

When the quiet surfaces:

‘Transfer’ of Argument Omission in the Speech of ASL-English Bilinguals

Elena V. Koulidobrova, Ph.D.

University of Connecticut, 2012

The main research question of this dissertation is the nature of language interaction effects observed in linguistic patterns of multilingual children. Such effects—often described as syntactic transfer/influence of one of the languages on the other—have been richly documented in the multilingualism literature. I review an influential model (Hulk & Müller 2000) of these effects and propose an alternative, which I demonstrate to be more consistent with the framework adopted in the dissertation (i.e. the *Minimalist Program*, Chomsky 1995, i.a). In short, I argue that ‘language transfer effects’ are instances of a Minimalist-in-spirit code-switching (e.g. MacSwan 1999), which, for a variety of reasons, I label ‘language-synthesis.’ It amounts to the presence of elements from different languages in one Numeration and requires that such language alternation be unconstrained unless independently blocked.

I focus the discussion on the predictions made by each of the two models for argument omission between null- and non-null-argument languages of a bilingual. Using data from two balanced A(merican)S(ign)L(anguage)-English bilinguals, I show that unlike the *cross-linguistic influence* approach, the *language-synthesis* alternative accounts for the distribution of null arguments in the children’s English. On the way to this conclusion, I address an ASL-internal issue—the nature of argument omission. I review the standard analyses of null arguments in ASL and challenge them. Specifically, I argue that in non-agreeing contexts, the null argument in ASL parallels Japanese-style argument ellipsis. Among the consequences of the account are the status of morphological agreement and the nature of the nominal domain in ASL. I demonstrate that the

presence of the relevant lexical items from ASL, deemed responsible for argument ellipsis, in a Numeration otherwise containing lexical items from English may result in ASL-style argument ellipsis in the bilinguals' English. This approach, I suggest, accounts for certain transfer effects found in the speech of bimodal bilinguals. Moreover, because in relevant ways, bimodal bilinguals behave differently from unimodal bilinguals, the dissertation appeals to the unique nature of bimodal bilingualism as a testing ground for language interaction effects in multilinguals.

Elena V. Koulidobrova – University of Connecticut, 2012

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Elena V. Koulidobrova

B.A., Judson College, 1997

M.A., University of Central Missouri, 1999

M.A., University of Connecticut, 2008

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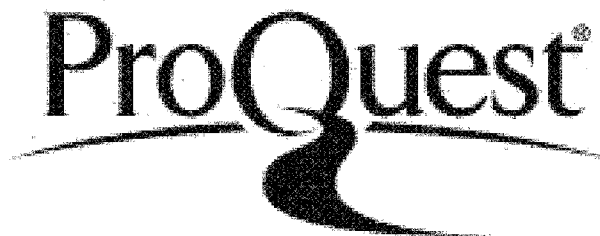


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Presented by

Elena V. Koulidobrova, B.A., M.A., M.A.

Major Advisor Diane Lillo-Martin

Diane Lillo-Martin

Major Advisor Željko Bošković

Željko Bošković

Associate Advisor William Snyder

William Snyder

Associate Advisor Ronice Müller de Quadros

Ronice Müller de Quadros

University of Connecticut

2012

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When I look at the tome that lies in front of me, I can't help but reflect on whether it might have existed at all if not for the people who have surrounded me throughout the last several years.

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Throughout the past six years, all of the members of my family have shown consistent interest in my work. I have had an opportunity, at least once per project, to explain to my parents (on both sides of the ocean) and to each of my children what I had been working on at the time and why. This explanation has always involved a discussion of potential pedagogical implications of the investigation—a good practice for any researcher dealing within the realms of theory alone. Moreover, when I expressed dissatisfaction with a solution to a puzzle (usually significantly more than once per a project), my wife offered to serve as a temporary student in linguistics—knowing full well that I tend to solve problems and learn through teaching. Thus, much to their chagrin, I imagine, I hold my family directly responsible for most of the questions I have continued to ask over the years. Thank you.

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CHAPTER 1

The backdrop: A multilingual child

1. Introduction

For better or for worse, the attention of theoretical linguists is often turned to one language at a time. That is, using *some* account of *some* linguistic phenomenon found in *some* language, theoretical linguists tend to look to a native user of that language in order to verify the account or prove it wrong. The next step often involves extending the (appropriately modified if needed) account of the phenomenon to other languages expected to behave in a predicted manner. In this way, cross-linguistic comparison often sheds light on the nature of some linguistic phenomenon; however, the examination itself tends to proceed in a manner that isolates the language of interest from any other. Note that this line of inquiry assumes that each consultant who has acquired the aforementioned language in a typical way is a full authority on the language being investigated: the intuitions of a native language user about various linguistic phenomena are probed, often quantified, and then compared with similar intuitions of native users of other languages.

Much of this approach runs on the assumption that once a native—always a native. Let me elaborate. In a world that is becoming increasingly multilingual, finding a monolingual language user is less feasible than it ever was. Yet, perhaps because multilinguals appear remarkably good at differentiating between their languages from

early on (at least on the surface), it is often assumed that they are able to offer intuitions about each of their languages irrespective of how many languages they actually know. That is, native language users are often presumed to behave in each of their languages as if they knew only one. But do they really behave this way? That is, the question arises whether (and if yes, then how and why) the languages of a multilingual ever affect one another. This dissertation takes a small step towards answering this question.

2. Language interaction effects

The short answer to the question whether the language ever affect one another is “no,” at least when it comes to children. In fact, among the processes seemingly inherent to multilingualism, the possibility of language interaction in the linguistic mind of a multilingual has received much attention from the research community. The simple observation is that individuals with the knowledge of a language X (L_X) and a language Y (L_Y) exhibit certain linguistic behaviors that betray the presence of both. In the history of research on the issue, such interaction has often been labeled *cross-linguistic transfer* as in (1), a concept which began its life in the literature on adult acquisition of foreign languages.

- (1) ‘...[I]ndividuals tend to transfer the forms and meanings, the distribution of forms and meanings of the native language and culture to the foreign language and culture—both productively when attempting to speak the language and to act the culture, and receptively when attempting to grasp and understand the language and the culture as practiced by natives.’ (Lado 1957: 2)

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The term, which originally served as a convenient description of linguistic patterns, has quickly evolved into a theoretical construct and induced a productive debate in the field (see an overview in Meisel 2011 for simultaneous and sequential second language acquisition and Rothman et al. 2011 for third language acquisition).

Specifically in the area of simultaneous multilingual acquisition, *transfer* effects along the lines of (1) have been observed, and richly documented, as well. It turns out that, while perhaps surprising from the point of view of the discussion in section 1, multilingual children exhibit language interaction effects in word order (e.g. wh-movement and noun-adjective combinations), pronominal usage, morphology, suppliance of functional elements, gesture, and many others. Since the seminal work by Hulk and Müller (1998, 2000, i.a.), these L_X - L_Y interaction effects are often described as *syntactic influence* (as in (3)) of one of the languages on the other.

- (2) Syntactic influence will occur if the following conditions are satisfied:
- a. If the construction is at the interface between syntax and pragmatics, in the C-domain
 - b. If structural (string) overlap between the two languages is observed
 - c. Disappear with the instantiation of the C-domain (adpt. Hulk & Müller 2000)

In **chapter 2**, I challenge the view in (2) in terms of both its assumptions and explanatory adequacy. In light of this, I offer the alternative in (3), which, for the reasons discussed in the chapter, I label *language-synthesis*:

- (3) A lexical item from $L(\text{language})_X$ appears amidst the items from $L(\text{language})_Y$

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In other words, I argue that effects such as (1) observed in L_Y result directly from the presence in L_Y of lexical items from L_X . In this, languages do not *influence* one another; rather, the utterance literally contains both.

The dissertation is couched in the generative framework in general and *Minimalism* (Chomsky 1995, i.a.) in particular. As a model of grammar, this view entails that linguistic variation is lexical in nature. In spirit then, (3) is an extension of a *Minimalist* model of code-switching/-mixing (e.g. MacSwan 1999, 2005). The chapter argues that (3) is a) more consistent with current assumptions about the nature of language architecture, b) better equipped to derive *transfer* effects, and c) more empirically sound than the standard model. At this juncture, a terminological clarification is in order. Note that (1)-(3) apply irrespective of the number of languages involved—and, thus, the potential for 'transfer of forms and meanings' to other languages is virtually indefinite. Thus, in line with the literature on simultaneous multilingual acquisition (see an overview in Grosjean 2008), in order to refer to the simultaneous acquisition of (1+n) languages, I will use the terms '*bilingual*' and '*multilingual*' interchangeably ('*bilingual*' as a more traditional and, thus, familiar, term for '*multilingual*'): nothing in the models I will be arguing for or against changes with the choice of the term. The chapter proceeds as follows.

I adopt, as a working definition, the view typically assumed in the simultaneous bilingual (2L1) literature—that *transfer* refers to "incorporation of a grammatical property into one language from the other" (Paradis & Genessee 1996: 3). That is, morpho-syntactic patterns of bilinguals bear witness to the knowledge of more than one language insofar as surface structures (strings) typically associated with the syntax of L_X

may be found in the utterance of the L_Y . Such cases are discussed at length in **chapter 2** and exemplified below.

- (4) a. Adult: Dov'è che manca la punta? Vendiamo. Qua [Italian]
'Where is the point missing? Let's look. There

Carlotta: No, io fa $\emptyset_{\text{German}}$.
'No I makes $\emptyset_{\text{German}}$. (adptd. Müller et al. 1999)

- b. Daddy, I already **give**_{Cantonese} the mosquito to bite.
Target: I have been bitten by a mosquito. (adptd. Yip & Mathews 2007)

In (4), in the midst of a conversation in Italian, Carlotta (an Italian-German bilingual) exhibits German-style object omission; in (4), Sophie (a Cantonese-English bilingual) uses a Cantonese-style passive construction which involves the verb *give*, while speaking English.

The mechanics of this 'incorporation' (e.g. German into Italian or Cantonese into English in (4)), is less clear. I argue that the standard approach to it—i.e. *cross-linguistic influence* (see (2))—omits important questions from the inquiry. Nor can it handle cases like (4b).

Before undertaking a full discussion of the cross-linguistic influence model, I introduce my proposal, which is rooted in a *Minimalist* theory of code-switching/-mixing. Note, however, that traditionally, code-switch/-mix implies phonologically different languages. Yet, there is no clear phonological difference between the lexical items in (4a) or (4b): in (4a), what I argue to be the German element is null, and in (4b), the Chinese lexical item (resulting in a Chinese-like structure) is uttered in English. In order

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to subsume such cases of code-switch/-mix, typically overlooked by the traditional definition, I offer a new label for the phenomenon—i.e. '*language-synthesis*.' I ultimately argue that this approach, vs. the one appealing to influence, accounts for the cases such as (4) better. In short, **chapter 2** argues that what is typically labeled 'cross-linguistic influence' or 'transfer' should be described in terms of language-synthesis.

However, neither the Italian-German or Chinese-English language combinations (as in (4)) are examined here: in this dissertation, I use cases in (4) for exposition purposes only, in full recognition of the fact that the issues involved in the syntax of the relevant languages (Italian, German, English and Chinese, respectively) deserve an independent discussion. Instead, the dissertation focuses on bilinguals acquiring A(merican) S(ign) L(anguage) and English. Specifically, I will be addressing the case in (5), which I argue to be a parallel to (4)—a structure in L_X (English) reminiscent of L_Y (ASL).

- (5) a. Inv: It's a window. You are right. [English]
TOM: This is gonna be a cool.
Inv: It is going to be cool. Yeah.
TOM: Can Ø give me this?
- b. $\frac{\text{CAN 2-GIVE-1 IX}}{\text{y/n?}}$ [ASL]
'Can you give me this?'
- c. $\frac{\text{CAN LEAVE NOW CAN}}{\text{y/n?}}$
'Can I leave now?'

