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TOPIC-SUBJECT ASYMMETRY IN JAPANESE AND KOREAN: HERITAGE AND L2 SPEAKERS

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Abstract

This paper presents and analyzes new experimental data that reflect the knowledge of topic and subject particles by heritage speakers and by L2 learners of Japanese and Korean. We assume that topic marking is mediated at the syntax-information structure interface, while subject marking pertains to narrow syntax. In comparing phenomena mediated at different levels of linguistic organization, we provide evidence for the hypothesis that information structure-level phenomena present greater challenges for bilingual speakers than those mediated within syntax. By examining the specific functions of the topic (anaphoric, generic, and contrastive) and the subject marker (descriptive and exhaustive), we further probe into the possible causes for the increased difficulty associated with topic marking: its status as an interface phenomenon, its structural complexity, and the memory demands necessary for its interpretation.

1 Introduction

Heritage language acquisition (HLA) and second language acquisition (SLA) represent two distinct pathways to adult bilingualism. However, in both scenarios the end-state of attainment is often characterized as imbalanced bilingualism in that both groups of speakers appear to fall short of exhibiting complete mastery of the target language, which for both populations remains in an incomplete state of attainment as compared with target native grammars represented by the monolingual baseline. In striving to improve their non-dominant language performance through formal instruction, heritage and second language learners may occasionally even end up in the same college classroom, although a growing body of linguistic research comparing these populations continuously underscores the impracticality of such placing for pedagogical purposes due to the widely differing instructional needs of these learners.

Important contrasts between heritage speakers and second language learners point to systemic differences between these groups not only in the specific circumstances of language exposure, which differ markedly for the two populations, but also in the nature of competence deficits across

different language modules. As early consecutive or sequential bilinguals, heritage speakers begin the acquisition of a socially non-dominant language in a family setting, and in this respect, at least at the outset of the language acquisition process, their experience with the target language is comparable to that of early L1 learners whose L1 language acquisition is not subsequently interrupted by exposure to another language and who eventually become fully competent native speakers. Adult L2 learners, on the other hand, are late bilinguals whose exposure to the non-dominant language typically takes place in a structured setting.

Despite these differences in acquisition scenarios, many studies nevertheless find that both heritage language speakers and second language learners display deficits in the domain of inflectional morphology and narrow syntax and that both groups have difficulties with discourse-level phenomena. The former problem is manifested in errors or non-target-like performance with case, gender, agreement, verbal aspect, and long-distance dependencies (Benmamoun et al., 2010, Montrul, 2002, Montrul et al., 2008, Polinsky, 1997, 2006, 2008a,b, 2011, Rothman, 2007), and the latter problem involves infelicitous linguistic choices in contexts that require discourse tracking or external pragmatic knowledge to resolve apparent contextual optionality (Laleko, 2010, Montrul, 2004, Serratrice et al., 2004). Difficulties with discourse-related phenomena have been shown to persist even in the absence of morphosyntactic errors: For example, in a study of high proficiency heritage speakers' knowledge of the Russian aspectual system, Laleko (2010) found that advanced heritage speakers of Russian differed from monolingual controls on the use and interpretation of contextually-dependent functions of the imperfective aspect (including those linked to information structure and discourse), but not on its core sentence-level functions, suggesting that unequal difficulties may be associated with phenomena mediated in narrow syntax and phenomena at the level of discourse.

A number of studies found evidence for the "syntax-before-discourse" hypothesis in second language acquisition (Pérez-Leroux and Glass, 1997, Polio, 1995, Rothman, 2007) and adult L1 attrition (Sorace, 2004), according to which syntactic competence is acquired sooner and is more immune to attrition than discourse-pragmatic knowledge. On a theoretical plane, the idea that the discourse component of the grammar may be more "costly" in terms of linguistic encoding and processing than the core of the syntactic computational component has been advanced by a number of researchers (Givón, 1979, Koornneef, 2008, Langacker, 2000, Reuland, 2011), however, the specific factors contributing to this asymmetry are still rather poorly understood. In what follows, we outline three approaches to this problem and offer some preliminary observations on how these approaches could be put to further testing in experimental work on bilingual language acquisition.

