Second Language Acquisition and Syntactic Theory in the 21st Century

Juana M. Liceras

Syntactic theory has played a role in second language acquisition (SLA) research since the early 1980s, when the principles and parameters model of generative grammar was implemented. However, it was the so-called functional parameterization hypothesis together with the debate on whether second language learners activated new features or switched their value that led to detailed and in-depth analyses of the syntactic properties of many different nonnative grammars. In the last 10 years, with the minimalist program as background, these analyses have diverted more and more from looking at those syntactic properties that argued for or against the various versions of the UG-access versus non-UG-access debate (UG for Universal Grammar) and have more recently delved into the status of nonnative grammars in the cognitive science field. Thus, using features (i.e., gender, case, verb, and determiner) as the basic units and paying special attention to the quality of input as well as to processing principles and constraints, nonnative grammars have been compared to the language contact paradigms that underlie subsequent bilingualism, child SLA, creole formation, and diachronic change. Taking Chomsky’s I-language/E-language construct as the framework, this article provides a review of these recent developments in SLA research.

INTRODUCTION

The early version of Chomsky’s minimalist program (Chomsky, 1995), which was developed in the last years of the 20th century, as well as the subsequent versions (Chomsky, 2001, 2007, 2008), and, most importantly, one of the core constructs of this program, formal features, have set the pace for the formalist research in second language acquisition (SLA) that has been conducted in this century. Notwithstanding, the constructs and categories that were central to the previous model, the government and binding model (Chomsky, 1981), and its acquisition counterpart, the principles and parameters model (Chomsky, 1986; Chomsky & Lasnik, 1993), continue to be at the core of the present research. This is so not only because many of the learnability issues that they raised...
FEATURE SELECTION AND FEATURE CHECKING

In Chomsky (1970), the four categories noun (N), verb (V), preposition (P), and adjective (A) were defined as combinations of the two features [+/-N] and [+/-V], as follows: N = [+N, −V]; V = [−N, +V], P = [−N, −V], A = [+N, +V]. In later work (Chomsky, 1986), the main role of features was to project functional categories such as the determiner phrase (DP), the inflectional/tense phrase (IP/TP) or the complementizer phrase (CP). In minimalist theory (e.g., Chomsky, 1993, 1995), it is proposed that the content of functional categories is defined by bundles of features. Features also have a crucial role in the operations merge, agree, and move. While these operations are assumed to belong to Universal Grammar (UG) and to be innate, not all features are activated or organized in the same way in all languages. Therefore, it is how learners activate and organize the features of the target language, as well as how they make them interact with the operations merge, agree, and move, that may be problematic for the second language (L2) learner. In other words, in order to acquire the grammar of a given language, the L2 learner has to combine elements from the target lexicon to form a derivation by means of the structure-building operation merge. The L2 learner also has to determine how agree establishes relations of syntactic dependency by means of features, as well as when and how move displaces an element (the goal) from its canonical position to have a feature checked or valued by the element that has the corresponding feature (the probe).

In the last decade, a substantial amount of research on SLA has dealt with whether and how L2 learners activate features which are not present in the first language (L1) and whether these learners make the appropriate use of those features for feature checking, agreement, and movement purposes.

PARAMETERS, FUNCTIONAL CATEGORIES, AND FEATURES

We cannot talk about features without referring to functional categories and parameters (Liceras, 1997, 2007, 2009). Features are the units that make up functional categories and features are the locus of parametrization, since the presence or absence of a feature or its value in a given functional category defines the parametric options for the various languages. Features were already present in the interlanguage descriptions provided by those researchers who pioneered the adoption of the extended standard theory (Chomsky, 1977) and the government and binding model (Chomsky, 1981) to the analysis of nonnative systems (e.g., Flynn, 1983; Liceras, 1983, 1986; Mazurkevich, 1984; White, 1985). Features were also relevant in the generative accounts of how L2 learners project functional categories (Eubank, 1996; Schwartz & Sprouse, 1996; Vainikka & Young-Scholten, 1996; Zobl & Liceras, 1994, among others). However, it is
with the minimalist program that formal syntactic features became the center of learnability theory, the reason being that they are conceptualized as the elementary building units of linguistic structure. Drawing on a physics-based metaphor, Adger (2003) defined features as the “atoms” of language while Liceras, Zobl, and Goodluck (2008) linked features to biological rather than to inorganic systems and defined them as the so-called DNA (base pairs) of human language that, as bundles, constitute the so-called genes (the functional categories) that determine the structure of particular languages.

While the inventory of formal features is available to all human beings, not all features are activated in any given language. This implies that the functional categories of natural languages (i.e., the DP, the IP/TP, or the CP) may not be made up of the exact same bundle of features, either because some are not activated or because their combinations are different. For instance, the presence of the feature Q in the CP (or the EPP feature, explained next, associated with it) is responsible for the fronting of wh-words in interrogatives in languages such as English or Spanish, while its absence in Chinese or Japanese accounts for the lack of fronting of wh-words in the latter languages. Thus the presence/absence of the feature Q (or the EPP associated with it) can be said to parametrically differentiate languages such as English and Spanish from languages such as Chinese and Japanese. EPP stands for extended projection principle, a principle proposed within the government and binding model of grammar (Chomsky, 1981), according to which all sentences have to have subjects, though in some cases (as in the case of pro-drop or null subject languages) they can be implicit. In recent minimalist analyses, EPP has been used to refer to a feature which is bundled with other features to trigger movement. In other words, it has somehow taken over the role of the [+/−strong] value of features.

