
    'a boys'

The sentences claimed deviants are the ones which violated the selectional requirements of the determiner *waħəd*.

3.5. Research Instrument and Statistical Tests

3.5.1. Questionnaire

As it has been mentioned before, this research uses a questionnaire composed of 23 sentences, which are to be judged, in terms of acceptability, by 36 informants. However, the bilingual nature of those sentences pushes this research to deviate from the standard questionnaires of answer the following questions into a hybrid between questionnaire/ interview form.

Utterances where two or more languages are spoken tend to be primarily spoken and not written. Therefore, the informants of this research are given the 23 sentences in a spoken form. The interlocutor holds the questionnaire in hand, and reads each sentence to the informants. By proceeding this way, the participants have no access to the written form. These measures are taken lest the participants‟ judgments would be affected when seeing two languages with different scripts mixed together.

3.5.2. Statistical Tests

Analyses used an α level of .05. Our sole inferential focus is whether the two fluency groups differ in the proportion of judgments that match the Functional Parameter Constraint (FPC). Descriptive summaries of the original three-category judgments accompany the main analysis for transparency.

3.5.3 Data aggregation and coding

Each participant judged 23 sentences:2 labelled *Respect* (conforms to the FPC) and 11 labelled *Violate* (breaks the FPC). For every judgment we coded a binary outcome:

- Match – Acceptable for a Respect sentence or Unacceptable for a Violate sentence.
- Non-match – any other response.

3.5.4. Inferential test: two-proportion *z*

For each condition we compared the French (FR) and Standard Arabic (SA) match proportions with a two-proportion *z* test (two-tailed). Ninety-five percent confidence intervals for the difference in proportions (Δ) were computed via the normal approximation with continuity correction (Newcombe, 1998). Because multiple judgments come from each participant, observations are not fully independent; this can make p-values slightly liberal. A participant-level Mann-Whitney check confirmed the same group pattern.

3.5.5. Effect-size reporting

We report the raw percentage-point gap (Δ) with its 95 % CI, as this is directly interpretable for categorical judgments. No additional corrections for multiple comparisons were applied because only two planned contrasts (Respect, Violate) were tested.

3.6. Limitations

The biggest issue this research has is the very small scale in which it operates. The total number of informants is 36, which is a very slim amount. The initial conception of the methodology of this research aimed for the extraction of a quantitative data, and 36 participants could hardly be called a set of quantitative data. Had there been more informants involved in this research; it would have been possible to detect weak yet consistent patterns of information.

Another pitfall this research has lays in the sentences of the questionnaire. The informants heard a full sentence or a phrase, and they had to judge it fully. However, in the sentences, there are only specific parts and borders that are actually put into test. Hence, it is possible that the judgments of the informants were affected by some other elements in the sentences that are not the subject matter of the test.

During the last years, and especially with the advancements of Minimalism and Optimality Theory, there have been many nuances in the methodologies linguists started using in judgments' collection. For instance, Magnitude estimations proved to be a valuable tool when extracting gradient data of the degrees of acceptability (Bard et al, 1996). Unfortunately, this research does not make use of such a tool, leaving this task to further research.

4. Data Description and Analysis

4.1. Quantitative Analysis on Grammaticality Test Data

In Section 4.1, a quantitative analysis of grammaticality judgments is presented. In 4.1.1, the framework for collapsing responses into FPC-matching versus non-matching is outlined. In 4.1.2, data preparation steps and proficiency-based summaries are provided. In 4.1.3, match-rate differences are assessed via two-proportion z-tests (α = .05; 95 % CIs). These results inform the domain-specific analyses in Section 4.2.

4.1.1. Data Analysis

To determine whether bilingual fluency modulates sensitivity to the Functional Parameter Constraint (FPC), we report a single, theory-direct measure: the proportion of judgments[4] that match the FPC prediction (i.e. Acceptable for Respect sentences and Unacceptable for Violate sentences). Collapsing to this binary outcome keeps the analysis transparent while capturing the contrast of greatest theoretical interest.

