Linguistic explanations of non-nativeness in second language acquisition and the critical period hypothesis

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ABSTRACT
What type of explanation for persistent non-nativeness in older second language learners is compatible with the claim that L2 mental grammars are derived from Universal Grammar? This article argues that non-linguistic explanations, such as interference in the acquisition process by general problem-solving abilities or affective factors, are less plausible than accounts which claim that a subpart of Universal Grammar itself is subject to a critical period. It is further suggested that debate between proponents of the linguistic accounts is likely to lead to progress in understanding how the language faculty is involved in second language acquisition.

1. INTRODUCTION
Two important questions to be addressed by any theory of adult second language acquisition (SLA) are the following:
(a) What is the nature of the linguistic knowledge that underlies the ability of adult L2 speakers to use the L2?
(b) Why do adult L2 speakers typically not develop knowledge that is fully like that of native speakers?

With regard to the first question, much empirical research of the past 30 years indicates that post-childhood L2 learners are constrained by the human biological endowment involved in first language acquisition, i.e. Universal Grammar (UG). Section 2 presents a brief overview of two types of evidence which support such a view. It will be assumed here that L2 mental grammars are indeed 'natural' grammars which grow unconsciously in L2 speakers as the result of the interaction between UG and samples of the L2.

For researchers who adopt the view that L2 grammars are UG-derived, the second question is particularly problematic. If UG is available in the acquisition process, and given that UG enables full success in first language acquisition, why should older L2 speakers not achieve full nativeness? There have been two types of response to this question. Firstly, to assume that non-nativeness is the result of non-linguistic factors which inhibit the operation of UG. Secondly to assume that a subpart (or subparts)
of UG do not operate in the same way in childhood and in adulthood, i.e. that there is a critical period for the efficient operation of some subpart of UG. This subpart closes down at some point in development, and after that point certain properties of the L2 cannot be `modelled' in the grammar in the same way. Observe that a claim that a subpart of UG becomes unavailable is not incompatible with the claim that UG in general constrains L2 grammar building.

The purpose of this article is to compare the plausibility of non-linguistic accounts of non-nativeness with the plausibility of linguistic accounts in the light of emerging evidence that non-nativeness for adult L2 speakers can be highly selective. It will be argued that only a linguistic-property-based theory of why L2 speakers do not acquire target nativeness can adequately explain some of the facts. Two competing linguistic accounts will be considered. It will be further argued that attempts to decide between them require the examination of ever finer linguistic detail, and that this will eventually lead to a proper understanding of the nature of the involvement of UG in SLA, and how it might differ from its involvement in first language acquisition.

The organisation of the rest of the article is as follows. Section 2 illustrates the kinds of observation which have led to the assumption that the L2 mental grammars of older learners are UG-derived. Section 3 describes a case where L2 speakers are persistently different from natives. Section 4 considers the plausibility of non-linguistic and linguistic accounts in the light of examples like those in section 3. Section 5 discusses why competition between different linguistic accounts of persistent difficulty leads to the investigation of ever more detailed properties of L2 speakers' grammars, and why this is a good thing for progress in the understanding of SLA.

2. TWO ARGUMENTS THAT ADULT L2 MENTAL GRAMMARS ARE UG-DERIVED
We now have many studies of L2 development which suggest that post-childhood L2 learners follow highly similar routes in acquiring phenomena like basic word order properties, verb and noun morphology, sentential negation, question formation, independently of L1, or context of acquisition. For a review of such work see Mitchell and Myles (1998), Hawkins (2001). Such common patterns across L2 speakers are an indication of `growth' in mental representations triggered by properties of input, rather than the 'learning' of properties (where typically one would expect to see patterns of development reflecting the order and frequency of presentation of those properties). This in itself suggests that older L2 learners are constrained by UG in the way they construct mental grammars. Additionally, some of this work shows that L2 grammatical knowledge is underdetermined by the
input. Put more simply, L2 speakers know more than they have encountered in their L1 or in the samples of the L2 they have been exposed to. I will illustrate from two recent representative studies (although there are many more examples of underdetermination of knowledge that could be cited).