Another example of how parameters, functional categories, and features are interrelated is the so-called null subject parameter. In the minimalist analysis proposed by Alexiadou and Anagnostopoulou (1998), languages are parameterized depending on whether the EPP is satisfied via merge or via move. Merge is the structure-building operation that combines elements from the lexicon to form a derivation, while move is the operation that displaces elements from their canonical positions to bring them into a local relationship. According to Alexiadou and Anagnostopoulou, in Spanish and Italian, the bound morphemes such as -mos in canta-mos (we sing), which merge with the verbal root to satisfy the EPP, are the actual personal pronouns. In other words, these bound morphemes have the feature [+D], the categorial feature that gives them the status of a determiner, which means that no overt personal pronoun is needed. In fact, when the strong personal pronoun nosotros (we) is used in Spanish, it has a pragmatic value (i.e., emphasis, contrast). In English, rather than merging with the verb, the obligatory subject we is moved to the specifier of the TP to satisfy the EPP and no null subject is allowed. Thus, the feature [+D] located in the functional category TP determines the parametric option to which a given type of language belongs (Liceras, Fernández Fuertes, & Pérez-Tattam, 2008; Liceras, Fernández Fuertes, & Alba de la Fuente, in press).
THE I-LANGUAGE/E-LANGUAGE DICHOTOMY REVISITED: LANGUAGE ACQUISITION AND LANGUAGE CONTACT

The field of SLA began to occupy a relevant place within the cognitive science field in the late 1970s and early 80s with the adoption of the Chomskian view of language acquisition, the development of the interlanguage hypothesis, and the call for analyzing nonnative systems as natural languages (e.g., Adjéman, 1976, Corder, 1967; Selinker, 1972). Notwithstanding, there are two new developments that have played a very important role in bringing together the analysis of primary language acquisition, child and adult nonprimary language acquisition, the pidgin-creole continuum, and diachronic change. First, the field of SLA has adopted the new Chomskian linguistic models, specifically the principles and parameters model (Chomsky, 1981, 1986; Chomsky & Lasnik, 1993) and the minimalist program (Chomsky, 1995, 2001). Second, the prominent role of functional categories and features with Chomsky’s I-language/E-language dichotomy (Chomsky, 1986) in the background has guided the comparative analyses of these systems. The reason why the I-language/E-language dichotomy has had an implicit role is that the primary data used in the projection of an I-language (language competence) undergo changes that pertain to the E-language domain (language usage). Thus, the individual and internal knowledge of language as represented in the speaker’s mind, the I-language, is different from the external performance data, the E-language, which constitutes the primary linguistic data to which the child is exposed. In other words, the child, guided by UG, projects an I-language, which is a reflection of his or her competence. This, in principle, should be the case for the acquisition of any natural language. However, there are ways in which the acquisition of the various systems listed earlier (the primary language of the monolingual, the two primary languages of the simultaneous bilingual, and the second or third language of the child or the adult) may differ. One is the previous representation of language in the learners’ brains together with the processing mechanisms that deal with actual input. The other is the different types of input that learners may be exposed to. Because the initial state in terms of competence (UG versus UG plus a L1, various L1s, or L2s) and the processing of input may differ depending on whether we are dealing with children or adults, the way in which the primary linguistic data is dealt with may be different. Also, because it is as E-language that the effects of language change and language contact are available to the learner, the primary linguistic data, and consequently the triggers available in the input, may also differ in the case of different language contact situations (i.e., bilingual L1 acquisition, nonprimary language acquisition in formal versus natural settings, or the special language contact situations that lead to the development of pidgin and creole systems).

ON THE NATURE OF NONNATIVE GRAMMARS: ARE INTERLANGUAGES I-LINGUAGES?

Put in terms of features, if adults learning a language do not activate the input features in the same way children do (be it because they are not sensitive to
the same triggers or because the L1 and other L2s act as the initial state),
they may create a different I-language. The question is, can we still say that
the L2 system qualifies as being an I-language? In Liceras (1996), the answer
was no because the various properties of a given parameter are set locally and
individually, not as a result of changing a feature or the value of a feature in a
given functional category. However, in Liceras (2007), it is argued that as long
as the nonnative system contains the features and feature distribution of any
given natural language, the nonprimary system qualifies as an I-language. This
implies that a nonnative language is an I-language even if the various options
of a parameter are not implemented as in the target (primary) language. Thus,
in minimalist terms, it is the operations of the computational system (merge,
agree, and move) and the implementation of features (the activation of the
feature [gender] in the case of the Spanish determiner or the assignment of
the feature [+D] to the Spanish verbal agreement markers) that result in an
I-language. Mechanisms such as parameter setting (how parameters are fixed),
feature activation or feature organization, which may be dependent on process-
ing principles, may certainly be different from those which led to the creation of
the primary system. However, the individual and internal representation of the
nonprimary language in the L2 speaker’s mind will still be an I-language. In other
words, according to this latter view, while primary and nonprimary language
acquisition may be different, and while the role of the adult and the child in the
formation of the pidgin and the creole may be different too, the systems that
we are to analyze are I-languages and therefore mental representations of the
speaker’s knowledge. Consequently, even if primary and nonprimary language
acquisition differ with respect to something such as the proposed deficits in
the activation of features argued for by the so-called failed functional features
hypothesis (Hawkins & Chan, 1997; Hawkins & Hattori, 2006), Adjémian’s (1976)
assertion that interlanguages are natural languages still holds in that L2 systems
(interlanguages) are I-languages. In terms of the pidgin—creole continuum, and
in spite of the tenets of the language bioprogram hypothesis (Bickerton, 1984,
1996, 1999), according to which only children can create a creole language,
this latter interpretation of the I-language/E-language dichotomy holds for both
pidgin and creole systems. Namely, pidgins, in the same way as interlanguages,
are I-languages because the operations merge, agree, and move are involved in
the projection of their structure. This is so in spite of the fact that their functional
categories may not contain the same features or feature combinations that are
found in the corresponding creole and native (primary) languages.