In (5), an ASL-English bilingual Tom omits the subject of a finite clause containing a question and a modal. This configuration is ungrammatical from the point of view of adult English (and practically non-existent in English monolingual child corpora, see

Valian 1990) but fully grammatical in ASL (see (5b)-(5c)). I ultimately argue that the reason behind the existence of sentences like (5) in Tom's English is precisely the existence of sentences like (5b)-(5c) in his ASL. However, although this idea seems intuitive, its implementation differs depending on the model one adopts. Thus, this chapter serves as a backdrop for the subsequently reported study, where I argue that the language-synthesis model, argued for in this work, captures the presence of ASL in the English of ASL-English bilinguals better than the alternative model. However, before the study can be undertaken, the relevant phenomenon—i.e. argument omission—is thoroughly examined in **chapter 3**.

3. An ASL-internal detour

The ASL-internal part of the dissertation is devoted in its entirety to the analysis of cases such as (5b-c)—the nature of argument omission in ASL. The rationale here is as follows: since **chapter 2** argues for the model of language interaction in the mind of the bilingual along the lines of (3)—i.e. the presence of an element from L_X in L_Y —it becomes crucial what pieces of ASL (L_X) find themselves in the English (L_Y) of an ASL-English bilingual. Thus, **chapter 3** serves as an examination of the relevant pieces as it were.

For instance, if a L_X (e.g. Spanish or Japanese) allows arguments to remain overt but L_Y (e.g. English) does not, the difference can be explained by appealing to differences between the lexical items directly involved in the derivation, more precisely, by having the relevant heads, like T° and v° , being specified differently in Spanish, Japanese, and

English (Roberts & Holmberg 2010, Saito 2007, i.a.). In **chapter 3**, I review the standard analysis of null arguments in ASL and bring to light novel data that call for its amendment. Specifically, I argue (contra the traditional approach) that the null argument in ASL occurring in non-agreeing contexts does not appear to be of the same variety as the one found in Romance; rather, its distribution parallels what we find in Japanese—i.e. a case of argument ellipsis. Some of the consequences of this section concern the status of T° and v° (with respect to ϕ -features) in ASL and the nature of the nominal domain. The discussion proceeds in the following manner.

At the onset, I present data that serve as a puzzle to the current analysis of the null argument in ASL—namely that in an ellipsis configuration, the null argument has a non-strict reading, typically associated with ellipsis and not pronouns. A sample of the data is provided in (6).

- (6) A. a-PETER LIKE_{plain} a-POSS STUDENT
 'Peter likes his students'
 B. b-JEFF HATE_{agreeing} \emptyset
 'Jeff hates {Peter's /Jeff's} students'

The reading in (6B) on which Jeff hates his own students is typically referred to in the literature as the sloppy reading (see Heim & Kratzer 1998 for an overview). Although it is often used to diagnose pronouns, it has been argued that in configurations such as (6), the reading may indicate the presence of ellipsis (Oku 1998, Takahashi 2008, i.a.). Thus, the goal of **chapter 3** is to establish the origin of the reading. In the chapter, I subject the null element to a thorough examination and demonstrate that the account that views it as

a silent pronoun (*pro*) does not capture the data. Additionally, I show that the element clearly indicates ellipsis, and that this ellipsis targets an argument. Here, I adopt the view of such ellipsis as articulated in Saito (2007): the sloppy reading (i.e. reference to Jeff in (6B)) is possible because the v^o in (6B) has no uninterpretable ϕ -features. Since the pattern holds for subjects as well, I assume Saito's analysis for T' for subject ellipsis.

However, the chapter also exposes the fact that Saito's account does not fully extend to ASL without modifications—that is, ASL differs in crucial respect from Japanese. In ASL, argument ellipsis is further constrained: the elided element must be non-branching, i.e. both a head and a phrase. This addition is relevant to the size/nature of the nominal domain. I show that the entire nominal argument must elide (leaving no survivors, like possessors or adjectives); yet, the interpretation of anything other than the NP part is ignored. I argue this to be possible because NPs in ASL are bare, lacking the DP layer. In this, ASL behaves on a par with other languages that do not have an overt definite article, where such NPs are/can be arguments. I therefore argue that ASL is a language in which bare singular NPs are, in fact, arguments of verbs. In this, NPs in ASL differ from their counterparts in English (a language in which bare singular NPs cannot be arguments; they need a DP layer for that) and resemble languages like Russian (in which they can do so). Overall, **chapter 3** argues that a) ASL behaves as a language without a morphological instantiation of the i -operator (i.e. the definite article), and, thus, allows bare noun phrases (NPs) to be arguments, and b) the null argument in ASL is best described as ellipsis of an argument which must be minimal and maximal. In this, the

data from ellipsis in ASL offers evidence for the Bare Phrase structure (Chomsky 1993, i.a.).

Note that if null arguments in ASL result from the lack of ϕ -features on T° and v° , as in the analysis adopted in this work, then the approach has the following consequence: if an ASL-English bilingual *Selects* for the Numeration a T° and v° from ASL while the rest of the lexical items are in English, then ASL-style argument ellipsis (along the lines of (5)) may result. This view directly represents the language-synthesis model in (3)—i.e. the presence of the lexical item (T° and/or v°) from L_X amidst L_Y . In **chapter 4**, I put this prediction of the analysis to the test, contrasting it with the predictions arising from the influence model in (2).

4. Subjects: ASL-English bilinguals

In **chapter 4**, I examine linguistic patterns of ASL-English bilinguals, whose performance is then compared with that of monolingual learners of English and an Italian-English bilingual.

A note on the language combination: in contrast to unimodal bilingualism (knowledge/use of two languages in the same modality, e.g. Italian-English or Japanese-Farsi), this type of language combination has become known as *bimodal* (Emmorey et al. 2005, 2008, i.a.) (*cross-* and *inter-modal* elsewhere) and refers to an ability to use two distinct languages (e.g. ASL and English) in two distinct modalities (e.g. visual-manual, a.k.a. signed, and auditory-oral, a.k.a. spoken). Although the definition above potentially includes a spoken/written or signed/written language combinations, I set these aside.

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Because the questions I am aiming at answering lie in the domain of simultaneous language acquisition, the approach I take immediately excludes the aforementioned combinations from the inquiry at hand: typically (linguistically) developing children do not begin acquiring written language simultaneously with their spoken/sign language. This timing difference implies that learning all there is to learn about a written language (as well as using it in practice) places literacy outside of the domain of first language acquisition, and, thus, makes it more comparable to sequential bilingualism (L2). If that’s the case, then, the types of predictions that the account advocated in this dissertation makes for simultaneous bilinguals will extend to sign/written and spoken/written language combinations only insofar as it will extend to sequential bilingualism. Therefore, and to avoid further confusion, from this point on, the term *bimodal bilingual acquisition* as used in this dissertation makes reference to sign/spoken simultaneous bilinguals only.

By the same token, the term *bimodal bilingualism* as it is used in this dissertation does not apply to the knowledge/use of sign-supported speech—i.e. artificially designed systems which are not naturally acquired (Suppala 1993), and whose chief goal is to teach elements of the spoken language to Deaf/hard-of-hearing individuals (see a historical overview in Marschark et al. 2001). Viewed from this angle, sign-supported speech systems are not natural languages, and for this reason, the dissertation will say nothing about them.

Finally, for various reasons, the dissertation will not address linguistic patterns of deaf bimodal bilinguals: for the purposes of this dissertation, this population is too

heterogeneous (see an overview in Grosjean 2010).¹ In other words, *bimodal bilingualism* is reserved exclusively for the knowledge/use of two distinct natural languages in two distinct modalities.

Independently, one might ponder whether it is a priori feasible to compare unimodal and bimodal bilingualism. For instance, it might be intuitive to think of bimodal bilinguals as somehow different from unimodal bilinguals; if for no other reason, than for the following: e.g., unlike unimodal bilinguals, bimodal bilinguals can use both languages at the same time (Petitto, Katerlos., Levy, Gauna, Tetreault & Ferraro 2001, Petitto & Kovelman 2003, Emmorey, Borinstein & Thompson 2005, Emmorey, Borinstein, Thompson & Gollan 2008, Emmorey & McCullough 2009, Emmorey, Luk, Pyers & Bialystok 2008, Emmorey & McCullough 2008). Yet, a priori, a theory of *acquiring* a language (spoken or signed) in addition to another (spoken or signed) language makes no special reference to modality effects. This view is true on either model of transfer effects (i.e. (2) or (3)) and is the route this dissertation follows. Thus, I adopt a null hypothesis that the nature of *bimodal* bilingualism contributes nothing additional to the nature of *bilingualism* insofar as the type of processes in the linguistic mind of the language user are concerned. The data ultimately support this hypothesis, but a particular amendment to the theory of bilingualism-related effects (which has been argued for independently) is

¹ However, deaf bimodal bilinguals are not excluded by the model. In fact, the model of 'transfer' advocated in this dissertation makes explicit predictions for deaf users of the written version of the spoken language (the typical state of affairs for many deaf people in North America and Europe): insofar as the written language is their L2 and the Sign language is their L1, they are expected to behave as sequential bilinguals (see chapter 5 section 3). In fact, as the examination of their linguistic patterns shows, they do: e.g. Mendez (2009) analyzes writing patterns of L1 users of Catalan Sign Language as instances of *pooling lexical resources*—i.e. language synthesis.

required; this amendment is related, in practical terms, to the aforementioned uniqueness of bimodal bilingualism.

In **chapter 4**, I report a study which compares the performance of two ASL-English bilinguals (ages 1;11-4;11) in argument suppliance in English to that of five monolingual English learners and an Italian-English bilingual Carlo (Serratrice et al. 2004). Over 8,000 utterances of data are analyzed. The main finding of the study is that the ASL-English bilinguals omit arguments in their English (i) quantitatively and qualitatively differently than monolinguals and other (unimodal) bilinguals, and (ii) in a manner compatible with ASL (as in (5b)-(5c)). In other words, the children behave along the lines of language-synthesis. Additionally, because the alternative model (i.e. (2)) predicts disappearance of such language interaction effects by time C-domain is instantiated (see (2c)), I take it to mean that it is insufficient to account for the data presented here: the rates of argument omission in the study are unrelated to the development of the C-domain—i.e. they occur much after its instantiation, almost at the age of 5. Overall, the results reported in the study speak to the conclusions of both of the previous chapters: ASL-English bilinguals exhibit effects of language interaction in their English that is best viewed as language synthesis (in line with the discussion in chapter 2)—i.e. the presence of the T° and v° without uninterpretable ϕ -features results in ASL-style argument ellipsis in their English.

Chapter 4 makes an additional independent contribution: although, as discussed at length in the chapter, the phenomenon of argument omission has received much attention in monolingual and bilingual literature, it had not been previously described with respect to *bimodal* acquisition, nor have balanced bilinguals been previously

reported to exhibit the patterns recoded in the study. An immediate question begs: if the elevated rates of argument omission in bimodal bilinguals are a direct consequence of the presence of particular functional heads from ASL in the lexical inventory (the leitmotif of **chapter 2**), and if the relevant functional heads (T° and v° without uninterpretable ϕ -features) bear a direct responsibility for argument omission, then why do children acquiring a similar combination of languages (e.g. Japanese-English) not exhibit the same linguistic patterns? Here, I suggest that the answer lies in the uniqueness of ASL-English bilinguals: the ASL 'transfer' effects in their English are not hidden by other bilingualism-related effects, such as the constant obligatory inhibition of one of the languages in favor of the other (Sorace 2011). Therefore, I argue that investigation of bimodal bilingual linguistic patterns presents an opportunity for studying various bilingualism effects which are not easily untangled in unimodal bilingualism.

5. Methodology

A particular set of assumptions underlies how the investigation in this dissertation is conducted. Two types of methodologies are employed—elicitation and grammaticality judgments in **chapter 3** and analysis of naturalistic production/corpus data in **chapter 4**. Let me elaborate on each.

Although experimental verification of syntactic and semantic judgments reported by native language users is valuable (see Sprouse & Almida, to appear, for an overview), one first needs to establish what the judgments actually are. Thus, no *novel* ASL judgments reported in **chapter 3** have been quantified; rather, the data should be seen as the point of departure for further, experimental, studies.