Kanno (1997) investigated the second language acquisition of Japanese by English speakers. Japanese is a language that allows null arguments (null subjects and objects) when they are identifiable from context. It also has a set of overt pronouns. Following Saito and Hoji (1983), Kanno shows that while, for native speakers, null arguments can be freely identified either by referential DPs like Mr Tanaka or Quantifier DPs like everyone/who, overt pronouns cannot be bound by Quantifier DPs. To illustrate (examples from Kanno):

1a    Tanaka-san-wa [kare-ga sore-o mita to] itta
     Tanaka-Mr-Top he-Nom that-Acc saw that said
     ‘Mr Tanaka said that he saw that’

1b    Tanaka-san-wa [pro sore-o mita to] itta
     Tanaka-Mr-Top pro that-Acc saw that said
     ‘Mr Tanaka said that pro saw that’

2a    *Dare-ga [kare-ga sore-o mita to] itta no?
     Who-Nom he-Nom that-Acc saw that said Q?
     ‘Who said that he saw that?’

2b    Dare-ga [pro sore-o mita to] itta no?
     Who-Nom pro that-Acc saw that said Q?
     ‘Who said that pro saw that?’

Kanno claims that this follows from a principle of UG known as the Overt Pronoun Constraint (Montalbetti, 1984):

**OVERT PRONOUN CONSTRAINT**

In languages that permit null arguments, an overt pronominal must not have a quantified NP as antecedent.

Kanno then shows that a group of adult native speakers of American English (n=28) with just over 200 hours of classroom Japanese are sensitive to this constraint in an interpretation task which asks them to decide what the antecedent of null and overt pronouns in Japanese is. Table 1 compares their performance with that of a control group of native speakers:

| Table 1: Acceptance of quantifier and referential DPs as antecedents for null and overt subjects (Kanno, 1997) |  |  |  |
Despite only limited exposure to Japanese, the English informants barely accept quantifier DPs as antecedents for overt pronouns in Japanese. Since English does not allow null subjects with finite verbs in embedded clauses under any circumstances, and the English speakers in the study received no evidence either in the input or from the classroom materials they were using that overt pronouns cannot be bound by Quantifier DPs, this knowledge must come from the principle in question: the OPC.

Pérez-Leroux and Glass (1999) obtained a similar result in a study of L2 Spanish, a language which allows null subjects/overt pronouns, and which is also subject to the OPC:

3 Nadie dice que pro/el* ganará el premio
None says that pro/*he will win the prize

In an interpretation task, even elementary English-speaking learners of Spanish (n=39) distinguished referential from quantified antecedents, allowing overt pronouns with referential antecedents in 68% of cases, but only in 34% of cases with quantified antecedents.

Coupled with the extensive evidence for common patterns in the way that the linguistic knowledge of L2 speakers grows over time, evidence for underdetermination of knowledge suggests that UG is centrally involved in determining the way that L2 speakers construct unconscious mental grammars.

3. THE SELECTIVE NATURE OF NON-NATIVENESS IN POST-CHILDHOOD L2 GRAMMARS
At the same time that empirical research in SLA has provided evidence that L2 grammars are UG-derived, it has also shown that L2 speakers may fail to acquire some properties which are successfully acquired by native speakers. This is particularly striking where there appears to be abundant positive evidence for the property, and is in marked contrast to cases of underdetermination of knowledge, where L2 speakers know things which are not present in the input.
Lardiere (1998a, 1998b, 2000) provides such an example from a now well-known study of an L2 speaker of English with massive naturalistic exposure. This speaker has persistent difficulty marking simple past tense on verbs in intended past tense contexts, in the face of apparently clear positive evidence from English for this property. The speaker in question - Patty - is a native speaker of two Chinese languages: Mandarin and Hokkien. Her first immersion in English occurred at the age of 22; data were collected from recordings of her spontaneous conversation at 3 points in time: the first after 10 years of residence, the second/third after 181/2 years. Her immersion in English was near-total between the first and second/third samples.