4.1.2 Data preparation and descriptive summary

Each informant judged 23 sentences: 12 that respect the FPC (Respect) and 11 that violate it (Violate). In brief, fluent bilinguals (FR) rated more Respect items Acceptable and more Violate items Unacceptable than semi-fluent bilinguals (SA).

4.1.3 Match-rate analysis (key test)

Judgments were collapsed into Match vs. Non-match and compared across fluency groups with two-proportion z tests (two-tailed, $\alpha = .05$). Ninety-five percent confidence intervals (CIs) for the difference in match rates (Δ) were calculated with the normal approximation and a continuity correction.

Condition	French (FR) Match % (n/N)	Standard Arabic (SA) Match % (n/N)	Δ (pp) 95 % CI	*z*	*p*
Respect	58.3 (126/216)	44.9 (97/216)	**+13.4** [4.0 , 22.8]	2.79	.005
Violate	46.0 (91/198)	34.8 (69/198)	**+11.2** [1.4 , 20.9]	2.25	.024

Both contrasts are statistically reliable: fluent bilinguals align with the FPC 13 pp more often for *Respect* sentences and 11 pp more often for *Violate* sentences. These findings support the hypothesis that greater bilingual fluency enhances conformity to the Functional Parameter Constraint.

4.2. Quantitative Analysis on Grammaticality Test Data

In Section 4.2, a detailed quantitative analysis of informant judgments on each test sentence is provided, organized by syntactic domain (IP, CP, NP/ADJ agreement, DP, and double-determiner constructions). Subsections 4.2.1–4.2.5 summarize the distributions of "Acceptable," "Not Sure," and "Unacceptable" responses across high- and low-proficiency groups for each item. Owing to spatial constraints and to preserve readability, the sentences themselves are presented without their interlinear morpheme-by-morpheme glosses and free translations; readers are directed to Section 3.4 for the fully aligned glossing examples that illustrate our segmentation, alignment, and abbreviation conventions.

4.2.1. IP Analysis

Sentence 1	French Proficiency	Acceptable	Not Sure	Unacceptable
tʌ-j-*fonction*-i f-ʂ-ʂbaʌːħ PRES.3SG.MASC-function-3SG in the morning 'he works in the morning'	**High**	7	6	5
	Low	4	6	8

The margin of uncertainty is very prominent in the judgments from both departments. However, the judgments from high L2 speakers slightly coincided with the FCP, by having 7 people thinking the sentence is acceptable and while 5 others rejected it. On the other hand, within the low L2 speakers, there were more people who deemed it unacceptable compared to those who thought it is acceptable. Overall, despite the high L2 matching the already established judgment of the FPC, informants' judgments are scattered around the other choices almost evenly, which makes taking a decisive claim on this sentence's acceptability difficult.

Sentence 2	French Proficiency	Acceptable	Not Sure	Unacceptable
**nous* mʃ-*on-s le soir* we go-PRES.1PL the evening 'we go in the evening'	**High**	0	0	18
	Low	0	4	14

This sentence is refused by all the 36 informants. Only 4 people from the low L2 departments showed uncertainty, and the rest all agreed that it is unacceptable, giving it an empty score of acceptability in both high and low proficiencies combined. Such absolute refusal of similar structures are also witnessed in Aabi's (1999) corpus, which contains no records of a MA verb lexeme to which are attached French (FR) morphemes. Structurally speaking, there are no differences between sentence (1) and sentence (2). The only difference lays in the inversion of the code-switched languages: sentence (1) has a FR verb and MA inflections, while sentence (2) has an MA verb and FR inflections. This inversion of roles has no influence on the syntactic structure of these sentences, yet the judgments collected from speakers presented with both sentences greatly differ. As it has been stated in section 2.5., there are presently no explanations to this kind of one way allowed code switching.