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Examples of ASL utterances (as well as those from other languages) reported in **chapter 3** have made their way into this dissertation in two independent (though often overlapping) ways. Some of them have been previously reported in the literature (and are cited as such), although the original conventions may have been amended for format consistency. The following notation is employed: ASL lexical items are glossed in all caps; the location of the sign is shown in small letters, connected to the lexical item by a dash; the interpretational index is given in subscript in italics. The line above the example (when present) indicates non-manual markings (e.g. *t* for topic, *wh?* and *y/n?* for *wh*- and *y/n*-questions, respectively, and *neg* for negation). At least three adult native signers were consulted on all of the examples: two Deaf and one hearing; some of the data were presented to an additional four native consultants: three Deaf and one hearing. Most of the data were presented to the consultants on at least three separate occasions. The grammaticality of utterances (either in general or given the provided context) was assessed as 'BAD,' 'AWKWARD,' or 'ACCEPT.' For the purposes of this dissertation, sentences judged AWKWARD were excluded from the discussion, unless judged BAD by different informants or by the same informant on a different occasion. This then left 'BAD' and 'ACCEPT,' corresponding to, roughly, to the conventional 'ungrammatical'/'*' and 'grammatical'/'v'.

Chapter 4 reports a study of naturalistic production—i.e. an examination of two member corpora within the BIBIBI project (Lillo-Martin et al. 2009, Chen Pichler et al. 2010). The subjects are filmed biweekly for each language. Filming takes place either at the child's home, daycare, or at Gallaudet University; sessions range between 35-50 min.

Data were transcribed and analyzed using ELAN (<http://www.lat-mpi.eu/tools/elan/>), following the conventions established by Chen Pichler et al. (2010), many of which are parallel to those used in CHILDES (MacWhinney 2004). For this study, only English-target sessions for each child were included: 16 sessions for TOM and 6 for LEX, 8465 utterances in total. MLU_w was calculated based on the guidelines from Brown (1973). All utterances subject to the analysis were coded according to their compatibility with the adult language in a given context. All non-linguistic utterances (i.e. vocalizations, xxx, yyy), repetitions and direct imitations were excluded from the analysis. All coding decisions above were initially checked by 1-3 native speakers; additionally, 10% of total utterances were subjected to a reliability check involving independent coding by a separate, trained coder, with 99% agreement attained.

6. Outline of the dissertation

To summarize: in the dissertation, I show that a *Minimalism*-friendly model of code-switching along the lines of (3) accounts for the empirical data mentioned above in terms of language-synthesis. The dissertation begins with the discussion in **chapter 2** where the approach to 'transfer' effects in multilingualism is defended in terms of (3). **Chapter 3** defines the relevant 'pieces' of L_X (ASL) amidst L_Y (English)—i.e. T° and v° . **Chapter 4** subjects the combination of predictions independently arising from **chapters 2** and **3** to the test. Overall, the data presented in the dissertation support (3) over (2), with each of the chapters serving as a vehicle for ensuing discussions.

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CHAPTER 2

Transfer as language-synthesis: the “bleeding” and “spreading” grammars

1. Introduction

The goal of this chapter is two-fold. Its primary goal is an examination of the concept of *cross-linguistic transfer* as commonly used in the literature on bilingual first language acquisition (2L1). I will be addressing this concept in terms of its descriptive and explanatory power/adequacy. I adopt here, as a working definition, the view typically assumed in the 2L1 literature—that *transfer* refers to “incorporation of a grammatical property into one language from the other” (Paradis & Genessee 1996: 3). That is, morpho-syntactic patterns of bilinguals bear witness to the knowledge of more than one language insofar as surface structures (strings) typically associated with the syntax of L(language)_X may be found in the utterance of the L(language)_Y. Bilingual child utterances such as (1a-b) below illustrate such incorporation: (1a) records the speech of a German-Italian bilingual child Carlotta, while (1b) provides a sample utterance of Sophie, a child who is acquiring Cantonese and English simultaneously.

- (1) a. Adult: Dov’è che manca la punta? Vendiamo. Qua [Italian]
 ‘Where is the point missing? Let’s look. There

Carlotta: No, io fa Ø.
 ‘No I makes Ø.’

(adptd. Müller et al. 1999)

- d. Daddy, I already give the mosquito to bite.
Target: *I have been bitten by a mosquito.*

(adptd. Yip & Mathews 2007)

Consider (4): Carlotta is omitting the object in Italian. Adult German and Italian differ with respect to the possibility of object omission. German allows omission of a topicalized object productively (see (2)). In contrast, although the subject in Italian may remain null, the object cannot (see (2)).

- (2) a. A. Wo ist dien Buch? [German]
Where is your book
'Where is your book?'
B. Ø Habe ich vergessen
have I forgotten
'I have forgotten it'
- b. A. Dov'è il tuo libro [Italian]
Where is the your book
'Where is your book?'
B. {L'/*Ø} ho dimenticato
It have forgotten
'I have forgotten it'

In (4), Carlotta appears to exhibit a null object (NO), which also happens to correspond to the discourse topic, in her Italian (Müller et al. 1999, Hulk & Müller 2000, i.a.). In other words, the grammatical property from German (L_X) has been 'incorporated into' Carlotta's Italian (L_Y).

A similar observation may (in principle) be made about the English of a Cantonese-English bilingual Sophie. In (4), Sophie's use of *give* betrays her knowledge of Chinese—a language that expresses passive with the lexical item *give* (as in (3)).

- (3) Ah Hok Tapai hor lang me [Southern Chinese]
Ah Hok always give people scold

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'Ah Hok always gets scolded by people'

(Bao & Wee 1999, ctd. in Yip & Mathews 2007)

Thus, one might say that Sophie's English (L_X) passive 'incorporates' the Chinese (L_Y) *give*.

How this incorporation is achieved, however, is a murky business. In particular, this chapter argues that the standard model of such 'incorporation'—i.e. *cross-linguistic influence* in the sense of Hulk & Müller (2000)—omits important questions from the inquiry, and, on the assumptions adopted in this chapter, is too nebulous a concept to pin down theoretically. Further, the model necessarily excludes (4) from the analysis, attributing such utterances to a different phenomenon entirely.

Before undertaking a full discussion of the cross-linguistic influence model, I will introduce my proposal, which is rooted in a *Minimalist* theory of how the two languages of a bilingual could potentially wind up in the same utterance—namely, via code-switching/-mixing (see Cantone 2007 for equating the two in multilingual acquisition). However, I will deviate from the typical view of code-switching/-mixing by simply extending the assumptions that underlie *Minimalism*. Ordinarily, code-switching/-mixing implies phonologically identifiability of pieces from the 'mixed' languages (i.e. a switch between Spanish and English, or Russian and Portuguese, etc.). However, the chapter exposes the fact that the aforementioned is not a requirement. In order to subsume other potential cases of the '-switch/-mix,' I offer a new label for the phenomenon—'*language-synthesis*.' In short, I will be arguing that given certain assumptions, what is typically labeled 'cross-linguistic influence' or 'transfer' should be described in terms of

language-synthesis (switching/mixing between different languages while keeping the phonological features of one). That is, I will argue for the *synthesis* account of cases such as (4), over the account appealing to *influence*. In other words, the second goal of the chapter is to defend a language-synthesis account of effects such as those in (4): when Carlotta omits objects in her Italian, she might be doing so because the Italian-pronounced string contains a functional element from German (C°) allowing the object-drop. In other words, Carlotta code-mixes/-switches: C° comes from German but the VP from Italian.

However, neither Italian, nor German or Chinese are examined here: in this dissertation, I will be using cases in (1) for exposition purposes only, in full recognition of the fact that the issues involved in the syntax of (2) and (3) deserve an independent discussion. Instead, since the dissertation focuses on bilinguals acquiring A(merican) S(ign) L(anguage) and English, I will be addressing the case in (4), which I argue to be a parallel to (4)—a structure in L_X (English) reminiscent of L_Y (ASL).

- (4) a. Inv: It's a window. You are right. [English]
 TOM: This is gonna be a cool.
 Inv: It is going to be cool. Yeah.
 TOM: Can Ø give me this?

 y/n?
 b. CAN 2-GIVE-1 IX [ASL]
 'Can you give me this?'

 y/n?
 c. CAN LEAVE NOW CAN
 'Can I leave now?'

In (5), Tom—an ASL-English bilingual—omits the subject of a finite clause containing a question and a modal. This configuration is ungrammatical from the point of view of adult English and practically non-existent in monolingual child English (see **chapter 4**). However, as (5) shows, the ASL counterpart of (5) is fully grammatical. I will be arguing that the reason behind the existence of sentences like (5) in Tom's English is precisely the existence of sentences like (5) in his ASL. Although this idea seems intuitive, its implementation differs depending on the model one adopts. The view this dissertation advocates is that Tom's utterance in (4a) containing a null argument bears witness to an element from ASL being 'mixed' into Tom's English; however, nothing phonological betrays this 'mix'—a case of language-synthesis. Ultimately, this chapter will serve as a backdrop for the study reported in **chapter 4**, where I argue that the language-synthesis model captures the presence of in the English of ASL-English bilinguals better than cross-linguistic influence à la Hulk & Müller (2000).

2. Proposal: *Language-synthesis*

Throughout this chapter, and for every step of the discussion of *transfer/incorporation of grammatical properties* between the languages of a bilingual, I will be offering an alternative view—one that can be phrased along the lines of (5):

(5) An element from L_X is found in an otherwise L_Y utterance.

As stated, (5) formulates what is typically referred to in the literature as intra-sentential code-mixing/-switching (i.e. an utterance can be comprised of elements from two distinct

languages). It offers a particular account of Carlotta's performance (see (4)) and mirrors the line of argumentation in Cantone (2007). In other words, I propose that the cases of cross-linguistic *transfer* should be derived via a code-switch as in (5). I show that the framework adopted in this dissertation—the *Minimalist Program*—naturally lends itself to such a theory of bilingual effects.

2.1 Code-switching and *Minimalism*

Code-switching (CS) as a theoretical construct has received much attention in various branches of linguistic inquiry. The literature on CS in general is too numerous to review here, and I will not attempt it (see Poplack 2001). Suffice it to say, for the purposes of the discussion at hand, that bilinguals switch between languages often and effectively, especially when they know their interlocutors to belong to the same linguistic group. This finding has been documented for a number of language combinations (see an overview in Grosjean 2008).

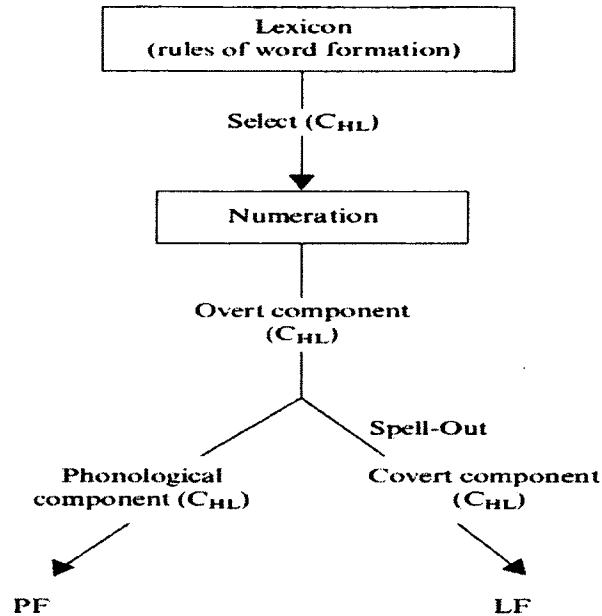
However, as much research has brought to light (see, in particular, Woolford 1983, Mahootian 1993, Santorini & Mahootian 1995, MacSwan 1999, MacSwan 2005 and references therein), much of the work on CS implies a theory which appeals to mechanisms *particular* to CS and, thus, attributes to a bilingual a grammar different from the one available to a monolingual language user (a.k.a. the *Third Grammar*). Instead, the ideal theory of CS would be one that derives bilingual patterns based on the monolingual grammar(s) alone and subsume code-mixing (Myusken 2001, Cantone 2007, i.a.).