This example is particularly interesting because Patty does not have difficulty with Case-marked pronouns in English (for example, always getting Nominative and Accusative Case right in examples like He call me last night, He make me uh, spending money). Chinese neither marks pronouns for Case, nor inflects verbs for tense. In using Case-marked pronouns Patty is perfect, but in marking simple past tense she fails to inflect verbs two-thirds of the time, as shown in table 2:

<table>
<thead>
<tr>
<th>Sample</th>
<th>Nominative*</th>
<th>Simple past</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (10 yrs in US)</td>
<td>49/49 (100%)</td>
<td>24/69</td>
</tr>
<tr>
<td>2 (181/2 yrs in US)</td>
<td>378/378 (100%)</td>
<td>191/548</td>
</tr>
<tr>
<td>3</td>
<td>76/76 (100%)</td>
<td>46/136</td>
</tr>
</tbody>
</table>

*Use of Accusative pronouns also 100% perfect

There is no reason to think that Patty has not had enough exposure to cases of past tense marking on verbs. The fact that she produces inflected forms one-third of the time suggests that she 'knows' in some sense what past tense marking means. Hence, despite clear positive evidence, she fails to use past tense marking consistently, unlike pronoun Case on which she is perfect.

Further evidence for the highly selective nature of this particular difficulty in L2 English for speakers with Chinese as an L1 emerges when performance in using past tense with regular verbs (like walked) is compared with performance on irregular verbs (like ran). It turns out that L1 Chinese speakers who are advanced speakers of English are generally more likely to produce inflected irregular past tense forms in spontaneous oral communication than inflected regular forms. Although Lardiere does not
present her data in such a way that this can be shown in the case of Patty, a study by Hawkins and Liszka (in progress) compared past tense marking in the spontaneous oral production of three groups of advanced-proficiency-matched speakers with the following L1s: Chinese, Japanese, German. Results are presented in table 3.

Table 3: Frequencies of inflected/uninflected past tense verbs by type: regular vs irregular

<table>
<thead>
<tr>
<th>L1</th>
<th>Inflected</th>
<th>Uninflected</th>
<th>Inflected</th>
<th>Uninflected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese (n=2)</td>
<td>64 (84%)</td>
<td>12 (16%)</td>
<td>25 (63%)</td>
<td>15 (38%)</td>
</tr>
<tr>
<td>Japanese (n=5)</td>
<td>252 (93%)</td>
<td>18 (7%)</td>
<td>137 (92%)</td>
<td>12 (8%)</td>
</tr>
<tr>
<td>German (n=5)</td>
<td>79 (95%)</td>
<td>4 (5%)</td>
<td>52 (96%)</td>
<td>2 (4%)</td>
</tr>
</tbody>
</table>

The very advanced Chinese speakers of English in this sample, both graduate students in the UK, are marking past tense verbs in English more than Patty. But they are less consistent where the regular past tense inflection is involved than irregular forms. This contrasts with the Japanese and German speakers of similar proficiency, who are consistent in marking both regular and irregular past tense. Chi-square tests show that there is a significant difference between groups both on frequency of inflection with regular verbs (\( \chi^2 = 30.49, df = 2, p < .01 \)) and with irregular verbs (\( \chi^2 = 8.13, df = 2, p < .05 \)). The difference appears to be located entirely in the Chinese speakers' performance.

