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Effect of home background on advanced heritage language learning

Abstract: Using a detection test and an essay writing task, this study investigates the effect of home background on Chinese heritage language (CHL) learning and attainment at the advanced level. By examining the participants' use of target morphological marker *le* and discourse features, the study shows that, compared with their non-HL counterparts, advanced college CHL learners used the morphological marker *le* more frequently and more appropriately, and older CHL arrivals performed better than younger arrivals. Results of the essay writing task show that, compared with their non-HL counterparts, the older CHL arrivals did significantly better, while the younger arrivals did marginally better. The data support previous findings that early exposure to a language has undeniable positive effect on subsequent learning and that immigrant HL learners' age of arrival is an important indicator of attainment of competence at the advanced level.

Keywords: home background, discourse device, topic chain, zero pronouns, Chinese heritage-language students, non-heritage-language students, birth place, arrival age, language exposure

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1 Introduction

In the era of globalization, the United States is experiencing an urgent need for advanced proficiency in languages other than English, especially in critical languages such as Chinese. To meet this shortage, heritage languages (HLs) are being tapped and preserved as the critical resources (Brecht and Ingold 2002). The traditional attitudes toward HL learning are being changed, and the levels of support from educational and non-educational sectors are unprecedented in the U.S. Accordingly a large number of HL learners are coming to the foreign language classroom to learn their home language, plus many more students enrolling in the community language schools. Take Chinese learning as an example. There were 59,860 students of Chinese as a foreign language (CFL) enrolled in the

American public school system in 2007–2008 (ACTFL report 2010: 8), out of which half were estimated with HL background. Meanwhile, there are 200,000 students enrolled in the community Chinese language schools at the present time, covering all the major and medium metropolitan areas across the country. In the U.S. where language acquisition theories have mainly involved either teaching English to non-English speakers or teaching non-English languages to English speakers, HL learning/acquisition is a new territory. Unlike second language acquisition (L2A and thereafter), which has a much longer history of research and theoretical development, research on HL is in its infancy (Lynch 2003). It has yet produced a coherent theory to direct research, explain phenomena, and make predictions. Instead, HL researchers draw on concepts and methods from "outside" disciplines such as first language acquisition (L1A and thereafter), L2A, linguistics, bilingualism, sociolinguistics, discourse analysis, conversation analysis, language socialization, and so on (He and Xiao 2008).

Nevertheless, preliminary HL research findings are intriguing and promising, which provide evidence to show that learners typically acquire their HL at a young age, lose it after entering mainstream schools (Wong-Fillmore 1991), and re-learn it as a foreign language after entering colleges or universities. In mainstream schools, learners experience "an abrupt shift" from their HL to the dominant language (Bougie et al. 2003: 349), and in order to gain acceptance they typically drop their home languages and make English their primary language (Pease-Alvarez et al. 1991, Li 2003). As a result, they arrive in the foreign language classrooms as neither L1 speakers or L2 speakers of their HL (Lynch 2003).

Such information reveals a distinct HL trajectory which differs from either L1A or L2A and involves various social and cultural factors in the developmental process. To better understand HL learning/acquisition, it is essential to examine the unique sociocultural context in which HL learning/acquisition takes place. Equally important is to chart the developmental path from the initial HL state to adult attainment of competence. So far, the information we have is fragmented and merely suggestive. Although we know some of the HL learning issues and challenges, we do not know much about how HL is learned, processed, advanced, attained, or lost/shifted. Questions await answers such as: What are the characteristics of HL learner language? What sociocultural factors are associated with the HL learner? How does the learner's home background foster his/her HL development and attainment? To begin understanding the inquiry and answering these questions, this study seeks information and evidence from Chinese as a heritage language (CHL), with data collected from advanced college students of Chinese in a major American university, which include cohorts with varied home backgrounds and age of arrivals.

1.1 Characteristics of heritage language learner and learner language

Heritage language has been assumed with a variety of terms and definitions, depending on the context it is situated in or the perspective it is viewed from. It is called home language in bilingual education, non-English language in the English-speaking mainstream society, world/modern language in foreign language education, ancestral/ethnic language in immigrant/indigenous communities, and heritage language in relation to one's family heritage. In the educational setting, HL is defined by learner's proficiency, such as: A heritage learner is a student who is raised in a home where a non-English language is spoken, who speaks or at least understands the language, and who is to some degree bilingual in that language and in English (Valdés 2000). To reflect their language change, HL speakers are also defined as "people raised in a home where one language is spoken who subsequently switch to another dominant language (Polinsky and Kagan 2007: 368)." From varied standpoints, these definitions capture the characteristics of HLs one way or another.

By their origin and birthplace, HL speakers are traditionally classified in three major groups: first-generation, second generation, and third generation (Fishman and Hofman 1966: 35). The first generation speakers are foreign born, the second generation are native born of the foreign or mixed parentage, and the third generation are native born of the native parentage. By their arrival age and parents/grandparents' birthplace, recent studies further divide each of the "three generations" into two cohorts: 1.0 and 1.5 for the first generation, 2.0 and 2.5 for the second generation, and 3.0 and 3.5 for the third generation (Rumbaut 2009: 47). In Rumbaut's scheme, the 1.0 generation includes newcomers arriving at age of 13 and older, and those arriving younger belong to 1.5 generation. The 2nd generation includes those who have 2 foreign-born parents, and those with one foreign-born parent belong to 2.5 generation. And the 3rd generation includes those who have 3–4 foreign-born grandparents, and those with 1–2 foreign-born grandparents belong to 3.5 generation. Furthermore, by their initial HL proficiencies, Friedman and Kagan (2008) divide the first-generation HL speakers into three sub-groups: (1) those who had high school education and above in the home country, (2) those who had 5–7 years of education in the home country, and (3) those who arrived at a young age or were born in the United States. From different perspectives, these classifications take into consideration the individual HL learner's age of arrival and prior proficiencies.

Moreover, the HL speakers in foreign language classrooms are reported to have various advantages over their non-HL counterparts: They are best at listening, followed by speaking, reading and writing, and even the low-proficiency HL

learners have native-like pronunciation and sound lexical, morphological, and grammatical knowledge (Polinsky and Kagan 2007). Similar results were found in advanced HL learners. Using a combination of written test, guided narrative, and "free" conversation, Kanno, et al. (2008) examined an advanced (by ACTFL rating) Japanese class (N = 15) in an American university mixed with both HL and non-HL students and found that the Japanese HL learners in general did better than their non-HL counterparts, especially in some subtle linguistic features such as connectives/functional expressions. Data from CHL studies further demonstrate a constellation of linguistic complexities in HL learners' language skills, literacy, grammar, and discourse development (see detailed discussion below).