BEYOND PARAMETERS AND FUNCTIONAL CATEGORIES: THE
PROMINENT ROLE OF FEATURES

As we have seen in the previous section, features do not exist in isolation,
which means that the learnability issues discussed in terms of features are al-
ways related to one or several functional categories and may be parameterized.
Nonetheless, the innate view of language acquisition as a selective or deductive
process that leads the learner to identify the categories of the input relevant for
the projection of the I-language has evolved from taking principles and parameters as the pivotal categories, to concentrating on functional categories and finally, to present the prominent role of features. Features offer the researcher a more refined tool to compare languages and to identify learnability issues, but as has already been pointed out (Lardiere, 2009; Liceras, Zobl, et al., 2008; White, 2009), they also raise a great deal of unresolved problems. In spite of these problems, nowadays the logical and developmental problems of both primary and nonprimary language acquisition are mainly dealt with from the perspective of features. One of the most recent developments has been the investigation of the different ways in which features may be combined or assembled and the problems this may create for the L2 learner. Relevant examples are found in Lardiere’s (2008) comparison of English and Chinese or in Valenzuela’s (2008) comparison of English and Spanish.

Lardiere (2008, 2009) argued that definiteness and number form a union in Chinese, whereas in English, the number feature is independent of definiteness. This, according to Lardiere, accounts for the fact that her participant continued to have problems with the assignment of plural markers to English indefinite nouns. In other words, feature assembly has been identified as a potential candidate for fossilization.

Valenzuela (2008) showed that while both Spanish and English have contrastive left dislocation, a construction where topic preposing is dependent on the presence of a null anaphoric operator, only Spanish has clitic left dislocation, a construction where the topicalized element is coindexed with an agreement clitic in the IP. This construction requires that the topicalized constituent bears the feature [+specific]. This means that English learners of Spanish have to identify the [+specific] feature associated with the clitic left dislocation construction.

In the forthcoming sections we review recent developments in L2 research from three different perspectives. First, we look at how formal features have been used to compare adult SLA with child second language acquisition (L2A) and first language acquisition (L1A) and to investigate degrees of native-like attainment. Second, we review the studies that have compared native and non-native systems with pidgin and creole languages. We finally look at the studies where L2 development is compared to diachronic change.

SECOND LANGUAGE ACQUISITION AND BILINGUALISM: THE ROLE OF FORMAL FEATURES

Besides feature selection or incomplete specification and feature organization or feature assembly, the relevant learnability issues that have been formulated around formal features have dealt with their strength, hierarchical accessibility, interpretability, and valuation.

In relation to feature strength, Leung (2008) investigated whether Chinese speakers with English L2 were able to activate the strength value responsible for verb movement in their third language (L3) French. She concluded that adult L2 learners are able to instantiate the feature strength value that is responsible
for verb movement in French but is neither present in the L2 nor in the L1 grammar.

With respect to hierarchical accessibility, Radford (2008) raised the question of whether all features are equally accessible. To the best of our knowledge, the hierarchy that Radford proposed based on L1 acquisition data (mood > EPP > person > number > tense) has not been tested against L2 acquisition data. Testing this hierarchy against L2 acquisition data will imply taking into consideration feature interpretability and the role of the L1.

Features have also been divided according to their interpretability (Adger 2003). Interpretable features such as cardinality or definiteness make a semantic contribution to interpretation. Uninterpretable features such as case or gender do not make such a contribution and have to be checked and eliminated for the derivation of a sentence to converge (achieve grammaticality). Interpretable features are checked, but they are not eliminated because they interface with the semantic-conceptual system of the mind.

The [+/-interpretable] contrast has also been taken up by L1 and L2 acquisition researchers (Bel, 2001; Díaz, Bel, & Bekiou, 2008; Hulk & Müller, 2000; Sorace, 2003; Tsimpli, 2001, among others). For instance, Tsimpli and Dimitrakopoulou (2007) and Tsimpli and Mastroplavou (2008) claimed that uninterpretable features are problematic for adult L2 learners, while interpretable features are not. This, according to these authors, accounted for the fact that (a) the acceptability rate of subject and direct object resumptive pronouns by Greek learners of English was determined by the interpretability of the features instantiated, and (b) Russian and Turkish L2 learners of Greek have fewer problems acquiring the indefinite article than the definite article because only the indefinite article has a [−definite] interpretable feature. These facts are attributed to critical period effects on the adults’ representational system. In other words, the learners’ competence differs from that of native speakers in relation to the activation of uninterpretable features. Along similar lines, the position taken by the proponents of the failed functional features hypothesis (e.g., Hawkins & Chan, 1997; Hawkins & Franceschina, 2004; Hawkins & Hattori, 2006; Hawkins et al., 2008, among others) is that while an uninterpretable feature selected by both the L1 and the L2 is always available to the adult learners, uninterpretable features selected by the L2 but not present in the L1 will create a representational deficit for these learners.

