

Article

A_{AiM}LL: Acquisition Advantages in MultiLingual Learners: The Case of the Multilingual Child

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Abstract: Cognitive science has demonstrated that multilinguals (including children) show a cognitive advantage over monolinguals. Linguistics has provided evidence that multilinguals (including children) are able to successfully separate their lexicons and grammars and negotiate multilingual environments. Apart from these achievements, linguistics has generally failed to demonstrate a multilingual advantage related to the multilingual's linguistic proficiency. The present article summarizes the current literature, which shows that there are first indications of an acceleration effect in multilingual children. This effect is discernable if the languages radically differ, if the child uses a 'weak' language (often a minority language), if the child acquires more than two languages from birth, and if contact with the language exhibiting the acceleration effect is delayed until kindergarten age. This kind of acceleration effect represents an explanation gap under current theorizing in cognitive science and linguistics, and calls for a new language acquisition theory, a best-of-breed solution for further research in language acquisition. A_{AiM}LL (Acquisition Advantages in MultiLingual Learners) combines cognitive and linguistic aspects with a threshold theory. It is claimed here that the multilingual child learns from two cognitive acquisition strategies. One is fed by grammatical features, and requires the child to (re-)use already acquired knowledge by generalizing to new domains. The other strategy enables the child to consider rejected alternatives of earlier decisions in one language, for use in the other language. An acceleration effect related to the multilingual's linguistic proficiency is indicative of the success of both strategies. The success of the strategies is argued to be related to a threshold of language usage from a quantitative or a qualitative perspective.



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1. Introduction

Research on multilingual learners, children included, has advanced the fields of cognitive science and linguistics. Both fields have given rise to extremely powerful theories. While cognitive science has focused on the multilingual cognitive advantage, linguistics, until today, has not focused on a multilingual advantage related to linguistic proficiency. The present paper introduces first indications of a multilingual advantage in the sense that the multilingual child acquires a grammatical property A (much) earlier than the monolingual child. This kind of acceleration in multilingual children is an explanation gap in current theorizing if the languages radically differ from each other. The present article will outline a new acquisition theory which combines significant achievements of cognitive science and linguistics. This new theory—A_{AiM}LL (Acquisition Advantages in MultiLingual Learners)—will be enriched with an additional threshold theory; reaching the threshold determines whether the acquisition strategies are successful. This new theory has the potential to change language learning in the school context and beyond into an experience of cumulative enhancement for the multilingual child—once the beneficial effects are further specified. It may also help to attribute positive attitudes towards minority

languages, due to their potential to act as a resource for the other language, even if radically different (cf. [Ruiz 1984](#), for a language-as-resource perspective).

2. Achievements of Cognitive Science and Linguistics

Since the cognitive turn (or the refutation of behaviorism, [Newmeyer 1986](#), p. 52) which sees human language as a mental and creative activity (cf. the historical paper by [Pléh 2019](#), for Noam Chomsky's contribution to the conceptual changes in psychology), research in cognitive science and linguistics has made major contributions to our understanding of the multilingual brain. Among these are the multilingual cognitive advantage, the separation of two or more lexicons and grammars, and the ability to negotiate multilingual environments. However, the two sciences currently run the risk of giving up on these achievements, because neither approach in isolation can fully explain the acquisition process. The following paragraphs will outline these achievements and demonstrate an explanation gap.

2.1. The Multilingual Cognitive Advantage

The effect of bilingualism on cognitive performance has been argued to enhance executive functioning, in adults and in children ([Bialystok 2001, 2009](#); [Marton 2019](#); cf. [Sekerina et al. 2019](#), for an overview), and to protect against the decline of executive control over the entire lifetime ([Bialystok et al. 2007](#)). Bilinguals are thought to be at an advantage with respect to conflict tasks (cf. [Bialystok and Martin 2004](#), and [Bialystok 2009](#), for a grouping and comparison of nine executive function tasks into conflict and delay tasks; cf. [Carlson and Meltzoff 2008](#)). Conflict tasks present a choice of competing options. Competition has to be resolved in order to give the correct response (cf. [Müller 2017](#), p. 9ff. for further information).

Enhanced executive functioning has been attributed to experience with control over language activation/inhibition—the daily linguistic experience of bilinguals, in which two competing language systems have to be handled for selection of the correct linguistic form in speech production. Bilingual language production and comprehension are characterized by the constant activation of both languages (even when only one of them is used) ([Grosjean 2001](#)). Distributed activation of language has the inconvenience that interference from the language which is not relevant becomes likely. Therefore, fluent bilinguals constantly have to inhibit the activation of the other (non-response) language. One could propose that bilinguals who have growing experience with controlling language activation/inhibition have enhanced executive functioning—a capacity needed not only for language production/comprehension, but also for other cognitive abilities. Neuroimaging studies have demonstrated that the same regions (frontal) can be activated when the bilingual speaker switches or selects the appropriate language ([Hernandez et al. 2001](#); [Price et al. 1999](#)), and when other abilities demanding executive functioning are performed ([Miller and Cohen 2001](#)). In sum, the experience of bilinguals with controlling language activation/inhibition enhances executive functioning in a more general (cognitive) sense.

All things being equal, this multilingual advantage is argued not to extend to tasks which test linguistic (vocabulary) knowledge or access to vocabulary or lexical retrieval ([Bialystok 2009](#)). This is generally interpreted as “absence of indications of a multilingual linguistic advantage”. To be precise, it is generally assumed in the psycholinguistic literature that bilingual children have a smaller vocabulary in each language than monolinguals ([Oller and Eilers 2002](#); but cf. [Sivakumar et al. \(2020\)](#), for a different finding in bilingual Spanish–German children tested in Germany and in Spain). The average vocabulary size is also smaller for bilingual adults. On the other hand, it has been established that bilinguals outrank monolinguals in metalinguistic tasks that require inhibition or controlled attention ([Campbell and Sais 1995](#)). One example is a grammaticality-judgement task in which bilinguals can accept that anomalous sentences like “Elephants bark loudly” are grammatically correct but semantically anomalous. In order to judge such sentences as grammatical, bilinguals suppress the misleading cue from meaning which leads the monolinguals to

judge the sentence as incorrect. Also, bilingual children perform better than monolinguals if metalinguistic awareness is assessed in bilingual modes (Grosjean 2001): Torregrossa et al. (2022) show that Italian–Greek children exhibited better metalinguistic awareness abilities in Italian in a bilingual acceptability-rating task in which their other language, Greek, was activated. To summarize: the multilingual advantage is assumed not to extend to linguistic knowledge.

The success story of the multilingual advantage has recently been called into doubt. More particularly, the proof of beneficial cognitive effects may differ from one individual to another (Sekerina et al. 2019; van den Noort et al. 2019). Many factors are assumed to play a role here: multilinguals are individuals with differing language exposure (Sekerina et al. 2019; van den Noort et al. 2019) and language proficiency (Repnik et al. 2021). In addition, methodologies (Sekerina et al. 2019; van den Noort et al. 2019) to investigate the multilingual advantage need to be examined in order to formulate recommendations for future research (Friedman 2019). But factors related to the linguistic (syntactic) systems are generally not mentioned (de Bruin 2019). This leads to the paradoxical situation that control mechanisms are linguistically challenging for all multilinguals, but cognitively beneficial only for some individuals.

The results of cognitive science fit with the 2003 usage-based approach to language by Tomasello (2003). Language is seen as an instrument of communication acquired through (non-language specific) cognitive principles and language experience—based on the ‘pick-up’ of input (Lust 2006). Cognitive aspects and factors related to language experience need to be evaluated to describe the multilingual (cognitive) advantage. These have led to the conceptualization of the multilingual as an individual who cannot be characterized as two or more monolinguals in one brain (Grosjean 1989), and for whom outcomes of multilingual language acquisition are strongly related to language experience. But why, if proof becomes difficult, deconstruct the multilingual advantage before having looked into the linguistic systems involved? The following paragraph will outline the achievements in linguistics: separation and control.

2.2. Separation of Vocabulary and Grammatical Knowledge and Negotiation of Multilingual Environments—But No Linguistic Advantage

There is strong linguistic evidence that shows that multilingual children can separate the lexicons (Genesee 1989) and grammars (Meisel 1989) of their languages, without evidence of learning (Meisel 1990) in speech production (Meisel 1994b; Gawlitzek-Maiwald and Tracy 1996, among others) and in speech perception (Bosch and Sebastián-Gallés 1997, 2001)—even with radically different languages like Basque and Spanish (Meisel 1994c; Ezeizabarrena 1996; Larrañaga 2000).

Multilingual children are also able to negotiate multilingual environments: with strangers (Genesee et al. 1996), if the two grammars differ (Meisel 1994a; Paradis et al. 2000), and even if they are observed (Müller et al. 2015) or tested in a setting in which the interlocutor constantly switches between the two languages (Patuto et al. 2014). Bilingual children manage to control multilingual environments, even if raised by parents who do not apply the so-called Grammont’s rule (Ronjat 1913), according to which each parent speaks one language to the child (Patuto et al. 2014, p. 205). In addition to this, research with multilingual children has convincingly shown that nothing constrains mixing of the child’s languages—apart from the requirements of the two (or more) grammars involved (Cantone 2007; MacSwan 2000; Licerias et al. 2008).

Evidence of extremely early separation and control has led to the conceptualization of the multilingual child as two or three monolinguals in one person (but note Grosjean 1989; Tracy 1996). Since multilinguals also differ from monolinguals, linguists have considered the possibility that multilinguals may master one of their languages “weakly”.

Separation and, more so, control are often argued not to extend to the so-called unbalanced bilinguals who have a rarely-used ‘weak’ language, often a minority language (cf. van Dijk et al. 2021, for a discussion of the relevance of language dominance in the

development of language-specific grammatical systems). Multilingual children have to divide their time across two or more languages (Unsworth 2013), and one of their languages can be underrepresented in their language input (Genesee et al. 1995). This fact may be the reason for an imbalance in the child's language use (Torregrossa et al. 2021). If there is a strong relationship between language experience and outcomes of multilingual acquisition, possible outcomes of less experience are the following: lack of native competence in the child's 'weak' language (Schlyter 1993), cross-linguistic influence from the child's strong into the child's 'weak' language (Bernardini and Schlyter 2004; Yip and Matthews 2000) and delay in relation to monolingual peers (as discussed in van Dijk et al. 2021), with respect to grammatical development. But these results stand in sharp contrast with observations from children who are exposed to more than two languages from birth (e.g., trilinguals): these children can separate their languages from the onset (Arnaus Gil et al. 2019; Scalise et al. 2021; Montanari 2010), and they are capable language controllers (Poeste et al. 2019). In addition, Quay (2008) has shown that 20% of daily input in one of the child's languages is enough for early separation and control. On top of that, Meisel (2007) draws the following conclusion from empirical studies on multilingual children with a 'weak' language: these multilingual children may be delayed, but they do not show acquisition failure—and they are able to control language use (Eichler 2011; Patuto et al. 2014). In sum, balanced as well as unbalanced multilingual children can separate and control their languages and become competent in all of their languages (Stahnke et al. 2021). But is there a multilingual linguistic advantage?

If the multilingual child's languages are separated, even in unbalanced individuals, beneficial effects are difficult to detect, since (the) languages (of the world) differ. Beneficial effects—or acceleration—are defined as the earlier emergence and (full) acquisition of a linguistic property in multilinguals than in monolinguals (Paradis and Genesee 1996, 1997)—even in the bilingual child's non-dominant language (Paradis et al. 2000). If multilinguals separate languages, beneficial effects in multilingual acquisition can only be explained if (a) the child's other language is of help in that it encodes the grammatical property similarly, or (b) one language contains more evidence for a particular linguistic property than the other, or is more transparent. A transparent language maintains a one-to-one relation between units of different levels of linguistic description. One example often used to illustrate transparency is that of a meaning of a word which is inferable from its morphological form, as in derived nouns.

The previously mentioned results are embedded in the nativist approach to language of Chomsky (Chomsky 2005). It equips the child with an additional faculty of language, with abstract linguistic knowledge (Hornstein and Lightfoot 1981) to 'represent the input'. This faculty of language was argued to solve the logical problem of language acquisition—the problem that the child's linguistic experience (input) is insufficient to determine what the syntactic structures are. In this framework, the child is assumed to set the parameters of the language(s) (Chomsky 1981, 1986), which encode 'principled variation' of the world's languages in innately given UG (Universal Grammar). For example: an Italian–English child has to set the null-subject parameter to the value '+' for Italian and to '-' for English (Hyams 1986). But the proof of grammar acquisition as a system of parameter setting failed (Hyams 2011; Newmeyer 2004, 2017).¹ The 'switch metaphor' of parameters (Chomsky 1994, p. 62, criticized as the single-value solution from the perspective of language acquisition by Valian 1990) was unable to account for the acquisition facts. But why, if proof becomes difficult, deconstruct the parameter notion before having looked into the cognitive system involved?