What we find in this case, then, is that L1 speakers of Chinese - a language which does not mark pronouns for Case nor inflect verbs for tense - are apparently able to acquire the case marking of pronouns in L2 English in a fully successful way (as Lardiere shows in the case of Patty), but have persistent difficulty in realising English past tense inflected verb forms. This, however, affects regular verbs (those ending in -ed) more than irregular verbs. Moreover, as the data from Hawkins and Liszka show, this is a problem which appears to particularly affect L1 speakers of Chinese, since advanced-proficiency-matched speakers of L1 Japanese and L1 German do not display the same persistent difficulty. Assuming that L2 grammars are UG-derived, what possible explanation can be given for this kind of behaviour? In section 4 I consider two approaches which have been adopted: an approach which argues for non-linguistic factors inhibiting the operation of UG, and an approach which argues that UG itself has changed in some
way between childhood and adulthood. I will argue that only the latter approach is a plausible explanation for observations of the kind just made.

4. THE PLAUSIBILITY OF NON-LINGUISTIC AND LINGUISTIC ACCOUNTS OF NON-NATIVENESS IN L2 GRAMMARS

One approach to explaining why post-childhood L2 learners might on the one hand build UG-derived grammars, but on the other fail to achieve full native-like competence, is to claim that other components of mind interfere with the interaction between UG and samples of the L2 data. One interesting early account along these lines is offered by Felix (1985). Basing his account on Piaget's theory of general cognitive development, he argued that the human mind consists of 'independent (though interacting) cognitive subsystems' (1985: 51). Two of these are the 'language-specific cognitive system (LSC)' (or in other words the language faculty), and a 'general problem-solving cognitive system (PSC)' which is called into use for a variety of human problem solving tasks, for example solving crossword puzzles, or engaging in scientific enquiry.

Given a Piagetian view of development, where the cognitive resources needed for problem solving only mature around puberty (with the onset of what Piaget calls 'formal operations'), only the LSC is available in childhood for dealing with language acquisition. In language learners who have passed the age at which 'formal operations' come into play the LSC and the PSC compete. Where older learners develop knowledge of language systematically, as child language learners do, the LSC is involved; where they differ, or where they have persistent difficulty acquiring properties, the PSC is responsible:

'the adult's general inability to reach ultimate attainment in a second language can be explained by assuming that ... the PSC-system is transferred to handle a task-domain for which it is not designed' (1985: 69).

Consider how this would apply to the case of Patty described in section 3. The native-like Case-marking of pronouns must be the result of the operation of the language faculty, because pronouns are not marked for Case in Chinese, and because Patty is perfect in her knowledge. Past tense marking must be handled by the PSC because it is not perfect, and its lack of perfection is the result of being handled by a cognitive system which is not designed for the task.

Such an account is highly implausible, however, for two reasons. Firstly because it is not clear why the LSC (the language faculty) should be able to operate just in the representation of Case-marking but not in the representation of tense-marking. Secondly, because in contrast to the
Chinese speakers, Japanese speakers appear to be extremely successful in representing English past tense distinctions. It turns out that Japanese itself does mark a past/non-past tense distinction, but not inflectionally on the verb as in English. Rather, it has tense auxiliaries (Okuwaki, 2000). Japanese speakers have to establish that tense-marking is inflected in English, just as Chinese speakers do, but unlike Chinese speakers they are able to use the LSC to do so. Hence, Chinese speakers use the PSC to represent English tense, while Japanese speakers use the language faculty. It is not clear why this should be. To maintain Felix’s account one could claim that where the L1 provides relevant linguistic features for a property found in the L2, the LSC must operate, and this would then distinguish the Japanese from the Chinese speakers. But it still doesn’t explain why a Chinese speaker might be perfect on Case-marked pronouns, since pronouns in Chinese are not distinguished for Case.