Platzack (2008), using data from the acquisition of verb second (V2) phenomena in Swedish, claimed that uninterpretable features such as EPP, which is responsible for moving elements from their canonical positions, are problematic for L2 learners due to critical period effects. However, for Platzack, those critical period effects resulted in a mere performance deficit rather than a competence deficit.

According to more recent developments in the minimalist program (Chomsky, 2001; Hornstein, Nunes, & Grohmann, 2005; Pesetsky & Torrego, 2007; Radford, 2004), rather than being divided into the [+interpretable] and [−interpretable] subsets, the inventory of features is represented in pairs so that all features have an interpretable and an uninterpretable counterpart. This implies that while person and number features on the subject DP are interpretable, these same
features are uninterpretable (make no semantic contribution) on TP, where they are realized as agreement markers. Uninterpretable features are still eliminated, but it is via the valuation by their interpretable counterparts. Therefore, under this framework, the question is whether adult L2 learners have representational problems with the valuation procedure. Jakubowicz and Roulet (2008) argued that this is not the case for children with specific language impairment (SLI). They based their assertion on the dissociation between comprehension and production found in the experimental tasks administered to these children. The dissociation was interpreted as evidence that the problems SLI children encounter with gender agreement morphology are the result of a production (interface) deficit. However, according to Liceras, Zobl, et al. (2008), the reinterpretation of existing adult SLA (Guillelmon & Grosjean, 2001) and SLI data (Clahsen, Bartke, & Göllner, 1997) in terms of valuation show that both types of speakers exhibit a form of impairment to the computations involved in agree.

As we will see in the next section, recent developments in the investigation of the role played by the various properties of features in SLA have run parallel to developments in the investigation of whether adult SLA resembles child SLA or L1A.

CHILD SECOND LANGUAGE ACQUISITION AT THE L1-ADULT L2 CROSSROADS

The discussion that took place in the late 1970s and early 80s with respect to whether the order of acquisition of morphemes by child L2 learners was similar to that of adult L2 learners or to that to L1 learners (Van Naerssen, 1980, 1981, 1986) has been revisited in light of the recent developments in syntactic theory. Presently, there is no agreement as to where child L2 acquisition stands with respect to L1A and adult SLA. While some researchers (e.g., Schwartz, 2004) claim that child L2 is like child L1 in the domain of morphology, and both are distinct from adult L2, others (e.g., Meisel, 2008) argue that child L2 resembles adult L2 in the domain of morphology. Schwartz (2004) based her claim on a review of the child L2 literature that provides evidence for the role of the L1 in the acquisition of L2 syntax by children, an influence that resembles adult SLA. Meisel’s (2008) conclusion was based on the analysis of the development of verbal morphology in 3- to 4-year-old L1 German children learning French as a L2 at the Lycée Français de Hambourg. The children were interviewed over 2 years upon their entering the Ecole Maternelle (preschool). This author argued that some aspects of the development of the inflectional morphology in the children’s French more closely resemble the morphological development of adult L2 French than that of L1 French.

Najmi (2009), using data from a 4-year-old child native speaker of Arabic learning English as an L2, showed the constructions this child used provide evidence that she has assembled all features related to functional categories. This child’s data contained complex and embedded wh-questions and relative clauses, which makes her different from Haznedar’s (2003) child, who did not show evidence of having projected CP until rather late. Also, unlike Haznedar’s
child, who had a high rate of missing auxiliaries, Najmi’s child used auxiliaries and copula be (as well as modals) productively from the beginning. What these two children share is their failure to use proper verbal inflections. However, Najmi argued that since the child used other constructions that showed that her English grammar had the relevant functional categories, the morphological errors were performance errors; in other words, those errors were instances of missing inflection, as in Prévost and White (2000). In fact, not only Najmi’s study but most studies of child SLA before the age of 5 (Grondin & White, 1996; Haznedar, 2001, 2003; Lakshmanan & Selinker, 1994) show that functional features and functional categories are available from the very early stages, which, from a continuity approach (no prefunctional stage), implies that child SLA is like L1A.

The foregoing conclusion is not shared by all researchers. For instance, in a recent study where Mobaraki, Vainikka, and Young-Scholten (2008) investigated the acquisition of L2 English by two Farsi-speaking children in a natural setting, it was claimed that L2 children start just with a verb phrase (VP) as adult L2 learners do (Vainikka & Young-Scholten, 1996). These authors based their assertion on the lack of case distinctions in the use of English pronouns, the frequent omission of copula with nonnominative pronominal subjects and the fact that even after 3 months of constant exposure to English, the two children continued to produce head-final VPs in their L2 English. This suggests that in the early stage of L2 acquisition, the VP headedness is transferred from the learner’s native language. These two children are different in that they started acquiring English at the age of 7 to 8, not at the age of 4 to 5.