2.3. Summary of Previous Research

Cognitive science and linguistics have convincingly shown that there is a multilingual cognitive advantage, and that multilingual children are able to separate their grammatical systems from the beginning and control their use in multilingual environments. Both sciences are confronted with challenges. Both sciences have an explanation gap which

could lead to a new theory of language acquisition, based on achievements from both sciences: if it is possible to show that multilingual children can be accelerated in their acquisition in comparison to monolingual children, even if the grammatical systems differ (parametrically), we need to think outside the box, and combine the achievements of both sciences.

3. First Indications of a Multilingual Linguistic Advantage

The acquisition literature contains only a few indications of beneficial effects in one of the multilingual children's languages. These effects have been observed in phonology, morphology and syntax. They have been identified in relation to errors of commission and omission. In what follows, only those studies will be presented and discussed which analyze linguistic phenomena which differ in the child's languages.

Lleó et al. (2003) prove a bootstrapping effect—an effect of pooling resources—for the acquisition of codas in Spanish of five bilingual Spanish–German children (1;1–2;4) in relation to monolingual Spanish children. The authors show that the less-restrictive syllable structure of German (a variety of segments and clusters of segments can appear at the end of syllables) helps the bilingual German–Spanish children to produce the Spanish codas (with strong restrictions on the kind of segment appearing in this position) earlier than monolingual Spanish-speaking children. Mateu and Sundara (2022) explore the possibility that an increased exposure to two-syllable words with the stress on the second syllable, iambs, in one language (Spanish) facilitates the acquisition of iambs in a language which mostly has trochees (English), i.e., two-syllable words with the stress on the first syllable, in a bilingual setting. Their subjects were 38 Spanish–English eight-month-old children. Greater exposure to iambs, due to the bilingual children's Spanish, also accelerates word segmentation in the children's English, as compared with age-matched monolingual English children.

Fernández Fuertes and Licerias (2010), Licerias and Fernández Fuertes (2016) and Licerias et al. (2012) also observe a facilitation effect in two Spanish–English bilinguals (2;0–3;4), with respect to subject pronoun and copula use in English: whereas monolingual English children omit (obligatory) subject pronouns (*roars*, Licerias et al. 2012, p. 93) and the (obligatory) copula ('be') (*I in the kitchen*, Licerias et al. 2012, p. 91) for quite some time, the bilingual children studied are accelerated, in that they have attained earlier knowledge about the ungrammaticality of omissions of subject pronouns and the copula in English. Hsin (2014) shows facilitation with respect to English *wh*-questions (*why did you let it go?* p. 387) in three Spanish–English bilingual children (1;3–3;0). Kupisch (2006) describes acceleration effects in the domain of article realization in three French–German bilingual children (1;6–3;6): These children leave the variation stage, where they use (ungrammatical) bare nouns (*kuh* 'cow', 1;11, pointing at a cow) and nouns with determiners (*die kuh* 'the cow', 1;11, pointing at a cow), earlier in German than monolingual German children (cf. Stahnke 2022, for faster (obligatory) determiner use in the French of French–Italian children (1;6–3;5)). To summarize: beneficial effects in multilingual children are attested. But they are expected if (a) one language is more transparent than the other or contains more evidence for a particular linguistic property (a language with more consistent evidence can be argued to be more transparent; Mateu and Sundara 2022, p. 6), or if (b) the child's other language is of help, in that it shares some structures in the grammatical domain in question.

3.1. Transparency as a Useful Concept?

Let us start with transparency defined as a one-to-one relation, as an explanation of acceleration effects. As the English of the Spanish–English children in the studies by Fernández Fuertes and Licerias (2010), Licerias and Fernández Fuertes (2016) and Licerias et al. (2012) was accelerated with respect to subject pronoun realizations, the English of the Italian–English child Carlo, studied by Serratrice et al. (2004), is accelerated too. Figure 2 in Serratrice et al. (2004, p. 192) compares Carlo's and monolingual English children's proportion of null subjects (a term used by the authors). It can be interpreted to show that

Carlo is accelerated in English from stage I onwards (MLUw, Mean Length of Utterance measured in words, 1.5–2.0). Subject drop (a term used by the authors) amounts to only 12% in the first MLU stage, which can be interpreted as (near) absence of a subject-omission stage in English, if Brown's 90% is applied (Brown 1973, p. 258). Italian/Spanish and English differ parametrically: the first two are so-called null-subject languages, while English is not. Fernández Fuertes and Licerias (2010), Licerias and Fernández Fuertes (2016) and Licerias et al. (2012) argue that transparency can explain the effect: Spanish has strong subject pronouns (used under certain pragmatic conditions, e.g., contrast, topic shift) and (pronominal) agreement marking, while English gathers these functions on one set of lexical items. The Spanish system is more transparent than the English one, since the interaction of syntax and discourse pragmatics, for example, is one-to-one. This one-to-one relation is argued to help the child to acquire the English system earlier than the monolingual English child. The same would apply for the language combination Italian–English. But can transparency of the 'other' grammatical system be an explanation?

Arnaus Gil and Müller (2018) and Arnaus Gil et al. (2021) observe indications of acceleration effects with respect to the realization of subjects in French. The children studied cross-sectionally (only 23 of 57 children were younger than 36 months, the age at which monolingual French children have acquired the target system) acquire French, together with a null-subject language like Spanish, for example. Interestingly, they were not only accelerated with respect to (ungrammatical) subject pronoun omissions in French, but they all skipped the well-documented post-verbal subject stage (*lit maman*, lit. 'reads Mummy'; cf. Déprez and Pierce 1993, p. 42) for French. Jansen (2015) studied five French–German bilingual children, longitudinally (1;4–5;4), and came to the same results: (ungrammatical) subject pronoun omissions are nearly absent in the French of French–German bilingual children, as well as post-verbal subjects. Silva Colaço et al. (2023) provide evidence of an acceleration effect for (pronominal) subject use in French in three bilingual Italian/Portuguese–French children (1;0–4;10). Transparency cannot explain the French–German data: the French system is more transparent than the German system (following Fernández Fuertes and Licerias 2010; Licerias and Fernández Fuertes (2016) and Licerias et al. 2012), since French has strong subject pronouns (to provide contrast and for topic shift) and subject clitics (the unmarked option signaling finiteness and expressing subject–verb agreement features like person and number), while German expresses these functions with one set of pronouns in a system with relatively weak verb inflection. More interestingly, subject pronoun realization and absence of postverbal subjects have been argued to be parametrically linked (cf. below), indicating that the multilingual children have set the parameter faster than the monolingual French child.

Transparency in the sense of 'more (consistent) evidence' is a concept used in Mateu and Sundara (2022), among others. Kupisch (2006) explains the faster realization of determiners in the German of French–German children, through the influence of knowledge attained in the language that contains more (consistent) evidence for a particular feature (French) to the one with less evidence for it (German). (Adult) French is a language in which the article is (nearly) obligatory, with 94% use in child-directed speech (Kupisch 2006, p. 61). German, on the other hand, allows nouns to be used without articles (mass nouns: *Ich habe Zucker gekauft*, 'I have bought sugar' and (indefinite) plural nouns: *Ich habe Winterstiefel gekauft*, 'I have bought winter boots'), and articles occur at a lower rate of 84% in child-directed speech (Kupisch 2006, p. 61). The French system is argued to be more transparent than the German one, and to be of help to bilinguals in acquiring the German system earlier than the monolingual German child, although the numbers are quite close.

Stahnke (2022) analyzes the use of articles in two French–Italian children (1;6–3;5). She observes that it is possible that the French of the French–Italian children is accelerated in comparison with monolingual French children. She concludes that determiners are acquired more quickly in bilingual, as compared to monolingual, children—in French. Kupisch (2006) found a rate of 89% of article realizations in Italian child-directed speech. French (with 94%) should (positively) influence Italian, and not vice versa.

To conclude, there are beneficial effects which are unexpected under transparency.

3.2. Shared Structures as a Useful Concept?

Can shared structures account for acceleration effects? Hsin (2014) shows that the use of *wh*-questions in English of the type *how is the pony?* (p. 388) is accelerated in Spanish–English bilingual children, as compared to monolingual English children. The bilingual children in the study skip the errors of omission (of auxiliaries: *where a baby egg gone?* (p. 388), of ‘do’, and of the subject) and commission (failure of inversion of subject and finite verb, use of target-deviant inflectional morphology or case: *where does him go?* (p. 388)), which are common in monolingual children’s *wh*-questions in English. Hsin (2014, p. 390) explains facilitation by the shared (temporality-encoding TP (Tense Phrase)-) structures of the two languages and the child’s use of this shared structure for both languages (TP hosting the finite verb and the subject). But notice that the use of the Spanish TP analysis for English clauses may give rise to ungrammatical constructions in English, like *what says the tiger?* (Hsin 2014, p. 390).

Arnaus Gil and Müller (2020), Müller (2017), Repetto and Müller (2010), and Schmeißer and Jansen (2016) have first indications from a cross-sectional study (only 18 of the 91 children were younger than 42 months, the age at which monolingual German children have acquired target-like word order) and eight longitudinal studies (1;6–3;6) that bilingual French/Italian/Spanish–German children are accelerated in finite-verb placement in German main clauses. German is a V2-language, in which any constituent (the subject, the object or a clause) appears in first position of main clauses, and the finite verb immediately follows it. In contrast, Romance languages are SV(O). Multilingual children skip the well-documented verb-final stage of monolingual German children (*die dinger nicht lieb sind*, lit. ‘the things not nice are’ at 2;6). The multilingual children place finite verbs in the V2-position from early on (hey das hast du, lit. ‘hey it have you’ at 2;3, cf. Repetto and Müller 2010, p. 167). Indeed, as predicted on the basis of Hsin’s (2014) analysis in terms of an underlying shared structure, some of the bilingual children exhibit problems with finite verb placement in German subordinate clauses (which are verb-final: *Ich glaube, dass das finite Verb in deutschen Nebensätzen satzfinal steht*, lit. ‘I believe that the finite verb in German subordinate clauses clause-finally appears’), later in development (Müller 1998). If the structure shared by both of the child’s languages comes from Romance (which is not clause-final in subordinate clauses, but SV(O): *Je crois que le verbe fini français apparaît dans la position qui suit le sujet dans la phrase subordonnée*, lit. ‘I believe that the French finite verb appears in the position which follows the subject in the subordinate clause’), we would predict that all children should exhibit problems with finite-verb placement in German subordinate clauses. However, all children (studied) show acceleration effects in German main clauses, and only some of them place finite verbs in target-deviant positions in German subordinate clauses. If shared structure was an explanation for the acceleration effect in main clauses, why do only some individuals show problems in German subordinate clauses? And why would the Romance languages influence English (in the case of Hsin 2014)/German (in the case of Müller 1998), and not the other way around?

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One could assume that these children were all dominant in the Romance language, and that this is the reason why English/German “benefit” from the Romance languages. This is not in accordance with the observations from acquisition. Multilingual children with a ‘weak’ language show evidence of acceleration effects, as well (Kupisch 2006; and Silva Colaço et al. (2023) explicitly discuss this aspect, and they show that the Romance language can be ‘weak’ and that the acceleration effect will nevertheless be observed in German/French). Arnaus Gil et al. (2021) and Müller (2017) observe accelerated acquisition of French (pronominal)-subject use in multilingual children who are exposed to French as a second or third language at kindergarten age.

To conclude, an analysis in terms of shared structures cannot account for the presence (and absence) of beneficial effects in multilingual children.

3.3. The Explanation Gap

Sections 3.1 and 3.2 have presented studies which contain first indications of acceleration effects in multilingual children. Notice that the number of individuals in which the effect was observed is, to date, very low. The multilingual linguistic advantage represents an explanation gap in cognitive science and in linguistics. The main challenge for cognitive science is the linguistic aspect of the advantage (predicted not to be proved in any combination of languages). The main challenge for linguistics is the fact that its source is probably not transparency or shared structures. The observation that the effect is observable even with less experience with language is challenging for both sciences.

4. A_{AIM}LL (Acquisition Advantages in MultiLingual Learners)

Recently, the so-called ‘emergentist’ approach to language development, which builds on the notion of parameter (Biberauer et al. 2014; Roberts 2019), has paved the way for a combination of universal (and not specifically for language) cognitive optimization strategies and grammatical features (specific to language). In this ‘emergentist’ approach, cognitive strategies and linguistic features interact in ways with the child’s language experience which result in ‘emergent’ parameter hierarchies. These hierarchies are structured paths for approach the adult grammar(s). Each of the different degrees of granularity has been suggested by scholars, and are mentioned below in parentheses. It is due to Biberauer et al. (2014) that the different degrees are conceptualized as paths within one parameter hierarchy:

- Macroparameters—account for huge typological differences between languages, and express the presence of a grammatical feature (i.e., *f*) everywhere (i.e., on all syntactic categories) or nowhere (Baker 2008);
- Mesoparameters—only some functional heads share *f* (Borer 1984), e.g., all verbal heads;

- Microparameters—a subclass of a functional head (e.g., modal auxiliary verbs) shares *f* (Kayne 2000; Cardinaletti 2014; Rizzi 2014);
- Nanoparameters—lexical items are equipped with *f*, like for the English adverb *enough*, following rather than preceding the modified adjective (Biberauer et al. 2014, p. 110).