1.2 Chinese heritage language learners' sociocultural context

Despite the fact that the Chinese-speaking group is representing the second largest population in the U.S., only after Spanish, the Chinese immigration has a shorter history in the U.S. than most of the European ancestry groups. Data show that the Chinese immigrants did not build significant momentum until 1979, when U.S.-China relations were normalized and China opened its door to the international community as a direct result of dramatic economic reforms. The 2000 U.S. Census indicated that 70.8% of the Chinese population was foreign-born, of which 75.6% arrived after 1980. This suggests that the majority of the contemporary Chinese immigrants in the U.S. are either first- or 1.5-generation arrivals, who have fully or partially acquired Chinese as their native language. However, to achieve socioeconomic mobility in their host country they must make English learning their top priority in order to survive and succeed. For those who do not have prior English skills from their homeland, this becomes a daunting task and cause of much anxiety and fear, which hence renders Chinese parents an ambivalent attitude towards their children's HL maintenance. On the one hand, they desire their children to maintain their HL heritage and language and to be able to talk to their family members; on the other, they find it more important for their children to acquire strong English proficiency so as to excel in school and in their future adult lives. As a result, home resources and literacy activities for English are abundant, yet those for Chinese are minimal (Xu 1999, Li 2006, Man 2006, Xiao 2008a). In a study that examine kindergartners' home English and Chinese literacy experiences through home visits and interviews (N = 6), Xu (1999) found a remarkable disparity in literacy materials and activities between English and Chinese, with the former being abundant and the latter minimal. Parents engaged their children in extensive English literacy activities, but little

attention was paid to Chinese. To grasp every opportunity for their children to learn English, parents (and sometimes grandparents) demonstrated an interest in learning English by reading books to or being read to by their children. Although they agreed that their HL was important, the parents believed that their children must have good English to go to college and have college degrees to obtain decent jobs. In a similar study (N = 127) with surveys and interviews, Xiao (2008a) studied the correlation between home literacy environment and HL attainment among university CHL learners at three academic levels – beginning, intermediate, and advanced. The results revealed that, compared with the mainstream dominant language, the CHL home literacy environment was bleak: HL reading materials and literacy activities were, in most cases, inadequate for its stimulation or attainment.

Drawing on data from two ethnographic studies, Li (2006) demonstrated that the young CHL arrival's prior Chinese proficiency was not nurtured in the mainstream education system but was used by parents as means to facilitate English learning, i.e., translating English words to Chinese. However, once the children's English proficiency was considered to be improved, Chinese learning was called off immediately because the parents were concerned that their children's Chinese proficiency might hinder their English language development. In another study which examined Chinese learners' HL use (N = 115), Man (2006) found that learners' HL use at home was largely limited to oral interactions for home activities or family bonding, with minimal involvement in reading and writing. Specifically, the major context of HL use was at home (73.4% of the time), and the primary interlocutors were grandparents (93.3%), with HL contact in school or outside home being rare.

These studies show that Chinese immigrant homes provide an HL environment for rudimentary oral communication but little for literacy development, which would inevitably lead to language shift as reported by previous studies (Fishman 1991, 2001, Alba et al. 2002). However, as a fast-growing ethnic community, the Chinese immigrant population contains some counteracting forces against the shift. One of them is that most of the contemporary Chinese immigrants have extended families on both sides of the Pacific Ocean, which keeps their communications alive and their family members traveling back and forth, thus, building a socially connected migrant network spanning national boundaries (Liu 2002: 15). The other is the long history of Chinese ethnic congregation. Since the pioneer Chinese immigrants landed in the West in the mid-19th century, California and New York have been the hubs of Chinese immigration. There one finds the largest Chinatowns – both longstanding communities and new ones. Such demographic concentrations give Chinese immigrants the opportunity to use their HL and incentives to maintain it. Data show that, among all third-

generation Chinese, residing in a central city retards the shift to only English (Alba et al. 2002: 478).

To sum up, situated in an immigrant context, the Chinese home background fosters the HL through home interactions but shifts its development to the dominant language due to the weak HL environment. However, the socially-connected migrant networks in the Chinese-speaking community and the long-standing ethnic congregations serve as counteracting forces against the language shift. Thus, it is intriguing to explore how CHL is developed and attained among such conflicting forces.

1.3 Characteristics of Chinese heritage learner language

Recent CHL research findings show that CHL learner language is a "discontinued" native linguistic system, which has a head start in the learner's L1 but evolves along a path different from either L1A or L2A (Xiao 2008b). Through the developmental process, the learner's L1 lives a short life and transforms into an additional rather than a native linguistic system, marked by incomplete grammatical knowledge and skewed language skills. Unlike L1A, which achieves uniform success for adult attainment (Bley-Vroman 1990), CHL learner language shows high variability (Hendryx 2008), and learners' proficiency and grammatical knowledge deteriorate and disappear over time (Jia 2008, Jia and Bayley 2008). Moreover, unlike L2A, in which the learner starts from zero, the CHL learner starts with some native-like grammar intuition (Ming and Tao 2008) or morphological awareness (Koda et al. 2008).

Through years of classroom observations, interviews, and classroom surveys, Hendryx (2008) found a complex CHL learner profile, ranging from having very little command of Chinese with only a few rudimentary words or phrases to possessing a solid command of speaking, listening, reading, and writing skills. In between, some have a smattering of speaking and listening skills, and others are fluent or nearly fluent in a dialect of Chinese. In a study that investigate the HL maintenance and loss among recent Chinese immigrants (n = 85) in New York City, Jia (2008) found that with an increasing exposure to English and a steady growth of English skills, HL skills continuously declined over the years. Furthermore, CHL reading and writing skills experienced greater attrition than speaking skills. Using multiple tasks such as story retelling, multiple cloze test, and picture description (N = 36), Jia and Bayley (2008) found that the use of the Chinese morphological marker *-le* (see detailed discussion below) by the participants declined as their length of residence in the United States increased.