With the advent of the *Minimalist Program* (Chomsky 1995), the push became evident. Unlike its predecessors, *Minimalism* cannot a priori make reference to pre-designed grammatical structures of L_X vs. L_Y in the linguistic mind of the bilingual. A *Minimalist* model of grammar consists only of three (chief) operations—*Select*, *Merge* and *Move*²—and operates on feature-bundles comprising lexical items in L_X or L_Y . These feature bundles, when 'plugged into' the computational component C_{HL} , undergo feature-checking with other relevant lexical items; this occurs either in situ or, if the feature (bundle) is forced to move for the checking relation to succeed, in a derived position. At the point of *Spell-Out*, the computation splits into two parts, one forming π and the other forming λ (Chomsky 1995). If the derivation *converges at the interfaces* (PF and LF, see section 2.3), the utterance is grammatical/possible; if the derivation does not converge (and *crashes*), the utterance is not grammatical/possible. The aforementioned, in turn, *results* in what can be described as a grammar of L_X or L_Y . One schematic formulation of the view above is (6):

(6) *Figure 1. Minimalist architecture* (MacSwan 2005, based on Chomsky 1995)

² In recent approaches, the latter two have become known as *External* and *Internal Merge* (Chomsky 2000, i.a.).

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This view of language makes certain predictions for theories of CS. In order to meet the challenge of the 'null theory of CS' (Mahootian 1993, Mahootian & Santorini 1996), one is committed to using only the primitives within the confines of the monolingual language faculty. This, in turn, means that CS will (be able to) occur unless the derivation crashes. Thus, a *Minimalist*-friendly (McManness 1999) theory of CS must operate along the lines of (7)—a research agenda, rather than a grammatical principle—from MacSwan (1999):

- (7) Nothing constrains code switching apart from the requirements of the mixed grammars.

(7) implies that as long as the featural requirements of the lexical items (LIs) in the Numeration are satisfied and the checking relation succeeds, then, at least from the point

of view of the structural configuration, the ‘switch’ will be possible—a derivation among other convergent derivations that happens to be non-language uniform.³

Consider (8):

- (8) Ella me dijo que estaba enojada [Spanish]
She me said that was angry
‘She told me that she was angry’

- a. Ella_{Spa} me_{Spa} dijo_{Spa} **that**_{Eng} she_{Eng} was_{Eng} annoyed_{Eng} / enojada_{Spa}
- b. She_{Eng} told_{Eng} me_{Eng} **que**_{Spa} estaba_{Spa} enojada_{Spa} / annoyed_{Eng}
- c. *Ella_{Spa} me_{Spa} dijo_{Spa} **que**_{Spa} she_{Eng} was_{Eng} annoyed_{Eng} / enojada_{Spa}
- d. *She_{Eng} told_{Eng} me_{Eng} **that**_{Eng} estaba_{Spa} enojada_{Spa} / annoyed_{Eng}

Within the framework outlined above, the complementizer *que* in (8) is comprised of a set of features that make it unambiguously *que*. Therefore, in order for some checking relation⁴ to take place (and succeed) between *que* and its complement, (something in) the complement must have the relevant feature as well.⁵ If the checking succeeds, then, at least from the point of view of the structural configuration, the ‘switch’ will be possible—a derivation among other convergent derivations that happens to be non-language uniform. In other words, nothing a priori disallows *que*_{Spa} in (8) to be followed by an English (or a Turkish, Mandarin or ASL) complement; the latter combination is

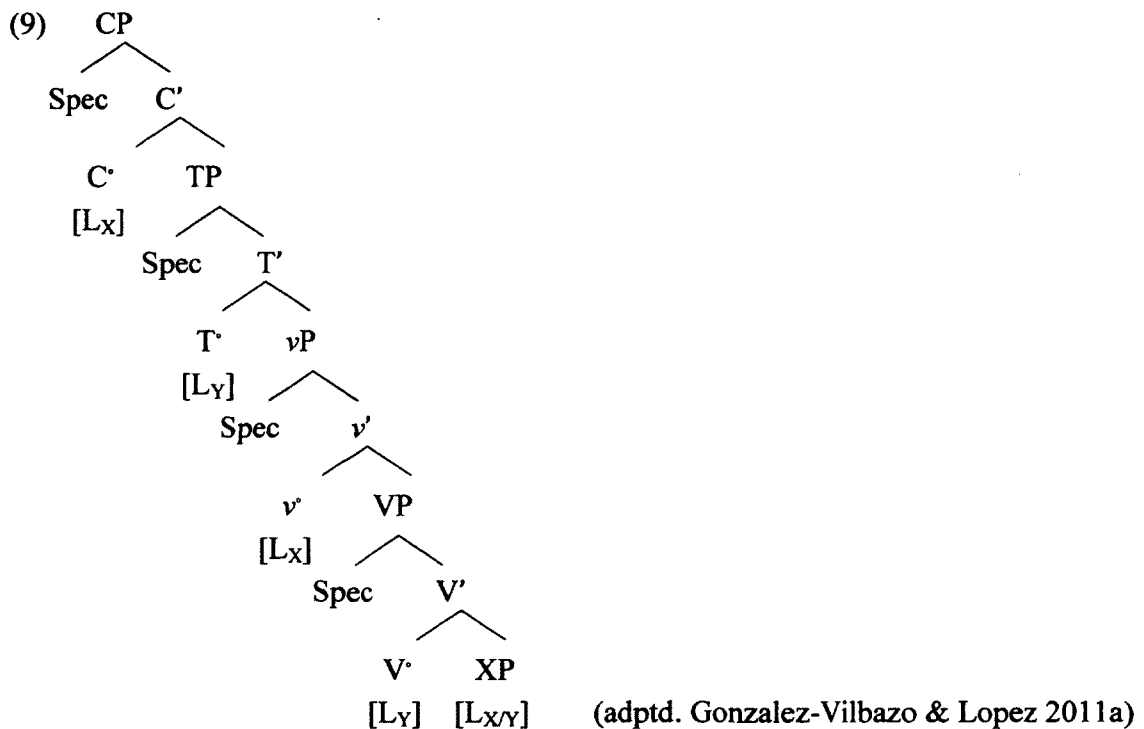
³ This view of CS poses a stark contrast to the traditional, constraint-based approach: the latter offers rules according to which CS can occur; the former predicts contexts where CS will be banned.

⁴ Here, I assume that the checking relation is *Agree* in the sense of Chomsky (2002); the precise details are irrelevant at the moment.

⁵ Various forms of this constraint on CS (and under different names) have been studied in a number of works: Lipski 1977, Pfaff 1979, Bentahila & Davies 1983, Belazi et al. 1994, Rubin & Toribio 1995, Myusken 2000, i.a.

banned because certain features of *que* (and/or of the complement) will remain unchecked.

Gonzalez-Vilbazo & Lopez (2011a) (see also den Dikken & Bandi-Rao & 2003, den Dikken 2011, and others for similar proposals) offer (9) to capture the intuition.



Such an approach to a mixed clause naturally yields sentences such as (10), found in the speech of German-Spanish bilingual students enrolled in a German school in Spain.

(10) *Context: What happened to the watches?*

Juan_{Spa} die_{Germ} Uhren_{Germ} las_{Spa} hizo_{Spa} verKAUFen_{Germ}. [Esplugish]
Juan the watches, them did sell
‘Juan SOLD the watches.’ (Gonzalez-Vilbazo & Lopez 2011a)

The utterance in (10) consists of vocabulary items from two different languages: German and Spanish. Specifically, the verb and its object (*verkaufen* and *die Uhren*, respectively) come from German, but the light verb *hizo* and the preceding it clitic referring to the same object (*las*) are Spanish. Following a number of works in the literature, Gonzalez-Vilbazo & Lopez argue *hizo* to be a phonological instantiation of v°_{Spa} and, thus, demonstrate a code-switch between $v^{\circ}_{\text{Spanish}}$ and its complement VP_{German} .

Similar observations have been made for other language pairs:

- (11) Vaadu_{Tel} nanni_{Tel} love_{Eng} cees-EEDu_{Tel} [Telugu/English]
he-NOM me-ACC love do-PST-AGR
‘He loved me.’ (den Dikken & Rao 2003)
- (12) Mula_{Mar} khurcyā_{Mar} paint_{Eng} kartāt_{Mar}.do(+ Tense) [Marathi/English]
boys chairs paint do.TENSE (Joshi 1985)

In other words, a code-switch between the v° and its complement is possible, as long as all the relevant features of the elements undergoing the checking relation are satisfied.

In this respect, the only difference between a monolingual and a bilingual is the number of lexical items available for Numeration. Plainly, if both $v^{\circ}_{\text{German}}$ and $v^{\circ}_{\text{Spanish}}$ are available, then the set of possible structures using a German verb is enlarged.⁶

2.2 Switching in silence: language-synthesis as ‘transfer’

The argumentation above warrants another step: in the *Minimalist Program*, lexical items are, in fact, bundles of three sets of features: formal, semantic, and phonological, with

⁶ Although note that the number of word-order patterns will be constrained. See Gonzalez-Vilbazo & Lopez (2011a, et seq.) for the theoretical account and Catone (2007) and Spralidin et al. (2008) for evidence from acquisition.

each set manipulated in/interpreted by different 'areas' of the grammar. The aforementioned implies that in (8), phonological features of *que* (i.e. resulting in /kɛ/) are necessarily part of the same lexicon as its semantic and formal features. However, consider what will happen if one of the elements in a mixed phrase is (necessarily) silent. If this is the case, the resulting phrase might bear resemblance (in terms of its syntax) to L_X but the phonologically overt lexical items might be from L_Y . To exemplify: although in (10)-(12) the v° was uttered overtly (i.e. as the light verb, e.g. *hizo*_{Spa}), nothing in principle is expected to change if the v° is covert. In this case, only syntactic structures may betray the presence of the other language in the Numeration; the *overt* lexical items will be language uniform.

To the degree that this approach to the CS patterns of a bilingual is on the right track, (9) naturally lends itself to the theory of cross-linguistic effects. For instance, if one were to view *incorporation of grammatical properties/transfer* between the languages of a bilingual along the lines of (5)—presence of the element from L_X amidst L_Y —then under the assumptions in (6), it implies code-switch along the lines of (9). The aforementioned amounts to approaching cases of *transfer* documented in the literature as code-mixing/-switching. In other words, the main result of the *Minimalist Program* is that all cases of code-switching *and* transfer have the same source—lexical.

Note also further consequences of this view. If, as is commonly assumed, functional heads (i.e. v° , T° , and C°) from L_X carry other ramifications on the structure of the clause (cf. Borer 1984), otherwise consisting of L_Y , then these ramifications will surface. For instance, Gonzalez-Vilbazo & Lopez show that the v° _{Spa} in an otherwise German utterance results in the change of prosody and word-order, indicative of Spanish,

and not German, patterns. In other words, the presence of the relevant functional head from L_X in an otherwise L_Y clause will have L_X -like ramification on the nature of bilingual language patterns. That is, on this view, influence/transfer of L_X is best viewed as a lexical item from L_X amidst L_Y . Nothing, however, forces this lexical item to be overtly expressed.

We have thus arrived at a terminological fork in the road: the terms 'code-mixing' and 'code-switching' are typically used in reference to parts of the utterance that clearly have output in two languages with respect to phonology. However, what I offer above as a logical possibility is a code-mix/-switch with respect to syntax but not phonology, if an element from L_X 'mixed' into the L_Y is silent. Thus, to subsume cases where a code-mix occurs but the phonology does not betray a change in language, I will use the new term—*language-synthesis* (*grammatical synthesis* elsewhere, cf. Lillo-Martin et al., in press).

- (13) Language-synthesis is ...
- a. a *Minimalism*-based code-switch/-mix, phonological incarnation of which may be language uniform;
 - b. best described as an element from L_X amidst L_Y

In this, *language-synthesis* allows elements of L_X to be pronounced as L_Y .⁷ In the remainder of the chapter, I will argue that the framework outlined above offers a mechanism for deriving linguistic patterns in the languages of bilinguals typically attributed to cross-linguistic transfer.

⁷ Note also that certain variants of the Lexicalist approach (e.g. Chomsky 1995) and—necessarily—Late Insertion models (e.g. Distributed Morphology, Halle & Marantz 1993) allow a full separation of formal and phonological features (i.e. the former but not the latter sets may be manipulated by the grammar). This opens up a real possibility of combining formal features from L_X and phonological features of L_Y , such as the case in (1b).