Cognitive optimization requires that the language learner starts at the highest position of the hierarchy (the macroparametric level, the all-or-nothing level), and keeps testing downward if the primary linguistic data (input) is incompatible with a given option (Biberauer 2019). ‘Emergent’ parameter hierarchies replace the former switchbox (Chomsky 1994, p. 62) view of parameters, and allow for a redefinition of parameters as ‘emergent’ cognitive subroutines (a part of a computer program, a set of instructions used to perform an operation in an optimized and repeated way), fed by a grammatical feature (Haider 1993; Müller 1993). This view will be exemplified by the hierarchy of null-arguments, applied to the acquisition path of monolingual children.

Linguists assume that the linguistic feature responsible for licensing null arguments in syntax are *phi* features, like person, gender, and number (Rizzi 1986a). Languages differ as to whether, and to what extent, they allow arguments to be dropped. In other words, the question to be asked is: how relevant is the feature *f* in language *X*? Let us assume that *f* equals *phi* features, in the case of null arguments.

In Chinese and Basque, so-called radical argument-drop languages, dropping or ellipsis is allowed with any argument, if recoverable from discourse (Barbosa 2019; Huang 1984) or from rich verbal inflection (Duguine 2017). Chinese has the syntactic feature *f* nowhere, while in Basque this feature is specified everywhere in the grammar.

But languages show a finer granularity. The so-called consistent null-subject languages, Italian, Spanish, Catalan and (European) Portuguese, for example, allow (pronominal) subjects of finite, tensed clauses to remain empty (if they are not focused) in any person–number combination, in any tense (Rizzi 1982, 1986b). The relevant syntactic (functional) category is T(ENSE). These languages instantiate a parametric cluster (Roberts 2019), including free inversion of the subject (Rizzi 1982, *Chi verrà?* lit. ‘Who will-come?’—*Verrà Gianni*, lit. ‘Will-come Gianni’, Rizzi 1990, p. 117) and rich (subject) agreement inflection on finite verbs (Rizzi 1986b). The consistent null-subject languages are located at the meso-parametric level.

Finnish (Holmberg 2010), Hebrew (Borer 1986), Russian (Matushansky 1998) and German (Hamann 2002; Trutkowski 2016) are so-called partial pro(noun)-drop languages—they have person/tense restrictions on the omission of subject pronouns. As for German, Trutkowski (2016, p. 9) shows that, in contrast to third-person subject gaps, first- and second-person null subjects occurring in the German pre-field (the domain in front of the finite verb in the V2-language, German) are grammatical ‘out of the blue’ (*bin dann mal weg!* lit. ‘am then PARTICLE gone’, p. 1). ‘Out-of-the-blue drop’ is neither topic-drop nor diary-drop, but an instance of inflection-dependent (pronominal) subject omission. German instantiates a micro-parametric option.

Last come languages at the nano-parametric level. Following Barbosa (2019), Cape Verdean Creole allows quasi-arguments of weather verbs (and of impersonal verbs) to remain null; if these subjects are phonetically realized, they surface as an expletive (a dummy pronoun without referential properties). (Spoken) French does not allow the pronominal subject to be null, irrespective of whether it is a quasi-argument subject of a weather-verb (Matushansky 1998) or a referential pronoun. Expletive subjects of impersonal verbs can, however, be omitted in spoken French (*Reste à voir!* lit. ‘remains to see’, p. 194). Percentages differ from study to study (Patuto 2012, p. 225–4%; Schmitz and Müller 2008, p. 208–9%), but omissions always involve the (expletive) subject. Future research should discuss whether expletives of impersonal verbs should be treated within the null-argument hierarchy, since no arguments are involved. As for French, we can conclude that the overall realization rate of subjects is above 90%. In what follows, we will label (spoken) French as a non-null-subject language.

Cognitive optimization will guarantee that the child proceeds top–down. These strategies are outlined in Biberauer (2019), from the perspective of a monolingual child, and are referred to as Maximize Minimal Means. Biberauer (2019) points out that the learner is not only conservative, but also liberal, in the following sense: once a grammatical feature ‘has emerged’, learners are conservative in postulating new features only in cases when there is evidence for it; in other words, if the learner’s system of features cannot be ‘recycled’ (Biberauer 2019, p. 213). The learner will thus first try to extend the use of an ‘emerged’ feature and ‘make sense of it’ in relation to the overall grammatical system. Maximize Minimal Means can be paraphrased as follows:

Acquisition Strategy 1. (*Cognitive Optimization Strategy*): (Re-)use already acquired knowledge by generalizing to new domains.

The parameter hierarchy, as illustrated in Figure 1, can account for the acquisition facts of monolingual children: the hierarchy predicts that the route for the child toward adult French is long, since it is located at the bottom. Indeed, subject realizations in French are hard to acquire. Monolingual French children pass through stages where they omit (pronominal) subjects (at least until a Mean Length of Utterance of 3.5–4.5 words (Jansen 2015; Schneegans 2022), or an age of 36 months (Jakubowicz et al. 1997; Pierce 1992; Prévost 2009; Rasetti 2003): *pleure pas*, lit. ‘cries not’, 1;7, Rasetti 2003, p. 140). What is more, monolingual French children frequently use postverbal subjects during the stage when they omit subjects—*lit maman*, lit. ‘reads Mummy’ (Déprez and Pierce 1993, p. 42).

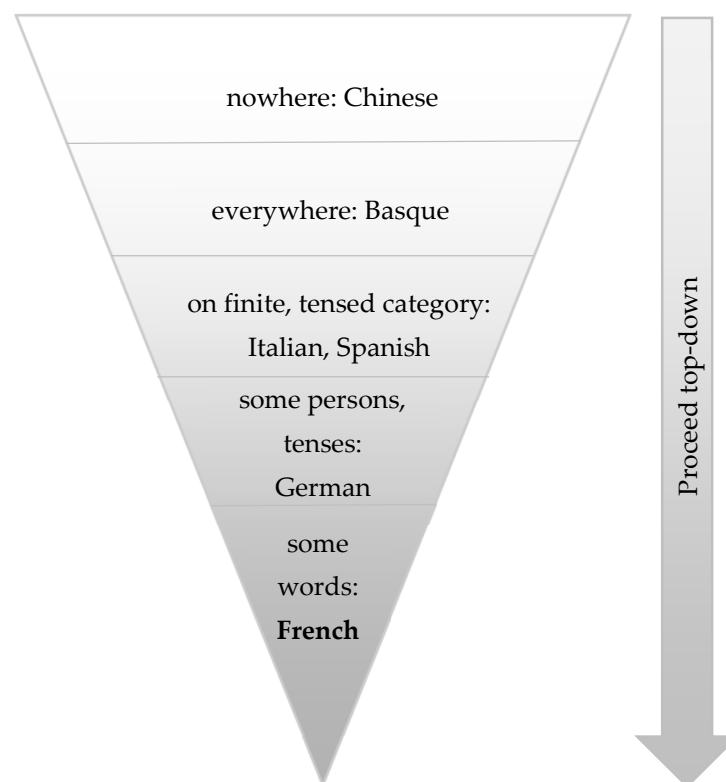


Figure 1. Null-Argument Hierarchy, following Roberts (2019).

In contrast, monolingual Chinese and Basque and monolingual Italian, Spanish and Catalan children produce null-subjects at the adult level extremely early in acquisition (around an MLU of 2.0–2.5 words, or earlier; Ezeizabarrena 1996, 2003, 2013; Patuto 2012), or at an age of around 18 months (Bel 2003; Biró 2017; Wang et al. 1992). Also, the subject is placed correctly from early on (Ezeizabarrena 1996; Bel 2003; Gavarró and Cabré-Sans 2009). As for German, (pronominal) subject omissions are very frequent in early developmental

stages (Patuto 2012) (until an MLU of 3.0–3.5 words), and the route to the adult system is relatively long (Hamann 1996, 2002).

To sum up: the information on monolingual children taken from the literature is compatible with the null-argument hierarchy: French is a ‘long-route’ language for (pronominal subject) realizations.

When it comes to multilingual children, Figure 1 wrongly predicts that multilingual children take a long time to ‘reach’ (adult) French. Taking the perspective of the multilingual child, A_{AiM}LL (Acquisition Advantages in MultiLingual Learners) includes the ‘emerging’ parameter hierarchies and the Cognitive Optimization Strategy 1, and adds a second strategy 2, which allows the child to aim at and (re-)build a subroutine which can be used for ALL her/his languages.

Acquisition Strategy 2. (*Strategy based on linguistic knowledge*): Consider rejected alternatives of earlier decisions in one language for use in the other language.

Strategy 2, as well as strategy 1, is NOT applied within duplicated components of language (discussed in MacSwan 2000; Müller 2023). The linguistic decisions to be taken for all the child’s languages are located in the non-duplicated cognitive system. Obviously, in such a system, beneficial effects can be explained if the bilingual child can build on knowledge from radically (parametrically) different languages for her/his other language. If verified, it is possible to imagine that multilingual children have a multilingual linguistic advantage: they are able to build ‘little programs’—‘cognitive subroutines’—for specific linguistic domains faster than monolingual children. Why? Control will prevent the child from learning simply on the basis of the input: once the cognitive subroutine has been built for language A, the child will not ‘test’ it against the input of language B until enough evidence informs the child about the failure of subroutine A for language B. On the contrary: the child will benefit from the knowledge attained by having built the subroutine A for modifying or enlarging the subroutine for language B.

In what follows, we will take a closer look at the Italian–French child. Figure 1 illustrates that the route to Italian is shorter than the route to French. Equipped with the ability to separate (by the way, not the languages, but languages with respect to grammatical features!) and control her/his languages, the Italian–French child will, by building a subroutine for the newly ‘emerged’ feature *f*, acquire the Italian way of T(ense)-licensing null-subjects: we know that this will be the case at an MLU of around 2.5 (Patuto 2012). In a non-duplicated component of language, the Italian ‘setting’ is of course available, and will be considered by the child for the other language, which is French. Still taking control, as an achievement of research into multilingualism, seriously, the child will NOT try to parse the French input with the subroutine good for the Italian input. It belongs to the child’s linguistic knowledge that French is not like Italian, mediated by the input s/he receives in French. French lacks referential null subjects in finite clauses, postverbal subjects or ‘free inversion of the subject’ (Rizzi 1982), and rich agreement inflection on finite verbs, to name a few properties (Roberts 2019, p. 194) which cluster in consistent null-subject languages. Rejection of the Italian ‘setting’ is easy for building a subroutine which is also good for French! Scalise et al. (2021) show that the multilingual child has acquired the knowledge that French is a non-null-subject language at an MLU of 2.5.

Let us, furthermore, take the evidence for the absence in multilingual children (Arnaus Gil and Müller 2018) of the stage of postverbal subjects which monolingual French children have gone through, for granted. Postverbal subjects belong to the cluster of properties of consistent null-subject languages. In A_{AiM}LL (Acquisition Advantages in MultiLingual Learners), acceleration of the cluster of properties is predicted, since the child does not build grammar rules for her/his languages in an item-by-item fashion or construction-by-construction fashion, but s/he builds cognitive subroutines with ingredients from cognition and linguistics, starting at the nowhere–everywhere level. There is no other way through the hierarchy. In this sense, learning is deductive—and must be deductive, because otherwise the monolingual child, with more than 90% of realized subjects in the input,

should be at an advantage (which s/he is not). Agreeing with Newmeyer (2004) and Valian (1990) on the non-necessity of parameters as captured by the switch metaphor (Chomsky 1994, p. 62), we can answer the question of where they are (Newmeyer 2017): they are NOT part of UG, but still needed to guarantee successful (Clahsen 1990) and deductive learning. They display the extent of relevance of a grammatical feature in the grammatical system, and belong to the non-duplicated part of language.

Summarizing previous research: the acceleration effect for French subject realizations is discernable in multilingual children with more than two languages (Arnaus Gil et al. 2021; Scalise et al. 2021), with an unbalanced language use (Silva Colaço et al. 2023), with a ‘weak’ language other than French (Silva Colaço et al. 2023), and if exposed to French only at kindergarten (Arnaus Gil et al. 2021) age. In A_{AIM}LL (Acquisition Advantages in MultiLingual Learners), acceleration would even be predicted, since the benefit which comes from the child’s language other than French is expected, as long as the child has successfully reached other less-marked (when compared to French) languages in the hierarchy, like Basque or Italian. For discrimination and control, only 20% of input is enough (Quay 2008). Parameters redefined as cognitive subroutines could still be available at kindergarten age, and beyond!