1.1 Interfaces

The last decade in L2 acquisition research focusing on ultimate attainment and near-nativeness has generated many vigorous discussions of the idea known as the Interface Hypothesis, which claims that advanced bilinguals do not display complete linguistic knowledge in specific interface-conditioned domains, i.e., domains that involve the integration of two or more linguistic modules or mapping between linguistic and non-linguistic information. Under the view of language as a system of several semi-autonomous modules interacting with each other, the process of language acquisition involves learning the individual modules of language along with the principles of interaction among the language modules. These mappings among linguistic sub-modules (e.g., syntax, semantics, phonology, morphology), or between language and external

cognitive systems, have been claimed to be subject to vulnerability and incomplete attainment (Avrutin, 1999, Bos et al., 2004, Hulk and Müller, 2000, Müller and Hulk, 2001, Sorace, 2011, Sorace and Serratrice, 2009, Tsimpli et al., 2004, Tsimpli and Sorace, 2006). External interfaces, which involve integration of linguistic material with pragmatic and contextual information external to grammatical representations, have been found to be more problematic than internal interfaces, or mappings among linguistic sub-modules.

Recent studies of bilingual language development revealed consistent differences between bilingual and monolingual children and adults on phenomena mediated at the interface between syntax and discourse-pragmatics, including the use of null and overt subjects (Tsimpli et al., 2004), word order (Argyri and Sorace, 2007), and pronominal dependencies and *wh*-questions (Avrutin, 1999). Among causes of interface vulnerability in child and adult bilingual acquisition, researchers have discussed processing factors, grammatical underspecification, cross-linguistic influence, difficulties in simultaneously coordinating syntactic information with contextual discourse-pragmatic information, and even quantity and quality of the input (Sorace and Serratrice, 2009). In the latter account, an individual's language competence is explicitly linked to frequency with which linguistic structures are encountered by that individual, which in turn determines how fully and accurately their properties are acquired in L2 acquisition contexts and maintained in L1 attrition contexts.

1.2 Structural complexity

An alternative account of the observed generalization takes as a starting point the greater syntactic complexity of elements located at the highest levels of sentential structure. Basic minimalist assumptions about sentence structure (Chomsky, 1995, Rizzi, 1997) yield a hierarchical representation consisting of three universal phrases: the VP, the IP, and the CP. The two lower phrases, IP and VP, form a level known as the I-domain, where syntactic information is mediated. The function of the CP is “to close the I-domain” — i.e., to link information encoded at VP and IP levels to discourse (Platzack, 2001, after Rizzi, 1997). Discourse-related categories such as topic and focus as well as the illocutionary force of the utterance are represented as unique projections within the split CP. As a natural outcome of such hierarchical organization, constructions that employ projections within the split CP, such as a TopP or a FocP, necessarily require building and interpreting more structure than constructions housed within the lower projections, such as the IP or the VP. Greater structural complexity predicts greater computational effort associated with bigger segments, additional embeddings, and longer dependencies, potentially resulting in increased difficulty in interpretation and production.

1.3 A processing-based account

The difficulty of discourse-level elements may also be accounted for by the greater processing demands required for successful interpretation of elements characterized by context-resolvable optionality, due to the costs of storing more information in memory during syntactic computation. Memory constraints have been argued to affect sentence processing in various domains of language structure, including long-distance and nested dependencies mediated entirely within syntax (Chomsky and Miller, 1963) as well as anaphoric dependencies and other discourse-level phenomena belonging to the realm of syntax-pragmatics.