3. Against the cross-linguistic influence

Before proceeding further, however, let us revisit the cross-linguistic transfer in terms familiar from 2L1 research. It is a matter of observation that bilingual children's linguistic patterns exhibit their knowledge of other languages—as if the grammars influence one another in some sense, as if the child incorporates syntactic processes associated with L_X into L_Y . In principle, one may approach this observation as either (i) a descriptive term for the phenomenon exemplified in (4), or (ii) (a set of) learner strategies which lead to structures like (4) in the speech of a bilingual. Alternatively, one may envision it as (iii) a mechanism that derives (4). In this section, I review an influential approach to transfer in the 2L1 literature due to a number of papers by Hulk & Müller (1998, 2000, i.a.; henceforth H&M). The chapter exposes the fact that this of (4) excludes (iii) from the discussion entirely, while the language-synthesis view outlined above succeeds in offering a mechanism for the phenomenon.

At every stage of the argument, I will be comparing the H&M model to its competitor—i.e. language-synthesis in (13)—and, thus, hope to demonstrate which has a better chance of surviving conceptually, as well as empirically. The line of argumentation offered in the chapter reveals language-synthesis withstands the competition.

3.1 *Transfer and influence*

H&M account for the potential loci and reasons of transfer—i.e. appearance of grammatical structures from the other language—by specifying the criteria in (14).

- (14) a. Cross-linguistic influence occurs at the interface between two modules of grammar, and more particularly at the interface between pragmatics and syntax in the so-called C-domain, since this is an area which has been claimed to create problems in L1 acquisition also.
- b. Syntactic cross-linguistic influence occurs only if language A has a syntactic construction which may seem to allow more than one syntactic analysis and, at the same time, language B contains evidence for one of these two possible analyses. In other words, there has to be a certain overlap of the two systems at the surface level. (Hulk & Müller, 2000:228-229)

Before launching into the full discussion of (14), it should be noted that H&M (at least in (14) above) make no explicit reference to *transfer*; rather, they label the phenomenon *influence* of one language on the other. A priori, *transfer* and *influence* are distinguishable terms; however as far as (14) is concerned, the difference between the two terms is less obvious and warrants a discussion.⁸

Translating (14) into the terms used thus far, H&M expect an incorporation of some grammatical property from L_X into L_Y if the aforementioned property is a property of the CP (and not, e.g. the IP or DP), which the authors, following a number of prominent works in the field, consider to be a 'meeting place' of syntax and pragmatics and an area of difficulty for learners in general. Further, the properties of L_X in L_Y are expected only if a surface form of some phenomenon of L_X resembles the surface form of a(nother) phenomenon of L_Y . In terms of the definition in (14) then, if language A (L_X) 'influences' language B (L_Y), then some property of L_X transfers into L_Y . In particular,

⁸ Alternatively, one might assume Yip & Mathews (2007), who advocate an account of *transfer* as a proper subset of cases of *influence*. They assume (following Paradis & Genessee 1996) that while *transfer* is necessarily grammatical—i.e. it affects structural representations—*influence* subsumes other bilingual effects, such as those related to performance. Note that Yip & Mathews suggest that code-mixing/-switching is a performance-based process (see also Müller, Kupisch, Schmitz & Cantone 2006 and references therein) and, thus, lies outside of the *transfer* proper, as it were. However, I argue that it is plausible to view the two phenomena as the same.

the child attributes the analysis (or strategies leading to it) of the phenomenon in L_X to the surface-similar phenomenon in L_Y . In this respect, one might say that *influence* may entail *transfer*: under the *influence* of L_X , a property of L_X (which the child mistakenly attributes to being a property of L_Y) may end up in L_Y . However, another possibility opens up here: in the presence of two types of input with respect to a particular grammatical property, a child will remain undecided for longer than a monolingual would. In this case, nothing transfers from L_X into L_Y ; rather, the child produces another kind of non-target grammar (which, on the surface, may or may not be consistent with either L_X or L_Y).

In much of the research subsequent to Hulk & Müller's proposal, the terms have been used interchangeably. I will largely follow suit here unless the difference becomes crucial.

Let us then apply (14) to (4). H&M argue that cases like (4) betray Carlotta's reliance on topic-licensing of null objects, which has been argued to be a default state of grammar prior to the instantiation/full knowledge of the relevant aspects of the C-domain (cf. Roeper 1999). Because the aforementioned property also happens to be the property of German, the input from which reinforces the legitimacy of the analysis, Carlotta extends the topic drop to her Italian for longer than the monolinguals. Note here that topic-drop is typically assumed to involve a non-trivial interaction between syntax and discourse at the CP level of structure. Thus, (14) is satisfied. Additionally, since topic-bound argument omission is in principle allowed in Italian (cf. Frascarelli 2007) and has been argued to characterize early stages of child grammar (Roeper 1999, Rizzi 1994), Carlotta adopts the analysis that happens to be correct for German and applies it to her

Italian. In other words, a grammatical property that (*accidentally*) happens to be a property of German is adopted as a part of Carlotta's Italian: only default properties are affected by the bilingual's other language.

Note here that if no appeal is made to a topic-bound default, then the data suggest that a grammatical property that *is* a property of German is adopted as a part of Carlotta's Italian. However, an analysis along the same line will not apply to (4). In (4), Sophie uses *give* as a passive marker in English. Unlike topicalization, passive is an A- (vs. A'-) dependency, i.e. it arguably involves the TP (not the C-domain); thus, (14) is not met⁹. In addition, there is no surface overlap: in English, *give* never signals a passive construction.¹⁰ In other words, (14) is not met either. In other words, on the H&M view, (4) does not constitute *influence* from Cantonese onto English (and they do not discuss such cases); rather, it must be something else. Yet, this chapter will argue that cases like (4) may be viewed on a par with cases like (1a)—both exhibiting *transfer* insofar as elements from L_X are found amidst L_Y. The aforementioned becomes possible if *transfer* is envisioned not as *influence* along the lines of H&M but as, quite literally, pieces of L_X and L_Y in one sentence—in other words, *language-synthesis* as discussed in section 1.

Let us first examine (14), however: (14) refers to *where* in the structure one might encounter evidence of the other language and a potential cause for it, chiefly related to 'juggling' multiple tasks/modules of grammar (i.e. *why*); (14) outlines additional conditions (i.e. *when*) for the transfer of grammatical properties of L_X and L_Y to be taking place. But, however accurate (14) might be in describing (i) the phenomenon and, by

⁹ Note, however, that it is plausible to view passive as involving the syntax-pragmatics interface: after all, voice affects information structure of the clause.

¹⁰ Instead, English *get* may mark passive (as in *get lost*); in this case children hardly ever make errors with respect to the form of the verb that follows (see an overview in Crawford 2011).

implication, (ii) the potential strategies the language learner is expected to employ, nothing in (14) suggests *how* this actually happens, i.e. what exactly happens in the linguistics mind of a bilingual when languages affect one another.

Albeit appearing somewhat unfair—after all, the model in (14) does not attempt to offer the details of a full linguistic analysis on a part of the bilingual child—the question just posed offers a potential to further the theory of bilingualism if the answer to it naturally entails the effects observed in (4). To that effect, the theory of *transfer* which begins with the mechanism is expected to fare better overall insofar that it would require fewer extensions. Thus, the first objection against the H&M model in (14) is that it suffers (though perhaps not atypically) from not being able to provide (iii) the mechanism which would derive (4): it remains unclear and rather open to interpretation what exactly needs to happen in the linguistic mind of the bilingual for the effects to surface.

In contrast, the definition of language-synthesis as in (13) with respect the 'incorporation of grammatical properties from L_X into L_Y ,' unravels thus: something from L_X winds up in L_Y . Importantly, it is not the case that anything from L_X *transfers* into L_Y , unless the bilingual begins to view some element from L_X as being a part of the L_Y lexicon; rather, a lexical item from L_X may be *Selected* for the Numeration containing otherwise L_Y items. In this respect, one might say that presence of the lexical items from L_X in the linguistic mind of a L_X - L_Y bilingual may lead to surface effects that appear to be 'transfer of grammatical properties' or 'cross-linguistic influence.' The only true 'influence' of L_X , however, is its presence (and, thus, the potential for its lexical items to be *Selected*). Nothing transfers or exerts influence. Therefore, nothing new needs to be

said about bilinguals' acquisition, in addition to what it means to acquire language in general, which remains consistent with the model of language architecture as in (6).

Having thus spelled out the first reason for a different approach to the question of *transfer* entirely, it is reasonable to inquire whether the manner in which the definition of *transfer* is currently phrased (i.e. (14)) is actually adequate: namely whether (a) it succeeds in accounting for the phenomena in (4), but also whether (b) the assumptions underlying it can be maintained theory-neutrally. In what follows, I show that (b)—i.e. the theoretical underpinnings of the model—cannot be easily maintained.

3.1.1 Separation of grammars

The second point which warrants a focused discussion of (14) deals with the following question: if the languages of a bilingual are indeed separate, then how in principle can a surface string from L_X influence L_Y ? This subsection examines this assumption underlying (14) directly.

Two main hypotheses regarding the initial state of the linguistic system of the bilingual have been entertained in the field: *Unitary-* vs. *Dual-System Hypotheses* (USH and DSH, respectively). USH is based on an observation by Leopold (1949), and elaborated on in the important work by Volterra & Taeschner (1978), that bilingual children go through a linguistic stage—around/up to the age of three—during which they mix languages. The original reasoning behind the hypothesis relied on the observation that although young bilingual children's vocabularies exhibit knowledge of lexical items from both of their languages, translation equivalents often seem to be lacking. Thus,

Volterra & Taeschner suggested that the children begin with one grammar, which incorporates characteristics of both of his/her languages.¹¹

The alternative view (DSH), then, is that at all times, the languages that the child is acquiring are separate, though perhaps not equal (insofar as acquisition of one of the languages may be further along due to, e.g., an increased amount of input), linguistic systems (Meisel 1989, Genesee 1989, i.a.). This view, in turn, translates into more than one set of lexical items as well as separate syntactic and phonological processes associated with each of them. For instance, the child acquiring two languages which differ along the lines of grammatically licensed argument drop is expected to acquire the requisite properties of the languages separately. The question now arises: if children's languages—with respect to lexical items as well as grammatical processes—are separate, how in principle could a particular property of L_X (e.g. argument drop) wind up in L_Y ?

In other words, this approach to bilingual language architecture needs an account of why separate languages get mixed at all. It is well known that utterances such as (15) below appear in spontaneous production of young bilinguals.

- (15) a. $\text{moi}_{\text{Fr}} \text{je}_{\text{Fr}} \text{mange}_{\text{Fr}} \text{tout}_{\text{Fr}} \text{les}_{\text{Fr}} \text{Salzstangen}_{\text{Ger}}$ (Alexander 2;07.06)
me I eat all the pretzel-snacks
- b. $\text{c'est}_{\text{Fr}} \text{kaputt}_{\text{Ger}} \text{ma}_{\text{Fr}} \text{maison}_{\text{Fr}}$ (Alexander 2;08.12)
it's broken my house (Kupisch 2008)
- c. $\text{Ich}_{\text{Ger}} \text{hab}_{\text{Ger}} \text{ge}_{\text{Ger}} \text{climbed}_{\text{Eng}} \text{up}_{\text{Eng}}$
I have PART. (Gawtlitzek-Maiwald & Tracy 1996)

¹¹ It is precisely this observation that has spawned subsequent research on code-switching/mixing (see an overview in Cantone 2007).

In (15)a-b), the 'mix' occurs when the German *Salzstangen* or *kaputt* make its way into an all-French sentence, and in (15)c)—when the English particle verb ends an all-German sentence and is preceded by a German bound morpheme *ge-*.