Previous research suggests that exposure (as measured indirectly through a child’s language dominance, cf. van Dijk et al. 2021; de Cat et al. 2022, for example) and other factors external to the child’s cognitive system (cf. below) are relevant for outcomes of multilingual language acquisition. Although we still do not know how much exposure is necessary to observe the acceleration effect in French, we know that the other language, often the minority language, can be a ‘weak’ language. From Kupisch’s (2006) work, we can deduce that this minority language can be extremely weak, in order for the acceleration effect to be discernable. One of the accelerated children in Kupisch’s study (on determiner realizations in German) is Ce_df (French–German): at the age of 3;1, the MLUw is still below 2 (at 1.41, mean MLUw = 1.83); the child uses fewer than 20 different verbs (types) in the French recordings (which show her in 24 recordings of about 30 min length each, interacting spontaneously with a French interlocutor, until 3;1); and has a U.B. (Upper Bound, the highest number of MLU utterances per observation time) of 15 (reached once at 2;11,15, mean U.B. = 4.7), with a mean number of words used per minute of only 6.9w. A threshold is likely to be below the ‘weak’ language of Ce_df. Language discrimination starts extremely early in speech production and perception (cf. ch. 2 in Guasti 2002). In other words, the threshold may also be extremely low if quantitative aspects of input are considered, and acceleration may only require comprehension abilities in the minority language. Future research will have to take this into account. Obviously, A_{AIM}LL should be equipped with a threshold theory. Reaching the threshold determines whether the acquisition strategies are successful.

Threshold Theory. *There is a threshold to yield an acceleration effect in the child’s other language. This threshold can be related to language usage from a quantitative or a qualitative perspective.*

A threshold for the multilingual linguistic advantage—of language usage in the minority language—might connect with several possibilities to become multilingual in families who live in countries with (mainly) one majority language (Cantone 2019): the absence of the community language at home (Hoffmann 1985, p. 490; Braun and Cline 2010, 2014; de Houwer 2004, pp. 127, 129), and where both parents speak the non-community language(s) (de Houwer 2004, pp. 127, 129). At the same time, acquisitionists have to develop specific instruments to measure language exposure in multilinguals (de Cat et al. 2022; Kaščelan et al. 2022).

But (enough) exposure (Carroll 2017; MacWhinney 2017) is probably not sufficient to reach the threshold. A threshold might also be related to qualitative aspects. Consistency of input (e.g., OPOL, One Person—One Language, Chevalier 2015) and multilingual discourse strategies of adults interacting with children (Chevalier 2015; Quay 2011) have been discussed as successful strategies in the context of early child trilingualism. In addition, there

are factors which add to positive language prestige (especially of the minority language), which are difficult to measure (Schroedler et al. 2022) or to a prestigious, valuable image of the minority language(s) (Barron-Hauwaert 2000; Faingold 1999, p. 287; Hoffmann and Stavans 2007, p. 63; Quay 2001, p. 193; Wang 2008, p. 63). (Speakers') attitudes towards multilingualism add to the possible influencing factors. The Threshold Theory, together with A_{AIM}LL (Acquisition Advantages in MultiLingual Learners), allows for the combination of learnability and qualitative, social, and cultural impacts on childhood multilinguals, as desired by Carroll (2017, p. 2) and MacWhinney (2017, p. 26).

5. How We Observed Acceleration Effects in Multilingual Children: A Case Study

The best way to start with investigating acceleration effects in multilingual, as compared to monolingual, children is to use observational data (of spontaneous speech), and longitudinal studies. The CHILDES data collection (MacWhinney 2000) contains some observational and longitudinal studies of French. The children taken from this data collection are given full names*. In addition, the present author has collected spontaneous speech from multilingual children# in a natural setting, in several research projects. The data which were used to investigate the acceleration effect are summarized in Table 1. Six monolingual children are compared with nine bilingual children and one trilingual child.

Table 1. The data.

Child	Language(s)	Age Span/MLUw Span	Country of Birth	No. of Utterances
Grégoire *	French	1;9–2;5/1.5–4.5	France	2.570
Léonard *	French	1;8–3;3/1.0–5.0	France	3.264
Madeleine *	French	1;0–4;10/1.0–5.6	France	8.589
Max *	French	1;9–2;5/1.3–4.1	Canada	1.778
Philippe *	French	2;1–3;3/3.0–6.0	France	7.176
Théophile *	French	1;0–3;3/1.5–4.5	France	2.858
Al_df #	German–French	2;2–5;3/2.0–6.0	Germany	9.775
Am_df #	German–French	1;6–5;1/1.0–6.5	Germany	13.343
Barbara_pf *	Portuguese–French	1;0–3;11/1.0–7.5	Portugal	3.242
Ce_df #	German–French	2;0–5;5/1.5–5.0	Germany	5.775
Camilla_rf *	Russian–French	2;4–3;8/2.0–3.5	France	2.193
Di_fis #	French–Italian–Spanish	2;8–3;2/2.5–4.5	France	1.771
Em_df #	German–French	1;4–5;0/1.5–7.0	France	8.518
Ju_fi #	French–Italian	1;8–5;0/1.0–4.5	France	8.015
Ma_df #	German–French	1;9–5;2/1.0–6.0	France	5.496
Si_fi #	French–Italian	1;6–5;1/1.5–4.5	Italy	3.799

d = German, f = French, i = Italian, s = Spanish, p = Portuguese, r = Russian. * For the data, cf. Champaud (1994), analyzed by Rasetti (2003), Jansen (2015) and Schneegans (2022). * For the data, cf. Morgenstern (2006), Morgenstern and Parisse (2007), analyzed by Jansen (2015). * For the data, cf. Morgenstern (2006), Morgenstern and Parisse (2007), analyzed by Jansen (2015). * For the data, cf. de Cat and Plunkett (2002), analyzed by Schneegans (2022). * For the data, cf. Suppes et al. (1973), analyzed by Rasetti (2003) and Jansen (2015). * For the data, cf. Morgenstern (2006), Morgenstern and Parisse (2007), analyzed by Schneegans (2022). # For the data, cf. DFG project 5,483,483 (1999–2005, grant holder: Natascha Müller), analyzed by Jansen (2015). # For the data, cf. DFG project 5,483,483 (1999–2005, grant holder: Natascha Müller), analyzed by Jansen (2015). * For the data, cf. Almeida et al. (2012), analyzed by Silva Colaço (2022). # For the data, cf. DFG project 5,483,483 (1999–2005, grant holder: Natascha Müller), analyzed by Jansen (2015). * For the data, cf. Bailleul (2017), analyzed by D'Aurizio et al. (2023). # For the data, cf. DFG project 107,909,018 (2009–2013, grant holder: Natascha Müller), published in Scalise et al. (2021). # For the data, cf. DFG project 5,452,914 (2005–2008, grant holder: Natascha Müller), analyzed by Jansen (2015). # For the data, cf. DFG project 5,452,914 (2005–2008, grant holder: Natascha Müller), analyzed by Hoffmann (2022). # For the data, cf. DFG project 5,452,914 (grant holder: Natascha Müller), analyzed by Jansen (2015). # For the data, cf. DFG project 5,452,914 (grant holder: Natascha Müller), analyzed by Hoffmann (2022).

All bilingual children and the trilingual child are simultaneously multilingual, and have been raised by fathers and mothers who speak the languages in question as their native languages at home.

The data were then investigated according to MLU-stages. The number of target-deviant subject omissions in French was calculated for each MLU-stage, and is illustrated in Figure 2.²

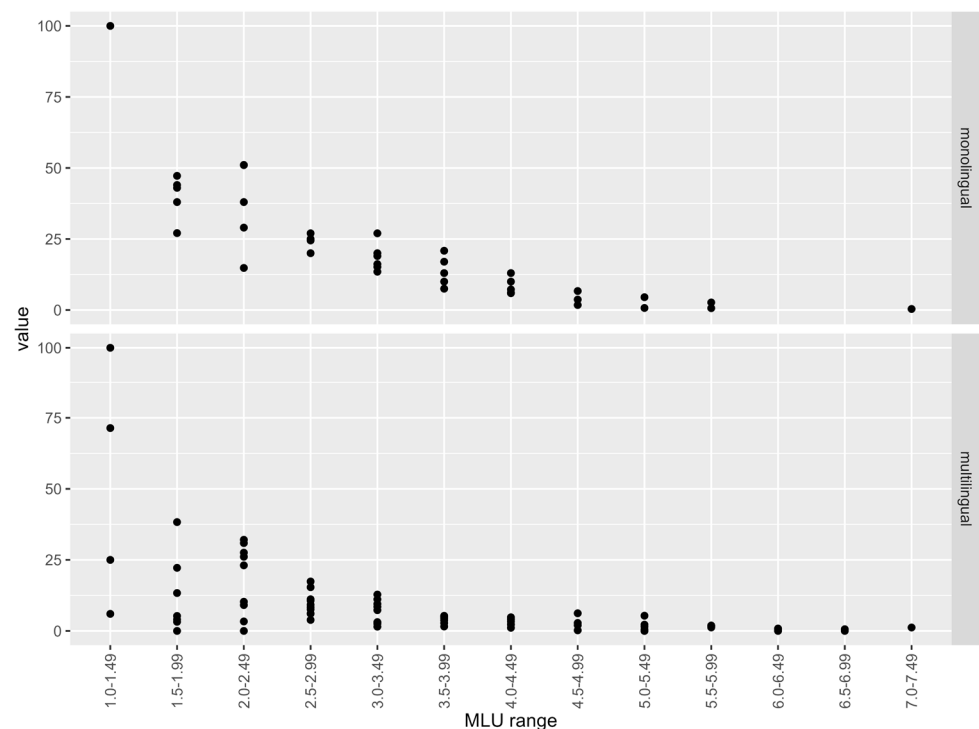


Figure 2. (Target-deviant) pronominal subject omissions in monolingual and multilingual children in French: descriptive analysis.

Figure 2 shows that the bilingual children reach the value 0% of subject omissions earlier (at a lower MLU) than the monolingual children. The difference between the groups disappears at an MLU between 3.5 and 5.0. Unfortunately, MLU values do not exist for each MLU range in the children. More data are needed.

Calculated on the basis of means, Figure 3 shows the same result: multilinguals are faster than monolingual children.

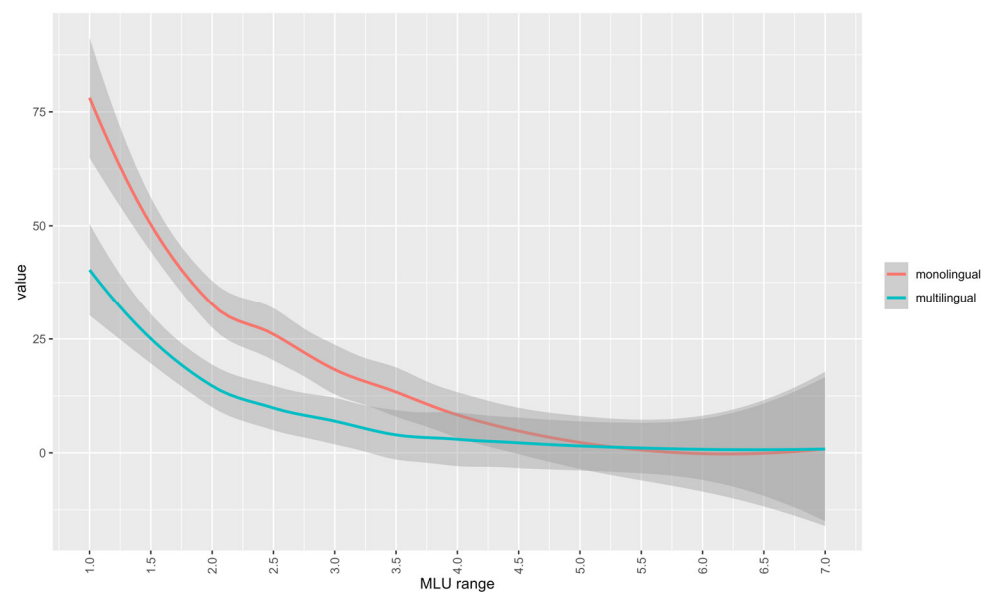


Figure 3. (Target-deviant) pronominal subject omissions in monolingual and multilingual children in French: Means.

A linear mixed-effects model shows (with larger MLU phases, due to the absence of data, dependent variable: % of target-deviant omissions) that the two groups differ

significantly at stage 1 (1.0–2.99) ($p < 0.001$), at stage 2 (3.0–4.99) the difference is slightly significant ($p < 0.089$), and at stage 3 (5.0–7.49) there are no indications of a difference ($p = 0.878$).

More data from more children are necessary in order to establish more significant results.

In sum: the acquisition of French subject realizations takes less time in multilingual than in monolingual children, or: multilingual children have an advantage if it comes to pronominal subject realizations in French. It must be added, though, that the number of individuals investigated for the effect is still very small, to date.

