Variability in L2 Acquisition across L1 Backgrounds

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1. Introduction

For a number of decades now, a widely accepted belief of language acquisition researchers is the so called natural order hypothesis (Dulay, Burt, & Krashen, 1982; Ellis, 1994; Larsen-Freeman & Long, 1991). According to this hypothesis, certain grammatical morphemes emerge in a universal order in learners of English as a second language. Most of the data collection in this line of research was done in the 1970's against a backdrop of theory which espoused the notion of L1 transfer to L2 acquisition on the one hand and a universal grammar perspective on the other. Most dealt with oral language production (Bailey, Madden, & Krashen, 1974; Dulay & Burt, 1973; Dulay & Burt, 1974; Fathman, 1975; Mace-Matluck, 1979, but a few (Anderson, 1977; Brown, 1983; Krashen, Butler, Birnbaum, & Robertson ,1978; Larsen-Freeman, 1975) examined written data. There were a few studies that continued to be reported during the 1980's and 1990's (See, for example, Lightbown, Spada, & Wallace, 1980; Lightbown, 1983; O'Dowd, 1991; Pica, 1983). Both ESL and EFL learners of different ages and different learning contexts appeared to follow the proposed natural order. Thus, in spite of the fact that these natural order studies have been criticized on a number of theoretical and methodological grounds over decades, the findings have come to be generally accepted.

More recently Goldschneider and DeKeyser (2001) performed a rather exhaustive review of the extant research on the natural order of development of morphemes in English. Through a meta-analysis of a dozen of these studies, they attempted to determine factors which may be contributing to this order of development. In their study they actually reviewed 25 studies of both written and oral production in second and foreign language contexts and chose twelve of these for their analysis (based on specific standards for inclusion). Drawing from the literature on second language acquisition, they chose five variables which they felt would best predict the observed order of development. These included: frequency, perceptual salience, semantic complexity, morphophonological regularity, and syntactic category.. After operationalizing each of these variables and determining the appropriate values to assign to each morpheme, they performed a multiple regression analysis on the oral production data from the twelve studies using percent correct as the dependent variable. They were able to predict 71% of the variance using their model (R=.84; R^2=.71; p<.001), (p. 58).

Goldschneider and DeKeyser (2001) addressed the topic of native language and L1 transfer, but noted that they were unable to include this variable in their analysis because the authors of the studies considered did not report the scores by native language, making it impossible for them to include that variable. The tendency among early researchers to aggregate data across learners of different L1s was undoubtedly the result of the focus on discovering universal tendencies in acquisition and tacit acceptance of the notion proposed by Dulay, Burt, and Krashen (1982) that the effects of L1 on second language acquisition had been overemphasized by the behaviorists. While a few linguists continued to caution against dismissing L1 transfer as an important variable in the order of development of grammatical morphemes (Andersen, 1983; Hakuta, 1976) the universalist perspective continued to predominate in the order of acquisition literature. Meanwhile in other areas of second language acquisition including phonology, derivational morphology, syntax, the lexicon and discourse there continued to be a broad acceptance of cross-linguistic influence in second language acquisition (Odlin, 1989, 2002). It is curious that given general acceptance of L1 influence on L2 development in almost all areas of L2 acquisition, that so few would question the influence of L1 in the order of development of morphology.

Very recently Luk and Shirai (2009) published a review of studies which present evidence of the

important role of L1 in the order of L2 morpheme acquisition. They focused their analysis on studies dealing with four languages (Spanish, Korean, Chinese, and Japanese), but looked broadly at the issues involved with acquisition. They cited arguments that in the acquisition of features such as articles, plurals, and possessives, similarities between the L1 and L2 should produce a facilitating effect on the development of the feature in the L2, while differences should result in delayed acquisition. They analyzed the possessive -*s* in the four target languages and showed that the differences in the construction of possessives in Spanish and English are much greater than are those between English and the other three languages. At the same time they showed that the opposite is true of plurals and articles. They then posited that possessive were acquired later by Spanish speakers learning English. But for native speakers of the other three languages, acquisition of the possessive would occur earlier, contrary to the natural order literature. Likewise, they posited that for plurals and articles, the opposite would be true. Their analysis showed overwhelming support for their predictions regarding the effects of L1 on the acquisition of L2 morphemes. Thus they concluded that there needs to be a new effort to initiate empirical research to reexamine the effects of L1 on L2 acquisition in this area.