With respect to the latter group of phenomena, a processing-based account has been explicitly linked to the Interface Hypothesis discussed above: Greater processing demands have been discussed among the primary sources of interface vulnerability (Sorace, 2011). However, while it may be possible to conflate the two accounts in the case of interface-related phenomena, they may nevertheless be distinguished on principled grounds, as it has been widely documented that processing difficulties are not *a priori* limited to the interface domains and may be apparent in constructions mediated entirely within narrow syntax. Under the processing account we will assume here, it is not the interface status of a particular phenomenon but the amount of cognitive effort and memory demands involved in its computation that will be taken to be the source of increased difficulty and possibly less target-like performance in some bilingual populations.

2 The study: Background

In this paper, we probe into the hierarchy of linguistic encoding in heritage and second language acquisition by comparing phenomena mediated at different levels of language architecture: grammatical case marking, which is mediated within narrow syntax, and the marking of information structure, construed within the discourse component of the grammar. To do so, we examine case and topic particles in Japanese and Korean, two topic-prominent languages with overt morphological means of expressing not only grammatical functions such as subject and object, but also the discourse-pragmatic notions of new information and given (shared) information. Consider the following examples from Japanese (1) and Korean (2):

- (1) Sakana-wa tai-ga oisii.
 fish-TOP red snapper-NOM delicious
 ?Speaking of fish, red snapper is delicious.' *Japanese*
- (2) Sayngsen-un yene-ka massissta.
 fish-TOP salmon-NOM delicious
 ?Speaking of fish, salmon is delicious.' *Korean*

Grammatical subject is encoded by the nominative case particles *-ga* (Japanese) and *-il-ka* (Korean), whereas the particles *-wa* (Japanese) and *-nun/-un* (Korean) mark topics, which in both languages serve two main functions, thematic and contrastive (Kuroda, 1965, Kuno, 1973, Choi, 1999). Thematic topics include generic DPs, which refer to a general class of entities, as in (3) below, and anaphoric DPs, linked to prior discourse via a linguistic or contextual antecedent, as in (4). Unlike thematic topics, whose main functions are related to discourse tracking, contrastive topics necessarily signal a special contrastive relationship between two or more elements within a set of alternatives. The contrastive relationship can be explicit, when both members of the set are present in discourse, as shown in (5), or implied, as in (6) below, when only one member of the contrastive relationship is mentioned.

- (3) Kami -wa ki -kara tsuku-rare -masu.
 paper -TOP tree -from make-Passive -be
 ?Paper is made from trees.' *Japanese*
- (4) a. Watashi-wa sengetsu -hajimete chu-goku -o otozuremashi -ta.
 I-TOP last month -first time China -ACC visit -PAST
 ?I visited China for the first time last month.'

- b. Ima chu-goku -wa ishiban sukina kuni -desu
 now China -TOP first favorite county -is
 ?Now, China is my favorite country.' *Japanese*
- (5) Watashi -wa hudan hougaku-wa kikimasu ga yougaku-wa kiki-masen.
 I -TOP usual Japanese music-TOP listen but Western music-TOP listen-NEG
 ?I usually listen to Japanese music but I do not listen to Western music.' *Japanese*

The two different functions of the topic marker, thematic and contrastive, are identical in terms of form in both languages, but they are distinguished by means of prosody and syntactic behavior (Kuno, 1973, Maynard, 1980, Nakanishi, 2001). Prosodically, contrastive topics carry emphatic stress, while thematic topics are associated with neutral intonation. The syntactic distribution of contrastive topics is less constrained in that contrastive topics can occur in both root and subordinate clauses, whereas thematic topics are largely restricted to root clauses. As a result, topic-marked entities occurring in embedded clauses are interpreted contrastively, rather than thematically, as shown in (6) below.