Sentence 3	French Proficiency	Acceptable	Not Sure	Unacceptable
**elle* ka-d-dɪːr *sport* she PRES.3SG.FEM-do sports 'she does sports'	**High**	13	2	3
	Low	1	8	9

Since the IP of this sentence is realized fully in MA, the subject position has to be vacant. There is an acute contrast between the judgments of the two proficiencies. The high L2 group tolerated the sentence while the L2 showed unacceptance and uncertainty. Interestingly, the low L2 judgments were closer to the FPC. This result is counterintuitive since Aabi's (1999) FPC theory is based on a corpus of conversation collected from proficient bilinguals. Therefore, it would have been more convenient if the high L2 judgments had been the ones to coincide with the FPC.

Sentence 4	French Proficiency	Acceptable	Not Sure	Unacceptable
C'est quoi hia *elle pens-e* ? that is what she she think-PRES.3SG.FEM? 'what does she think?'	**High**	12	1	5
	Low	1	6	11

The assumption that the pronoun *hia* is a dummy pronoun has been discussed both in section 3.3.1 and earlier in the literature review. In syntactic theory, dummy pronouns—such as English *it* in *It is raining*—serve a structural function without bearing a theta role (i.e., they are not semantically required but syntactically necessary to satisfy subject position requirements). In the present context, *hia* functions similarly, occupying the subject position to fulfil structural well-formedness without introducing a semantic agent. Unlike the previous sentence, this time the high L2 group aligned with the FPC, with the majority labelling the sentence as acceptable—suggesting they recognized *hia* as a non-thematic, structurally licensed element. In contrast, the low L2 group largely rejected the sentence, with only one out of eighteen informants deeming it acceptable, possibly due to interpreting *hia* as bearing an unlicensed or redundant thematic role.

Sentence 5	French Proficiency	Acceptable	Not Sure	Unacceptable
*b-ʃħal howa *achet-er-a la maison* ? with how much he buy-FUT.3SG the house ? 'how much would he buy the house for?'	**High**	12	2	4
	Low	4	11	3

Similar to sentence (4), sentence (5) has a dummy pronoun. FR IPs demand a subject bearing a theta role; something which cannot be achieved by the dummy *howa.* Despite the coinciding of the high L2 with FCP in sentence (4), which translates into the recognition of *hia/howa* pronouns as dummies, the high L2 did not stay consistent through sentence (5) in their evaluation of these dummy pronouns. This time, their judgments contradicted those of FPC. On the other side, uncertainty dominated the rows of the low L2, by having 11 informants out of 18 claiming their incertitude.

4.2.2. CP Analysis

Sentence 6	French Proficiency	Acceptable	Not Sure	Unacceptable
j'espèr-e bəlı ʔa-j-ku:n l-ʒaw məzja:n I hope-PRES.1SG that FUT.3SG.MASC-be the weather good 'I hope that the weather will be good'	**High**	3	2	13
	Low	4	10	4

Following Aabi's theory, it has been discussed in both our literature review, a Comp and its IP must belong to the same language. According to the latter assumption, sentence (6) has to be accepted. However, both L2 proficiencies mostly declined the sentence, with the low L2 slightly less severe in its refusal. Therefore, none of the proficiencies coincided with the FPC this time.

Sentence 7	French Proficiency	Acceptable	Not Sure	Unacceptable
**tu pens-e-s que* Ra-j-rbaħ ? you think-PRES.2SG that FUT.3SG.MASC-win do you think that he will win?	**High**	3	1	14
	Low	2	13	3

This sentence has a FR Comp and a MA IP. Since the IP and the Comp that precedes it are from different codes, it follows that this sentence has to be rejected. Contrary to the previous sentence, this time both proficiencies and the FPC coincide in their judgments. Similarly to the previous sentence, the low L2 was less acute in its refusal relative to the high L2.

Sentence 8	French Proficiency	Acceptable	Not Sure	Unacceptable
*ta-j-gul-u bəlli *il est en bonne santé* PRES.3PL-say-3PL that he is in good health 'they say that he is in good health'	**High**	2	2	14
	Low	4	4	10

This sentence has a MA Comp, and a FR IP. The analysis of (8) is similar in all accounts to (7). The only noticeable thing is the higher degree if leniency exhibited by the low L2 towards this sentence.