A further alternative might be to suggest that for the Chinese speaker, the PSC operates in both Case-marking and tense-marking contexts, but for some reason it arrives at the right solution for Case-marking but not for tense-marking (perhaps because pronoun Case is easier to ‘problem solve’). But to maintain this line of reasoning would require a detailed theory of what the PSC consists of such that it could handle Case-marking but not tense-marking. Even if such a theory exists, it is not clear why the PSC should not also operate in the case of Japanese speakers. Although a theory along these lines is undoubtedly conceivable, one begins to wonder whether the requirement for an elaborate theory of cognition alongside a theory of UG is buying descriptive adequacy at the expense of explanation.

A similar non-linguistic approach to explaining persistent non-nativeness in L2 speakers can be found in the work of Krashen (1985). Krashen proposes that there is an ‘Affective Filter’ formed by lack of motivation, anxiety, lack of self-confidence, etc. ‘When it is up, the acquirer may understand what he hears and reads, but the input will not reach the language acquisition device’ (1985: 3).

This approach suggests that attainment of nativeness in an L2 is inhibited at the point where UG meets samples of the language. The Affective Filter has the power to stop UG ‘seeing’ properties of the data and constructing a grammar for those properties. It fares even worse than Felix’s ‘competition’ model in terms of the observations made in section 3. The Affective Filter by definition should apply across the board to L2 speakers. It appears to be unable to explain why Japanese speakers are more successful on past tense marking than Chinese speakers. It is also difficult to explain why Chinese speakers might be successful on Case-marking but not on past tense, and why within past tense, irregular verb forms are more affected by the Affective Filter than irregular verb forms. The notion of an Affective
Filter seems implausible as an explanation for selective persistent non-nativeness.

Let us turn now to an alternative approach: one that sees the problem as arising in some form in the language faculty itself. Current versions of UG which adopt a Chomskyan approach (as outlined for example in Chomsky, 1995) assume that UG consists of a number of modules: a lexicon, a computational device for assembling lexical entries into expressions (i.e. a syntax), an interpretive component called 'Logical Form (LF)', a morphological component which handles word formation, and a phonological component. Some properties of these modules are held to be universal and invariant across languages, as indeed are some of the modules themselves (specifically LF and the syntax). These are properties which are 'hard-wired' into the language faculty by genetic endowment and do not change over the life-span of the individual. Others allow some variation, and their appropriate values are set on the basis of local evidence from exposure to particular samples of language. For example, while a tense distinction between past and non-past might be an invariant distinction drawn by LF in all human languages, whether it is realised morphosyntactically in the form of a tense auxiliary (as in Japanese), as a verbal inflection (as in English), or is not realised morphosyntactically at all (as in Chinese) is something that can only be determined on the basis of contact between UG and samples of a particular language. Evidence from the language is required to determine the value.

Given this modular structure to UG, the following kind of claim can be made about possible areas of persistent difficulty for adult L2 speakers: persistent difficulty arises because the fixing of variable values in one of the modules is time-limited. Beyond a critical period, the module becomes unable to fix values categorically, and this leads to persistent difficulty for an L2 learner who learns an L2 beyond the critical period.

Lardiere's own account of the non-nativeness of Patty falls into this category. She assumes that in post-childhood SLA, not only do the syntax and LF function as they do in childhood (because they are invariant components of the language faculty), but also the lexicon, which does require experience to fix its values. The resources for assembling new entries are fully available, thus allowing, for example, Chinese speakers to assign the morphosyntactic features [±past] to the lexical entry for T(ense), even though T in Chinese does not bear such features. The problem, for L1 Chinese speakers of English, arises however in the way that the expressions constructed by the syntax are converted into phonologically realised strings of words. That is, there has been a change in the morphology module which maps syntactic expressions into phonological forms. The kind of view that Lardiere holds of the interaction between syntax and morphology has
recently been described by Embick and Noyer (2001). Simplifying, the output of the syntax produces strings in English like the following:

4 \[ [T + \text{past}] [V \text{WALK}] \]

The morphological component takes strings like (4) and converts them into strings like (5) by lowering T to V, following which a phonological 'vocabulary item' can be inserted:

5 \[ [V [V \text{WALK}] [T + \text{past}]] \leftrightarrow /\text{wo:kt}/ \]

Lardiere proposes that the problem for Patty with English (and by implication for post-childhood Chinese learners of English in general) resides in a difficulty that the morphological module has in reading the output from the syntax and inserting a feature-matched vocabulary item under the node in question. This 'mapping problem' is particularly likely to occur, she claims, where the morphological component has to assemble words across morphological borders, as in (4)-(5) (2000: 124).