- (6) Taroo-wa [Hikari-wa kirei-da to] omou.
 Taroo-TOP Hikari-TOP beautiful-COMP think
 ?Taroo believes that Hikari is beautiful.' (as opposed to someone else) *Japanese*

In addition to fulfilling the grammatical function of marking the subject, as in (7), the nominative case particle in both languages may have an additional exhaustive interpretation, illustrated in (8). Under the basic neutral description reading in (7), the subject marker remains prosodically unmarked and requires no prior context. When combined with a prominent stress, the subject particle produces an exhaustive listing reading, which marks a constituent that bears narrow focus (i.e., focus that does not project beyond a particular DP to any of the higher constituents in the clause). The narrow focus results in a more constrained interpretation of the marker: It signals a DP that introduces new information into discourse (e.g., an answer to a wh-question) or a similar context compatible with an exhaustive interpretation. Thus, while the neutral descriptive nominative case particle is mediated purely within syntax, its exhaustive listing counterpart interacts with the larger linguistic context and expresses distinctions related to the information structure of the utterance. The following examples are from Kuno (1973):

- (7) Ame ga hutte imasu.
 rain -GA falling is
 ?It is raining.' *Japanese*
- (8) John ga gakusei desu.
 John -GA student is
 ?It is John who is a student.' (?Of all the people under discussion, John and only John is a student') *Japanese*

Both case and topic particles may be omitted in spoken contexts and informal registers (Lee and Thompson, 1989, Kuno, 1972, Tsutsui, 1984, Yatabe, 1999, Shimojo, 2006), as illustrated in (9) and (10) below, subject to certain restrictions. For example, the nominative marker must be overt in embedded clauses or when it carries the exhaustive listing interpretation (Shimojo, 2006). No omissions are possible with the contrastive topic marker, which must be overt in both languages (Yatabe, 1999).

- (9) Kicchin -ni oisii pai (ga) arimasuyo.
 Kitchen -in delicious pie (NOM) have
 ?There is a delicious pie in the kitchen.' *Japanese*
- (10) [Kino-no -yoru tomodachi-to issyo -ni mi -ta] eiga (wa) totemo yoka
 Yesterday-GEN-night friends-and-together -with watch-PAST movie (TOP) very good
 -tta.
 -PAST
 ?The movie which I watched with my friends last night was very good.' *Japanese*

Having outlined some basic empirical contrasts, we now turn to the research questions and hypotheses for our experiment. With respect to our umbrella hypothesis, which posits that discourse-level phenomena are associated with more difficulty than phenomena contained within narrow syntax, we expect heritage speakers and second language learners to exhibit better knowledge of the subject marker than the topic marker. Our further predictions stem from the differentiated functions of the two sets of markers, which may help us get additional insights into the nature of the observed difficulties, should any be apparent, by examining the three possible explanations for the asymmetry between the syntax and discourse components of language.

Recall that, within the thematic topic category, anaphoric topics establish reference relations in discourse and thus necessarily require discourse tracking, while generic topics, which also mark the theme of the utterance, are not linked to prior discourse. Under the Interface Hypothesis, we expect no differences in accuracy between anaphoric and generic conditions because both types of thematic elements are presumably mediated within the syntax-discourse interface, also known as the external interface. The Structural Complexity Hypothesis makes a similar prediction: Under the assumption that all thematic elements are contained within the same syntactic projection, TopP, no differences are expected between the anaphoric and generic conditions (note, however, that the same hypothesis does predict a difference between thematic and contrastive topics, as these two categories are associated with two separate projections). The Processing Hypothesis, in contrast, predicts differentiated results in anaphoric and generic conditions: Discourse theme maintenance and tracking should be more costly in terms of attention and memory resources than theme creation, and if this prediction is on the right track we can expect decreased accuracy in the anaphoric topic condition compared to the generic topic condition.

Comparing the two functions of the nominative case marker will help gain additional insight into the general “syntax before discourse” issue: if the umbrella hypothesis is correct, the neutral description reading associated with the core nominative case function is predicted to be easier than the narrow focus reading, which interacts to a greater extent with the information structure and the larger linguistic and non-linguistic context of the utterance. However, note that this pattern would be compatible with all three accounts, which yield similar predictions: The exhaustive reading marker represents an interface phenomenon, occupies a higher syntactic position, FocP, and due to its link with prior discourse requires greater processing effort than the marker of structural nominative case mediated entirely within the IP.