Sentence 9	French Proficiency	Acceptable	Not Sure	Unacceptable
le fait que tu mang-e-s trops ki-ʕassəb-ni the fact that you eat-PRES.2SG a lot PRES.IPVF.3SG.MASC-angry-1SG.OBJ 'the fact that you eat a lot is making me nervous'	**High**	3	3	12
	Low	9	4	5

The Comp and IP belong to MA. Therefore, according to the FPC, the sentence has to be accepted. One would assume that the high L2 is the one which is more likely to coincide with the FPC. However, once again similar to sentence (3), the high L2 results did not coincide with the FPC, while the low L2 proficiency demonstrated more convergence towards it, by having half of the informants judging it acceptable.

Sentence 10	French Proficiency	Acceptable	Not Sure	Unacceptable
Elle di-t bəlli ka-t-stahlek bəza:f she say-PRES.3SG that PRES.3SG.FEM-consume a lot 'she says that she consumes a lot'	**High**	4	2	12
	Low	3	4	11

The Comp and IP belong to the same language. Therefore, according to the FPC, this sentence has to be accepted. Yet, both proficiencies agreed in deeming it unacceptable, going against the FPC predictions. The refusal is somewhat sharper among the high L2 informants.

4.2.3. NP and ADJ Agreement in Definiteness Analysis

Sentence 11	French Proficiency	Acceptable	Not Sure	Unacceptable
*r-rʌʒəl *le* ʃaref the man the old 'the old man'	**High**	14	3	1
	Low	8	6	4

This sentence has a definite MA noun followed by a definite adjective. In section: 2.5.2.2., it has been demonstrated that Aabi's (1999) FPC theory bans the presence of a FR determiner next to a MA adjectives which in turn agrees with the preceding noun in definiteness. None of the proficiencies agreed with the predictions of the FPC. The high L2 divertingly accepted the sentence by having 14 out of 18 informants agree on its acceptability. The low L2 groups were more prudent in letting the sentence straddle the fence into acceptable seats; 4 deemed it unacceptable, and six asserted doubtfulness.

Sentence 12	French Proficiency	Acceptable	Not Sure	Unacceptable
*xti *la* dakɪja f-l-qism sister-my the smart in the class 'my smart sister in the class'	**High**	9	4	5
	Low	8	9	1

For the same reasons mentioned in the analysis (11), sentence (12) has to be rejected. Still, most of the informants from both proficiencies decided to accept the sentence and divert with, varying degrees, from the FPC predictions. On the one hand, among the high L2 groups, 4 people refused the sentence and 4 others said they were unsure. On the other hand, among the low L2 groups, only 1 informant refused the sentence, while 9 others said they are unsure.

Sentence 13	French Proficiency	Acceptable	Not Sure	Unacceptable
**l'homme le rich* ʒa ʕəndna the man the rich PAST.3SG.MASC-came to us 'the rich man came to us'	**High**	6	3	9
	Low	6	10	2

In sentence (13), both groups contained 6 informants, in each, who saw the sentence acceptable, cancelling each other's out, and leaving the other variable (Unacceptable, Not Sure) at play. The high L2 mostly agreed with the FPC prediction by having half of the groups' informants denying the sentence. Concerning the low L2 groups, they were mostly unsure of this sentence's acceptability, whereby10 informants declared their uncertainty towards the sentence.

Sentence 14	French Proficiency	Acceptable	Not Sure	Unacceptable
xti *la seul* dakıja f-l-qism sister my the only smart in the class 'my sister is the only smart (person) in the class'	**High**	6	6	6
	Low	4	12	2

As it has been discussed in 2.5.2.2., the insertion of *la* saves the sentence. Moreover, Aabi's (1999) corpus contains similar structures which surfaced only when *la* was present. The two varieties of L2 in this research did not exactly replicate Aabi's (1999) findings. Although both of them host a number of informants who thought the sentence is acceptable, they generally drift towards uncertainty as the common judgment. On one side, the high L2 has the three judgments evenly distributed across the pie chart. On the other side, the low L2 groups are again dominated by incertitude, whereby 12 informants chose to go by the choice of [Not Sure].