The primary purpose of the present study, which was concluded before the review by Luk and Shirai (2009) was published, is to examine just such effects. In this paper we use an approach to collecting data that has not been used in morpheme studies to date: elicited imitation.

2. Elicited Imitation

Elicited imitation (EI) has long been used in examining the development of oral language skills in various contexts. These include native language development (Ervin-Tripp, 1964; Keller-Cohen, 1981; Menyuk, 1963) abnormal language development (Berry, 1976; Lahey, Launer, & Schiff-Myers, 1983; Menyuk, 1964;) and second language development (Hamayan, Saegert, & Larudee, 1977; Naiman, 1974). Recently, researchers have become increasingly interested in using EI to examine oral language skills in second language learners (Chaudron, Prior, & Kozok, 2005; Erlam, 2006; Jessop, Suzuki, & Tomita, 2007; Vinther, 2002). For a fairly comprehensive review of this literature see Gallimore and Tharp (1981), Lust, Chien, and Flynn (1987), Bley-Vroman and Chaudron (1994), and Vinther (2002). Bley-Vroman and Chaudron (1994) observe, "We regard it as premature to view elicited imitation as a proven method for inferring learner competence, because a considerable amount of research needs to be conducted to understand how performance under imitation conditions compares with other methods and with learners' underlying knowledge" (p. 245). They further state, "The more you know of a foreign language, the better you can imitate the sentences of the language. Thus, EI is a reasonable measure of global proficiency" (p. 247).

Bley-Vroman and Chaudron (1994), outline the following process as to how EI relates to oral proficiency and language competence:

- The speech comprehension system: The subject hears the input and processes it, forming a representation.
- Representation: The resulting representation includes information at various levels.
- Memory: The representation must be kept in short-term memory.
- The speech production system: The subject formulates a sentence based on the accessed representation. (p. 247)

Due to the finite nature of working memory, maintaining a mental representation is dependent on the quantity of units being retained (Cowan, 2001; Miller, 1956). The structure of long term memory associated with these representations also affects working memory (Ericsson & Kintsch, 1995). Working memory is generally defined as 7 +/- 2 units, regardless of whether those units are syllables, words or digits.

As it relates to language learning, natural exposure to a language results in the acquisition of sequences of items called constructions (Clark, 2005; Ellis, 2005). These sequences can consist of phonemes, morphemes, words or even phrases. As these sequences enter into long term memory, they form close associations. Thus collocations and lexical phrases are formed along with grammatical

patterns. These larger units, or constructions, facilitate the processing of longer and more complex sequences. Language learners are able to reproduce short utterances, even in unfamiliar languages, by using their working memory capacity. As the length of EI utterances become greater, it becomes necessary to chunk information into successively larger units to create a mental representation to be retained in working memory until it is repeated. The associations of unit sequences formed in long term memory established during acquisition are believed to facilitate this chunking process (Ellis, 2005). As language learners becomes increasingly proficient their long term memory contains more of these constructions. Bley-Vroman and Chaudron (1994) state that "the connection between subjective length and learner proficiency and the connection between subjective length and memory capacity account for the correlation of imitation accuracy with measures of language proficiency" (p. 251).

2.1. EI item design and length

In 1994 Bley-Vroman and Chaudron (p. 252) made the following claims about sentence length:

A) "Because memory limitations are crucially involved, we expect accuracy when length is short."
B) "As length increases, accuracy will remain good until the limits of memory are approached. Then accuracy should fall quickly and remain."
C) "Around the limits of memory, there should be a narrow band of sensitivity, where accuracy might be affected by details of the syntactic structure."