An additional question that we will address in this study concerns the nature of linguistic deficits under incomplete language acquisition. If heritage or L2 speakers exhibit non-target-like knowledge of the topic or case particles, what should these results be taken to indicate? In other words, do these speakers have a problem with the *semantic representation* of these categories, or are the difficulties primarily with surface morphological *marking*? In order to address this question,

we examine conditions where the case and topic particles are overtly expressed and contexts where these morphological markers are omitted. If heritage speakers and second language learners exhibit more difficulty with zero marking than with overt marking in the same contexts, this would point to morphology (or mapping between morphology and internal representation) as the likely source of difficulty. Under the assumption that semantic representations are the same in null and overt contexts, equal difficulty in these conditions could signal representational problems.

3 Participants and methodology

Sixty-four heritage language speakers (N=29 for Japanese, N=35 for Korean) and 47 second language learners (N=31 for Japanese, N=16 for Korean) participated in the study. The control group included 26 age-matched native speakers (N=13 for Japanese and N=13 for Korean). Table 1 below summarizes the relevant mean demographic information for the target groups of heritage language speakers (HL) and second language learners (L2).

Table 1: Participants

Language Group	Korean		Japanese	
	L2 (N=16)	HL (N=35)	L2 (N=31)	HL (N=29)
Age	25.8	24.5	27.5	24.75
Age of arrival to U.S.	NA	3.2	NA	4.0
Age of switch to English	NA	3.0	NA	4.8
Daily use of Korean/Japanese	23.5	29.6	12.4	22.4
Self-rated proficiency in Korean/Japanese (1-5)	3.39	4.35	3.01	3.62

The participants were asked to provide acceptability ratings for 56 sentences, using a 1-5 scale. The experimental conditions included appropriate use of the topic and subject markers, misuse of the markers (topic marker used in place of the subject marker and vice versa), and appropriate and inappropriate particle omissions. The ratings were elicited on Amazon Mechanical Turk. The study also involved a detailed sociolinguistic background questionnaire, which all participants completed in their dominant language.

4 Results and discussion

As predicted by our umbrella hypothesis, both groups of speakers in both languages exhibited more difficulty with the topic marker than with the nominative maker, as evidenced by greater accuracy on conditions involving the nominative. The aggregated accuracies for conditions involving the nominative case marker and conditions involving the topic marker are presented in Figure 1 below (baseline ratings in the control group are taken as the zero value for the purposes of measuring accuracy). A significant advantage over L2 learners was observed in the group of heritage speakers of Korean, who were significantly closer to the L1 baseline than the Korean speakers in the L2 group. In contrast, heritage speakers of Japanese patterned with L2 learners of Japanese and demonstrated no overall statistical advantage on their knowledge of topic and case particles.