Such mixing may in principle be attributed to "contextual factors," such as (a) lack of knowledge of the vocabulary item in the other language and (b) the nature of the input (i.e. because care-givers routinely code-switch/incorporate lexical items from L_X into L_Y , the child may assume that these items to be a part of L_Y). In addition, language dominance¹² (both (i) societal—i.e. language of the majority vs. language of the under-represented minority (cf. Döpke 1992), and (ii) and within the family unit—i.e. language of the care-giver vs. the other (cf. Yip & Matthews 2000, 2006)) has been argued to play a role in the mixing: if the dominant language is L_X , its syntax is used even if the utterance has the phonology of L_Y ¹³ (i.e. L_X is the 'matrix language,' cf. Myers-Scotton 1993, Myers-Scotton 2005, Myers-Scotton et al. 2003).¹⁴ Such an account might address the appearance of lexical items from L_X in L_Y via 'lexical borrowing'—incidentally, a term used widely in code-switching research—as does Kupisch (2008). However, this route does not a priori explain why *syntactic* structures from L_X (like topic-drop in (1a) or passive in (1b), for instance), which are commonly viewed as having certain licensing requirements, surface in an otherwise fully L_Y sentence.

¹² See Cantone et al. (2008) for a detailed overview of *dominance*-related claims in the literature.

¹³ The question, of course, remains what it means in the framework adopted in this chapter to 'use the syntax of L_X and phonology of L_Y .' In the subsequent sections I will argue that cross-linguistic influence/transfer should, in fact, be viewed in this terms precisely.

¹⁴ (1b) might be construed to be an example of such an effect. However, note that such a view suggests that the entire clause is expected to have Cantonese structure. This is clearly not the case: e.g. Chinese does not have a definite article; therefore, [the mosquito] should now be possible if the structure of the nominal domain in Chinese does not include a *D'* (L. L.-S. Cheng & Sibesma 1999, Bošković 2010, H.-T. J. Cheng 2012, i.a.)

Instead, then, such cases have been argued to be an instantiation of *syntactic transfer* (originally in Lado 1957)—a phenomenon which appears structurally conditioned, since it seems to affect certain (and not other) linguistic properties, and is well documented in L2 research (see Gass & Selinker 2001 for an overview). The term implies that the language user imposes (some of) the syntactic analyses commonly associated with L_X onto (some of) the structures of L_Y . In the L2 literature, proposed reasons for transfer effects vary, but research tends to converge on one: the L2 learner “uses” the fully developed L1 grammar (i.e. syntax) to build initial representations in L2. In other words, one might say that a particular representation from L_X makes its way into L_Y because the learner analyzes the relevant syntactic configuration in a manner consistent with L_X (or, rather, in terms of) and not L_Y . What is important is the conceptual foundation underlying the discussion: in somewhat simplistic terms (in order to remain theory-neutral), one could say that the L2 learner initially operates out of one grammar (L_X), the analyses from which s/he super-imposes onto the target L2 language (L_Y). The aforementioned implies that as the L_Y system is being built in the linguistic mind of the learner, it is L_X that is being used as building blocks. In other words, the so-called *transfer* in the L2 research implies only one grammar, at least at the point of transfer.¹⁵ However, it is difficult to see how this term can be neatly applied to simultaneous bilingualism, since this particular line of reasoning is unavailable for descriptions of the relevant effects in simultaneous bilinguals: both grammars are being acquired concurrently.

¹⁵ But see conceptual arguments against the validity of the term ‘transfer’ for L2 research in Meisel (2011).

WHEN THE QUIET SURFACES:
'TRANSFER' OF ARGUMENT OMISSION IN THE SPEECH OF ASL-ENGLISH BILINGUALS
CHAPTER 2: *TRANSFER AS LANGUAGE-SYNTHESIS*

A potential way of implementing this rests on a theoretically loaded option that transfer as understood in L2 literature differs greatly from the homonym in the bilingualism literature; in the latter, it must a priori invite two-way traffic. In other words, the notion of syntactic transfer rests on the assumption that that the *two* distinct emerging grammars are not completely sealed off from one another and, thus, can interact. This particular assumption, which, though perhaps implicitly, underlies the entire enterprise of transfer- and cross-linguistic influence-based inquiries, carries conceptual consequences that seem largely ignored in the transfer literature: i.e. if the grammars are distinct and separate, how is such interaction possible at all?

At any rate, the implementation of such a view may go as follows: when the child acquires a piece of L_X , which might potentially be viewed as a building block for further structure, from the input in L_X , s/he will use this piece in entertaining hypotheses about the nature of L_Y . Notably, neither L_X nor L_Y have priority here; the 'building blocks' from L_Y can just as easily be adopted during the acquisition of L_X . This view implies that in her initial steps at acquiring either of the L1s, the bilingual child builds some sort of grammar one block at a time, her language reflecting the inner workings of such grammar, which is clearly different from its adult target variant. Crucially, not until all the relevant pieces (for the given structure) of the target language are acquired will the child change her hypotheses about the languages she is using/hearing around her; until such time, her L1s remain 'built' based on some of the blocks from the other language which, in turn, are inconsistent with the adult grammar. The question that arises at this juncture is the following: if there is nothing in the surface form of the relevant piece of L_Y to force a change in the analysis, will the child ever make appropriate change to the

L_Y , or will her L_Y grammar always remain target deviant (because some of it remains analyzed as L_X)?

Let us now return to the language-synthesis alternative. While nothing transfers anywhere (or influences anything), due to the presence of additional lexical items in a bilingual's inventory, a much wider variety of forms of what, from the point of view of phonology, may *appear to be* L_X become possible. This will happen because some of the lexical items typically *Selected* for a particular context (such as wh-items and an interrogative C* for questions) may belong to different sets of lexical items: L_X and L_Y . In other words, the language-synthesis approach to transfer suggests that a bilingual language user will operate along the following lines: the syntactic structure of (parts of) L_X may not mirror that of the monolingual, especially if the list of LIs provided by L_X (and not L_Y) offers some α that can enter into a checking relation with an element from L_Y . The result of this scenario is 'language interaction.' But rather than 'transfer' or 'cross-linguistic influence,' the aforementioned will constitute a code-switch.

Recall from the discussion in section 2 that from the point of view of phonology, such code-switch may remain language-uniform. For example, if a relevant element from the L_X is silent, nothing additional may have to be said about L_Y 's phonological representation. Envision, however, the possibility that this view is extendable to cases where the relevant items are not silent. For instance, Kupisch (2008) argues that children acquiring French and German simultaneously exhibit the facilitating effect of French on their German—earlier, as compared to monolinguals, acquisition of the definite article. On the view advocated above, one could say that what the subjects in Kupisch's study

produce is the French article pronounced in German: i.e. the element whose formal and semantic features identify it as French but is phonological features identify it as a lexical item from German. The aforementioned suggests that although French-German bilinguals exhibiting the effect produce the German article earlier than monolinguals, they may be expected to use it *differently*—i.e. consistent with its typical use in French. I leave this possibility for future research.

As briefly outlined in this subsection, examination of assumptions underlying *cross-linguistic influence* in (14) creates more questions than it does answers. Considering the fact that 2L1 users are able to keep their grammars separate and (eventually) converge on the adult version of their target languages, I suggest we look for explanations of *syntactic transfer* effects elsewhere. More to the point, in the remainder of the chapter, I demonstrate that envisaged in different terms (i.e. along the lines of language-synthesis, see section 2), the concept of transfer effects yields some answers, as well as additional predictions.

3.1.2 What grammars?

This subsection demonstrates that the manner in which *cross-linguistic influence* (as in (14)) is envisioned is incompatible with the approach to syntax assumed in this dissertation.¹⁶ This simply means that in a framework that this dissertation adopts, (5) must be re-stated in different terms anyway, irrespective of its qualities as a model.

¹⁶ This line of argumentation may not apply in the same way in other frameworks, which may more easily incorporate the concept of transfer/influence into their models of linguistic architecture.

With the advent of the *Minimalist Program* (Chomsky 1995), much research has assumed the “grammar” of a language to be defined in terms of the computational component (C_{HL}) and lexical items consisting of features on which C_{HL} operates (see section 1 for the discussion).¹⁷ When lexical items are *Selected* for the Numeration, their features may undergo a checking relation. If this relation is successful, so is the derivation.

Within this theory of language, a particular type of bilingual architecture takes shape: a bilingual has more than one lexical item which represents a particular concept in the world (one could think of these as translation equivalents).¹⁸ Once fed into the C_{HL} , these items ‘create syntactic processes’ as it were. E.g., a Numeration consisting of a wh-word and a C’ from Chinese will not result in an English-style wh-movement, due to the fact the relevant features forcing such a movement in a language like English are absent/have different specifications in Chinese—a so-called ‘wh-in situ’ language (though see L.-L. Cheng for some issues).

- (16) mei- ge-ren dou mai-le shenme? [Mandarin Chinese]
every-CL-person all buy-ASP what
‘What did everybody buy?’ (L. L.-S. Cheng 2003)

In other words, the difference between English and Mandarin in (16) is rooted in the difference between the lexical items, and not a rule of grammar.

¹⁷ The field is less unified on the question whether C_{HL} operates on the fully phonologically specified lexical items themselves or on bundles of features, whose phonological matrices get inserted much later. The former is known as the *Lexicalist* view, while the latter is a tenet of Late Insertion models, e.g. *Distributed Morphology* (DM). Here, I remain agnostic on the issue.

¹⁸ At this stage, I make no distinction between open-class lexical items and functional words.

On this view, there is necessarily only one computational component, and having two distinct *grammars* (along the DSH above) amounts to having two distinct sets of lexical items, the members of which, when combined into a sentence, yield a syntactic configuration associated with a particular language. This implies that on this view, transfer is logically impossible: nothing transfers anywhere. *Influence* is even less plausible: nothing influences anything. Instead, it is possible that if due to the presence (and not under the influence) of L_X , acquisition of L_Y is delayed, then something must clearly be different about the lexical items used by children prior to the emergence of the target grammar for L_Y . This implies either a non-target specification or borrowing of lexical items (phonologically null or otherwise) from one language into the other. However, neither of the options implies 'transfer' as *influence* of one language on the other; rather of a *misanalysis* or *code-mixing* of the lexical items.

The reasoning outlined above opens a venue for potential "bilingualism effects" (Paradis & Navarro 2003). Since morpho-syntax is 'done' separately from the assignment of the phonological matrices to the lexical item, the child might potentially assign certain features from the L_X to lexical items of L_Y . However, even in this scenario, the phenomenon is not an instance of transfer as *influence* or *transfer* per se, but, rather, of a phonological mis-assignment of the lexical item.

I hope to have demonstrated in this subsection that the term *cross-linguistic transfer/ influence* (and a number of its implications) is difficult to re-state along the lines of the view of language offered in frameworks which are *Minimalist* in spirit. So, the first argument against the theory of syntactic transfer between the languages of a bilingual is a conceptual one and addresses the notion of *transfer* in principle. The

second argument focuses on other details of (14)—the model of *transfer* the as envisioned in Hulk & Müller (2000).

3.2 What's in the name?

It has become standardly assumed in the 2L1 literature that the incorporation of grammatical properties from L_X into L_Y as discussed above is a phenomenon independent from other characteristics imposing themselves onto bilingual linguistic development. In this respect, it has been argued that *transfer* exists independently of language dominance or code-mixing rates (Kupisch 2008) and is most evident in the languages of young simultaneous bilinguals when the relevant conditions are met. As presented by H&M in (14), repeated here as (17), the conditions in question rely on certain theoretical constructs (in no particular order): (i) *syntactic construction*, (ii) *input ambiguity* (in terms of surface overlap), and (iii) *interface between (pragmatics and syntax)*. I will examine each of them in turn.

- (17) a. Cross-linguistic influence occurs at the interface between two modules of grammar, and more particularly at the *interface between pragmatics and syntax in the so-called C-domain* [...].
- b. Syntactic cross-linguistic influence occurs only if language A has a syntactic *construction* which may seem to allow more than one syntactic analysis and, at the same time, language B contains evidence for one of these two possible analyses. In other words, there has to be a certain *overlap of the two systems at the surface level*.
(Hulk & Müller, 2000:228-229)

In this subsection, I show that separately or in tandem, these building blocks of the H&M model are not easily translatable into the framework adopted in this dissertation.

3.2.1 Construction

At the heart of the matter is the term *syntactic construction*. The use of the term in (17), in particular, implies a certain amount of freedom with respect to what the child might treat as such a construction; clearly, however, the reference here must be to a surface representation, and not to an underlying analysis. For instance, one can say that ‘null subject/subject drop’ in (4) is an example of a *construction* while an instantiation of *pro*_{Ag}/PRO (a silent pronoun licensed by agreement or in a control environment, as in (18), respectively) is not.