Nevertheless, another line of research that compared CHL learners with their non-HL counterparts found that CHL learners had considerable advantages (Ming and Tao 2008, Xiao 2004, 2006 among others). In their corpus-based study (N = 128), Ming and Tao (2008) also looked into CHL learners' use of the target morphological marker *-le* from written data collected from in-class compositions. They found that the participants systematically showed advantages over their non-heritage counterparts in the deployment of *-le* and that beginners performed in a way similar to the advanced learners. They suggested that the beginning CHL learners' use of *-le* was well formed by its regular use in verbal interactions with their Chinese-speaking family members at home, regardless of the instructional level. Similarly, by examining college beginning students' performance in their semester-long achievement tests, an SAT II and a writing task (N = 36), Xiao (2004) found that CHL learners did significantly better than their non-HL counterparts in listening, speaking, grammar tests, and mid-term and final written exams but not in vocabulary quizzes, character writing, or reading. In a follow-up study, Xiao (2006) examined CHL learners' target syntactic development (CHL = 94, non-HL = 54) at three instructional levels (beginning, intermediate, and advanced) in two American universities. Using a 25-item grammaticality judgment test and a 6-item English-to-Chinese translation, Xiao found that CHL learners had a significantly higher group average than their non-HL counterparts in the grammaticality judgment test and also produced more acceptable sentences in the translation test across the instructional levels. However, CHL learners did not show advantages over their non-HL counterparts in the more complex discourse-oriented constructions in the translation test. In summary, data from recent CHL studies indicate that the HL learner language starts at home but drifts away to evolve into an incomplete linguistic system that has advantages over its non-HL counterpart in some areas but not in others. Moreover, contrary to the predictions of L1A and SLA theories, CHL learners' oral skills do not seem to meaningfully contribute to their literacy development.

2 The present study

Compared to studies of L1A and SLA, studies of CHL learning are just beginning, and investigations into adult CHL attainment are minimal. In an attempt to fill this gap, this study investigates the advanced CHL learning in the use of Chinese morphological marker *le* and discourse features. It seeks to answer the following questions:

1. Does home background affect advanced CHL learning in the use of the target morphological marker *le*?

2. Does home background affect advanced CHL learning in the use of target discourse features?
3. How does learners' age of arrival factor in the attainment of competence at the advanced level?

2.1 Participants

Twenty-one students of Chinese in a major American university participated in the study; all had taken the same advanced Chinese content-based course from the researcher separately in two consecutive semesters (N = 10, N = 11 respectively). For data analysis, the participants are divided into four groups, based on their home language background and age of arrival in the U.S. Such grouping is motivated by previous HL studies which classify HL learners by age of arrival and initial proficiencies (Friedman and Kagan 2008, Rumbaut 2009).

1. Native speaker (NS) group (N = 5, 14 years old or more at arrival)
2. Heritage Group II (N = 5, 9–12 years old at arrival)
3. Heritage Group I (N = 6, born in the U.S. or under 6 years old at arrival)
4. Non-Heritage group (N = 5, Chinese majors or M.A. students who had studied Chinese in China or Taiwan for 6 months to 1 year)

While the non-HL participants were all English speakers who had no Chinese home background, the HL groups all had a Chinese home background and some of them had grade school experience in their homeland. By the educational system in their homeland, e.g., Mainland China, children in general start grade school at the age of 7, with which as the indicator of initial proficiencies, the HL groups were further divided into two subgroups, HL I and HL II, for data analysis. While the HL I group (U.S.-born or under 6 years old at arrival) did not have the formal grade school education in their homeland, the HL II group (9–12 years old at arrival) presumably had 2–5 years of such education, where Mandarin Chinese is the instructional medium and major subject matter of the school curriculum. However, upon their arrival, there is a slim chance for these children to continue their Chinese learning in the American school system. Abundant literature (see Introduction) shows that there is a sharp disconnection between home and school in terms of HL learning in the U.S. given the fact that foreign languages, especially Eastern Asian languages such as Chinese, are not offered or closed down even if they were offered in public schools due to the English-only mainstreaming process (Shin 2006). Data also show that the majority of the CHL learners have 2–3 hours of Chinese learning in the weekend Chinese community schools but typically drop out after their grade school starts (Xiao 2008a). By this

account, the two HL groups in this study are expected to have different exposure in the Chinese language school: While the HL-I group typically have, the HL-II group may not.

Furthermore, some of the HL learners also had exposure to a Chinese dialect other than Mandarin, but they could all speak Mandarin in the classroom, though with some non-standard Mandarin pronunciation and tones. One reason for this is that Mandarin has been an official language in China, Taiwan and, in recent years, Hong Kong. HL learners who went to kindergarten or grade school in these areas prior to their arrival all learned Mandarin. Their parents, who were mostly in their 40s and 50s, were able to speak Mandarin in addition to their own local dialects. Four of the HL participants could speak Cantonese because it was the only language their grandparents could speak. Nevertheless, they could speak Mandarin to their parents and younger-generation family members, but still demonstrate Cantonese accent and usage in the classroom.

2.2 Data collection

Data were collected in two consecutive academic semesters with two instruments: a detection test (see appendix) and an essay writing task. The detection test consisted of 50 blanks in sentences or paragraphs. It was administered in 15 minutes of class time, during which the participants were instructed to fill the blanks with the Chinese morphological marker *le* wherever appropriate. The writing task was included in the participants' final exam as one of the testing components. Participants were instructed to write an essay in 250–300 Chinese characters on a given topic, such as "describing new developments in China's economy, sports, or film-making in the past decade." Such topics created a linguistic context for the use of target morphological marker *le* and the target discourse features. The essay samples were first analyzed for the use *le* and then for the use of discourse features.

3 Data analysis and findings

To answer the research questions, the data analysis and findings are to be reported in two separate sections[1]: Section I (i.e., section 3.1) focuses on the use of the

1 Section I of the study was presented at ACTFL, San Antonio, TX, Nov. 6–18, 2007, entitled "Early exposure to home language on advanced learning," and Section II was presented at the First International Symposium of Chinese Applied Linguistics, at the University of Iowa, Iowa City, April 11–12, 2008, entitled "Effect of home background on L2 Chinese discourse at the advanced level." Both presentations received comments from peers, to whom I am grateful.

target morphological marker *le* in the detection test and the essay writing task. Section II (i.e., section 3.2) reports the use of target discourse features in the essay writing task.

3.1 The use of morphological marker *le*

This section will briefly introduce the linguistic features and constraints of the Chinese morphological marker *le*, review previous findings of *le* in L2 context, and report the data computation and results of the use of *le* in this study.

Linguistic features of the Chinese morphological marker le. In Chinese, *le* is one of the very few Chinese morphological markers and the second most frequently-used morpheme/word (*Xiaodai Hanyu Pinglu Cidian, Contemporary Chinese Frequency Dictionary* 1986). Linguistically, it is a homophonic form that has two sets of distinctive meanings and two separate positions in sentences, verb-final (*-le*) and sentence-final (*le*), and is subject to various constraints on its use (see detailed discussion below).

A. The verb-final *le* (conventionally coded as *-le*) is a perfective aspectual suffix which primarily indicates the completion of an event, either in the past or in the future (Sun 2006). e.g.,

(1) *Wǒ zuōtiān xià-le kè jiù huí jiā.* (Sun 2006: 65)
I yesterday finish-PF class then return home
'Yesterday I went home after class.'

(2) *Wǒ míngtiān xià-le kè jiù huí jiā.* (Sun 2006: 65)
I tomorrow finish-PF class then return home
'Tomorrow I will go home after class.'