6. A_{AIM}LL Applied to Other Language Combinations

A_{AIM}LL (Acquisition Advantages in MultiLingual Learners) is not only a theory about acquisition once the grammatical feature has ‘emerged’. It can also make interesting predictions with respect to the grammatical features themselves. In the generative framework, the grammatical features are assumed to be part of UG, Universal Grammar, the genetic endowment of humans (Chomsky 2005). But there is another possibility: UG may also contain an ‘instruction’ in order to build categories (and grammatical features). The *Universal Spine Hypothesis* (Wiltschko 2014) posits that language-specific categories are built from a small inventory of universal categories, together with language-specific units (words, morphemes, sentence type (main clause, subordinate clause, imperatives, etc.)). If possible for categories, this scenario is also possible for grammatical features. ‘Emerging’ grammatical features need evidence from the input. What does this mean exactly?

The most extreme language combination in Figure 1 is Chinese–French. The Chinese–French child, acquiring both languages simultaneously and having reached the still unknown threshold, can show two acquisition paths in French: one possible scenario is that French is extremely accelerated, in relation to monolingual French children. This would mean that the French non-null-subject property is acquired before the age of 18 months or an MLU of 2.0. If the effect is discernable in French, it follows that a language like Chinese, in which grammatical features fed into the ‘null-argument subroutine’ (phi features) are relevant nowhere in the grammatical system, would be able to influence the acquisition path in French, like the consistent and partial null-subject languages shown previously, in Section 5. In this case, the grammatical features which regulate the grammatical domain are completely ‘silent,’ and possible effects can therefore only be explained if the child knows about the relevance of these features. But knowledge about their relevance cannot be acquired via the input (phonology). In this case, probably the best assumption is that the grammatical feature is part of UG. One could also argue that the Chinese option ‘nowhere’ is a default, and, therefore, the subroutine which is good for Chinese is simply given by the system (in the absence of any evidence). But notice that, in this case, UG should include the default.

Another possible scenario is that Chinese ‘cannot accelerate French’. In this case, probably the best assumption is that the grammatical feature ‘emerges’, and is not part of UG. We would then expect that the Basque–French bilingual child would be extremely accelerated in French, which would mean that the French non-null-subject property is acquired before the age of 18 months or an MLU of 2.0. Basque offers extremely good evidence for the relevance of phi features everywhere in the system (based on phonology).

In sum: A_{AIM}LL, together with the threshold theory, has the potential to initiate new research about the contents of UG. It is the acceleration effect which is crucial for such a discussion.

7. A_{AIM}LL Applied to Other Acquisition Contexts

A_{AIM}LL can also be applied to other acquisition contexts. A large amount of research has shown that there are differences in the course and outcomes of monolingual, and different types of bilingual, language acquisition. Three perspectives have been discussed to explain this difference: (a) age of onset of the language(s); (b) the role of the input; and

(c) timing (Genesee et al. 2004; Meisel 2009, 2011; Paradis 2007; Tsimpli 2014; Unsworth 2005; Unsworth et al. 2014). Tsimpli (2014) turns her attention to grammatical phenomena which are acquired early by monolinguals, late(r) and very late. Although basing her arguments on the switch metaphor of parameters (in addition to the granularity of macro- and microparametric options), she concludes that macro- and microparametric properties are sensitive to age-of-onset effects, while late phenomena involve input rather than age-of-onset effects. These late phenomena “map more readily to the notion of interfaces” (p. 301). The distinction is extremely important, and should be included in further research on successive language acquisition. Her conclusions are based on the earliness of core phenomena (which result from parameter setting; cf. Chomsky 1993, p. 7) in monolingual children. But $A_{AiM}LL$ turns the relation between monolinguals—as the yardstick—and bilinguals around: if acceleration can be proved in multilingual children, what would we expect in successive language learning? With the two acquisition strategies in mind, will the successive learner be as successful as the simultaneous multilingual child? Would these individuals be the perfect participants in studies on the threshold theory?

We have first indications that kindergarten age does not prevent the acceleration effect from occurring (Arnaus Gil et al. 2021)—based for the moment on a very small number of individuals ($N = 34$). These multilingual children have arguably reached the threshold necessary for acceleration. The children analyzed in the study by Arnaus Gil et al. (2021) all acquired French in Spain or Germany, where French is a highly prestigious language (as is English). If parents send their children to a French kindergarten, they can be assumed to be in favor of multilingualism, but also in favor of their children learning French, due to better opportunities, etc. And the linguistic community will take a positive view of their cultural and linguistic gain. The children in the previous study were early sequential learners, and they were observed during their acquisition of core phenomena.

A huge amount of research has shown that there are differences between adult and child sequential language acquisition (Meisel 2011). One of the major points of debate over time has been about the availability of UG (cf. White 2003, for an overview) and it continues today (Schwarz and Sprouse 2021, for an overview) in the context of third-language acquisition. Acceleration is not the focus in these studies, but again, it would be interesting to look for it. Flynn et al. (2004), often misunderstood as predicting the absence of ‘delaying’ effects in adult learners of third languages (Fernández-Berkes and Flynn 2021), suggested the Cumulative Enhancement Model, which allows for positive transfer from all the learners’ previously acquired languages. If transfer does not yield a positive result, the learner simply learns as a monolingual child would (on the basis of positive evidence from the input). If transfer is seen as a strategy used especially in the school context, and with ‘monitor’ learners (Meisel 1983), one could see enhancement, as defined by Flynn et al. (2004), as a kind of pooling of resources (cf. Gawlitzek-Maiwald and Tracy 1996, although for the context of simultaneous multilingual children). It would be interesting to look for acceleration effects in adult language learners in relation to monolingual children!

Within $A_{AiM}LL$, the question can be asked whether learners exposed to new languages after puberty have reached the threshold for successful (and accelerated) learning. The cross-sectional study ZISA (*Zweitspracherwerb Italienischer und Spanischer Arbeiter* ‘Second Language Acquisition of Italian and Spanish Workers’) looks at linguistic proficiency and factors which may be important to reach the threshold, as defined in $A_{AiM}LL$ (Clahsen et al. 1983). A total of 45 Gastarbeiter (at that time, migrant workers) took part in the study; 20 had Italian, 19 Spanish and 6 Portuguese as their L1. The main research question was whether social, economic, cultural and other factors influence the acquisition process. In socio-linguistic interviews, topics like the reasons for, and the course of, migration were focused on. The participants were workers with a mean length of school attendance of eight years, who migrated to Germany. In addition, linguistic tests were administered (Clahsen et al. 1983, p. 64f). The participants did not attend German courses at the time of investigation, since learning under natural conditions was the focus. Very tentatively, the authors argue that (a combination of) socio-psychological factors (p. 262ff.), which are

indicative of a segregated or an integrative orientation of the learner, influence the success of language learning and how quickly the target variety (of German) was reached. It is those learners with an integrative orientation who attained the target variety most closely and fast(er) (p. 320). Factors included (a variety of) German-speaking contacts (at the workplace, during breaks at the workplace, with neighbors, hosts at home, during leisure time) and the strength of social relations with German-speaking people. Such studies can inform us about the cognitive and linguistic potential of language learners and the relevance of a threshold for successful language development over the whole lifespan.

Multilingual language skills are vital for children who suffer from developmental language disorders in two ways: however, parents of bilingual children with ASD (Autism Spectrum Disorder) for example, often see the use of the home language as a factor influencing intervention progress negatively, with intervention generally being provided in the majority language. The results expected from multilingual (normally developing) children within A_{AiM}LL could support recent research (Siyambalapitiya et al. 2022) showing that the impact of intervention is unrelated to the decision to use the home language. In the second instance, A_{AiM}LL's potential to help accelerate language acquisition may also lead to therapeutic benefits for these children: a stimulating environment for accelerated and inclusive learning may help them to 'catch up' with other children. Again, "it is possible that social context differences" (Paradis 2010, p. 247) must be considered, if it comes to developing the children's cognitive and linguistic potential.

Knowledge gained about the acceleration effects (and the possible threshold) might invite new research projects on how to make the cognitive and linguistic potential available to foreign-language learning and teaching. Research results might encourage teachers to work with pupils implicitly, not explicitly, in order to foster discovery and development of the cognitive and linguistic potential by the pupils themselves: 'How would you say it in your other language?' Thus, teachers would encourage children to actively process their native and their other non-native foreign languages, while learning a new one (cf. Cenoz and Gorter 2021). One example is Gabriel et al. (2020). They present the training of Turkish–German pupils (in Germany), in order to improve their French phonology, based on active comparisons with Turkish. Grünke and Gabriel (2022) were able to show an accelerative effect (based on positive transfer from Turkish) in the bilingual Turkish–German speakers, in comparison to monolingual German speakers. Intervention with recourse to Turkish also had an additional positive effect, according to Gabriel et al. (2020, p. 15): the increase in motivation to learn French.

8. Discussion and Conclusions

A_{AiM}LL is an 'emergentist' approach to language development, which builds on the notion of parameter as a cognitive subroutine fed by grammatical features. The null-argument hierarchy was used as an example to show that a 'route' emerges for monolingual children, in which languages with a rough granularity (instantiating the nowhere-or-everywhere option) are less marked, in comparison to languages with fine(r) granularities, with respect to the extent of features in the grammatical system. Two acquisition strategies, both part of the non-duplicated cognitive system, guarantee success: strategy 1 is a cognitive optimization strategy (Biberauer 2019) and, more importantly in the context of multilingualism, strategy 2 is based on linguistic knowledge. The benefit of knowledge of radically (parametrically) different languages, observable and measurable as acceleration effects in multilingual children in comparison to monolinguals, makes strategy 2 necessary. Parameters seen as cognitive subroutines fed by (a) grammatical feature(s) have the advantage of otherwise unrelated linguistic properties clustering together in acquisition. Furthermore, subroutines can be modified and enlarged, in order to be used for ALL the child's languages. The success of both strategies is argued to be related to a threshold of language usage from a quantitative or a qualitative perspective, thus accounting for the different dimensions of multilingualism and their effect on outcomes of multilingual acquisition.

Section 5 has shown that the observable effect—acceleration—is expected to depend on the language combination. In order to be able to use the results for optimization of language learning in a more general sense, the concept of granularity of extent of grammatical features (nowhere/everywhere vs. somewhere) should be translated into an entity which can be used by (foreign) language teachers and therapists with language learners who do not exhibit the respective ideal language combination, or who come to the learning task as monolingual speakers. In this process, the study of combinations of ‘short-route’ and ‘long-route’ languages is vital.

The success of strategies is argued to be related to a threshold of language usage from a quantitative or a qualitative perspective. The study of this (still unknown) threshold is necessary, in order to use scientific results in school contexts and in the context of language therapy. For example, how can schools provide and foster a stimulating and inclusive environment for successful language learning, when families cannot?

A_{AIM}LL can help to attribute a clear positive value to the minority language(s), beyond its cultural value and possible advantage in the job market and, by doing this, contribute to an increasing prestige of the minority language(s) in society at large. And attitudes towards multilingualism might change—in positive ways (Müller 2023)—if it can be shown that multilingualism can have a linguistic advantage for language learning, even if the learner’s languages radically differ (for example, in a combination of a European and a non-European language).

There is a word of caution, though: although A_{AIM}LL is an acquisition theory for children with developmental language disorder, it has nothing to say with respect to children with cognitive disorders. It is imaginable that learning a new language is stressful for children with cognitive disorders, and might have the opposite effect.

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Notes

- ¹ Valian (1990) points out that the acquisition data are not compatible with the ‘switch metaphor’ of parameters, according to which children will select one of two values of a parameter at a time, during the process of language acquisition. In addition, the child is exposed to misleading input. She suggests that both problems can be solved if the child initially holds both ‘+’ and ‘-’ values of the (null subject) parameter. She does not revise the notion of parameter, though.
- ² I am grateful to Dr. Andreas Opitz for his help with respect to the statistics. The observation that the multilingual children are accelerated from an MLU of 1.0 onwards is his.

References

- Almeida, Laetitia, Yvan Rose, and M. João Freitas. 2012. Prosodic Influence in Bilingual Phonological Development. Evidence from a Portuguese-French First Language Learner. Paper presented at 36th Annual Boston University Conference on Language Development, Boston, MA, USA, November 4–6; Edited by Alia K. Biller, Esther Y. Chung and Amelia E. Kimball. Somerville: Cascadia Press, pp. 42–52.
- Arnaus Gil, Laia, and Natascha Müller. 2018. French postverbal subjects: A comparison of monolingual, bilingual, trilingual and multilingual French. *Languages* 3: 29. [CrossRef]
- Arnaus Gil, Laia, and Natascha Müller. 2020. When grammar doesn’t mind: Acceleration and delay in bilingual, trilingual and multilingual German-Romance children: Finite verb placement in German. *Linguistic Approaches to Bilingualism* 10: 530–58. [CrossRef]
- Arnaus Gil, Laia, Johanna Stahnke, and Natascha Müller. 2021. On the acquisition of French (null) subjects and (in)definiteness: Simultaneous and early sequential bi-, tri- and multilinguals. *Probus* 33: 181–225. [CrossRef]
- Arnaus Gil, Laia, Natascha Müller, Marina Hüppop, Meike Poeste Elena Scalise, Nadine Sette Abira Sivakumar, Mabel Tirado Espinosa, and Katharina Sonja Zimmermann. 2019. *Frühkindlicher Trilinguismus. Französisch, Spanisch, Deutsch*. Tübingen: Narr.