This is an important difference because in child L2 research (Meisel, 2008; Schwartz, 2004; Haznedar & Gavruseva, 2008), as well as in research on ultimate attainment (e.g., DeKeyser, 2000; Herschensohn, 2007; Johnson & Newport, 1989, 1991; among others), it is specifically stated that L2 children who begin learning a L2 before age 5 are different from older children and from adult L2 learners in the acquisition of morphosyntax. However, there are also differences among the 4- to 5-year-old group of children, since the L2 English morphosyntax in Najmi’s (2009) child seems to develop much faster than that of Haznedar’s (1997, 2001) child. Thus, if age 5 is the limit, why is it that there were rather relevant differences between Haznedar’s and Najmi’s children that cannot be accounted for on the basis of their different L1 (Turkish and Arabic, respectively)? Najmi (2009) offered two possible explanations. One is that his child had more exposure to English input and had systematic instruction in the target language at the day care (preschool) center that she attended. This did not seem to be the case with Haznedar’s child. The other possible explanation would be to attribute the different development of these two children’s L2 English to individual differences, an issue that is systematically dealt with in the acquisition literature. What the children in all these studies share is the fact that there is transfer from their L1. For instance, Haznedar’s (1997, 2001) child and Mobaraki et al.’s (2008) children transferred the head-final VPs from Turkish and Farsi respectively, while Najmi’s child transferred the resumptive pronoun strategy from her L1 Arabic.

As for the debate on whether child SLA resembles child L1A or adult SLA in the domain of syntax and/or morphology (Meisel, 2008; Schwartz, 2004), Najmi
(2009) specifically argued that child SLA is different from both L1A and adult SLA in both the morphological and the syntactic domains. Thus, what the data from the reviewed studies show is that quality and quantity of input, age and individual differences, the L1s involved, and specific constructions have to be taken into account before definite conclusions can be reached.

Adult SLA has not only been investigated at the child SLA/L1A crossroads but also in relation to the so-called heritage speaker’s language. This comparison is interesting because it has led researchers to reconsider what the initial state and the ultimate attainment of a bilingual speaker may be and also to refine concepts such as near-native and native-like speaker.

**THE BILINGUAL, THE NEAR-NATIVE, AND THE NATIVE-LIKE SPEAKER**

It is not my intention to discuss the concepts of near-native and/or native-like speaker in relation to the main topic of this article, which is the SLA of syntax, since this could not be achieved without taking into consideration at least the literature on the critical period and on ultimate attainment. Because heritage speakers’ language systems differ from the immigrant and the nonimmigrant native systems (Liceras & Senn, 2009; Senn, 2008) in ways that resemble the differences attributed to L2 learners, what I would like to address is whether this fact has implications for adhering to the view that ILs are I-languages or, alternatively, for adhering to the view that ILs are not I-languages.

Heritage speakers’ competence has been measured using the same spontaneous and experimental data used to determine adult L2 competence. In the review carried out by Montrul (2008), she concluded that, as is the case with L2 learners, heritage speakers may end up with incomplete knowledge of the target language because of the reduced degree and consistency of exposure to primary linguistic data (the E-language) and their motivation. However, in terms of age of exposure and mode (naturalistic setting), heritage speakers have more in common with L1 learners than with L2 learners. In fact, heritage speakers have advantages over L2 learners that may be related to their childhood exposure to the target. However, these advantages seem to be selective in terms of the areas of grammar, the types of tasks, the degree of proficiency and the use of the language by the various speakers. Montrul (2008) stated that in spite of the advantages that heritage speakers have over L2 speakers, there was not enough experimental data to determine whether the incomplete grammars of heritage speakers are fundamentally different from the incomplete grammars of the L2 speakers or whether or not the so-called fundamental difference hypothesis (Bley-Vroman, 1989; Epstein, Flynn, & Martohardjono, 1996; Liceras, 1996, 2003) applies to heritage speakers.

In Liceras (1996, 2003) the fundamental difference hypothesis was interpreted in terms of how feature selection determines parameter setting, but not in relation to the UG principles that led to the acquisition of a L2. Thus, it was argued that nonnative languages are different from native languages in that parameters are not set in a similar way. As I have indicated earlier, if one follows Chomsky’s (1986) direct relationship between the properties of parameters and
I-language, ILs may not be instances of I-languages because they may not implement all the properties of a given parameter. However, in minimalist terms, if it is the operations of the computational system (merge, agree, and move) and the implementation of features that result in an I-language, ILs are instances of I-languages. In other words, the requirement is not that features be activated (or organized) as in child L1A but that the grammar of the output system be made up of bundles of features that form functional categories in a given natural language. This implies that when compared to a target, there may be I-languages where none or only some specific properties of a parametric option may be set in a target-like way or that functional categories may be underspecified. In other words, the fundamental difference hypothesis holds in relation to the subjects’ sensitivity to the triggers of the E-language (primary linguistic data is processed differently in L1A and adult SLA) but does not hold in relation to the I-language (the structure of L1 and L2 systems and the representation of those systems in the respective speakers’ minds is not qualitatively different).