4.2.4. DP Analysis

Sentence 15	French Proficiency	Acceptable	Not Sure	Unacceptable
mʃa ʔənd *la femme* PAST.3SG.MASC-go at the woman 'he went to the woman'	**High**	2	4	12
	Low	3	1	14

The noun *femme* has the FR determiner with the feature + feminine. Despite the apparent acceptability of this sentence, both L2 groups harshly dismissed it. Therefore, the results did not coincide with the FPC prediction.

Sentence 16	French Proficiency	Acceptable	Not Sure	Unacceptable
l-*football* f-l-məRrib məzja:n the football in-the-Morocco good 'football in Morocco is good'	**High**	5	0	13
	Low	2	5	11

The sentence has the MR determiner bound morpheme *l-*, attached to a FR noun, which is allowed and in accordance with the FPC. Similar to sentence (15), this sentence was severely refused by both groups, with the low L2 being a little bit less assertive in their condemnation, whereby 5 claimed they are unsure, and 2 thought it is acceptable. Thus, once again, the judgments did not match the FPC predictions.

Sentence 17	French Proficiency	Acceptable	Not Sure	Unacceptable
suwəl l-*gérante* dıal ʃ-ʃarıka ask-IMP.2SG the manager of the company 'ask the manager of the company'	**High**	4	2	12
	Low	6	0	12

As it has been discussed earlier, since the bound morpheme determiner *l-* does not specify Phi features, any noun could be adhered to it regardless of its gender features. Therefore, this sentence is acceptable by FPC standards. However, the judgments of the informants did not reflect that, whereby the dominant answer in both groups is unacceptability.

Sentence 18	French Proficiency	Acceptable	Not Sure	Unacceptable
*suwəl *la fumeur* wa:ʃ ʕənd-o brıka ask-IMP.2SG the smoker if PRES-have-3SG.MASC lighter 'ask the smother if he has a lighter'	**High**	3	4	11
	Low	12	2	4

Unlike the MA definite determiner *l-*, the FR determiners do have Phi features and, therefore, subcategorize for specific nouns that match their features. This feature checking process was respected by the High L2, whereby 11 out of 18 did not accept the sentence. On the other hand, the low L2 groups mostly accepted the sentence. Hence, in this sentence, the high L2 coincided with the FPC, while the low L2 did not.

Sentence 19	French Proficiency	Acceptable	Not Sure	Unacceptable

*ka-n-qələb ʕla *le ʃarıka* PRES.IPFV.1SG search about the company 'I am looking for the company'	**High**	7	7	4
	Low	4	6	8

The FPC predicts that this sentence is unacceptable because of the mismatch of gender features between the determiner *le* and the nouns *ʃkara.* Yet, both groups displayed a different opinion. On the one hand, the high L2 judgments are equally divided between uncertainty, and acceptability, with only 4 informants deeming in unacceptable. On the other hand, although the low L2 groups showed almost the same degree of confusion, their dominant answer was unacceptability. Hence, it could be concluded that the low L2 is slightly more inclined to the FCP judgment, while the high L2 mostly missed it.

4.2.5. Double Determiners Analysis

Sentence 20	**French Proficiency**	**Acceptable**	**Not Sure**	**Unacceptable**
* waħəd *les telephones* one the phones 'some phones'	**High**	8	8	5
	Low	1	7	10

Following the same line of thought in Aabi's (1999) thesis, the double determiner cluster is registered as only one determiner bearing the features indefinite and singular. Hence, the FPC predicts that this sentence is unacceptable. The low L2 groups were mostly in accordance with the FPC by having 10 informants refuting the sentence. The high L2 informants went into the opposite direction and casted 8 acceptable judgments, making this opinion dominant among their rows.