- Bailleul, Oksana. 2017. *Aspects Psycholinguistiques du Développement du Bilinguisme précoce: Une Étude de cas d'un Enfant Bilingue Français-Russe de 2 à 4 ans*. Rouen: University of Rouen Normandy. Available online: <https://theses.hal.science/tel-01700913/document> (accessed on 30 August 2023).
- Baker, Mark. 2008. The macroparameter in a microparametric world. In *The Limits of Syntax Variation*. Edited by Theresa Biberauer. Amsterdam: Benjamins, pp. 351–74. [CrossRef]
- Barbosa, Pilar. 2019. Pro as a minimal nP: Towards a unified approach to pro-drop. *Linguistic Inquiry* 50: 487–526. [CrossRef]
- Barron-Hauwaert, Suzanne. 2000. Issues surrounding trilingual families: Children with simultaneous exposure to three languages. *Zeitschrift für Interkulturellen Fremdsprachenunterricht* 5: 1–13.
- Bel, Aurora. 2003. The syntax of subjects in the acquisition of Spanish and Catalan. *Probus* 15: 1–26. [CrossRef]
- Bernardini, Petra, and Suzanne Schlyter. 2004. Growing syntactic structure and code-mixing in the weaker language: The Ivy Hypothesis. *Bilingualism: Language and Cognition* 7: 49–69. [CrossRef]
- Bialystok, Ellen. 2001. *Bilingualism in Development. Language, Literacy, and Cognition*. Cambridge: Cambridge University Press. [CrossRef]
- Bialystok, Ellen. 2009. Bilingualism: The good, the bad, and the indifferent. *Bilingualism: Language and Cognition* 12: 3–11. [CrossRef]
- Bialystok, Ellen, and Michelle M. Martin. 2004. Attention and inhibition in bilingual children: Evidence from the dimensional change card sort task. *Developmental Science* 7: 325–39. [CrossRef] [PubMed]
- Bialystok, Ellen, Fergus I. M. Craik, and Morris Freedman. 2007. Bilingualism as a protection against the onset of symptoms of dementia. *Neuropsychologia* 45: 459–64. [CrossRef] [PubMed]
- Biberauer, Theresa. 2019. Children always go beyond the input: The Maximise Minimal Means perspective. *Theoretical Linguistics* 45: 211–24. [CrossRef]
- Biberauer, Theresa, Anders Holmberg, Ian Roberts, and Michelle Sheenan. 2014. Complexity in comparative syntax: The view from modern parametric theory. In *Measuring Grammatical Complexity. The View from Modern Parametric Theory*. Edited by Frederick J. Newmeyer and Laurel B. Preston. Oxford: Oxford University Press, pp. 103–27. [CrossRef]
- Biró, Andrea. 2017. El sujeto y la cópula en la adquisición trilingüe del húngaro-español-catalán. Ph.D. thesis, Universitat Pompeu Fabra, Barcelona, Spain. Available online: <http://hdl.handle.net/10803/456046> (accessed on 10 May 2023).
- Borer, Hagit. 1984. *Parametric Syntax*. Dordrecht: Foris. [CrossRef]
- Borer, Hagit. 1986. I-Subjects. *Linguistic Inquiry* 17: 375–416. Available online: <https://www.jstor.org/stable/4178498> (accessed on 13 June 2023).
- Bosch, Laura, and Núria Sebastián-Gallés. 1997. Native-language recognition abilities in 4-month-old infants from monolingual and bilingual environments. *Cognition* 65: 33–69. [CrossRef] [PubMed]
- Bosch, Laura, and Núria Sebastián-Gallés. 2001. Early language differentiation in bilingual infants. In *Trends in Bilingual Acquisition*. Edited by Jasone Cenoz and Fred Genesee. Philadelphia: Benjamins, pp. 71–93. [CrossRef]
- Braun, Andreas, and Tony Cline. 2010. Trilingual families in mainly monolingual societies: Working towards a typology. *International Journal of Multilingualism* 7: 110–27. [CrossRef]
- Braun, Andreas, and Tony Cline. 2014. *Language Strategies for Trilingual Families. Parents' Perspectives*. Bristol and Blue Ridge Summit: Multilingual Matters. [CrossRef]
- Brown, Roger. 1973. *A First Language: The Early Stages*. Cambridge: Harvard University Press.
- Campbell, Ruth, and Efisia Sais. 1995. Accelerated metalinguistic (phonological) awareness in bilingual children. *British Journal of Developmental Psychology* 13: 61–68. [CrossRef]
- Cantone, Katja F. 2007. *Code-Switching in Bilingual Children*. Dordrecht: Springer.
- Cantone, Katja F. 2019. Language exposure in early bilingual and trilingual acquisition. *International Journal of Multilingualism* 19: 402–17. [CrossRef]
- Cardinaletti, Anna. 2014. Cross-linguistic variation in the syntax of subjects. In *Linguistic Variation in the Minimalist Framework*. Edited by M. Carme Picallo. Oxford: Oxford University Press, pp. 82–107. [CrossRef]
- Carlson, Stephanie M., and Andrew N. Meltzoff. 2008. Bilingual experience and executive functioning in young children. *Developmental Science* 11: 282–98. [CrossRef]
- Carroll, Susanne. 2017. Exposure and input in bilingual development. *Bilingualism: Language and Cognition* 20: 3–16. [CrossRef]
- Cenoz, Jasone, and Durk Gorter. 2021. *Pedagogical Translanguaging*. Cambridge: Cambridge University Press. [CrossRef]
- Champaud, Christian. 1994. The Development of Verb forms in French Children at around Two Years of Age: Some Comparisons with Romance and Non-Romance Languages. Paper presented at the First Lisbon Meeting on Child Language, Lisbon, Portugal, June 14–17.
- Chevalier, Sarah. 2015. *Trilingual Language Acquisition. Contextual Factors Influencing Active Trilingualism in Early Childhood*. Amsterdam: John Benjamins. [CrossRef]
- Chomsky, Noam. 1981. *Lectures of Government and Binding*. Dordrecht: Foris. [CrossRef]
- Chomsky, Noam. 1986. *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.
- Chomsky, Noam. 1993. *Lectures on Government and Binding. The Pisa Lectures*, 7th ed. Berlin: De Gruyter.
- Chomsky, Noam. 1994. *Language and Problems of Knowledge. The Managua Lectures*, 6th ed. Cambridge: MIT Press.
- Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36: 1–22. Available online: <http://www.jstor.org/stable/4179307> (accessed on 15 May 2023). [CrossRef]

- Clahsen, Harald. 1990. Constraints on parameter setting: A grammatical analysis of some acquisition stages in German child language. *Language Acquisition* 1: 361–91. Available online: <http://www.jstor.org/stable/20011360> (accessed on 15 May 2023). [CrossRef]
- Clahsen, Harald, Jürgen M. Meisel, and Manfred Pienemann. 1983. *Deutsch als Zweitsprache. Der Spracherwerb ausländischer Arbeiter*. Tübingen: Narr.
- D'Aurizio, Laura, Isabel Silva Colaço, Laia Arnaus Gil, Johanna Stahnke, and Natascha Müller. 2023. e dis pas ça. Protoforms in Bilingual French Children Acquiring the Null Subject Property. Paper presented at 'The Romance Turn', Madrid, Spain, September 19–21.
- de Bruin, Angela. 2019. Not all bilinguals are the same: A call for more detailed assessments and descriptions of bilingual experiences. *Behavioural Sciences* 9: 33. [CrossRef] [PubMed]
- de Cat, Cécile, and Bernadette Plunkett. 2002. QU' est ce qu'i (l) dit, celui-Là?: Notes méthodologiques sur la transcription d'un corpus francophone. In *Romance Corpus Linguistics: Corpora and Spoken Language*. Edited by Claus D. Pusch. Tübingen: Narr.
- de Cat, Cécile, Draško Kaščelan, Philippe Prévost, Laurie Tuller, and Sharon Unsworth. 2022. Quantifying Bilingual Experience (Q-BEx): Questionnaire Manual and Documentation. Available online: <https://www.q-bex.org/researchers> (accessed on 10 April 2023).
- de Houwer, Annick. 2004. Trilingual input and children's language use in trilingual families in Flanders. In *Trilingualism in Family, School and Community*. Edited by Charlotte Hoffmann and Johannes Ytsma. Clevedon: Multilingual Matters, pp. 118–35.
- Déprez, Viviane, and Amy Pierce. 1993. Negation and functional projections in early grammar. *Linguistic Inquiry* 24: 25–67. Available online: <http://www.jstor.org/stable/4178801> (accessed on 20 May 2023).
- Duguine, Maia. 2017. Reversing the approach to null subject: A perspective from language acquisition. *Frontiers in Psychology* 8: 27. [CrossRef] [PubMed]
- Eichler, Nadine. 2011. *Code-Switching bei bilingual aufwachsenden Kindern: Eine Analyse der gemischtsprachlichen Nominalphrasen unter Besonderer Berücksichtigung des Genus*. Tübingen: Narr.
- Ezeizabarrena, María-José. 1996. *Adquisición de la morfología verbal en euskera y castellano por niños bilingües*. Vitoria-Gasteiz: Servicio Editorial Universidad del País Vasco.
- Ezeizabarrena, María-José. 2003. Null subjects and optional infinitives in Basque. In *(In)vulnerable Domains in Multilingualism*. Edited by Natascha Müller. Amsterdam and Philadelphia: Benjamins, pp. 83–106. [CrossRef]
- Ezeizabarrena, María-José. 2013. Overt subjects in early Basque and other null subject languages. *International Journal of Bilingualism* 17: 309–36. [CrossRef]
- Faingold, Eduardo D. 1999. The re-emergence of Spanish and Hebrew in a multilingual adolescent. *International Journal of Bilingual Education and Bilingualism* 2: 283–95. [CrossRef]
- Fernández-Berkes, Éva, and Suzanne Flynn. 2021. Vindicating the need for a principled theory of language acquisition. *Linguistic Approaches to Bilingualism* 11: 30–36. [CrossRef]
- Fernández Fuertes, Raquel, and Juana M. Liceras. 2010. Copula omission in the English developing grammar of English/Spanish bilingual children. *International Journal of Bilingual Education and Bilingualism* 13: 525–51. [CrossRef]
- Flynn, Susan, Claire Foley, and Inna Vinnitskaya. 2004. The Cumulative-Enhancement Model of language acquisition: Comparing adults' and children's patterns of development in first, second and third language acquisition of relative clauses. *International Journal of Multilingualism* 1: 3–16. [CrossRef]
- Friedman, Naomi. 2019. Research on individual differences in executive functions. Implications for the bilingual advantage hypothesis. In *Bilingualism, Executive Function, and beyond. Questions and Insights*. Edited by Irina A. Sekerina, Lauren Spradlin and Virginia Valian. Amsterdam and Philadelphia: Benjamins, pp. 210–21. [CrossRef]
- Gabriel, Christoph, Jonas Grünke, and Claudia Schlaak. 2020. Positiver Transfer aus dem Türkischen ins Französische? Materialien zur individuellen Förderung des Ausspracheerwerbs. *ProDaZ: Deutsch als Zweitsprache in allen Fächern*, 1–27. Available online: <https://www.uni-due.de/prodaz> (accessed on 10 May 2023).
- Gavarró, Anna, and Yolanda Cabré-Sans. 2009. Subjects, verb classes and word order in child Catalan. In *Hispanic Child Languages: Typical and Impaired Development*. Edited by John Grinstead. Amsterdam and Philadelphia: Benjamins, pp. 175–94. [CrossRef]
- Gawlitzeck-Maiwald, Ira, and Rosemarie Tracy. 1996. Bilingual bootstrapping. *Linguistics* 34: 901–26. [CrossRef]
- Genesee, Fred. 1989. Early bilingual development: One language or two? *Journal of Child Language* 16: 161–79. [CrossRef] [PubMed]
- Genesee, Fred, Elena Nicoladis, and Johanne Paradis. 1995. Language differentiation in early bilingual development. *Journal of Child Language* 22: 611–31. [CrossRef] [PubMed]
- Genesee, Fred, Isabelle Boivin, and Elena Nicoladis. 1996. Talking with strangers: A study of bilingual children's communicative competence. *Applied Psycholinguistics* 17: 427–42. [CrossRef]
- Genesee, Fred, Johanne Paradis, and Martha B. Crago. 2004. *Dual Language Development and Disorders: A Handbook on Bilingualism and Second Language Learning*. Baltimore: Paul Brookes. Available online: <https://www.thefreelibrary.com/Fred+Genesee,+Johanne+Paradis,+and+Martha+B.+Crago:+Dual+Language...-a0161012252> (accessed on 10 May 2023).
- Grosjean, François. 1989. Neurolinguistics, beware! The bilingual is not two monolinguals in one person. *Brain and Language* 36: 3–15. [CrossRef]
- Grosjean, François. 2001. The bilingual's language modes. In *One Mind, Two Languages. Bilingual Language Processing*. Edited by Janet L. Nicol. Oxford: Blackwell, pp. 1–22.