In reviewing the literature on memory functions, they made a convincing argument for the primacy of sentence length over sentence complexity as the primary measure of L2 proficiency. However, as mentioned above, the choice of structures can make a difference in the ability to imitate within the "narrow band of sensitivity." Perkins, Brutten and Angelis (1986) and Hendrickson, Eckerson, Johnson, and McGhee (2009) give empirical support to the primacy of stimulus length in determining item difficulty.

Hudgins and Cullinan (1978) found that 40 graduate student native speakers of English had difficulty consistently imitating sentences longer than twenty syllables. After reviewing the literature on EI regarding both native speakers and second language learners, Vinther (2002) came to similar conclusions about sentence length. Bailey, Eisenstein, and Madden (1976), who studied the development of Wh-questions in adult L2 learners, as well as Munnich, Flynn, and Martohardjono (1994), who studied adult native Japanese speakers with advanced ESL proficiency, both used sentences of 15 syllables in length. However, Perkins et al. (1986) found that some adult ESL speakers could only repeat sentences of seven to eight syllables in length. Generally, the range of sentence length found in the literature for EI testing is between six and nineteen syllables.

3. Research Questions

The purpose of this study is to determine to what extent participants' L1 backgrounds affect the order of development of certain grammatical morphemes. Though EI has not been used in morpheme studies to this point, previous findings have indicated that EI is a relatively good measure of global proficiency and of implicit L2 knowledge (Graham, Lonsdale, Kennington, McGhee, & Johnson, 2008; Erlam 2006). The research questions to be examined are:

1) To what extent do acquisition patterns in data collected using EI reflect those of data collected using other methods: e.g. spontaneous speech, interviews, and pictures accompanied by questions?
2) Does L1 affect the order of acquisition of certain grammatical morphemes?

4. Method

4.1. Participants and Procedures

All participants were adult students in an intensive English program (IEP). Learners came from five different L1 background: Chinese, Korean, Japanese, Portuguese, or Spanish. Table 1 below shows the numbers of participants from each L1 background. The IEP differentiated between 5 different proficiency levels from beginner (1) to advanced (5).

The test was administered in a computer lab in which the participants sat at individual computer stations with high quality headphones and microphones. After logging on to the computers, they were presented with a screen inviting them to participate in the study and obtaining their informed consent. Following this orientation, audio and video instructions were presented describing the test, and explained that participants would hear a series of sentences to be repeated. Each sentence would be presented only once followed by an audio cue indicating when recording began. Participants were instructed to repeat the sentence as close to verbatim as possible. Participants were then shown a demonstration of an item with a correct response. They were then presented with a practice item to which they responded. If they had difficulty performing this task they were asked to raise their hand for assistance. If not, they proceeded with the test itself. Items were then presented to the participants in random order via the headphones and responses were recorded using the attached microphone. They then heard the item read by a male or female voice followed by a beep signaling participants to begin repeating the item. An indicator appeared on the screen illustrating the amount of time left for participants to repeat the sentence. The time allotted to repeat sentences varied between six seconds for the shorter sentences and 12 seconds for the longest sentences. Once recorded, the files were saved to a server for later analysis.

Table 1: Number of participants for each language

L1	Number of Participants
Chinese	89
Korean	196
Japanese	62
Portuguese	66
Spanish	347
Total	760

4.2. Instruments

The first instrument used in the study was a questionnaire designed to obtain information about students' age, gender, native language, and English proficiency level.