Sentence 21	**French Proficiency**	**Acceptable**	**Not Sure**	**Unacceptable**
waħəd *la chance* one the chance 'a chance'	**High**	2	3	13
	Low	2	3	13

Although this sentence respects the *waħəd* + determiner cluster, it was equally refused with the same degree from both high L2 and low L2. In the end, none of the varieties coincided with the FCP.

Sentence 22	**French Proficiency**	**Acceptable**	**Not Sure**	**Unacceptable**
waħəd *l-rapport* one the report 'a report'	**High**	4	0	14
	Low	2	4	12

Similar to sentence (21), this sentence is severely refused from both varieties, although it is acceptable according to the FPC.

Sentence 23	**French Proficiency**	**Acceptable**	**Not Sure**	**Unacceptable**
* waħəd d-drari one the boys 'a boys'	**High**	2	4	12
	Low	3	6	9

Generally, it could be seen that the sentence is also mostly refused by both varieties of L2. However, this refusal is less severe than the previous three sentences. Since the sentence is not acceptable according to the FPC, this lessening of the acute refusal is actually a form of divergence from the FPC. In the end, the dominant judgment in both varieties coincided with the FPC.

5. Discussion and Interpretation

This section offers an interpretation of the findings, focusing on how participant judgments reflect underlying grammatical and sociolinguistic factors. During the discussions in this section, the first section stops at some interesting point that could be deduced by comparing and contrasting the three sets of judgments. The last section sheds light on some interesting implications brought about if the assumptions made in the interpretation are considered true.

5.1. The Perception of IPs from Different L2 Proficiencies

Structurally speaking, sentence (1) and (2) are similar in all respects. However, the difference between the two lays in the inverted roles each sentence plays. In sentence (1), the verb is in MA while the inflection is in FR. In sentence (2), the verb is in (FR) while the inflection is in (MA).

1. tʌ -j -*fonction* -i f- ʂ- ʂbaʌːħ

pres. 3sg.masc-function -3SG in the morning
'he works in the morning'

2. **nous* mʃ-*on* *-s* *le* *soir*
we go-pres. 1pl the evening
'we go in the evening'

Still, when these two sentences were judged by the L2 speakers of this research, their results greatly contrasted. On the one hand, sentence (1) was mostly accepted with open arms. On the other hand, sentence (2) was acutely refused. Reflecting back on section 2.3.. there was a tedious argumentation forwarded to pick apart structures with a FR verb MA Inflection as not instances of borrowing, but rather an intra-sentential code switching. The informants' aversion towards the sentence (2) could be explained if one is to consider the informants dealing with (1) as a borrowed form, while refuting the second as the content word *mʃ-* is already in MR. Borrowing is taking from a language which is not one's native. Hence, only (1) was perceived as a possible structure.

In sentences (4) and (5), the informants were given sentences with a dummy pronoun in each. The only difference was the deletion of the main pronoun in sentence (5).

4. *C'est* *quoi* hia *elle pens-e* ?
that is what she she think-pres.3sg.fem?
'what does she think?'

5. *b-ʃħal howa *achet-er* *-a* *la* *maison* ?
with how much he buy -fut.3sg the house ?
'how much would he buy the house?'

In (4), the high L2 accepted the sentence while the low L2 refused it. This leads to the postulation that the pronoun *hia* does not have a unified perception from the two varieties. The high L2 succeeded in seeing it as a no theta-role bearing element, while the low L2 could not regard it as a mere dummy pronoun, and thus saw the sentence with a floating element to which no theta roles are left to assign. Carnie (2013) stated that "you can't have more arguments than you have theta roles, and you can't have more theta roles than you have DPs" (p. 234).Hence, from the perspective of the low L2 the Theta Criterion has been violated.