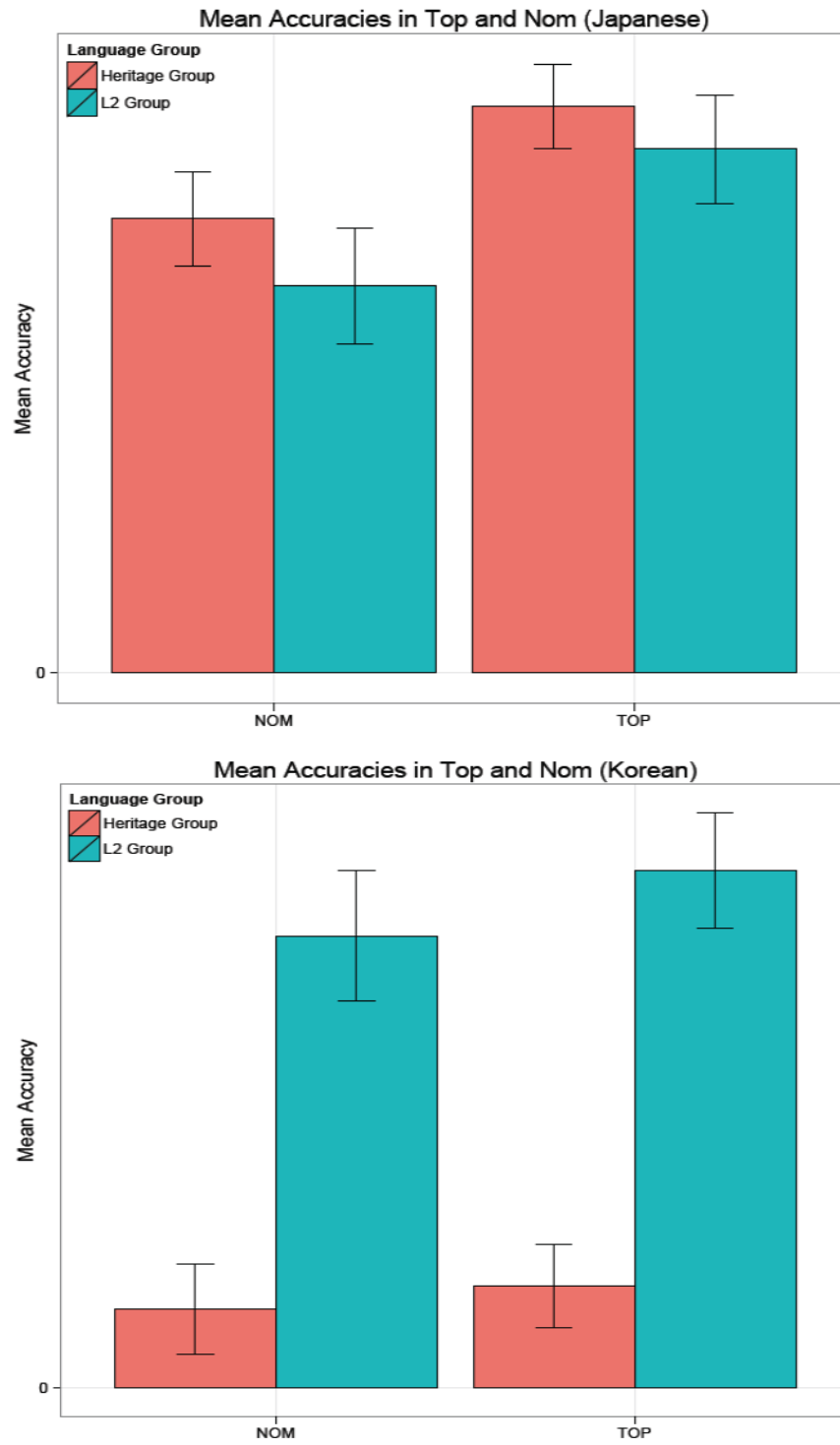


Figure 1: Mean accuracies for topic (“Top”) and nominative (“Nom”) conditions for heritage speakers and L2 learners of Japanese (top) and Korean (bottom).

Detailed across-group comparisons confirm that Japanese heritage speakers by and large patterned with second language learners: no significant differences were found between the two groups on all experimental conditions. Both groups significantly diverged from the controls on acceptable particle use: Heritage language speakers and L2 learners underrated well-formed sentences with both particles ($p < 0.001$), both groups exhibited unacceptable use of TOP, where sentences were overrated by participants in heritage and L2 groups ($p < 0.0001$), and both groups exhibited unacceptable omissions of NOM and TOP, yielding significantly higher ratings than those observed in the control group ($p < 0.001$).