The EI test used in this study consisted of a series of sixty sentences, varying in length from six to twenty-five syllables, designed to examine learners' overall language proficiency. Previous work using the test has shown that outcomes from this instrument correlate between .65 and .74 with those of an official Oral Proficiency Interview (OPI) exam (Graham et. al., 2008; Lonsdale, Dewey, McGhee, Johnson, and Hendrickson, 2009). Because our instrument was not designed to specifically examine morpheme acquisition, there are several differences between the construction of this test and the recommendations made by Erlam (2006) and Jessop, Suzuki, and Tomita (2007). With regards to the administration of items, they recommend that procedures include: a) a pause and a comprehension task between the stimulus and the students' response to assure that the learner is focused on meaning and not on the grammar or on rote recall of the words; and b) a time limit on the students' responses so that there is not time for the participant to monitor the response. Our test did not include a pause or a comprehension task.

They suggested that sentence length be controlled so that it not be a significant variable in the difficulty of items. Our experience with EI items suggests that for novice learners even items of ten or

twelve syllables can be impossible for them to repeat. Previous research has shown a correlation of .65 between item difficulty and sentence length when testing the whole range of learner proficiencies between novice and superior, so our items ranged from 6 to 25 syllables in length (Hendrickson et al., 2009).

They recommend that target structures, that is, those that the designer is interested in testing, be placed in the middle of the sentence rather than at the beginning or at the end to avoid the serial order effect in the repetition task. Our utterances were not originally designed to test any particular structures, rather they included a rich variety of syntactic and morphological patterns and were chosen on the basis of their ability to discriminate between learners of different proficiency levels.

Finally, Erlam (2006) suggests that items be designed to include multiple examples of target structures and morphemes of interest in the test. Since the items on this test were not originally designed to target specific morphemes, it was not possible to assure that equal numbers of instances of the targeted morphemes would occur in the items. The actual distribution of features in our instrument is shown in Table 5.

Table 2: Item features and length

Item Length (in syllables)	Early			Late		
	Progressive	Articles	Plural	Possessive	3rd	Past
<6	-	-	-	-	1	1
7 - 9	3	11	9	-	2	4
10 - 12	4	10	5	-	1	1
13 - 15	3	6	1	-	-	1
16 - 18	1	2	-	-	-	1
>20	-	3	-	-	-	2
Total	11	32	15	0	4	10

4.3. Morpheme Selection

For this study we selected morphemes based on Goldschneider and DeKeyser's (2001) meta-analysis of a dozen different studies. In their meta-analysis, they were able to rank the six most common morphemes across the studies they included (based on strict guidelines for inclusion). Though there was not a total agreement for morphemes across individual studies, there was a general trend of early and late acquisition: progressives, plurals, and articles were acquired early; and regular past, possessive, and 3rd person singular were acquired late according to their data. For full details see Goldschneider and DeKeyser's Appendix A (p. 73).

Table 2 shows the numbers of items containing each of the target morphemes. It is important to note that this instrument was not specifically designed to test acquisition order of morphemes. Only four of the 60 items elicited the 3rd person singular present form and there were no items which elicited the possessive. This is unfortunate because previous studies have indicated that the possessive is a critical morpheme in showing differences between the L2 English of Spanish speakers and that of speakers of Chinese, Japanese, and Korean (Luk and Shirai, 2009). Even so, the existing data provide ample evidence for differences. Example sentences from our instrument showing each of the target morphemes are presented below:

I was go*ing* to run a mile but the phone rang. (progressive)
Do good children run from their parent*s*? (plural)
I'd like to build *a* sand castle by myself. (articles)
The boy hat*ed* working hard all day in the dusty field. (regular past)
That woman teach*es* math on Tuesdays and Thursdays. (3rd person singular)

Table 3: Target features contained in EI instrument

Progressive	11
Plural	15
Articles	32
Regular Past	10
3rd Person Singular	4
Possessive	0

4.4. Scoring

To score items for this study, recorded files from the server for the entire group of participants were placed in a database. Raters randomly accessed sentences one at a time from the database and judged the correctness of the target morphemes. The written form of the stimulus sentence, divided into syllables, was presented on a computer screen while the audio recording of the student's response was presented through earphones. The rater's job was to listen to the sentence and mark with a "1" or "0" depending on whether the correct form of the grammatical morpheme being investigated was supplied. If the participant's reply contained the target morpheme it was marked with a "1." If the morpheme was absent or unintelligible or if a different form was produced in its place by the participant, the rater was to mark it with a "0." Raters were trained to deal with cases of omissions, substitutions, mispronunciations, etc. A subset of the dataset was scored independently by two raters. The raw agreement by-syllable between raters was .91 and interrater reliability (Kohen's κ) was 0.82.