The theta Criterion (Carnie, 2013, p. 234)
(a) each argument is assigned one and only one theta role
(b) each theta role is assigned to one and only one argument

In (5), the theta bearing pronoun has been eliminated and only the dummy pronoun remained. Following the line of arguments presented in the previous paragraph, one would assume that this time the sentence will be rejected from the high L2, since there is no theta bearing element. Yet, the sentence was surprisingly accepted. The fact that it was accepted only means that *hia/howa* can bear theta roles if necessary, which in turns leads to the formulation of the following hypotheses: (a) When a FR pronoun preceded by a dummy MA pronoun gets deleted; the theta role is reassigned to the remaining dummy pronoun. (b) When a construction such as MA pronoun + FR pronoun is in a sentence, it is the former which gets a theta role; therefore, deleting the latter does not result in any violation.

Abiding by the assumption in (a) would not lead to any changes in the arguments presented for the interpretation of sentences' (4) and (5) results. However, (b) brings another interpretation for sentence (4) to the light. If one is to follow the assumption in (b), it necessarily implies sentence (4) was accepted from the high L2 because the theta role was assigned to *hia* in the first place, while considering the FR pronoun as a mere dummy whose presence or absence does not affect the sentence.

5.2. Comp IP as an Unpreferable Border for CS

Almost all sentences were rejected regardless of whether they are in accordance with the FCP or not, i.e. even the ones judged acceptable by the FCP were refused. The only exception is in sentence 9, whereby the low L2 mostly judged the sentence acceptable. Apart from that, the colour red, which reflects unacceptability, dominated the pie charts. This leads to the assumption that in inter-sentential code switching, there are preferable and unpreferable spots that determine the extent to which a code-switched structure is (un)acceptable. It is probable that the border Comp IP is less inductive to code switching than other borders in a sentence, resulting in an aversion from speakers to any sentences with switches in that particular area. If one is to suppose the latter assumption true, it seems that both varieties of L2 shun Comp IP switches. However, this assumption is countered by the existence of Comp IP switches in both the corpuses of Aabi (1999) and, Bentahila and Davies (1983). Moreover, even if we are to assume that the postulated hypothesis is true, it still does not account for the refusal of sentences whose Comp and IP are of the same language.

5.3. Determiners Agreement in NP ADJ Regardless of their Language

11. *r -rʌʒəl *le* ʃaref
the man the old
'the old man'

12. *xti *la* dakıja f -l -qism
sister-my the smart in the class
'my smart sister in the class'

Sentence (11) and (12) go against the FCP that states FR determiners are never assigned to an adjective to make it agree in definiteness with its preceding noun. Based on the fact that these two sentences were mostly accepted from both varieties, it

is possible to conclude that when a structure has a MA noun, the adjective that follows agrees in definiteness regardless of the language of the Det. This assumption is backed up if one looks at the difference between sentences 11 and 12, and sentence (13) as repeated below:

13. **l* *'homme le rich* ʒa ʕəndna
    the man the rich past.3sg.masc- came to us
    'the rich man came to us'

Sentence (13) has the same structure as its two previous ones; the only difference is the FR noun instead of the MA. Hence, this sentence was rejected especially from the high L2 groups.

5.4. The Phonological Similarities between the Determiners of MA and FR

It is hard to extract consistent interpretations from the sentences that were focus on the DP. This could be due to a phonological reason. As it has been noted before by Aabi (1999), the pair *le/la* sounds very similar to *l-*. It is possible that in naturalistic contexts of bilingual conversation there is even less focus on that part since it occupies a very small portion of the sentence. Therefore, these mistakes are less noticeable, which in turns lead to the difficulty of pinpointing consistent data.

5.5. Conscious Judgments of Double Determiners

When the informants were asked to judge the sentences with the double determiners, they became conscious of the apparent mismatch of the determiner *wahed* with what followed it. Hence, they ended up refusing to accept all the sentences with the double determiners, thinking of it as a mistake that should not occur. Hence, their occurrence in conversation is unconscious, but when they are brought to the light of conscious judgments, they are rejected.