Additionally, if the insertion of phonological forms into words formed across morphological borders involves complex phonology - for example, involves word-final consonant clusters like the -\text{kt}, -\text{kt}, -\text{mpst} of regular past tense forms like walked, asked, glimpsed - and the phonology of the L1 differs from that of the L2 (e.g. Chinese allows at most one consonant in word-final position), this may further affect successful mapping:

'We can further imagine that an essentially morphophonological mapping procedure would be especially vulnerable to "derailment" from a variety of post-syntactic or extra-syntactic factors, such as phonological transfer from the L1' (1998a: 21).

The success of Patty in marking Case on pronouns is because in the mapping from syntactic expressions to morphophonological forms, no morphological border is crossed (pronominals being assumed to be single terminal nodes) and the phonological form does not involve word final consonant clusters.

This kind of account of the facts of Patty's case is considerably more plausible than the non-linguistic accounts described above. Firstly, it requires no theory beyond UG and hence is simpler. Both Felix's 'competition' account and Krashen's 'Affective Filter' account assume not only UG, which is necessary to explain systematic development and underdetermination of knowledge in the case of adult L2 speakers, but additional components of mind to explain non-nativeness. Lardiere's UG-based account is to be preferred on grounds of parsimony. Secondly, it offers an explanation for the selectivity of non-nativeness as the effect of a subpart
of the language faculty failing to operate as it does in childhood, and makes
testable predictions about where we should expect to find persistent non-
nativeness in other L2 speakers and in other areas of the grammar. By
contrast, neither Felix's competition model, nor Krashen's Affective Filter
could give a convincingly testable account of why past tense marking should
be affected but not pronominal case-marking. Thirdly, by including
phonological effects as a factor in producing non-nativeness, Lardiere
perhaps has an account of why Chinese speakers might be more successful
in producing irregular past tense verbs than regular forms. Many irregular
verbs do not end in consonant clusters: ran, bought, came etc.

A UG-based approach to explaining selective non-nativeness in
post-childhood L2 speakers, then, appears to offer a more parsimonious and
descriptively adequate theory than the alternatives. However, descriptive
problems still remain. Lardiere's account should predict that all L2 speakers
will have problems mapping the syntactic representation of tense in English
onto inflected verb forms, because the claim is that there is a deficit in the
mapping procedure. Furthermore, speakers of languages which lack word-
final consonant clusters should have greater difficulty, because the mapping
problem is exacerbated by phonological differences between L1 and L2.
This means, for example, that L1 speakers of Japanese should have similar
problems with English past tense marking to Chinese speakers, with both
groups worse than the German speakers. However, the results of the study
by Hawkins and Liszka do not support these predictions. Advanced Japanese
and German speakers of English are equally successful in marking past
tense. This suggests that while Lardiere's account appears to be right to focus
on a subpart of UG as the source of differences between child L1 learners
and post-childhood L2 learners, the claimed subpart - operations in the
morphology component - may not be the right one. In the next section I
consider an alternative possibility, and argue that the ever finer linguistic
detail that researchers need to consider in trying to decide between
competing linguistic theories will lead to progress in our understanding of
the nature of SLA.