5. Results

Two types of analyses were performed on the data. The first was a measure of the raw percentages correct for each subject for each feature averaged across learners and levels (beginner to superior) for each L1 background. Using the scoring method illustrated in Section 4.4 we were able to determine average scores for all 760 participants as a group, and for each L1 group in each of the 5 proficiency levels. Table 3 below shows the average scores for each feature grouped by language and for the entire study group. Average scores grouped by L1 and level are shown in the Appendix.

Table 4: Average Scores by L1 and Overall

L1	Early			Late	
	Progressive	Articles	Plural	3rd	Past
Chinese	0.69	0.49	0.48	0.37	0.39
Japanese	0.63	0.36	0.34	0.43	0.39
Korean	0.60	0.38	0.33	0.30	0.37
Portuguese	0.63	0.63	0.61	0.45	0.43
Spanish	0.56	0.56	0.50	0.43	0.36
Overall	0.63	0.53	0.48	0.42	0.39

It is notable that the percentages correct for the five morphemes examined in this study follow a pattern similar to that reported in the acquisition literature. In the twelve studies reviewed by Goldschneider and DeKeyser (2001) all found that percentages correct for progressives, plurals, and articles were greater than those for regular past tense and 3rd person present tense. The percentages correct among the three early acquired morphemes fluctuated somewhat among themselves with articles sometimes showing higher percentages than plurals and vice versa, but the order between the two sets of morphemes was very consistent. Goldschneider and DeKeyser (2001) found that the

earlier acquired morphemes were the progressive, articles, and plural, and the later acquired morphemes were the 3rd person singular, past, and possessive. The studies varied somewhat in the specific order of acquisition, but the meta analysis showed a general pattern or acquisition. The high level of correspondence between the results of this study and that of previous studies using other oral elicitation procedures, speaks well to the usefulness of EI as a potential tool for doing second language acquisition research.

The highlighted cells in Table 3 show where specific language groups deviated from the normal order of acquisition (Goldschneider and DeKeyser, 2001). The morphemes in Table 3 are arranged in order from "early" acquired on the left to "late" acquired on the right. Those with higher scores on morphemes to the right when compared with those on the left are out of their natural order and are marked with gray shading. Notice that for the Japanese learners, the scores for 3rd person singular present and the past tense percentages are higher than those for articles and plural. This is the opposite of what the natural order would predict. But Luk and Shairi (2009) argue that articles and plurals would be unpredictably hard for Japanese and Korean learners because of the L1/L2 differences. For the Korean learners in our study, only the plurals and regular past tense were out of the natural order.

Since Chinese shares many of the same features as Japanese and Korean with regard to articles and plurals, one would predict that the Chinese learners would also have the same deviations from the natural order as did the Japanese. Such was not the case in our data. Also in looking at other studies in which Chinese L1 learners were studied, we found that the Chinese learners of English followed Krashen's natural order fairly closely. As we examined other studies of English morpheme acquisition of Chinese learners, we found them to be largely supportive of our findings. Both Dulay and Burt (1974) and Mace-Matluck (1979) found that plurals had lower percentages correct than progressives and couplas, but not lower percentages than regular past and 3rd person present. This would support the order of acquisition found in our study. The evidence for L1 transfer in the studies of Japanese (Hakuta 1976; Nuibe, 1986 and Izumi and Isahara, 2004) and Korean (Pak, 1987 and Shin and Milroy, 1999) seem to be stronger than that for Chinese.