- Grünke, Jonas, and Christoph Gabriel. 2022. Acquiring French intonation against the backdrop of heritage bilingualism: The case of German–Turkish learners. *Languages* 7: 68. [CrossRef]
- Guasti, Maria Teresa. 2002. *Language Acquisition. The Growth of Grammar*. Cambridge: MIT Press.
- Haider, Hubert. 1993. Principled variability. Parametrization without parameter fixing? In *Parametrization of Universal Grammar*. Edited by Gisbert Fanselow. Amsterdam and Philadelphia: Benjamins, pp. 1–16.
- Hamann, Cornelia. 1996. Null arguments in German child language. *Language Acquisition* 5: 155–208. Available online: <https://www.jstor.org/stable/20011441> (accessed on 15 April 2023). [CrossRef]
- Hamann, Cornelia. 2002. *From Syntax to Discourse: Pronominal Clitics, Null Subjects, and Infinitives in Child Language*. Dordrecht: Kluwer.
- Hernandez, Arturo E., Mirella Dapretto, John Mazziotta, and Susan Bookheimer. 2001. Language switching and language representation in Spanish-English bilinguals: An fMRI study. *NeuroImage* 14: 510–20. [CrossRef] [PubMed]
- Hoffmann, Charlotte. 1985. Language acquisition in two trilingual children. *Journal of Multilingual and Multicultural Development* 6: 479–95. [CrossRef]
- Hoffmann, Charlotte, and Anat Stavans. 2007. The evolution of trilingual codeswitching from infancy to school age: The shaping of trilingual competence through dynamic language dominance. *International Journal of Bilingualism* 11: 55–72. [CrossRef]
- Hoffmann, Dinah. 2022. Die Sprachkombination als Einflussfaktor beim Erwerb der Subjekt-Verb-Kongruenz im Französischen: Eine empirische Untersuchung bilingual französisch-italienischer Kinder im Vergleich zu monolingualen und bilingualen Kindern mit den Kombinationen Französisch-Deutsch und Französisch-Spanisch. Unpublished Master thesis, Bergische Universität Wuppertal, Wuppertal, Germany.
- Holmberg, Anders. 2010. Parameters in minimalist theory: The case of Scandinavian. *Theoretical Linguistics* 36: 1–48. [CrossRef]
- Hornstein, Norbert, and David Lightfoot. 1981. Introduction. In *Explanation in Linguistics: The Logical Problem of Language Acquisition*. Edited by Norbert Hornstein and David Lightfoot. London: Longman, pp. 9–31.
- Hsin, Lisa. 2014. English questions, Spanish structure: A shared-structure account of interlinguistic influence in bilingual first language acquisition. In *Variation within and across Romance Languages*. Edited by Marie-Hélène Côté and Eric Mathieu. Amsterdam and Philadelphia: Benjamins, pp. 379–400. [CrossRef]
- Huang, C.-T. James. 1984. On the distribution and reference of empty pronouns. *Linguistic Inquiry* 15: 531–44. Available online: <https://www.jstor.org/stable/4178404> (accessed on 20 May 2023).
- Hyams, Nina. 1986. *Language Acquisition and the Theory of Parameters*. Dordrecht: Reidel.
- Hyams, Nina. 2011. Missing subjects in early child language. In *Handbook of Generative Approaches to Language Acquisition*. Edited by Jill de Villiers and Thomas Roeper. Dordrecht: Springer, pp. 13–52.
- Jakubowicz, Celia, Natascha Müller, Beate Riemer, and Catherine Rigaut. 1997. The case of subject and object omissions in French and German. Paper presented at 21st Boston University Conference on Language Development, Boston, MA, USA, November 2–5; Edited by Elizabeth Hughes, Mary Hughes and Annabel Greenhill. Somerville: Cascadilla Press, pp. 331–42.
- Jansen, Veronika. 2015. *Dislokation im Bilingualen Erstspracherwerb: Eine Untersuchung am Beispiel Deutsch-Französischer Kinder*. Berlin, München and Boston: De Gruyter.
- Kaščelan, Draško, Philippe Prévost, Ludovica Serratrice, Laurie Tuller, Sharon Unsworth, and Cécile De Cat. 2022. A review of questionnaires quantifying bilingual experience in children: Do they document the same constructs? *Bilingualism: Language and Cognition* 25: 29–41. [CrossRef]
- Kayne, Richard S. 2000. *Parameters and Universals*. New York: Oxford University Press.
- Kupisch, Tanja. 2006. *The Acquisition of Determiners in Bilingual German-Italian and German-French Children*. München: Lincom Europa.
- Larrañaga, María Pilar. 2000. *Ergative Sprachen, akkusative Sprachen. Der Erwerb des Kasus bei Bilingualen Kindern*. Frankfurt am Main: Vervuert.
- Liceras, Juana M., and Raquel Fernández Fuertes. 2016. Subject omission/production in child bilingual English and child bilingual Spanish: The view from linguistic theory. *Probus* 31: 245–78. [CrossRef]
- Liceras, Juana M., Raquel Fernández Fuertes, and Anahí Alba de la Fuente. 2012. Overt subjects and copula omission in the Spanish and the English grammar of English-Spanish bilinguals. On the locus and directionality of interlinguistic influence. *First Language* 32: 88–115. [CrossRef]
- Liceras, Juana M., Raquel Fernández Fuertes, Susana Pelares, Rocío Pérez-Tattam, and Kenton Todd Spradlin. 2008. Gender and gender agreement in bilingual native and non-native grammars: A view from child and adult functional–lexical mixings. *Lingua* 118: 827–51. [CrossRef]
- Lleó, Conxita, Imme Kuchenbrandt, Margret Kehoe, and Cristina Trujillo. 2003. Syllable final consonants in Spanish and German monolingual and bilingual acquisition. In *(In)vulnerable Domains in Multilingualism*. Edited by Natascha Müller. Amsterdam and Philadelphia: Benjamins, pp. 191–220. [CrossRef]
- Lust, Barbara. 2006. *Child Language. Acquisition and Growth*. Cambridge: Cambridge University Press.
- MacSwan, Jeff. 2000. The architecture of the bilingual language faculty: Evidence from intrasentential code switching. *Bilingualism: Language and Cognition* 3: 37–54. [CrossRef]
- MacWhinney, Brian. 2000. *The Childes Project: Tools for Analyzing Talk*. Mahwah: Lawrence Erlbaum Associates.
- MacWhinney, Brian. 2017. Exposure is not enough. *Bilingualism: Language and Cognition* 20: 25–26. [CrossRef]

- Marton, Klara. 2019. Executive control in bilingual children. Factors that influence the outcomes. In *Bilingualism, Executive Function, and beyond. Questions and Insights*. Edited by Irina A. Sekerina, Lauren Spradlin and Virginia Valian. Amsterdam and Philadelphia: Benjamins, pp. 265–79. [CrossRef]
- Mateu, Victoria, and Megha Sundara. 2022. Spanish input accelerates bilingual infants' segmentation of English words. *Cognition* 218: 104936. [CrossRef] [PubMed]
- Matushansky, Ora. 1998. Le sujet nul à travers les langues: Pour une catégorie vide unique. Ph.D. thesis, Université Paris VIII, Paris, France.
- Meisel, Jürgen M. 1983. Transfer as a second-language strategy. *Language & Communication* 3: 11–46.
- Meisel, Jürgen M. 1989. Early differentiation of languages in bilingual children. In *Bilingualism Across the Lifespan: Aspects of Acquisition, Maturity, and Loss*. Edited by Kenneth Hyldenstam and Lorraine Obler. Cambridge: Cambridge University Press, pp. 13–40.
- Meisel, Jürgen M. 1990. INFL-lection: Subjects and asubject-verb agreement. In *Two First Languages. Early Grammatical Development in Bilingual Children*. Edited by Jürgen M. Meisel. Dordrecht: Foris, pp. 237–98.
- Meisel, Jürgen M. 1994a. Code-switching in young bilingual children: The acquisition of grammatical constraints. *Studies in Second Language Acquisition* 16: 413–39. Available online: <https://www.jstor.org/stable/44487780> (accessed on 15 January 2023). [CrossRef]
- Meisel, Jürgen M., ed. 1994b. *Bilingual First Language Acquisition. French and German Grammatical Development*. Amsterdam and Philadelphia: Benjamins. [CrossRef]
- Meisel, Jürgen M., ed. 1994c. *La adquisición del vasco y castellano en niños bilingües*. Frankfurt am Main: Vervuert.
- Meisel, Jürgen M. 2007. The weak language in early child bilingualism: Acquiring a first language as a second language? *Applied Psycholinguistics* 28: 495–514. [CrossRef]
- Meisel, Jürgen M. 2009. Second language acquisition in early childhood. *Zeitschrift für Sprachwissenschaft* 28: 5–34. [CrossRef]
- Meisel, Jürgen M. 2011. *First and Second Language Acquisition*. Cambridge: Cambridge University Press. [CrossRef]
- Miller, Earl K., and Jonathan D. Cohen. 2001. An integrative theory of prefrontal cortex function. *Annual Review of Neuroscience* 24: 167–202. [CrossRef]
- Montanari, Simona. 2010. *Language Differentiation in Early Trilingual Development. Evidence from a Case Study*. Saarbrücken: Verlag Dr. Müller.
- Morgenstern, Aliyah. 2006. *Un JE en construction. Ontogenèse de l'auto-désignation chez l'enfant*. Bibliothèque de Faits de langues: Ophrys.
- Morgenstern, Aliyah, and Christophe Parisse. 2007. Codage et interprétation du langage spontané d'enfants de 1 à 3 ans. *Corpus-Interpretation, Contextes, Codage* 6: 55–78. [CrossRef]
- Müller, Natascha. 1993. *Komplexe Sätze. Der Erwerb von COMP und von Wortstellungsmustern bei bilingualen Kindern (Französisch/Deutsch)*. Tübingen: Narr.
- Müller, Natascha. 1998. Transfer in bilingual first language acquisition. *Bilingualism: Language and Cognition* 1: 151–71. [CrossRef]
- Müller, Natascha. 2017. Different sources of delay and acceleration in early child bilingualism. *Zeitschrift für Sprachwissenschaft* 36: 7–30. [CrossRef]
- Müller, Natascha. 2023. Das mehrsprachige Kind als Ausgangspunkt für eine optimale Lernergrammatik. Ergebnisse simultan bi- und trilingualer Kinder. In *Jahrbuch für Internationale Germanistik. Akten des XIV. Kongresses der Internationalen Vereinigung für Germanistik (IVG)*. Edited by Laura Auteri, Nataschia Barrale, Arianna di Bella and Sabine Hoffmann. Pieterlen and Bern: Lang, vol. 10, pp. 721–32. Available online: <https://www.peterlang.com/document/1246814> (accessed on 1 July 2023).
- Müller, Natascha, Laia Arnaus Gil, Nadine Eichler, Jasmin Geveler, Malin Hager, Veronika Jansen, Marisa Patuto, Valentina Repetto, and Anika Schmeißer. 2015. *Code-Switching: Spanisch, Italienisch, Französisch. Eine Einführung*. Tübingen: Narr.
- Newmeyer, Frederick J. 1986. *Linguistic Theory in America*. Orlando: Academic Press.
- Newmeyer, Frederick J. 2004. Against a parameter-setting approach to typological variation. In *Linguistic Variation Yearbook*. Edited by Pierre Pica. Amsterdam and Philadelphia: Benjamins, vol. 4, pp. 181–234. [CrossRef]
- Newmeyer, Frederick J. 2017. Where, if anywhere, are parameters? A critical historical overview of parametric theory. In *On Looking into Words (and Beyond)*. Edited by Laire Bower, Laurence Horn and Raffaella Zanuttini. Berlin: Language Science Press, pp. 547–69. [CrossRef]
- Oller, D. Kimbrough, and Rebecca Eilers, eds. 2002. *Language and Literacy in Bilingual Children*. Clevedon: Multilingual Matters. [CrossRef]
- Paradis, Johanne. 2007. Second language acquisition in childhood. In *Blackwell Handbook of Language Development*. Edited by Erika Hoff and Marilyn Shatz. Oxford: Blackwell, pp. 387–405. [CrossRef]
- Paradis, Johanne. 2010. The interplay between bilingual development and specific language impairment. *Applied Psycholinguistics* 31: 227–52. [CrossRef]
- Paradis, Johanne, and Fred Genesee. 1996. Syntactic acquisition in bilingual children: Autonomous or interdependent? *Studies in Second Language Acquisition* 18: 1–25. Available online: <https://www.jstor.org/stable/44487857> (accessed on 15 May 2023). [CrossRef]
- Paradis, Johanne, and Fred Genesee. 1997. On continuity and the emergence of functional categories in bilingual first language acquisition. *Language Acquisition* 6: 91–124. Available online: <https://www.jstor.org/stable/20011458> (accessed on 15 May 2023). [CrossRef]
- Paradis, Johanne, Elena Nicoladis, and Fred Genesee. 2000. Early emergence of structural constraints on code-mixing: Evidence from French–English bilingual children. *Bilingualism: Language and Cognition* 3: 245–61. [CrossRef]