5. TESTING THE PREDICTIONS OF UG-BASED THEORIES OF NON-
nATIVENESS IN SLA
Lardiere's (1998a, 1998b, 2000) explanation for persistent non-nativeness in
advanced-proficiency adult L2 speakers, as we saw in section 4, claims that
there is a deficit in the morphological operations which map the terminal
nodes of syntactic expressions into morphological words which can then be
phonologically specified. The problem was claimed to arise specifically in
the case where mapping involves the assembly of words across
morphological borders, and where phonotactic constraints differ between the L1 and the L2.

One of the important features of a theory like this is that it makes testable predictions. We can then ask 'What kinds of evidence would really test whether the account is correct or not?'. The following are potential candidates:
(a) All L2 learners should be affected by a deficit in the morphological component.
(b) Other cases of word assembly where morphological borders are crossed should be affected.
(c) Other cases where consonant clusters are involved should be affected.

We have already seen that Lardiere's account has problems with (a). The study by Hawkins and Liszka comparing advanced-proficiency Chinese, Japanese and German speakers found that Japanese and German speakers perform alike, in native-like fashion, and significantly differently from the Chinese speakers in the same sample. Hawkins and Liszka also examined the performance of all three groups in inflecting past participles, and in producing monomorphemic words with final consonant clusters. The first case involves forms like (have) walk-ed, (was) invite-ed, (a) chip-ped (cup). Assuming that participles are derived from a syntactic output something like [\(\text{ASP} + \text{past}\) [\(\text{v WALK}\)], the morphological mapping problem should be identical to the case of past tense marking. And in the case of monomorphemes like most, just, aspect, it is expected that some evidence should be found for difficulty with the word-final consonant clusters for the Chinese and Japanese speakers (but not the German speakers), because in these languages at most one word-final consonant is permitted. Results are presented in table 4, where the numbers of regular past participles and monomorphemes with word-final consonant clusters involving -t/-d are compared with the production of regular simple past tense forms in the same sample of spontaneous speech.

Table 4: Frequencies of word-final -t/-d in regular participles, monomorphemes and regular simple past tense verbs.

<table>
<thead>
<tr>
<th>Participles (invited)</th>
<th>Monomorphemes (just)</th>
<th>Simple Past (walked)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-t/-d</td>
<td>-t/-d</td>
<td>-t/-d</td>
</tr>
<tr>
<td>Present</td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Chinese 10</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>(100%)</td>
<td>(0%)</td>
<td>(82%)</td>
</tr>
<tr>
<td>Japanese 23</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>(100%)</td>
<td>(0%)</td>
<td>(96%)</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>German</th>
<th>55</th>
<th>0</th>
<th>48</th>
<th>0</th>
<th>52</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(100%)</td>
<td>(0%)</td>
<td>(100%)</td>
<td>(0%)</td>
<td>(96%)</td>
<td>(4%)</td>
<td></td>
</tr>
</tbody>
</table>

While numbers of tokens in the sample are small, it is clear that there are important differences between the performance of the Chinese speakers on simple past tense, and on participles and monomorphemes, where they are considerably more successful.

This led Hawkins and Liszka to suggest that it is not the morphological component which is affected, but features of lexical items manipulated by the syntax. Specifically, [±past] is a morphological feature of T which is not universal. Languages can opt to select it, as English, German and Japanese do. Its presence in the terminal nodes of the syntax then gives rise to morphophonological spell-out: tense inflections in the case of English and German, and a tense auxiliary in the case of Japanese. Chinese, however, has not selected it. While the T category is present in Chinese (and universally), its value in terms of past/non-past is interpreted at LF on the basis of information from discourse or context (e.g. from temporal adverbials). The claim is then that variable features of functional categories like T, D, C, which are not valued through acquisition in childhood, cease to be available for modelling language subsequently. Chinese speakers simply do not have access to this morphosyntactic feature when they come to learn English.