B. The sentence-final *le* (conventionally coded as *le*) is a particle which primarily indicates the start of a new situation (Sun 2006). e.g.,

(3) *xià yǔ le.* (It was not raining, but now it is.)
down rain PT
'It is raining.'

(4) *wǒ bù zài zhè-ge xuéxiào gōngzuò le.* (I worked in this school, but
I not in this-MW school work PT not any more.)
'I am not working in this school any more.'

C. Syntactic constraints of *le*: In sentences and discourse, the use of *le* can be obligatory and optional, depending on the linguistic contexts. In obligatory contexts, *le* is required to be either (obligatorily) present or (obligatorily) omitted, and in optional contexts it can be present or omitted without affecting the grammaticality of the sentence. Sentences (1–4) above illustrate the obligatory use of both verb-final *-le* and sentence-final *le*. One additional constraint on the use of *le* is that the verb-final *-le* must be omitted in sentences with frequency adverbials such as chángcháng (often) and hěnshǎo (seldom), or with psychological verbs such as xīwàng (to hope, to wish), dǎsuàn (to plan), or xǐhuān (to like). Moreover, when the sentence indicates a series of non-peak events, the use of *-le* is optional, as illustrated below:

(5) *Kànjiàn háizi-men shuì le tā dǎkāi(-le) mén zǒu(-le) jìnqù*
See children-PL sleep PT he open(-PF) door walk(-PF) inside
bǎ mén qīngqing guān-shàng le.
Prep door softly closed PT
'Seeing the children asleep, he opened the door, walked out, and closed the door softly behind him.'

In Sentence (5), while the sentence-final *le* in the first and last clauses are both required, the two verbal-final *-le* are both optional as indicated in the parentheses.

Previous findings of morphological marker le in Chinese L2A. In L2 Chinese learning, *le* has been found to be one of the most difficult learning tasks (Sun 1993, Zhao 1997). In a one-semester-long study in Beijing, China, Sun (1993) observed the acquisition of *le* by two English-speaking learners of Chinese who had no prior background in Chinese. He met the participants for one-on-one conversations once every other week and audio-taped all the conversations. The data showed that *le* was not in the linguistic repertoire of either participant until the second month of the data collection. When it eventually emerged, *le* was either used in inappropriate contexts or missing in required positions. Specifically, one of the participants exhibited less than 2% correct usage (1 out of 55 required instances), and the other consistently produced variants in contexts which were inappropriate. In a follow-up study, Zhao (1997) examined the acquisition of *le* by a 30 year-old male English speaker for a period of two years. Once every two weeks Zhao audio-taped his one-on-one conversations with this participant and recorded the participant's monologues on personal experience (a type of narrative requiring the use of *le*). Zhao found that, by the end of the second year, the participant's use of *le* was marked by (1) underuse in required contexts, (2) overuse in contexts which were inappropriate or incorrect, and (3) incorrectly equating *le* with the English past tense.

Data computation of le. The frequency of *le*, including both verbal-final *-le* and sentence-final *le*, was calculated as follows:

I. In the detection test:
  A. Obligatory context:
    Required use: Correct (if present) vs. incorrect (if omitted or erroneously used)
    Required omission: Correct (if omitted) vs. incorrect (if present)
  B. Optional context: used or omitted
II. In the essay task: All occurrences of *le* are tallied, which are further coded for appropriate and inappropriate uses.

Results of the use of morphological marker le. This sub-section reports the frequencies and appropriateness of *le* in the detection test and the essay writing task, followed by a qualitative analysis of participants' samples. First we discuss the use of morphological marker *le* in the detection test, and second we discuss the use of morphological marker *le* in the essay writing task.

Table 1 shows the frequency of morphological marker *le* in the detection test by group average for required use, required omission, and optional use/omission.

Table 1: Group averages of 了 (*le*) by context in the detection test

Participating groups	**Required Use (total: 14)**		**Required Omission (total: 27)**		**Optional Use (total: 9)**	
Occurrences of *Le*	**Present % of total**	**Omitted or erroneously used % of total**	**Omitted % of total**	**Present % of total**	**Present % of total**	**Omitted % of total**
NS group, N = 5 (14 yrs up)	**12.2 (87.14%)**	1.8 (12.86%)	**25.6 (94.81%)**	1.4 (5.19%)	2.6 (28.89%)	6.4 (71.11%)
HL-II, N = 5 (9–12 yrs)	**10.8 (77.14%)**	3.2 (22.86%)	**24.8 (91.85%)**	2.2 (8.15%)	2.4 (26.67%)	6.6 (73.33%)
HL-I, N = 6 (0–6 yrs old)	**8.3 (59.29%)**	5.7 (40.71%)	**24 (88.99%)**	3 (11.11%)	2 (22.22%)	7 (77.78%)
Non-HL, N = 5	**8.4 (60%)**	5.6 (40%)	**20.8 (77.03%)**	6.2 (22.97)	2 (22.22%)	7 (77.78%)

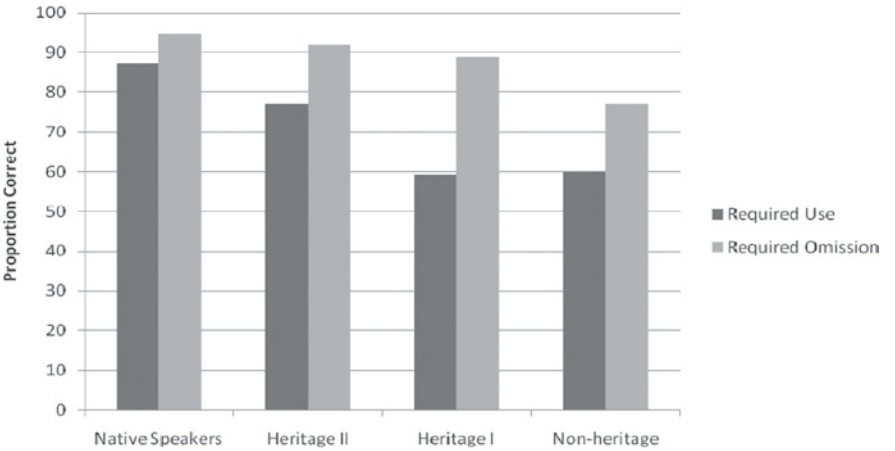

Fig. 1: Group comparison of correct use (required use and required omission) of 了 (*le*) in obligatory context

As indicated in the table, there are notable differences among the four groups in correct use (i.e., presence in required use and omission in required omission) and incorrect use (i.e., omission in required use and presence in required omission).