The second analysis used statistical means to attempt to control for variables within our study. A mixed models logistic regression allowed us to calculate the probability of participants correctly reproducing the appropriate morphological feature. We chose a mixed models logistic regression instead of other statistical methods because it allowed us to compensate for incomplete tests in our data set. Our independent variables were L1 and the morphological feature contained in each item. Through this regression we were able to measure our dependent variable, the dichotomous item score. We also controlled for participants' language learning level and the sentence length for each item. The mixed models logistic regression also allowed us to control for the variation in number of items that contained the 5 morphological features used. The results of the regression provide an estimate that allowed us to calculate a probability for each feature and L1 background using a simple equation:

$$P = \frac{e^{estimate}}{1 + e^{estimate}}$$

This probability gives us the likelihood that each group will perform the designated feature correctly given the aggregate of individual responses. Table 4 contains the calculated probability for each L1 background in regard to each feature. The highlighted cells show deviation from the natural order of acquisition.

Table 5: Statistical results of mixed model logistic regression

L1	Early			Late	
	Progressive	Articles	Plural	Past	3rd
Chinese	0.70	0.53	0.43	0.41	0.32
Japanese	0.65	0.35	0.28	0.41	0.43
Korean	0.63	0.39	0.28	0.38	0.29
Portuguese	0.65	0.68	0.58	0.48	0.38
Spanish	0.60	0.61	0.47	0.37	0.38

Again, notice that for the Japanese group, the Articles and plurals have unpredictable low probabilities when compared with the past tense and the 3rd person present tense morphemes. For the Korean group, the plurals were reversed with Regular Past, but not with the 3rd person singular.

6. Discussion and Conclusions

In this study, we have set out to examine two questions:

> 1) To what extent do acquisition patterns in data collected using the Elicited Imitation procedure reflect those of data collected using other methods such as spontaneous speech, interviews, and pictures accompanied by questions?
> 2) Does L1 affect the order of acquisition of grammatical morphemes?

There is strong evidence that the data gathered through the use of EI reveals patterns of acquisition that are very similar to those of studies using other prominent methods of data collection. In spite of the fact that the items in this study were not originally designed to examine the issue of order of acquisition, the findings are amazingly parallel to those reported in previous studies. This is especially true given the fact that the data in the Goldschneider and DeKeyser (2001) studies and many of the other studies which they did not include in their meta-analysis, is dominated by data from speakers of Spanish. While this order was proposed in the literature as the universal order, as Luk and Shirai (2009) point out, it turns out to be more of an order reflecting the influence of Spanish as an L1.

The fact that the order found in this study is so similar to that in previous studies suggests that data collected using the EI procedure does indeed reflect the influence of the same interlanguage mechanisms which govern the spontaneous use of language in unplanned speech production as claimed by Ellis (2005, 2006), Erlam (2006), and Bley-Vroman and Chaudron (1994).

With regards to the second question, the results are mixed. Luk and Shirai (2009) show convincing evidence from an analysis of contrastive structures in English and the same three Asian languages examined in the present study. Namely, that the possessive morpheme should be easily acquired by speakers of these languages due to parallel structures in the L1, while plurals and articles should be more difficult to acquire for the opposite reason: the absence of articles and the different ways in which the concept of plural is expressed. Unfortunately, our data did not include any sentences using the 's possessive. Nevertheless, in the use of plurals, we found that the L1 Japanese and L1 Korean learners followed nearly the same pattern described by Luk and Shirai (2009). That is, plurals and articles were acquired later than third person singular and the regular past tense. These findings are contrary to the 'natural order' as described in the literature.