In contrast to the Japanese group, Korean heritage speakers overall patterned with baseline speakers and were statistically indistinguishable from the native controls on all conditions except ungrammatical particle omissions, where heritage speakers were less accurate than controls ($p < 0.01$) but still more accurate than L2 learners, who diverged from the native speakers to a greater extent ($p < 0.00001$). Differential accuracy rates on conditions involving overt and omitted particles demonstrated by heritage speakers suggests that the problems they display likely represent morphological or pragmatic deficits rather than representational deficits.

Second language learners of Korean exhibited a wider range of deviations from the baseline and diverged from the control group on several conditions, including misuse of the topic marker ($p < 0.00001$), unacceptable replacement of the nominative marker with the topic marker ($p < 0.0001$), and unacceptable omission of the nominative marker ($p < 0.00001$). When compared with the L2 group, heritage speakers of Korean exhibited a number of advantages over L2 learners, manifested in statistically significant differences between the heritage and L2 groups on conditions that called for the nominative marker, but employed the topic marker instead ($p = 0.005$ on ungrammatical misuse, $p = 0.01$ on infelicitous misuse) and conditions involving unacceptable omissions of the nominative marker ($p = 0.02$). No comparable advantage was detected with unacceptable omissions of the topic marker when a between-group analysis was performed ($p > 0.5$). Thus, in line with our predictions, heritage speakers of Korean were overall more accurate than L2 learners on conditions that tested the participants' knowledge of the subject marker.

Having addressed our umbrella hypothesis, we now turn to the discussion of the three lines of reasoning that may provide further insight into the nature of the observed asymmetry between syntactic and discourse knowledge in bilingual grammars. Detailed analyses of the anaphoric, generic, and contrastive uses of the topic marker reveal that heritage speakers in Japanese and in Korean were significantly more accurate on rating sentences involving generic topics than they were on rating sentences involving contrastive topics ($p < 0.01$ for Japanese, $p < 0.001$ for Korean). An additional statistical difference was found between generic and anaphoric contexts in heritage Korean, where ratings of sentences involving omissions with generic topics were significantly closer to the baseline ratings than those in anaphoric contexts ($p = 0.001$). This pattern is consistent with the predictions of the Processing Hypothesis outlined above: The anaphoric topic marker, which refers back to previous discourse, is found to be more difficult than the topic marker that occurs in non-anaphoric generic statements. This result is expected if theme-creation is less costly in processing terms than theme-maintenance, which requires a greater degree of discourse dependence. Assuming the traditional position that anaphoric and generic topics are mediated in the same syntactic projection, and assuming, in the absence of evidence to the contrary, that they represent the same external interface, the generalized Interface Hypothesis and the Structural Complexity Hypothesis do not predict differences in the speakers' knowledge of these topics. The Structural Complexity account is consistent with the disparate accuracy rates on

contrastive and thematic topics observed in the heritage Japanese data, in line with theories that posit separate projections for these categories in syntax. Because non-contrastive topics occupy a higher structural position than contrastive topics, greater difficulty with anaphoric topics may stem from the additional computation efforts associated with building more structure.

Comparison of the two distinct functions of the subject marker lends additional support to our general hypothesis that discourse-level phenomena are associated with more difficulty in bilingual language acquisition than sentence-level phenomena: We find that in Japanese as well as in Korean, heritage speakers were statistically more accurate on rating acceptable sentences with the descriptive *ga* than sentences with the exhaustive listing *ga* ($p=0.01$ in Japanese, $p<0.0001$ in Korean). The exhaustive *ga*, whose appropriate use requires keeping track of contextual information, is found to be more difficult than the sentence-level descriptive *ga*, mediated in narrow syntax and not linked explicitly to larger discourse. This suggests, overall, that discourse computation presents more challenges than syntactic computation, but it leaves us with no direct way of probing into the underlying factors in the context where all three accounts converge on their predictions.