Going back to the comparison of heritage speakers and L2 learners, I would like to point out that the differences will again pertain to the E-language because if the heritage speakers’ initial contact with the primary linguistic data occurs when they are born, they will process the input as L1 speakers do. However, the type of input they will be exposed to will probably differ from that of their parents (the immigrant population) and the native speakers of the language in the country where it is a majority language (Liceras & Senn, 2009; Senn, 2008). The input they will be exposed to will also be different from the one their parents were exposed to because the immigrant speech may have suffered from attrition with respect to the majority usage of the same language. Thus, in parallel with the situation of child SLA, which seems to differ from both L1A and adult SLA, heritage languages may differ from both the corresponding native languages and the corresponding ILs. However, under this view, heritage languages, as well as the pidgin and creole languages, are I-languages.

SLA AND THE PIDGIN/CREOLE CONTINUUM: THE FORMAL FEATURES CONNECTION

The comparison of SLA with L1A, diachronic change, and the pidgin/creole continuum has taken rather different forms. In the case of L1A and SLA, whether the comparison was meant to argue for or against the similarity of the two processes, research has been carried out in a rather systematic way (e.g., Bley-Vroman, 1989; Ellis, 1994; Unsworth & Schwartz, 2006). The comparison with creole formation reached a peak when the process of L2 acquisition was conceptualized as a pidginization (Schumman, 1978) or a nativization (Andersen, 1983) process. Then, for the last two decades of the 20th century, it became almost a nonissue for the field of L2 studies. However, this century has seen a revival of the dialogue between acquisitionists and creolists (e.g., Becker & Veenstra, 2003; Lefebvre, White, & Jourdan, 2006).
FEATURE ACTIVATION AND THE LANGUAGE BIOPROGRAM HYPOTHESIS

The activation of features in the type of language contact that manifests itself as code-mixing has served as ground for investigating possible commonalities and differences between the SLA and the pidginization-creolization processes (Liceras, Martínez, Pérez-Tattam, Perales, & Fernández Fuertes, 2006). Drawing a parallel with Pesetsky and Torrego’s (2001) proposal concerning the relationship between nominative case (nominative case is a T feature on D) and agreement (phi) (agreement is a D feature on T), Liceras et al. (2006) assumed that gender is an N feature on D and gender agreement is a D feature on N. Based on this dichotomy, the authors made a number of predictions about how the native and nonnative mental representation of these features determines the directionality of code mixing (which language contributes the functional or the lexical category as in la door versus the puerta). Specifically, Liceras et al. (2006) argued that the grammatical features spell-out hypothesis (Liceras, Fernández Fuertes, Perales, Pérez-Tattam, & Spradlin, 2008; Liceras, Spradlin, & Fernández Fuertes, 2005)—the preference shown by children to select the language whose functional category displays the most grammaticalized feature—accounts for the code-mixing options selected by L1 children and adult native speakers. Namely, it accounts for the fact that only the adult native speakers (but not the nonnative speakers) favor the gender-matching options (la door instead of el door because door bears the gender feature [+feminine] in Spanish), also known as the “analogical criterion.” Liceras et al. (2006) attributed this to the fact that adult L2 learners do not process and internalize formal abstract features from input in the same way that children do (Liceras, 2003). Thus, in the spirit of Bickerton (1984, 1996, 1999), Liceras et al. (2006) maintained that adults do not create language and that this explains why adult nonnative systems and pidgins may share a number of properties, as initially proposed by Schumann (1978) and Andersen (1983) and recently discussed by DeGraff (1999) and Winford (2003), among others.

As for the masculine as default option, Liceras et al. (2006) argued that it can be taken as a diagnostic for the role of bilingualism in creole formation, in that it is the bilingual speakers who incorporate this underspecified or unspecified option of the lexifier language (the superstratum or, if we compare this process to L2 acquisition, the actual L2 target) into the creole system. In fact, the creoles with a Romance lexifier always display the masculine (under-specified) form. If a creole is created via L1 acquisition and children are not in contact with a lexifier language that has gender features, they have no reason to incorporate gender features into that creole. However, if the creole speakers grow up in a bilingual situation (creole and lexifier), they would choose the lexifier language’s determiner to activate the gender feature. But, as they become adult bilinguals, they will keep the two systems separate and will make default choices in their potential mixed production. Furthermore, since gender related to [–animacy] is a highly formal feature that only acts as a noun classifier, it may never make it into a creole system. In other words, unlike elements such as the TMA (tense/mood/aspect) markers or even case, gender related
to [-animacy] does not play any role in terms of theta-roles (agent, theme, benefactive).

**RELEXIFICATION IN L2 ACQUISITION AND CREOLE GENESIS**

Taking a totally different approach to Bickerton’s, for whom, as we have seen earlier, creole genesis is an instance of L1A, Lefebvre (1998) argued that creole genesis is a particular case of SLA within a context of limited access to the superstratum language (the L2). Central to this view of creole genesis is the process of relexification (Lefebvre, 1998; Lefebvre & Lumsden, 1989). Relexification consists of relabeling lexical items from the L1 using a phonetic string from the L2 but keeping the L1 semantic and syntactic properties. An example of relexification provided by Lefebvre (1998) is the formation of the Haitian creole determiner. This determiner has very different syntactic and semantic properties from that of the superstratum language, the French determiner. Lefebvre argued that while the source of the phonological form of the Haitian creole [+definite] determiner is French deictic là, the syntactic and semantic properties are those of Fongbe, the substratum language. In fact, unlike the French [+definite] determiner, both the Haitian creole and the Fongbe [+definite] determiner are postnominal, identify old and new information, are not used with generic and mass nouns, do not have partitive value, and can have a relative clause separating the head noun from the determiner.