On the other hand, Spanish does have plurals and articles that function in a way similar to that of English and these morphemes should be relatively easy to acquire. The 's possessive should be more difficult because of the distinct way in which the possessive is expressed in that language. The data in our study, as well as that in the studies reviewed by Goldschneider and DeKeyser (2001), follow the order of acquisition predicted by a contrastive analysis of Spanish and English. Likewise the Portuguese data in our study follow the order predicted for Spanish. This would also support the findings of Luk and Shirai (2009) since Portuguese, like Spanish, has structures similar to those of English in the area of plurals and articles.

The problem in our data is with the Chinese language. According to Luk and Shairai (2009), Chinese should follow a similar order to that of Japanese and Korean. However, the Chinese data paralleled that of Spanish and Portuguese rather than that of Japanese or Korean. We have no explanation for this deviation from the expected results.

Using more spontaneous data than ours, Izumi and her colleagues (2005) conducted an analysis of a corpus of oral interviews similar to the OPI with over 1,300 Japanese learners of English as a second language, and found that articles and the plural s are acquired very late relative to the other morphemes addressed by in the studies cited previously. The fact that similar results are found in both carefully controlled elicited imitation and more spontaneous speech, where focus is mostly on meaning rather than form, gives even greater cause to believe that acquisition order can be different, depending on L1 background.

Our research, much as that of Luk and Shirai, indicates the importance of further exploring L1 influence on acquisition order. We also recommend that additional cross-sectional and longitudinal studies be conducted in order to further clarify the role of L1 transfer. Our use of elicited imitation is

one possible approach. Corpus-based research such as the relatively large-scale study by Izumi and her colleagues (Izumi, Ucimoto, and Isahara (2005) can also be very informative.

Appendix

Table 6: Scoring results for Chinese by proficiency level

Level	Progressive	Articles	Plural	3rd	Past
1(low)	0.57	0.25	0.35	0.19	0.25
2	0.64	0.48	0.42	0.33	0.36
3	0.69	0.49	0.50	0.38	0.38
4	0.72	0.60	0.51	0.33	0.44
5(high)	0.83	0.66	0.62	0.61	0.52
Avg.	0.69	0.49	0.48	0.37	0.39

Table 7: Scoring results for Japanese by proficiency level

Level	Progressive	Articles	Plural	3rd	Past
1(low)	0.52	0.27	0.22	0.33	0.27
2	0.53	0.25	0.24	0.25	0.33
3	0.64	0.40	0.40	0.50	0.37
4	0.71	0.34	0.34	0.47	0.42
5(high)	0.75	0.54	0.52	0.59	0.54
Avg.	0.63	0.36	0.34	0.43	0.39

Table 8: Scoring results for Korean by proficiency level

Level	Progressive	Articles	Plural	3rd	Past
1(low)	0.43	0.25	0.22	0.18	0.30
2	0.52	0.35	0.25	0.25	0.33
3	0.64	0.38	0.33	0.32	0.34
4	0.69	0.48	0.39	0.39	0.42
5(high)	0.70	0.46	0.44	0.37	0.47
Avg.	0.60	0.38	0.33	0.30	0.37

Table 9: Scoring results for Portuguese by proficiency level

Level	Progressive	Articles	Plural	3rd	Past
1(low)	0.50	0.48	0.45	0.33	0.29
2	0.40	0.45	0.38	0.24	0.35
3	0.62	0.65	0.67	0.49	0.44
4	0.74	0.76	0.73	0.52	0.57
5(high)	0.89	0.84	0.80	0.70	0.49
Avg.	0.63	0.63	0.61	0.45	0.43

Table 10: Scoring results for Spanish by proficiency level

Level	Progressive	Articles	Plural	3rd	Past
1(low)	0.31	0.30	0.27	0.19	0.21
2	0.51	0.50	0.45	0.36	0.32
3	0.55	0.54	0.49	0.36	0.34
4	0.69	0.69	0.60	0.53	0.43
5(high)	0.75	0.77	0.70	0.69	0.50
Avg.	0.56	0.56	0.50	0.43	0.36

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