5 Conclusions

Moving forward, we would like to outline several directions for future experimental work aimed at bringing into focus a more refined and comprehensive analysis and juxtaposition of the possible sources of the apparent asymmetry between the acquisition of narrow syntactic properties and mastery of discourse-related phenomena in bilingual populations. In order to stay within the scope of our current discussion, we limit these observations to the three accounts that we have chosen to focus on in this chapter and to the two languages that provided the empirical data for our investigation. However, we do not *a priori* exclude the availability of alternative hypotheses, and we look forward to additional cross-linguistic investigations that will expand the data available to researchers today. We hope that these preliminary observations will encourage future work that will unravel new crucial evidence for deepening our understanding of the phenomena.

Further probing into the explanation appealing to syntactic complexity, in contrast with the account that posits a generalized interface-related deficit, could be accomplished by examining the same interface-level properties in different structural contexts. This could be achieved, for example, in an experiment investigating subject and object topics in Japanese and Korean. Subject topics and object topics represent the syntax-discourse interface. However, object topics in both languages undergo additional syntactic movement to the sentence initial position. If the acquisition of syntactic properties in near-native speakers is unproblematic, while the acquisition of interface properties presents challenges, then we can expect no differences between the subject topic and object topic conditions in highly advanced speakers. If, on the other hand, difficulties with the syntax-discourse interface are a manifestation of greater syntactic complexity, we may expect diminished accuracy on conditions involving object topicalization as compared to conditions that do not involve this operation.

In order to put another pair of hypotheses to a test and compare the interface hypothesis with the more general processing-based account side by side, we would need to create conditions that would allow us to examine the same interface phenomenon in contexts that call for varying degrees of cognitive effort, for example in a situation where a given form is associated with several interpretive options vs. a context where only one such option is available. One way of obtaining such contrast

is to examine contrastive topics in root and embedded clauses. Recall that in Japanese as well as in Korean, contrastive topics are free to occur in both positions, however, due to restrictions on the distribution of thematic topics in embedded contexts, the contrastive interpretation is with very few exceptions the only reading available for *wal(n)un* in embeddings. In the absence of comparable restriction in matrix clauses, the presence of the topic particle in the main clause may signal the presence of a contrastive relationship or, alternatively, it could mark a thematic (anaphoric or generic) element. The apparent optionality arising in the latter scenario is of course fully contextually resolvable. However, the immediate availability of several competing interpretations may create conditions for diminished performance in bilingual populations due to the additional effort required for resolving such optionality, as compared with conditions where optionality is absent. This would predict higher accuracy rates on conditions involving contrastive topics in embedded contexts.

Heritage languages are still an uncharted territory, but we would like to conclude on an optimistic note, underscoring how much these languages have to offer linguistic theory. A parallel that immediately comes to mind is the study of creoles. Some 40 years ago, creoles were limited to the domain of specific language study or sociolinguistics, and theoretical linguists were reluctant to go near them. As soon as linguists recognized that creole phenomena speak directly to Plato's problem in language, creoles gained visibility in linguistic theorizing. Heritage languages add yet another piece to the puzzle of how a grammar can be acquired, modified, and reanalyzed under minimal input.

Unlike children, whose attention is short-lived and fickle, adult heritage speakers are a much more user-friendly population: They are motivated and cooperative, they come to the testing room without a chaperone, and they may even become active participants, not just experimental subjects, in a study testing the limits of their linguistic knowledge. But just like children, heritage speakers offer us an opportunity to study a language unencumbered by too much irregularity, external factors, and non-structural confounds. Their grammar has the minimal scaffolding needed for a language to stand, and it has minimal design features. To continue with the architectural metaphor, a heritage language has structural, material, and functional design values, but very few aesthetic ones; it is minimalist architecture compared to the baroque of a full-fledged language with a literary tradition and a revered norm. This makes heritage languages a desirable object of investigation, and we need to learn how to use them better. As long as heritage language study remains under the auspices of "applied" areas of linguistic inquiry, theoreticians stand a good deal to lose. In a nutshell, heritage languages allow us to assess the core areas of language architecture, without getting lost in the details.

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