Figure 1 compares the correct use of *le* for required use and required omission by group average in the detection test. The results show that the HL-II group (i.e., older arrivals) not only did better than their non-HL counterparts but also was consistently similar to the NS group in correct use (i.e., required use and required omission); on the other hand, the HL-I group's (i.e., younger arrivals) performance detoured: It was similar to the HL-II group in required omission but almost the same as that of the non-HL group in required use.

With correct use as the dependable variable, statistical test by Repeated Measure in General Linear Model shows that there are significant differences among the four groups: ($F = 63.10$, $P < 0.001$). (See Table 2.) Moreover, there are significant differences between the HL groups and their non-HL counterparts ($F = 3.28$, $p < 0.053$) and between NS group and HL-I ($F = 6.65$, $P < 0.018$), but borderline differences between the NS group and HL-II ($F = 2.02$, $P > 0.17$) and between HL-I and HL-II ($F = 1.303$, $P > 0.27$). To further explore the difference between HL-I and HL-II in this variable, a Oneway ANOVA is conducted. The results show that there are borderline difference between them in Required Use ($F = 1.658$, $P > 0.22$) but no notable difference in Required Omission ($F = 0.015$, $P > 0.91$). (Disclaimer: Statistical results are only suggestive due to the small samples.)

As to the use of morphological marker *le* in the essay writing task, table 3 shows the occurrences and appropriate/inappropriate use of *le*, including both

Table 2: Tests of Between-Subjects Effects on correct use of 了 (*le*)

Between groups	Sum Squares	df	Mean Squares	F	Significance
All four participating groups	51.85	3	17.28	6.16	P < 0.001
HL vs. non-HL	22.517	2	11.26	3.28	P < 0.053
NS group vs. HL-I	20.38	1	20.38	6.65	P < 0.018
NS group vs. HL-II	4.23	1	4.23	2.02	**P > 0.17**
HL-I vs. HL-II	5.60	1	5.6	1.303	**P > 0.27**

Table 3: Frequency of 了 (*le*) in essay task by group average

Groups	Total of characters written	Total occurrence of *le*	Percentage 了 (*le*) over total characters written	Appropriateness of 了 (*le*)	
				Appro.	Inappro.
NS (N = 5)	2032	40	1.97%	40	0
Heritage II (N = 5)	1144	22	1.92%	21	1 (4.54%)
Heritage I (N = 6)	1500	24	1.6%	23	1 (4.17%)
NH (N = 5)	1432	13	0.91%	7	6 (46.15%)

verb-final -*le* and sentence-final *le*. Over the total number of characters written, the frequency of *le* was 1.97% for the NS group, 1.92% for the HL-II group, 1.6% for the HL-I group, and 0.91% for the non-HL group. Moreover, while the two HL groups are both close to the NS group in terms of frequency and appropriateness, the non-HL group not only has lower frequency but also much more inappropriate use (46.15% of the total use) than the other groups. Oneway ANOVA analysis shows that there is statistically significant difference between the non-HL and HL groups in the inappropriate use of *le* ($F = 5.91$, $P < 0.03$) and borderline difference in the appropriate use ($F = 1.98$, $P > 0.18$).

Figure 2 shows the proportion of *le* over characters written by each participant in the essay writing task. As shown in this figure, while one of the non-HL learners did not use any *le*, the other three group members all used it. In addition,

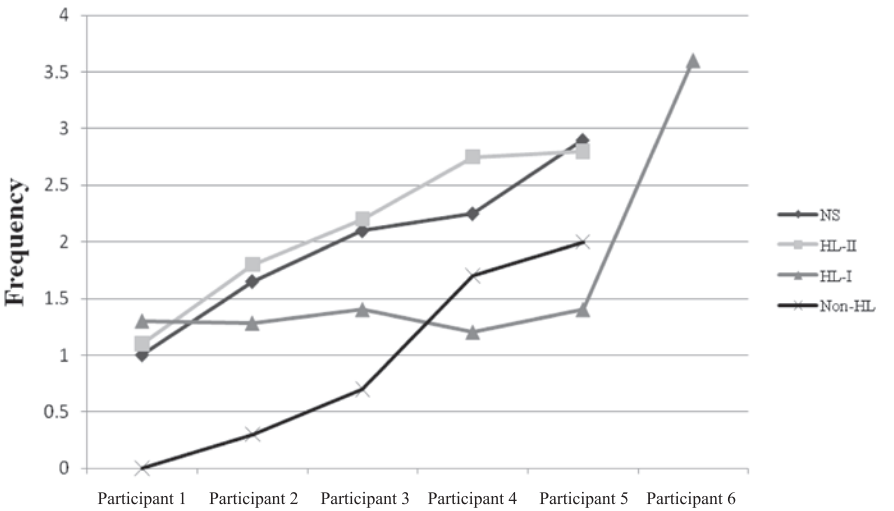

Fig. 2: Frequency 了 (*le*) over characters written by each participant in essay writing

the HL-II group was very close to the NS group, and there were not many individual differences among the HL-I group with the exception of one participant who exhibited a frequency higher than all the other participants.

Qualitative analysis further shows that, in addition to the differences in frequency, there were notable differences in appropriateness between the HL and non-HL groups. The HL groups not only exhibited higher frequencies of *le* but also demonstrated much more appropriate use. In addition, the HL-II group reached a level similar to their NS counterparts in frequency and appropriateness. On the other hand, non-HL learners exhibited lower frequencies of *le*, and their use of *le* was marked by inappropriateness. As shown in the data, one of the non-HL learners did not use *le* at all in an essay of 283 characters; another used just one in an essay of 331 characters; and the remainder used *le* for 2 to 6 times, which largely omitted *le* in the obligatory context (see Examples 6 and 7 below). Moreover, some of the *-le* by the non-HL group were inappropriately used either with psychological verbs such as **xīwàng-le* (hoped), **gǎnxiè-le* (was/were grateful), or with frequency adverbials such as **chángcháng biànchéng-le* (often becomes), **hěn shǎoyāoqǐng-le* (seldom invited), as illustrated below. (The elements in the brackets are filled by the author.)

(6) *xiànzài rénmen de xīnjīn tígāo (le), tāmen néng gòumǎi chē hé fángzǐ (le).*
now people's salary raise (PT) they can buy cars and houses (PT)
'Now people's incomes have risen. They can afford to buy cars and houses.'

(7) *zài jīnnián de chángchūn diànyǐngjié shàng, zhōngguó yǎnyuán*
on this year's Changchun Film Festival on Chinese actress
lǐměihuā huòde(-le) liǎngméi jīnbēi fēicháng gǎnxiè-le tāde dǎoyǎn.*
Meihua Li Obtain(-PF) two gold medals very grateful-PF her director
'In this year's Changchun Film Festival, the Chinese actress Meihua Li won two gold medals, so she expressed great gratitude to her director.'