5.6. Implications

Keller (2000, p.1) claims that there are three criteria that determine the validity of a grammatical framework:

a) Showing its applicability to a wide range of linguistic phenomena.
b) Demonstrating the soundness of its formal foundation.
c) Verifying its compatibility with experimental evidence.

The data interpretation section yielded assumptions that go against the framework set by the FPC. The criterion in which the FPC fell short was mainly the one noted in (c). Grammatical or acceptability judgments are said to be "the most natural empirical domain for a linguistic framework" (Keller, 2000, p.1). When the predictions of the FPC were juxtapose to judgments of L2 speakers with varying degrees of proficiency, their results did not match up completely. Moreover, the two varieties often expressed different judgments when presented with the self-same sentence. In other words, none of the three sets composed of FPC, high L2, and low L2, have completely coincided with one another. This discrepancy leads to two implications: (a) Since the FPC model was constructed from a corpus composed of naturalistic conversations where utterance are thrown without much conscious focus, while this research put the informants into a context where they had to summon their conscious knowledge of language to judge, it follows that in code switching acceptability is relative to the degree of conscious focus, a speaker has at a certain moment, on language. (b) The high and low L2 varieties judgments do not coincide with each other's. Therefore, each degree of proficiency has a relative perception of what ought to be acceptable while code switching.

Languages are in constant reciprocal influences from one another. The languages at use within the Moroccan borders are even more prone to take on features from one another, since their uses are variable and indispensable to any Moroccan citizen. Hugo Schuchardt (1884) is one of the first scholars to study the mixing of codes, who stated that "a language A can transform slowly but steadily, by constant mixture, into a language B which is very different from it", and later added that "however, we would lack all criteria to answer the question whether they can still be called still A or B at a certain point of development" (p.10). Code switching could be regarded as the quick instantaneous instances, of mixing two codes, which, in the long run, result in a mixed language hard to label as neither A nor B. What this implies is the apparent difficulty of choosing a reference on which bilingual utterances could be judged, since as soon as two languages intermingled, their identities collapse and the linguist loses the grounding upon which a grammatical framework could be conceived. The social dimension of code switching makes matters even worse for any aspiring constraints theory. The primary function of code switching has always been social negotiations. Hence, in a given social context, an individual resorts to whatever degree of proficiency at his or her disposal, since the goal is not to utter a fully flesh well-presented sentence for the sake of exhibition per se, but rather to attain a social goal which resides outside language and its grammar.

6. Conclusion

This study critically examined the Functional Parameter Constraint (FPC) by comparing it with acceptability judgments from Moroccan Arabic–French bilinguals of differing L2 proficiencies. While high-proficiency speakers showed greater alignment with the FPC, the results revealed notable variability, including divergence from both the FPC's predictions and earlier naturalistic corpora. These findings challenge the universality of constraints developed solely from fluent bilingual data and underscore the limitations of relying on informal, introspective methods in syntactic theory.

The results suggest that grammaticality in code-switching cannot be fully understood without accounting for L2 proficiency and the elicitation context. Speakers with different linguistic profiles interpret syntactic acceptability in ways that highlight the fluid and gradient nature of bilingual competence. Therefore, the study supports a move toward more dynamic models of bilingual grammar that embrace variation rather than treat it as noise.

Beyond offering empirical insights, this research calls for greater methodological rigor in bilingualism studies. Future models must integrate speaker variability and controlled judgment tasks to better reflect the linguistic reality of code-switching. Ultimately, understanding bilingual syntax requires not just testing what speakers can do, but how they perceive and evaluate what they produce.

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Endnotes

[1] Roughly translated as (he will buy)

[2] For a full discussion of those variables, readers may consult the original text by James Myers (2008)

[3] *That trace effects* in German are observed experimentally (Featherston, 2005a) but unable to replicated (Haider 1983).

[4] Because each participant contributed multiple judgments, observations within a fluency group are not fully independent. This can make p-values slightly liberal, but the 10–13 percentage-point gaps reported below are large enough that the conclusion (higher fluency yields closer alignment with the FPC) remains robust.