How, then, do they produce some past forms, and particularly irregular past tense forms? The claim is that the morphological component of UG has not changed with maturation. Speakers are able to represent regular and irregular surface forms, but their use in appropriate syntactic environments (i.e. past tense contexts) is contingent on speakers remembering that past tense contexts require ‘special forms’. The ‘special forms’ are either stored in associative memory (irregular forms like ran), or produced by regular morphological rule (regular forms like walked). But whereas for native speakers, and L2 speakers whose L1s have these morphosyntactic features, the use of a past tense form is forced by the syntax (the [±past] feature of the terminal node has to be realised by a past tense verb form), in the case of Chinese speakers a past tense verb form is used if awareness that the context is a past one is sufficiently strong.

By contrast, the case of past participles is potentially different. Here we have an interpretable derivational feature [past] which derives a different word type from a verb: a participle or adjective. If the derivational process involved in creating participles uses different kinds of syntactic feature from the inflectional process involved in creating simple past tense forms, then the Hawkins and Liszka account allows for the possibility of differential success
in L2 acquisition. Similarly, the account also makes no predictions about phonotactic constraints. There is no reason why Chinese speakers should not be successful in assembling words with final consonant clusters, given this account.

This alternative, syntactic-feature-based account makes testable predictions, just as Lardiere’s account does, which may turn out not to be met by empirical evidence. Hence the account could be wrong. For example, it predicts that:

(i) All variable morphosyntactic features associated with functional categories like T, D, C which are not represented in the language(s) a person speaks during childhood should pose difficulty in adult SLA: e.g. number, gender, definiteness.

(ii) The nature of operations in the morphological component should be no different in L1 and L2 acquisition, because they are universal and invariant.

(iii) The phonological realisation of invariant universal morphosyntactic features should be unproblematic in older SLA, even if the realisation of those features is different in the L1 and the L2. For example, a standard assumption in UG is that Case is a universal feature of nominal projections: no such projection is licensed with an unchecked Case feature. Hence Case-marking should be unproblematic in SLA, as it appears to be in Patty’s case.

Competition between UG-based theories of persistent difficulty in post-childhood SLA, such as that between Lardiere’s account of past tense marking in Patty, and Hawkins and Liszka’s account of the same phenomenon, is likely to lead to the search for areas of linguistic behaviour which can potentially decide between them. This is a healthy development in the field. It requires that we look at L2 speaker behaviour in ever greater linguistic detail in the search for evidence to test predictions. By doing so, we uncover the rich and subtle properties of L2 speakers’ grammars and what speakers can and cannot acquire. At the same time, by attempting to resolve which component(s) of UG is/are involved in causing differences between child and adult language learners, we will come to understand more about the nature of the human language faculty itself.

6. CONCLUSION
I have suggested that while there is considerable evidence from empirical studies that the L2 mental grammars of post-childhood language learners are determined/constrained by Universal Grammar, there is also evidence for persistent non-nativeness on properties where L2 speakers appear to have access to frequent positive evidence for those properties, for example simple past tense marking in English. Such persistent difficulty appears to be selective and cannot be straightforwardly attributed to the L1 a person speaks. It was argued that non-linguistic accounts of such phenomena (such
as Felix's claim that general problem-solving abilities/Krashen's claim that affective factors interfere with the operation of the language faculty) are less plausible than accounts of changes occurring in a subpart of UG itself as the result of a critical period. Two such accounts were compared: that of Lardiere, who locates the change in the morphological component, and that of Hawkins and Liszka, who locate it in the representation of variable morphosyntactic features in functional categories. Both approaches make explicit predictions which are empirically testable. It was suggested that the search for evidence to test such predictions leads to the examination of ever finer linguistic detail, and that this is a healthy research strategy for the field, with the potential for generating greater understanding both of SLA and the acquisition of the human language faculty.

NOTE
1. Although some individual speakers who have learned an L2 beyond childhood do appear to achieve 'nativeness', most researchers agree that even with optimal exposure to the target language older L2 speakers typically do not achieve nativeness (see Birdsong, 1999). By contrast, the achievement of nativeness is typical of child L1 and L2 learners.

REFERENCES