Sentences (6–7) are both from the non-HL sample. Sentence (6) expresses the start of two new situations, both of which require clause-final *le*, but the learner did not use any. In Sentence (7), the learner omitted the required *-le* after the verb *huòde* (to obtain/to win) but inappropriately used *-le* after the psychological verb *gǎnxiè* (to be grateful).

3.2 The use of discourse features in essay writing

This section will briefly introduce the linguistic features of Chinese discourse, review previous findings of such features in Chinese L2A, and report the present data analysis and results in this regard.

Linguistic features of Chinese discourse. Chinese discourse connection is in general maintained by both overt and covert cohesive devices, but ellipsis is frequently used in both spoken and written forms. Unlike English, which generally does not permit NP ellipsis in sentence subject, object, or possessive positions, Chinese textual connection and continuity are largely maintained by NP ellipsis in these positions in the form of topic chains (i.e., antecedent-referent relations) (Tsao 1979, Chu 1998, Li 2004, Xiao 2011). According to Tsao, Chinese NPs go through a process such as NP → Pro/Ø → Ø (see Sentence 8) or Ø → NP/Pro (see Sentence 9) in topic chains, marking anaphoric or cataphoric references.

(8) *(Zhè-ge rén)$_1$, wǒ bù xǐhuan Ø$_1$ wǒ māma yě bù* (Tsao 1979: 44)
this-MW person I not like my mother also not
xǐhuan Ø$_1$.
like
'I don't like this person. My mother does not like him, either.'

(9) *Ø$_1$ Kànkan zuìmāoshì-de bàba, Ø$_1$ kànkan zìjǐ, Ø$_1$ kànkan liǎng-gè*
look drunk-cat-like-POS father look herself look two-MW
è-de lǎo shǔ shì-de dìdi (xiǎofúzi)$_1$ zhī shèng-le kū.
hungry rat-like-POS brother Little Joy only left-PF cry
(*Camel Xiangzi*, 2001: 390)
'Little Joy looked at her drink-sodden father, looked at her two rat-like starved brothers, and then herself. She could only cry.'

As shown in Sentences (8–9), the continuity and connection of the stretches of discourse are maintained by topic chains formed by controlling topics, such as *Zhè-ge rén* in Sentence (8) and *xiǎofúzi* in Sentence (9), and co-indexed zero pronouns. To make the discourse acceptable, the use of topic chains and zero pronouns is necessary in Chinese. Overuse of overt NPs would split the chain and accordingly break the continuity and connectivity of the discourse.

Previous findings of L2 Chinese discourse features. L2 learning of Chinese discourse features has been a much studied field in the past decades, yielding a large body of literature. Data show that learners with English as L1 tend to exert excessive overt NP use (Chu 1990, Cui 2003, Jin 1994, Xie 1992) and produce choppy SVO constructions when writing Chinese sentences or discourse (Xiao 2006, 2010). By analyzing second-year college Chinese students' writing samples over a period of three years, Chu (1990) noted that English-speaking students tended to use pronouns excessively when they tried to translate English into Chinese, which led him to believe that there needed explicit instruction of zero pronouns and topic chains in L2 Chinese grammar instruction. Using a story-telling technique to elicit data (N = 21), Xie (1992) found that English-speaking Chinese students repeatedly and excessively used pronouns when producing Chinese discourse in the same way as when writing their English narratives. His follow-up interviews revealed that most of the participants intuitively knew that there was something wrong in their Chinese storytelling but did not know what the problem was. To gauge CHL learners' Chinese discourse development, Xiao (2010) examined the writing samples from four beginning-level college students (CHL = 2, non-HL = 2) over two consecutive semesters. She found that the CHL learners did not show meaningful advantages over their non-heritage counterparts in written discourse; instead, both heritage and non-heritage participants consistently produced structurally simple and discursively loose SVO structures, which were not consistent with the Chinese grammar.

Data analysis of discourse features in essay writing. The coding of discourse features in the essay writing task consists of five categories: references, conjunctions, topic chains, zero pronouns, and use of overt NPs. While references and conjunctions are overt cohesive devices, topic chains and zero pronouns are covert cohesive devices. And the use of overt NPs is a somewhat de-topic-chaining feature (namely, the more overt NPs, the less topic chains, and the less cohesive the discourse is). Frequency of the use of each feature is computed for statistical comparison and presentation.

Results of the use of discourse features in essay writing. The results of the use of target discourse features in the essay writing task are shown in Table 4 and Figure 3, followed by a two-way ANOVA on the main effects of topic-chaining features and a qualitative analysis of participants' use. Table 4 shows the use of

Table 4: Frequency of discourse features by group

Groups	Reference % of total characters	Conj. % of total characters	Zero Pron. % of total characters	Topic C. % of total characters	Overt NPs % of total characters	Total characters written by group
NS N = 5	9 (0.47%)	35 (1.81%)	53 (2.74%)	31 (1.60%)	6 (0.31%)	1932
HL-II N = 5	9 (0.79%)	17 (1.49%)	35 (3.06%)	24 (2.1%)	7 (0.61%)	1144
HL-I N = 6	10 (0.7%)	18 (1.2%)	38 (2.53%)	27 (1.8%)	5 (0.33%)	1500
NH N = 5	**17 (1.19%)**	**31 (2.16%)**	**22 (1.54%)**	**19 (1.33%)**	**23 (1.61%)**	**1432**
Total	45 (0.75%)	101 (1.68%)	148 (2.46%)	101 (1.68%)	41 (0.68%)	6008

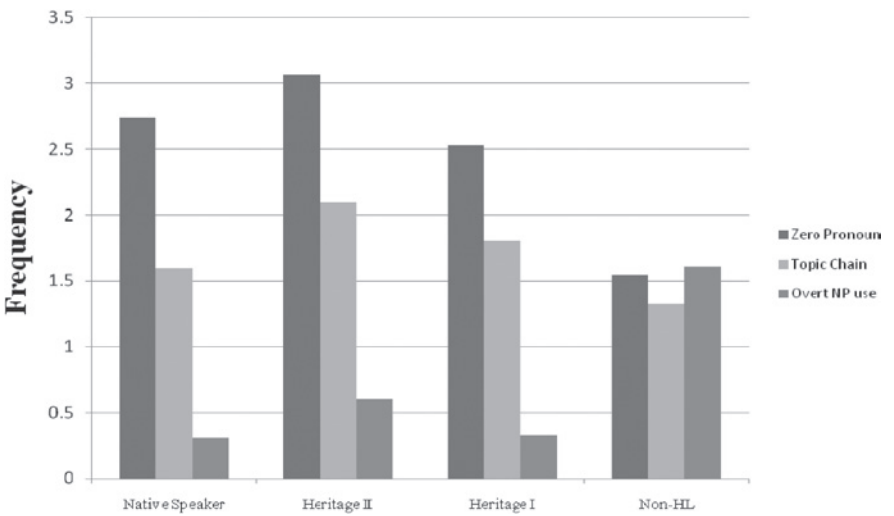

Fig. 3: Frequency of topic chaining features and overt NP use over characters written by group

target discourse features, indicated by frequency and proportion of frequency over total characters written. As shown in the table, the two heritage groups are similar to the NS group, while the non-HL group differs from all of the three by using more overt NPs and more overt cohesive devices such as references and conjunctions, and by using fewer covert cohesive devices such as zero pronouns and topic chains.