- Patuto, Marisa. 2012. *Der Erwerb des Subjekts in (Nicht-)Nullsubjektsprachen. Die Rolle des Spracheneinflusses und der Dominanz bei Bilingual Deutsch-Italienischen, Deutsch-Spanischen und Französisch-Italienisch Aufwachsenden Kindern*. Tübingen: Narr.
- Patuto, Marisa, Malin Hager, Laia Arnaus Gil, Nadine Eichler, Veronika Jansen, Anika Schmeißer, and Natascha Müller. 2014. Child-External and -Internal Factors in Bilingual Code-Switching: Spanish, Italian, French and German. In *Language Contact around the Globe. Paper presented at LCTG3 Conference, Greifswald, Germany, June 30*. Edited by Amei Koll-Stobbe and Sebastian Knospe. Frankfurt am Main: Lang, pp. 191–209.
- Pierce, Amy. 1992. *Language Acquisition and Syntactic Theory. A Comparative Analysis of French and English Child Grammars*. Dordrecht: Kluwer.
- Pléh, Csaba. 2019. The inspirational role of Chomsky in the cognitive turn of psychology. *Acta Linguistica Academica* 66: 397–428. [CrossRef]
- Poeste, Meike, Natascha Müller, and Laia Arnaus Gil. 2019. Code-mixing and language dominance: Bilingual, trilingual and multilingual children compared. *International Journal of Multilingualism* 16: 459–91. [CrossRef]
- Prévost, Philippe. 2009. *Acquisition of French: The Development of Inflectional Morphology and Syntax in L1 Acquisition, Bilingualism, and L2 Acquisition*. Amsterdam and Philadelphia: Benjamins. [CrossRef]
- Price, Cathy J., David W. Green, and Roswitha von Studnitz. 1999. A functional imaging study of translation and language switching. *Brain* 122: 2221–35. [CrossRef]
- Quay, Suzanne. 2001. Managing linguistic boundaries in early trilingual development. In *Trends in Bilingual Acquisition*. Edited by Jasone Cenoz and Fred Genesee. Amsterdam: Benjamins, pp. 149–99. [CrossRef]
- Quay, Suzanne. 2008. Dinner conversations with a trilingual two-year-old: Language socialization in a multilingual context. *First Language* 28: 5–33. [CrossRef]
- Quay, Suzanne. 2011. Trilingual toddlers at daycare centres: The role of caregivers and peers in language development. *International Journal of Multilingualism* 8: 22–41. [CrossRef]
- Rasetti, Lucienne. 2003. *Optional Categories in Early French Syntax: A Developmental Study of Root Infinitives and Null Arguments*. Ph.D. thesis, Université de Genève, Genève, Switzerland.
- Repetto, Valentina, and Natascha Müller. 2010. The acquisition of German V2 in bilingual Italian-German children residing in Germany and Italy: A case of acceleration? In *Movement and Clitics: Adult and Child Grammar*. Edited by Vincenç Torrens, Linda Escobar, Anna Gavarró and Juncal Gutiérrez. Newcastle upon Tyne: Cambridge Scholars Publishing, pp. 155–84. Available online: <https://www.cambridgescholars.com/resources/pdfs/978-1-4438-6-sample.pdf> (accessed on 20 May 2011).
- Repnik, Katharina M., Vicky Chondrogianni, and Antonella Sorace. 2021. Linking disambiguation and retention in a developmental eye-tracking study with monolingual and multilingual children. *Journal of Experimental Child Psychology* 206: 105072. [CrossRef]
- Rizzi, Luigi. 1982. *Issue in Italian Syntax*. Dordrecht: Foris.
- Rizzi, Luigi. 1986a. Null objects in Italian and the theory of pro. *Linguistic Inquiry* 17: 501–58. [CrossRef]
- Rizzi, Luigi. 1986b. On the status of subject clitics in Romance. In *Studies in Romance Linguistics. Selected Papers of the Fourteenth Linguistic Symposium on Romance Languages*. Edited by Osvaldo Jaeggli and Carmen Silva-Corvalán. Berlin and Boston: De Gruyter Mouton, pp. 391–420. [CrossRef]
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge: MIT Press.
- Rizzi, Luigi. 2014. On the elements of syntactic variation. Carme Picallo. In *Linguistic Variation in the Minimalist Framework*. Edited by M. Carme Picallo. Oxford: Oxford University Press, pp. 13–35. [CrossRef]
- Roberts, Ian. 2019. *Parameter Hierarchies & Universal Grammar*. Oxford: Oxford University Press.
- Ronjat, Jules. 1913. *Le Développement du Langage observé Chez un Enfant Bilingue*. Paris: Champion.
- Ruiz, Richard. 1984. Orientations in language planning. *NABE Journal* 8: 15–34. [CrossRef]
- Scalise, Elena, Johanna Stahnke, and Natascha Müller. 2021. Parameter hierarchy and acceleration: Subject omissions in a trilingual child with special reference to French. *Language, Interaction, Acquisition (LIA)* 12: 157–84. [CrossRef]
- Schlyter, Suzsanne. 1993. The weaker language in bilingual Swedish-French children. In *Progression and Regression in Language*. Edited by Kenneth Hyltenstam and Åke Viberg. Cambridge: Cambridge University Press, pp. 289–308. Available online: http://media06.euv-frankfurt-o.de/Literatur/Schlyter_1993.pdf (accessed on 3 February 2023).
- Schmeißer, Anika, and Veronika Jansen. 2016. Finite verb placement in French language change and in bilingual German-French language acquisition. In *The Acquisition of French in its Different Constellations*. Edited by Katrin Schmitz, Pedro Guijarro-Fuentes and Natascha Müller. Bristol: Multilingual Matters, pp. 10–42.
- Schmitz, Katrin, and Natascha Müller. 2008. Strong and clitic pronouns in monolingual and bilingual language acquisition: Comparing French and Italian. *Bilingualism: Language and Cognition* 11: 19–41. [CrossRef]
- Schneegans, Janine. 2022. *Subjektauslassung und -platzierung bei monolingual französisch- und englischsprachigen Kindern als Problem des linguistischen Vorteils mehrsprachiger Kinder*. Unpublished Bachelor thesis, Universität Wuppertal, Wuppertal, Germany.
- Schroedler, Tobias, Judith Purkardhofer, and Katja F. Cantone. 2022. The prestige and perceived value of home languages. Insights from an exploratory study on multilingual speakers' own perceptions and experiences of linguistic discrimination. *Journal of Multilingual and Multicultural Development* 1–18. [CrossRef]
- Schwarz, Bonnie D., and Rex A. Sprouse. 2021. The Full Transfer/Full Access model and L3 cognitive states. *Linguistic Approaches to Bilingualism* 11: 1–29. [CrossRef]

- Sekerina, Irina A., Lauren Spradlin, and Virginia Valian, eds. 2019. *Bilingualism, Executive Function, and beyond. Questions and Insights*. Amsterdam and Philadelphia: Benjamins. [CrossRef]
- Serratrice, Ludovica, Antonella Sorace, and Sandra Paoli. 2004. Cross-linguistic influence at the syntax-pragmatics interface: Subjects and objects in English-Italian bilingual and monolingual acquisition. *Bilingualism: Language and Cognition* 7: 183–205. [CrossRef]
- Silva Colaço, Isabel. 2022. Der Einfluss der Sprachkombination auf den Erwerb der Subjekt-Verb-Kongruenz: Eine Untersuchung eines bilingual französisch portugiesischen Kindes. Unpublished Bachelor thesis, University of Wuppertal, Wuppertal, Germany.
- Silva Colaço, Isabel, Dinah Hoffmann, Laura D'Aurizio, and Natascha Müller. 2023. Acceleration in multilingual children. The case of French. *International Multilingual Research Journal*, under review.
- Sivakumar, Abira, Nadine Sette, Natascha Müller, and Laia Arnaus Gil. 2020. Die Entwicklung des rezeptiven Wortschatzes bei bi-, tri- und multilingual aufwachsenden Kindern. *Linguistische Berichte* 263: 329–64. [CrossRef]
- Siyambalapitiya, Samantha, Jessica Paynter, Vishnu K. K. Nair, Christina Reuterskiöld, Madonna Tucker, and David Trembath. 2022. Longitudinal social and communication outcomes in children with autism raised in bi/multilingual environments. *Journal of Autism and Developmental Disorders* 52: 339–48. [CrossRef]
- Stahnke, Johanna. 2022. The acquisition of French determiners by bilingual children: A prosodic account. *Languages* 7: 200. [CrossRef]
- Stahnke, Johanna, Laia Arnaus Gil, and Natascha Müller. 2021. French as a Heritage Language in Germany. *Languages* 6: 122. [CrossRef]
- Suppes, Patrick, Robert Lawrence Smith, and Madeleine Leveillé. 1973. The French syntax of a child's noun phrases. *Archives de Psychologie* 42: 207–69.
- Tomasello, Michael. 2003. *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Cambridge: Harvard University Press.
- Torregrossa, Jacopo, Maria Andreou, Christine Bongartz, and Ianthi Tsimpli. 2021. Bilingual acquisition of reference: The role of language experience, executive functions and cross-linguistic effects. *Bilingualism: Language and Cognition* 24: 694–706. [CrossRef]
- Torregrossa, Jacopo, Sonja Eisenbeiß, and Christine Bongartz. 2022. Boosting Bilingual Metalinguistic Awareness Under Dual Language Activation: Some Implications for Bilingual Education. *Language Learning* 73: 683–722. [CrossRef]
- Tracy, Rosemarie. 1996. Vom Ganzen und seinen Teilen: Überlegungen zum doppelten Erstspracherwerb. *Sprache und Kognition* 15: 70–92.
- Trutkowski, Ewa. 2016. *Topic Drop and Null Subjects in German*. Berlin and Boston: De Gruyter.
- Tsimpli, Ianthi Maria. 2014. Early, late or very late? Timing acquisition and bilingualism. *Linguistic Approaches to Bilingualism* 4: 283–313. [CrossRef]
- Unsworth, Sharon. 2005. *Child L2, Adult, Child L1: Differences and Similarities. A Study on the Acquisition of Direct Object Scrambling in Dutch*. Utrecht: LOT. Available online: https://www.lotpublications.nl/Documents/119_fulltext.pdf (accessed on 14 April 2023).
- Unsworth, Sharon. 2013. Current issues in multilingual first language acquisition. *Annual Review of Applied Linguistics* 33: 21–50. [CrossRef]
- Unsworth, Sharon, Froso Argyri, Leonie Cornips, Aafke Hulk, Antonella Sorace, and Ianthi Maria Tsimpli. 2014. On the role of age of onset and input in early child bilingualism in Greek and Dutch. *Applied Psycholinguistics* 35: 765–805. [CrossRef]
- Valian, Virginia. 1990. Null-subjects: A problem for parameter-setting models of language acquisition. *Cognition* 35: 105–22. [CrossRef]
- van den Noort, Mauritz, Esli Struys, Peggy Bosch, Lars Jaswetz, Benoît Perriard, Sujung Yeo, Pia Barisch, Katrien Vermeire, Sook-Hyun Lee, and Sabina Lim. 2019. Does the bilingual advantage in cognitive control exist and if so, what are its modulating factors? A Systematic Review. *Behavioural Sciences* 9: 27. [CrossRef]
- van Dijk, Chantal, Elise van Wonderen, Elly Koutamanis, Gerrit Jan Kootstra, Ton Dijkstra, and Sharon Unsworth. 2021. Cross-linguistic influence in simultaneous and early sequential bilingual children: A meta-analysis. *Journal of Child Language* 49: 897–929. [CrossRef] [PubMed]
- Wang, Qi, Diane Lillo-Martin, Catherine T. Best, and Andrea Levitt. 1992. Null subject versus null object: Some evidence from the acquisition of Chinese and English. *Language Acquisition* 2: 221–54. [CrossRef]
- Wang, Xiao-Lei. 2008. *Growing Up with Three Languages. Birth to Eleven. Parents' and Teachers' Guides*. Bristol: Multilingual Matters.
- White, Lydia. 2003. *Second Language Acquisition and Universal Grammar*. Cambridge: Cambridge University Press.
- Wiltchko, Martina. 2014. *The Universal Structure of Categories. Towards a Formal Typology*. Cambridge: Cambridge University Press. [CrossRef]
- Yip, Virginia, and Stephen Matthews. 2000. Syntactic transfer in a Cantonese-English bilingual child. *Bilingualism: Language and Cognition* 3: 193–208. [CrossRef]

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