- (18) a. *pro* l'ho dimenticato [Ita]
 It have forgotten
 ‘I forgot it’ =(2)
- b. I want to PRO go for a walk
 = I want it to be the case that I go for a walk

Let me expand: the minute we postulate what the nature of the element is from the point of view of syntax and semantics (i.e. *pro*_{Ag} vs. PRO), we are no longer able to appeal to the ambiguity factor (as, e.g., in (17), discussed further below): the configuration in which *pro*_{Ag} occurs is necessarily different from the one in which one expects to find PRO—the latter typically viewed as a pronominal *de se* subject of a necessarily non-finite clause, and the former a phonologically null pronoun restricted to languages with verbal agreement (cf. Roberts & Holmberg 2010). Therefore, one cannot implicate an analysis of *pro*_{Ag} or PRO from L_X to have been imported into L_Y without importing the relevant licensing requirements, unless one allows for a possibility that different languages license *pro*_{Ag} or PRO in a different manner. In the framework both I and the

authors are assuming, this is not a viable option. Instead, (14) implies that the child may observe 'subject drop' in English that occurs in cases like (18) and analyze it along the lines of (18)—i.e. the child's null subject construction in English involves the presence of the Italian-style *pro*_{Ag_r}.¹⁹ Along this line of reasoning, what I would like to argue is that the cases of grammatical properties from L_X occurring in L_Y involve precisely the presence of the relevant *elements* from L_X in the child's L_Y. That is, if the child exhibits the Italian-style subject omission in her English, this may be happening precisely due to the Italian-style *pro*_{Ag_r} in her grammar, which, in turn, implies licensing requirements associated with *pro*_{Ag_r} (cf. Rizzi 1986)—i.e. the presence of the relevant functional head from Italian (cf. Roberts & Holmberg 2010).

In other words, although *construction* as presented in (14) cannot truly refer to an *element* (e.g. a lexical item) from L_X but, rather, its surface description, it is possible to restate (14) in terms of the *element*, rather than *construction*. (19) is one such attempt.

- (19) a. If L_X has an *element* (i.e. an actual lexical item) whose surface form is identical to the surface form of another *element* in L_Y, and, at the same time, L_X does not contain negative evidence against the presence of one of these two possible *elements*, overlap of the two systems at the surface level results.
- b. If the L_Y Numeration of the bilingual contains an *element* from L_X, it may have a resemblance of syntactic cross-linguistic influence/transfer of L_X onto L_Y.

Let us examine (19): it contains all the ingredients from (14): i) if the input is ambiguous (i.e. both relevant lexical items from L_X and L_Y are present), ii) surface similarity may result, and iii) it will seem like cross-linguistic influence. However, unlike (14), (19)

¹⁹ Incidentally, this route has also been explored as an account of argument omission in monolingual child English (Hyams 1986).

(albeit not unreasonable that it would occur more frequently when the child is younger and, thus, less proficient) does not necessarily imply radical consequences for an acquisitional path. If the child simply *Selects* the lexical item(s) from L_X while building a Numeration primarily in L_Y because she can (i.e. nothing precludes her from it), and the derivation does not crash, then the structure typically associated with/resulting from the relevant element in L_X may resemble L_X ²⁰ This view, of course, takes the inquiry out the realm of influence but a realm of a code-switch/-mix (e.g. (15)-(16)).

At any rate, having spelled out the reasons for why the concept of *construction*—i.e. the surface string in L_X bearing (or not) surface characteristics or a string in L_Y —might be important to the model, let us expand upon the other factors contributing to it.

3.2.2 Input

Of the conditions on cross-linguistic interactions between the languages of a bilingual, the one that plays the dominant role is surface overlap (as in (14))—i.e. input ambiguity with respect to a particular construction. The intuitive appeal of input as a variable in the account of bilingual effects is clear: for instance, if the care-givers mix the two languages, so will the children. By the same token, if the input is variable, incomplete acquisition may result (Montrul 2004). A question arises: do children produce 'transfer' structures because they are present in the input. That is, one might inquire (see an overview in Paradis 2011) whether non-target, from the point of view of the adult grammar, patterns observed in the languages of bilingual children are best explained by

²⁰ An outcome of (19) that alters an acquisitional path of a bilingual may be this: if the child assumes that the relevant lexical items from L_X also exist in L_Y , we will expect a piece of structure from L_X in L_Y . Here, a certain amount of *unlearning* will be expected in order for the child to converge on the target grammar.

the type of input they receive. This, however, is a question separate from the 'ambiguity' one. The former implies that the child is learning of a language that is not 'purely' an L_X or a L_Y (but, rather, a mix of the two); the latter does not.

Instead, in order to be able to attribute cross-linguistic transfer between the languages of the young bilingual to input ambiguity, what we need is for the input to be unclear in such a way that the child might assume that an element from L_X has licensing requirements of a surface-similar element from L_Y . That is to say that the child may assume that a particular lexical item is a part of the grammar of L_X iff L_X exhibits a pattern that on the surface resembles L_Y . A plausible way of interpreting the condition above is that the child, under the influence of input from L_X , and having made up her mind about the licensing requirements of the relevant structures in L_X , makes an identical decision for L_Y . Essentially, this state of affairs resembles in great detail a scenario often assumed in the discussion of transfer effects in L2 research: the child has an L1 structure from the language s/he has decided on, even if it varies across constructions. In other words, the child potentially makes a wrong parametric choice (borrowing terminology from the Principles and Parameters framework) for L_Y and proceeds in the acquisition of L_Y as if it were L_X , at least for some parts of the grammar.

The alternative way of interpreting the outcome of the input ambiguity is to say that the child waits longer than a monolingual L_Y acquirer would to make the aforementioned parametric decision, adhering to some sort of default (strategy) until she finally figures out the relevant information for L_X and L_Y respectively. This default may or may not resemble L_X in crucial respects, however; it is simply that the child is

undecided for one—or in some cases—for both of her languages, and, thus, resorts to something else in different parts of the structure.

3.2.2.1 Option 1: the wrong choice

Müller (1998) claims that if input provides evidence for more than one analysis of a particular structure, then as a relief strategy, a bilingual child may employ an analysis of the construction from his/her other language.

- (20) [A]mbiguous properties of the recipient language: the child encounters language material which does not allow an unambiguous interpretation, or, put differently, two different grammatical hypotheses are compatible with the same surface string or a particular type of construction [...]. In this case, the bilingual child, as a relief strategy, tries to solve the ambiguity by using features of the source language. (Müller 1998: 153)

In (20), the *recipient* language is the language 'experiencing' influence, while the *source* language is the one exerting the influence. Thus, the defining characteristic of the input factor, according to Müller, is that the one of the languages appears to the child ambiguous between allowing two potential licensing mechanisms for a construction A while the other one exhibits only one. Thus, the child picks the latter over the former.

Consider acquisition of V-2 in German. While monolingual German-speaking children take little time to figure out the word-order in German (V-2 language; verb checks features at C, i.e. verb last), bilingual German-English children take significantly longer, possibly due to the fact that hearing XP+V in finite sentences in both languages may offer an analysis of German as an English-type language (SVO order, non-verb final

language) (Döpke 1998, 2000). However, Müller re-analyzes data by other researchers on acquisition of German and concludes that bilinguals show no qualitative difference from monolinguals. Müller cites Gawlitzek-Maiwald et al. (1992): although quick to figure out the V-2, monolingual German children may take up to a year to correct the deviant analysis of subordination—the place where the head-“final-ness” of German shows. After reviewing the data, she concludes that the learning process associated with the correction is essentially the same for bilingual children; it simply takes longer.²¹ Thus, Müller (1998) answers the question of the acquisitional difference: the process of bilingual acquisition differs from its monolingual counterpart quantitatively, not qualitatively, and takes longer because the input that the child receives does not offer an unambiguous analysis. In this scenario, syntactic influence of L_X onto the analysis of L_Y is argued to occur: the independent availability of the syntactic analysis associated with L_X in the learning space allows the child to consider this possibility while deciding on the analysis for the similar (on the surface) structure in L_Y . Viewed in this way, syntactic influence of L_X on L_Y boils down to choosing an “erroneous path” in acquisition of the grammar of L_Y —i.e. a true transfer from L_X . A legitimate question, then, arises: whether this choice is temporary and why. The answer relies on one’s assumptions about what needs to happen in the linguistic mind of a child for her to dismiss the erroneous paths in terms of the parametric variation of human languages, and what might serve as evidence. In principle, the following becomes possible: if the L_X -style analysis of the construction A is consistent with the input, then the child’s grammar might remain target-deviant.

²¹ Although that is not necessarily the case: Müller et al. (2002) report that German-Italian bilinguals converge on the target V-2 grammar faster than German monolinguals.

This, in turn, offers a prediction: grammatical judgments of a bilingual will remain systematically different from that of a monolingual.

3.2.2.2 Option 2: wait-and-see

Note that, as mentioned above, *syntactic influence* of L_X on L_Y connotes the presence of the other grammar in the input, and, thus, a decreased amount of evidence against a particular analysis. A priori, the scenario in (10) does not entail a possibility of transfer of strategies from L_X to L_Y : rather, it implies the child's possible confusion and the picking or (temporarily) constructing a target-deviant grammar. The reliance on L_X is not the only option here though; the child may resort to a default grammar (cf. Lebaux 1987, Roeper & deVilliers 1992, i.a.). Here, one might assume—as do Hulk & Müller—*default grammar(s)* in the sense of Roeper (1999):

- (21) M(inimal) D(efault) G(rammar): Project minimal amounts of structure defined by
U(niversal) G(rammar); no input necessary. (adptd. Roeper 1999)

Roeper argues that language users begin with something along the lines of (21). Not until they learn the morpho-syntactic (viz featural) requirements of their language will they abandon MDG in favor of the language-particular grammar. An extension of this view follows: it is well known that processes associated with the C-domain (such as topicalization, focus movement, wh-movement, i.a.) are among the last acquired (cf. a detailed overview in Platzak 2001 for the 'vulnerability' of the CP layer for German and Swedish young bilinguals, aphasics, individuals with S(pecific) L(anguage) I(mpairment),

and L2 learners); therefore, by the time child shows evidence of having knowledge of the morpho-syntactic processes within the C-domain, she has figured out the parametric choices within the grammar of her language.²² By the same token, if the child has not yet manifested the knowledge of CP-related constructions of the language s/he is acquiring, it is possible that the grammatical analysis from L_X has not been ruled out as the analysis of the identical appearing construction in L_Y . Thus, input ambiguity might halt the decision-making on the part of the learner whether the grammar she is acquiring is, in fact, L_X or something else (L_Y or other). This constitutes a relief strategy on a part of the child in a too large search space: because the child does not yet know enough about morpho-syntax of L_Y , she uses something else to 'license' certain syntactic structures in L_Y . Therefore, this view implies no *transfer* from L_X to L_Y per se. If the child's L_Y resembles L_X at this stage, this is purely by accident—the relevant grammar is not L_X but rather a *default*.

At any rate, by the time children show evidence of knowledge of the CP processes—i.e. they have figured out the language-particular parametric (viz morpho-syntactic) requirements, the relevant decisions on the nature of the target grammar must have been made; thus, the effects of input ambiguity ought to disappear. This is the route H&M (2000) pursue: they correlate the “integrat[ion of] the C-system into the child's grammar” (as evidenced, e.g., by the knowledge of V-2 in Germanic) with a dramatic decrease of object drop in a bilingual child's Romance language (as in (1a)) and conclude that the *influence* phenomena begin to disappear after the instantiation of C-

²² See an overview and the discussion in Snyder 2007, i.a. on the issue of the child's adult-like behavior with respect to input-defined parametric choices. In various works, Snyder and colleagues have shown that children exhibit such behavior much earlier they show any unambiguous intantiation of the C-domain.

domain, as the morpho-syntactic licensing requirements of the C-system replace the default grammar.