Figure 3 shows the proportions of topic-chaining features (i.e., the use of topic chains and zero pronouns) and the overt NP use (de-topic-chaining feature) over the characters written by group. As shown in this figure, while the non-HL group shows a distinct pattern, the other three (NS and both heritage groups) are similar to each other in all the features investigated. Specifically, the non-HL group used fewer topic-chaining features but many more overt NPs.

Using the topic-chaining features (i.e., topic chains and zero pronouns) as the dependable variables, two-way ANOVA test shows statistically significant differences among the four groups ($F = 5.43$, $P = 0.001$) and between the heritage and non-HL groups ($F = 3.56$, $P < 0.05$). (See Table 5.) In addition, the difference between Heritage II and non-HL groups is significant ($F = 3.74$, $P < 0.01$) but that between Heritage I and non-HL is borderline ($F = 1.93$, $P < 0.18$).

Qualitative analysis shows that, like the NS group, the HL groups depended more on covert discourse devices such as zero pronouns and topic chains for discourse continuity and connectivity; by contrast, the non-HL group depended more on overt devices such as references and conjunctions and also used many

Table 5: Results of two-way ANOVA on the main effects of topic-chaining features

Independent Variables	Main effects	df.	F	Significance
All groups (NS X NH X HL)	Features Feature X group	3 6	375.83 5.43	0.000 0.001
NH X HL	Features Feature X group	2 2	419.95 3.56	0.000 0.042
NH X HL I	Features Feature X group	2 2	376.00 1.93	0.000 0.174
NH X HL II	Features Feature X group	2 2	294.88 3.74	0.000 0.007
HL I X HL II	Features Feature X group	2 2	229.83 0.50	0.000 0.618

more overt NPs. In addition, the topic chains used by the participants differ in complexity. Specifically, while the NS and HL topic chains were longer and more complex (up to four zero pronouns per chain), the non-HL chains were shorter and mostly with one zero pronoun each, as illustrated below:

(10) *Zài 1979 nián (zhōngguó)$_1$ zhèngshì duìwài dǎkāi-le*
In 1979 year China$_1$ formally toward foreign opened-PF
guómén, Ø$_1$ duìnèi yě zuò-le xǔduō gǎigé, Ø$_1$
country door, Ø$_1$ toward inside also made-PF many reforms Ø$_1$
tiáozhěng lǜlǜ huìlǜ, zài 1993 nián Ø$_1$ duì yínháng
adjusted interest rate exchange rate, in 1993 year Ø$_1$ toward banks
yě jinxing-le gǎigé (HL-II sample)
also made-PF reforms.
'In 1979, China formally opened its door to foreign countries. (It) also made many domestic reforms and adjusted the interest and exchange rates. In 1993, (it) also reformed the banks.'

(11) *Xiànzài (zhōngguó diànyǐngjiè)$_1$ fāzhǎn-le, Ø$_1$ bèi (rénmen)$_2$ rènwéi shì*
Now Chinese film society develop-le by people consider is
dàibiǎo quán zhōngguó-de shēngqǐ, Ø$_2$ yě tèbié zhīchí zuìjìn
representing whole China-PT rise also specially support recent
xǔduō Gǎng Tái dàlù hézuò-de dàpiàn, Ø$_2$ bǎ zhèxiē
many Hong Kong Taiwan China co-produced-PT movies Prep these
diànyǐng dāngchéng tǒngyī dàzhōnghuá-de qīngxiàng huò
movies view as unify great China-PT tendency or
xiànxiàng. (HL-I sample)
phenomenon
'Now Chinese films have advanced, and (they) are considered by people as representing the rise of China. (These people) also give special support to many major movies co-produced by Taiwan, Hong Kong, and China's film makers. (They) view such movies as a tendency or phenomenon of reunifying the great China.'

(12) *(zhōngguó)$_1$ zài dàodá xiānjìn jīngjì-de lùshàng$_0$ dànshì*
China in arriving advanced economic-PT road-on but
(zhōngguó)$_1$ Kěbùkěyǐ bǎochí zhè lèi gāo sùdù-de fāzhǎn?
China Can not can keep up this type of high speed-PT development
(Non-HL sample)
'China is on the road to becoming an advanced economy. But can China keep up this kind of fast development?'

Examples (10–12) are typical sentences in the dataset. As shown in these examples, there are notable differences in the use of overt NPs and topic chains. In Example (10) written by an HL-II learner, there is a single topic chain of NP → Ø → Ø → Ø , formed by an overt NP *zhōngguó* (China) and a row of three zero pronouns. In Example (11) written by an HL-I learner, there are two topic chains. The first chain includes an overt NP *zhōngguó diànyǐngjiè* (Chinese film world) and a zero pronoun in the form of NP → Ø, and the second chain consists of an overt NP *rénmen* (people) and two zero pronouns, forming a second topic chain of NP → Ø → Ø in the same segment. By contrast, Example (12), written by a non-HL learner, manifests no topic chain at all, simply repeating the overt NP *zhōngguó* (China), which results in redundant and loose discourse to Chinese speakers.

4 Discussion and conclusion

For Research Question #1 which asked "does home background affect advanced CHL learning in the use of target morphological marker *le*?" The answer is largely positive. The results show that both HL groups have advantages over their non-HL counterparts in one way or another, which supports Ming and Tao's (2008) findings (see Introduction). Moreover, the older arrivals (HL-II) not only have advantages over their non-HL counterparts but also perform in a way similar to the NS group. Furthermore, although the younger arrivals (HL-I) do not have any advantages over their non-HL counterparts in the required use of *le*, they show an advantage in the category of required omission like the HL-II group. Given the fact that omission is a type of unnoticed subconscious knowledge, the finding that HL learners, regardless of the age of arrival and birthplace, acquired such knowledge contradicts observations from L2A studies, which claim that only noticed linguistic features can be acquired (Schmidt 1995). Moreover, the finding that older arrivals show more advantages over their non-HL counterparts than the younger ones can arguably suggest that the longer exposure to the target linguistic environment, the better attainment the learner has in advanced learning.