In an attempt to determine whether instances of relexification were present in her participant’s L2 English idiolect, where English would represent the superstratum and Mandarin and Hokkien the substratum, Lardiere (2006) analyzed the status of several different constructions and concluded that the relexification hypothesis cannot account for the English idiolect of her participant, Patty. This author suggested that unlimited access to the target language community, like the one Patty has had, makes it possible to go beyond relexification and acquire many of the semantic and syntactic properties of the target grammar. However, Lardiere (2006) also pointed out that even with unlimited access, Patty’s English idiolect was far from target-like, especially in the domain of inflectional morphology. This characteristic of Patty’s English is not compatible with the relexification hypothesis because the relabeling mechanism links to relexification, as we saw in the case of the Haitian creole determiner, proceeds on the basis of free morphemes (French deictic là is the source), and the resulting creole is an isolating language. Since Patty’s mother tongues (Mandarin and Hokkien) are isolating, the relexification hypothesis would lead us to expect an isolating English dialect as a result. However, Patty’s problems with inflectional morphology do not provide any evidence for the relexification hypothesis. This leads us to the issue of how and at which point in the development of a non-native system the L1 plays a role. A hypothesis intended to account for the interaction between the L1 and the L2 grammars is the competing grammars hypothesis, which was formulated to explain why, in the process of diachronic change, individual speakers’ grammars displayed two options of a given parameter.
SECOND LANGUAGE DEVELOPMENT AND DIACHRONIC CHANGE:
PARAMETERS, GRAMMATICALIZATION, AND FEATURES

SLA research refers only occasionally to parallels between diachronic change and developmental change (Liceras, 1985; Montrul, 1997; Zobl, 1979), in spite of the fact that syntactic optionality (Sorace, 2003), one of the most relevant characteristics of adult L2 acquisition, is a well-documented aspect of historical change. Other characteristics of change in SLA such as gradualness and incrementalism in parametric shifts are also attested for one type of historical change. These parallels between SLA and diachronic change are worth exploring since, in the case of SLA, they have been interpreted as instances of representational impairment (Beck, 1998; Meisel, 1997). Since it seems an unquestionable fact that impairment cannot account for historical change, the question then arises whether mechanisms or processes operative in diachronic parametric change may be operative in L2 development.

OPTIONALITY AND THE COMPETING GRAMMAR HYPOTHESIS

Kroch (1994, 2001) formulated the competing grammar hypothesis (CGH) to account for unstable periods of time where more than one parametric option was available for individual speakers (i.e., diglossia), as well as for the gradual and incremental nature of the process of diachronic change. Zobl and Liceras (2005, 2006) argued that the process of SLA is comparable to the process of diachronic change in that the properties associated with a given parameter are acquired in a piecemeal fashion. They further proposed that the CGH should be seen as an alternative framework for the study of SLA that relies mainly on the comparison between the L1A and the SLA processes. Zobl and Liceras have shown that four diachronic changes that occurred in an orderly manner in the history of English are acquired by Dutch learners of English in approximately the same order as the diachronic change occurred. The changes were: (a) OV to VO order as in *ate the strawberries versus the strawberries ate; (b) I final to I medial as in that *John the strawberries eaten has versus that John has eaten the strawberries; (c) loss of V2 phenomena as in *yesterday ate John the strawberries versus yesterday John ate the strawberries; and (d) loss of verb raising as in *John eats not the strawberries versus John doesn’t eat the strawberries. Since the status of these properties in modern Dutch grammar is the same as the one they had in Old English, Zobl and Liceras concluded that the comparison between SLA and diachronic change is worth exploring.

Perales and Liceras (2009) investigated the relationship between the evolution of object clitics from Old to Modern Spanish and the acquisition of Spanish clitics by English speakers.

The evolution of clitics in the history of Spanish has been analyzed as an instance of grammaticalization. According to Fontana (1993, 1994, 1997), from the 12th to the 16th century Spanish clitics underwent a reanalysis from maximal projections (XPs) to heads (X°). As maximal projections, Old Spanish clitics could occupy a postverbal position with inflected verbs, they could be separated...
from the verb by intervening categories such as adverbs or nouns (the so-called interpolation phenomenon) and were in complementary distribution with strong pronouns (clitic doubling was not possible). These three properties, which are not possible in Modern Spanish, were not lost abruptly but coexisted with the Modern Spanish grammatical options in the mind of the speakers for five centuries until the $X^c$ option replaced the $XP$ option.

The process of acquisition of Spanish clitic pronouns by English speakers implies going from a system that has full pronouns to one that has categorial clitics. English pronouns may be phonologically reduced (I love’im), but this does not have consequences for the syntax. Categorial clitics can only have the verb as their host. If these clitics are agreement markers (as is the case with Spanish), clitic doubling (the co-occurrence of the clitic before the inflected verb and the presence of the corresponding overt pronoun in its canonical position) is possible. Under a feature-based analysis, the process of acquiring Spanish clitics by English speakers implies changing the $[− \text{phonological}][+XP]$ features of English pronouns to the $[+\text{phonological}][−XP]$ features of Spanish pronouns. Based on the results of a cross-sectional study consisting of a grammaticality judgment task, Perales and Liceras (2009) concluded that English learners of Spanish accept clitic configurations that are not found in the target language but that are found in a previous stage of diachronic development. They also found that not all properties of clitics were equally problematic for the L2 learners. In fact, interpolation and verb-clitic order, the two properties related to the phonological status of clitics, were less problematic than the properties related to the syntactic status (clitic doubling). The authors concluded that in spite of the fact that the CGH is compatible with the L2 data, there are differences in the way competition is implemented in diachronic change and in L2 development.

**CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH**

Even though there are many unresolved issues surrounding the nature and the status of features, there are obvious advantages to using them as constructs to investigate language contact in general and SLA in particular, since they allow us to identify phenomena that had not been recognized in previous frameworks and also to formulate novel research questions. Specifically, we have suggested that features are useful tools to analyze the output of all language contact situations as instances of I-languages. Notwithstanding, as Liceras, Zobl, et al. (2008) suggested, there are a number of unresolved issues related to features that cognitive theory and syntactic theory have to address; among them, I would like to highlight the following:

1. Establishing what the inventory of features is and how they are to be defined. For instance, should we keep strength as a feature value, or should we add EPP-type features to define the operations triggered by features?
2. Determining what the relationship is between the intrinsic grammatical content of features and their role in triggering structure-building
operations such as the specifier of DP created by the presence of the D feature on tense in English.

(3) Determining how features are to be classified. Chomsky’s (1995) introduction of the distinction between interpretable features (required for semantic interpretation) and uninterpretable features (required for formal reasons) brought with it the problem of deciding whether a particular feature should be regarded as one or the other. Furthermore, since in recent work (Pesetsky & Torrego, 2007) the notion of *uninterpretable* has been separated from semantic-conceptual interpretability, will the next minimalist step be to admit nothing but interpretable features?

(4) Establishing what the possible relationship is between features. For instance, we need to determine whether there should be some structure or hierarchy within feature bundles (Travis, 2008) so that mood is higher (i.e., developmentally primary) than person and number, and tense is last, as suggested by Radford (2008).

To conclude, I point very briefly to two different ways of addressing the relationship between the principles and parameters model and the minimalist program and the so-called acquisition paradox, since these two ways are significant to the linguistic discussions surrounding the acquisition of L2 syntax.

With respect to the relationship between the principles and parameters model and the minimalist program, we have, on the one hand, Roberts and Roussou (2003) and Liceras (2009), who placed, without any rupture, the minimalist program within a parameterized view of language. Lardiere (2008, 2009), on the other hand, took a confrontational view toward parameter setting, a metaphor that she considered highly insufficient to account for language acquisition, specifically in relation to the feature selection mechanism that underlies parameter setting. She argued that the emphasis should be put on how features are assembled with regard to specific lexical items. The virtues and shortcomings of Lardiere’s proposal have been extensively discussed in the commentaries to Lardiere’s article included in *Second Language Research*, Volume 25, Number 2, 2009.

The acquisition paradox results from the deterministic view of the language acquisition process that characterizes the Chomskian model and emerges from the assumption that the child always sets the parameters as the adult generation did. If this were the case, languages would not change (Niyogi & Berwick, 1995). But the issue is not to set parameters correctly, as if we were dealing with prescriptive grammar, but to set parameters in accordance with triggers. Here, I suggest, is where the concept of E-language has an important role in acquisition, since it accommodates language contact and input variability in a way that leads the child to interpret triggers differently from his or her ancestors so that a different I-language may be created. While adult L2 learners may interpret input triggers differently from child L2 learners or L1 learners, they will nonetheless create an I-language and may also, provided a language community is created (the generation that creates a pidgin or the immigrant community where heritage speakers acquire their language), contribute to language change.
NOTES
1 In fact, for Pesetsky and Torrego (2001), the EPP feature is a property of a feature, or a “subfeature of a feature” (p. 359). However, as Travis (2008) pointed out, even though EPP is usually associated to other features to produce movement, it represents an improvement with respect to the \ [+/- strong] \ concept because it is independent and can be separated from the other features.
2 In the minimalist program (Chomsky, 1995; Marantz, 1995), the language system does not have a level of surface structure but a point called spell-out. At this point the generalize transformations of the computational system are no longer active, and the derivation splits into two different interface levels, the phonological (PF) interface and the interpretive (LF) interface. The interfaces are conceptualized as performance systems. If a structure does not meet the interface conditions of these two levels, the result is an ungrammatical sentence (it cannot be pronounced or provided a semantic interpretation). One important interface condition is the elimination of features prior to their visibility at any of the two interface levels. Thus, formal features—or morphological features as Chomsky calls them—play a role in the computational system of language, but play no role at the PF or LF interfaces.
3 According to Valdés (2000), a heritage speaker is a bilingual speaker who grew up in a household where a nonofficial language was spoken (i.e., the child of a Mexican family in the United States). It may also refer to an individual who speaks or understands a heritage language or who is a heritage language–English bilingual.

REFERENCES


SLA AND SYNTACTIC THEORY 267

(Eds.), *The role of formal features in second language acquisition* (pp. 378–403). New York: Erlbaum.


**AUTHOR NOTE**

This research was funded by the Social Sciences and Humanities Research Council of Canada (SSHRC #410–2004–2034).