For Research question #2, which asked "does home background affect advanced CHL learning in the use of target discourse features?" The answer is positive. The results of the discourse features in the essay writing show that there are significant differences between the HL groups and their non-HL counterparts. For Research Question #3, which asked "how does learners' age of arrival factor in the attainment of competence at the advanced level?" The results demonstrate that the older arrivals perform significantly better than their younger counterparts. Evidence from qualitative analysis further demonstrates that, like the NS group,

the HL groups depend more on covert discourse devices, while the non-HL group depend more on overt devices.

However, contrary to Xiao's previous findings (2010) that CHL learners' home background did not show effect on the target discourse writing at the beginning level, the present study demonstrates that it has significant effect on the target discourse writing at the advanced level. As shown in the results, there is notable difference in topic chain complexity: while the HL chains are relatively longer and more complex (which are consistent with the Chinese grammar), the non-HL chains are shorter and simpler (which result in choppy and redundant discourse).

In summary, evidence obtained in this study shows that, compared with non-HL learners who had many years of Chinese study, CHL learners, regardless of age of arrival and birthplace, had better knowledge and execution in the use of the target morphological marker *le* and performed significantly better in the use of target discourse features. In addition, those who arrived at an older age had more advantages over their non-HL counterparts than the younger arrivals. Such findings support previous studies from second language acquisition and neurolinguistic perspectives which reported that early exposure to a language had undeniable positive effect on subsequent language learning (Stowe and Sabourin 2005). Furthermore, the findings of this study support the widespread hypothesis that HL learners' prior knowledge would require many more hours of instructional hours for non-native speakers to acquire (Brecht, et al. 1998).

Finally, the disparity in discourse writing between beginning and advanced CHL learners, as demonstrated in Xiao (2010) and the present study, may be explained by Cummins' BLCS/CALP "iceberg" model (Cummins 1980, 1984) and his Four- Quadrants framework (context-embedded/context-reduced and cognitively undemanding/cognitively demanding continua) (Cummins 2000: 68). The "iceberg" model predicts that, in L2 context, there are clear differences in acquisition and developmental patterns between BICS (basic interpersonal communicative skills) and CALP (cognitive academic language proficiency), taking about 2 years to develop the former but 5–10 years to develop the latter. And in his Four-Quadrant framework, academic language proficiency is rated as context-reduced and cognitively-demanding, and defined as the ability to make complex meaning explicit by means of language itself rather than by contextual or paralinguistic cues (p. 69). In this study, the advanced CHL learners' home background notably speeds up their CALP development after 3–4 years of formal Chinese learning at the college setting to demonstrate undeniable advantages over their non-HL counterparts in the development of target features. The findings that advanced HL learners in general had significant advantages over their non-HL counterparts in this study and that older arrivals in general did better than younger arrivals can be further accounted for by the Common Underlying Concept Base (CUCB) frame-

work (Kecskes and Papp 2000a). From a multilingual perspective of foreign language learning, the CUCB postulates a strong language and culture dependency, by which bilingual learners need direct experience with concepts in the target language to build the target conceptual system (Kecskes and Papp 2000b), and the CUCB can function as the mechanism to map the conceptual representation onto the linguistic representation (if the proficiency threshold has reached) (Kecskes 2006: 260). Moreover, unlike the common belief that HL develops or loses itself on its own right, the CUCB framework maintains that the bilingual learner's two languages blend and strengthen each other in a dynamic and accumulative way (Kecskes 2006). In this spirit, the advanced HL learners may have well developed the CUCB that enables them to do better than their non-HL counterparts, while at the beginning level HL learning may be "merely an educational enhancement" since CUCB has yet developed due to the threshold constraints (Kecskes and Papp 2000b: 99). Furthermore, the older arrivals (e.g., HL-II group in this study), who had longer direct exposure in the target language, culture, and concept, are expected to be more bi-/multi-competent and do better in language tasks than those who have less such exposure (e.g., HL-I group in this study), especially at the advanced level when they have experienced a longer period of bilingual blending and strengthening.

5 Limitations of the study

This study focuses on a widespread and significant phenomenon: the effect of home background on heritage language learning at the advanced level, which represents a challenging task for HL research at its present embryonic stage. By analyzing samples from learners with varied home backgrounds and age of arrival, this study demonstrates some interesting results. Nevertheless, the conclusion is only suggestive due to the relatively small size of the sample, which is by itself the sign of an emerging field in Chinese language education in the U.S. Although speakers of Chinese constitute the largest group in the world and the second largest in the U.S., Chinese has long been a less-commonly-taught language in the mainstream American schools with minimal enrollments at all levels, which only accounted for 0.67% of the total foreign language enrollments in this country (ACTFL report 2010: 8). With such a small student population in K-12, Chinese enrollments at the universities, especially at the advanced level, are very low. Nevertheless, data in this study is carefully analyzed to limit possible random variables. Hopefully, given the supplementary qualitative analysis, the conclusions as well as the limitations will serve as the starting point for a better

understanding of a complex phenomenon. Thus, this study serves to indicate some interesting and potentially fruitful avenues for future research.

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Appendix

Direction: Fill in the following blanks with "了," which you feel appropriate. This is not a test.

1. 我很早就打算（　　）去中国（　　）。
2. 我假期常常去（　　）看朋友（　　）。
3. 我同意（　　）帮他（　　）。
4. 我们谈谈（　　）什么时候去中国（　　）。
5. 我到（　　）北京以后，看（　　）好几次医生（　　）。
6. 他在北京买（　　）一套房子（　　），回（　　）美国以前，已经租给（　　）一个英国人（　　）。
7. 我上完（　　）课，很累（　　），没吃饭（　　）就回到（　　）宿舍休息（　　）。
8. 美国驻华大使昨天会见（　　）美国经济代表团（　　），祝贺（　　）他们完成（　　）任务（　　）。
9. 昨天美国航空公司的空中小姐举行（　　）罢工（　　），大约有（　　）60条航线停止（　　）飞行（　　）。看来我是没有（　　）办法坐直航去（　　）纽约（　　），也许要在什么地方停留（　　）几个钟头（　　）。糟糕的是我爸爸妈妈不知道（　　），他们会在飞机场等（　　）我好几个钟头（　　）。

10. 我去年在土耳其 (Turkey) 旅行 (　　) 的时候，对当地人为了价格而争论产生 (　　) 兴趣 (　　)。一天，我到外地旅行 (　　)，回来 (　　) 的时候，在汽车站两个司机同时向我走来 (　　)。当我问 (　　) 他们车费是多少时，一个人说，“坐我的车要六百元。”他的话刚说完 (　　)，另一个就立即走上来 (　　) 说 (　　)：“我的车只付五百元。”一场争论就这样开始 (　　)。