Let us now see what the alternative view holds. Suppose *transfer* is, at best, a label which may accurately describe instances/elements of L_X during production of L_Y . From this angle, in the data presented by Müller, the child is producing L_X in the middle of the production in L_Y : s/he may have assigned features typically associated with lexical items in L_X to lexical items in L_Y , or, alternatively, is producing what might accidentally resemble/sound like L_X in the middle of L_Y but actually isn't. The former suggests a mis-/re-analysis, the latter—neither the target adult grammar of L_X or L_Y but, rather, something else.

3.2.3 Interface

Last but not least, it is worth pointing out that the Hulk & Müller model of transfer in (17) uses a term that tends to be understood differently in various domain of inquiry; this term is *interface*. Since this dissertation is framed within the *Minimalist Program* (Chomsky 1995), the first question is whether the term as states in (14) is directly applicable, and if not, how it can be translated into the framework adopted here.

In the *Minimalist* tradition, two *interfaces* are defined: L(ogical)F(orm) and P(honological)F(orm)—interfaces with the articulatory apparatus and meaning, respectively. Clearly, this is not what is meant in ((19): the 'interface between syntax and

pragmatics' is technically neither LF nor PF.²³ In the broader literature, however, *interfaces* are often defined as (13) and deserve a further discussion.

- (22) Loci of information integration across modules of language and/or external
cognitive domains (Rothman & Guijarro-Fuentes 2012)

The first conjunct in the Boolean phrase in (22) makes an explicit reference to the meeting place of different aspects of grammar (syntax, semantics, phonology, morphology, and pragmatics) and their interactions (Folli & Ulbrich 2010; Lleo 2006). On this reading, however, every piece of structure that has undergone syntax will be relevant to an interface—syntactic-semantic, syntactic-phonological, syntactic-morphological, syntactic-pragmatic—unless the elements involved have no import at that interface, e.g. they are phonologically null or semantically vacuous. Consistent with the second conjunct in (22), (14) isolates the locus of information sharing between syntax and pragmatics—that is, not language *internal* (syntax-semantics/-phonology/-morphology) but *external* (syntax and information structure).²⁴

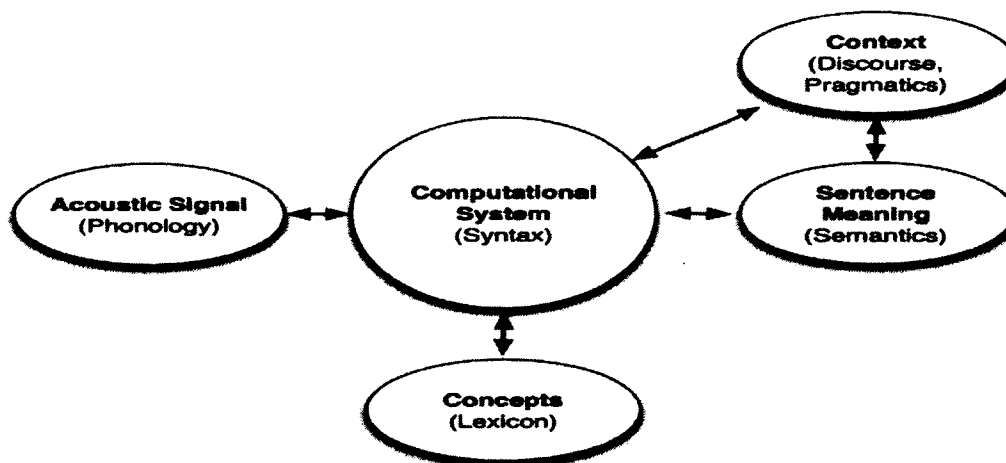
An account of *interfaces* along these lines, which has become influential in 2L1 literature (see Sorace & Filiaci 2006, et seq.) is that of Jackendoff (2002), the gist of which is represented in (23):

²³ For related observations, cf. Liceras et al. (2011).

²⁴ For the issues related to the 'internal-external' distinction, see White (2008).

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(23) *Figure 1. Jackendoff (2002) condensed in Rothman & Guajirro-Fuentes (2012)*



Viewed as (23), constructions which involve an independent contribution from pragmatics are eligible for (14). Allow me to exemplify.

Although English requires a leftward movement of the *wh*-word (unlike, e.g. Japanese in (24)), *wh*- in situ is also allowed (cf. the translation of (24)).

- (24) a. John-wa dare-ni nani-o ageta ka [Japanese]
 John-TOP who-DAT what-ACC gave Q
 ‘What did John give to whom?’

b. *Context: A doctor is talking to two patients. Patient A is sick but B isn't. They ate dinner together. Patient A thinks he has food poisoning.*

Doctor to A: What did you eat?

A: The tuna salad

Doctor to B: And you ate what?

(Zocca 2010)

However, the occurrences of *wh*- in situ in English have been argued to be pragmatically conditioned (cf. Pires & Taylor 2007, see also an overview and an extended discussion in Zocca 2010). Therefore, the *wh*- in situ *construction* in English (though not in Japanese)

involves the knowledge of discourse/pragmatics and is, thus, ‘located at’ the syntax-pragmatics interface.

A similar case—and a particular pertinent one, considering the topic of inquiry in **chapters 3 and 4**—can be made for argument omission. For instance, Romance languages prefer the subject of a finite clause to remain null; however, when the topic of discussion (a.k.a. the discourse topic) is someone else, the subject will remain overt (Frascarelli 2007). The aforementioned is discussed in **chapter 3** and exemplified in (25).

(25) a. *Context: Out of the blue*

Maria _i me dijo que {Ø _i /ella _{*i} } estaba enojada <i>Maria me told that she was annoyed</i> ‘Maria _i told me that she _i was annoyed’	[Spanish]
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b. *Context: In the context where we have been speaking of Julia_j*

Maria _i me dijo que {Ø _{*i} /ella _i } estaba enojada también <i>Maria me told that she was annoyed also</i> ‘Maria _i told me that she _i also was annoyed’	
--	--

This property of Romance languages is typically referred to as a ‘topic-shift’ and has been argued to involve knowledge of discourse/pragmatic factors; thus, along with the wh- in situ in English, argument omission is eligible for *influence* along the lines of (14) via (23).

The question, of course, is what exactly goes awry at the syntax-pragmatics interface as outlined above. Among the possible suggestions in the literature is a set of issues directly related to processing: inefficient (incremental) access to knowledge, inefficient coordination of information, and/or inefficient allocation of resources (Sorace

& Serratrice 2009, i.a.). Therefore, *syntax-pragmatics interface* is a priori vulnerable (Sorace 2011) and various bilingual populations are expected to present difficulty in mastering *constructions* such as (24)-(25) and ilk (Belletti et al. 2007, Grinstead, 2004, Montrul, 2008; Müller & Hulk 2001, Papp 2000, Paradis & Navarro 2003, Platzack 2001, Serratrice et al. 2004, Sorace 2000, 2004, 2005, Tsimpli et al. 2004, Unsworth, 2005). This approach has become known as the *Interface Hypothesis* (Sorace & Filiaci 2006).

Having thus taken into consideration the issues underlying *input*, *interface* and *construction*, let me summarize this section by attempting to paraphrase (14):

- (26) Properties of L_X may be apparent in L_Y if the following conditions are met:
- i. If the construction employs cognitive systems other than language (and, therefore, implies a(n extra) cognitive load that needs to be resolved).
 - ii. If the construction is morpho-syntactically analyzed differently in each of the languages but neither of the paths have been ruled out for L_Y .
 - iii. If the linguistic development is at the stage where the presence of applying language-particular morpho-syntactic licensing mechanisms is not evident

But let us evaluate whether (26) is, in fact, a set of concrete predictions for cross-linguistic influence/transfer necessarily. That is, the question arises whether it can be re-stated in terms of the 'element,' rather than 'construction' (see section 2.2 above). I think it is. What (26) says is that for some linguistic construction A that involves some cognitive module(s) other than language production and (potentially) an increased processing load, the bilingual child who has not yet made commitments about the morpho-syntax of one (or both) languages might either a) use a lexical item from L_X with

the surface form A for something surface-similar to A in L_Y, or b) not analyze A in L_Y at all (and, therefore, employ a default form of some sort). In other words, if it can be coherently asserted that a production of some element/linguistic item betrays an increased cognitive load, and that L_Y does not provide evidence against/is compatible with the presence the item, the item from L_X may appear in the production of L_Y. The former option (i.e. (a)) yields what I argue to be a code-switch/-mix (i.e. L_X in the midst of L_Y); the latter (i.e. option (b)) implies, potentially, neither L_X nor L_Y. Both are interesting theoretical constructs with experimental outcomes; but neither implies *transfer/incorporation of grammatical properties* (see section 1) per se.

4. Empirical evaluation

Putting aside the conceptual difficulties of the term *cross-linguistic influence/transfer* as it applies to surfacing of structures from L_X during the production of L_Y, the time has come to evaluate the empirical evidence for/against the transfer model. What this section aims to do, then, is to demonstrate that the descriptive power of the model also falters.

As discussed above, two characteristics of bilinguals' linguistic patterns are crucial for the model: the locus of the construction susceptible to influence (i.e. the interface between syntax and pragmatics) and the knowledge of morpho-syntax of the target languages. The aforementioned translates into the prediction that structures associated with discourse-related phenomena, e.g. topicalization and focus movement, will be affected. This will occur for the following reason: because the child receives input from more than one language and, thus, has not yet finalized her decision with respect to certain aspects of the syntax of either/both L_X and L_Y, she will resort to a

wrong choice (see section 3.2.1) or a default (see section 3.2.2) until she has gathered enough evidence of the relevant kind for each of the languages. Earlier (see section 2.2) I referred to this type of phenomenon as a *delaying* effect of bilingualism. However, as soon as the child has reached the relevant decisions for her languages (evidenced by the adult-like knowledge of the CP-related processes, target-like instantiations of which have been correlated with the knowledge of language-specific morpho-syntactic processes), the effects will subside.

An example the former-style account is Müller & Hulk (2001), discussed at length in section 2: children learning Dutch and French, German and French, and German and Italian simultaneously extend the (universal [sic]) topic drop analysis, which happens to be the correct analysis for their Germanic languages, to objects in their non-topic drop languages. Thus, the child may not have made the decision about Italian yet because the amount of relevant input for the language has not yet reached critical mass. Privulescu et al. (in prep.), who obtain a similar pattern of results, argue for the latter view. The authors hypothesize that if French-English bilinguals exhibit a higher rate of object clitic omission with certain verbs (Cummings & Roberge 2005), this will indicate a general bilingualism effect, rather than transfer between the languages: the NO cannot have come into the children's French from English, since English is not a NO language. Privulescu et al. argue under the influence of English as a simultaneously acquired language, the bilingual child converges onto the target grammar later than the monolingual and, thus, exhibits the default N-drop at a higher rate than otherwise allowed in each of the languages.

The results of the studies above can be interpreted in the following manner: nothing *transfers* from L_X; the *influence* of L_X is implicated in terms of input ambiguity (see section 2.1.2) and, thus, a delayed decision-making concerning the morpho-syntax of (parts of) either of the child's languages.

However, other studies argue for specific language interaction effects more explicitly. The reasoning relies on the inference that if the other language (L_Y) is involved, and acquisition of the relevant construction in it is easier in some sense, it might result in facilitation of acquisition of a surface similar construction in L_X. Kupisch (2007, 2008) claims that exposure to the French article system provides French-German bilinguals with more featural information about the nature of the D(P) and, thus, *facilitates* the acquisition of the licensing mechanisms within the DP domain in general and, thus, the D(P) in German. Along the same lines of argumentation Hsin (2012) shows that additional exposure to the unambiguous C-domain phenomena (such as topic-, focus-, and wh-movement effects) in Spanish facilitates acquisition of adult-like wh-structures in the English of Spanish-English bilinguals. In other words, reliance on default, though possible, is not the only outcome: languages appear to quite literally *influence* one another. Another instance of such an influence is what has been labeled *interference* (Genessee & Paradis 1996, Paradis & Navarro 2003). Yip & Matthews (2007) have shown that bilingual Cantonese/English children (2-3 yrs. of age) produce wh- in-situ in more contexts than typically allowed by the English grammar but consistent with the grammar of Cantonese.²⁵ This finding cannot be interpreted as a delaying effect of transfer, since monolingual English controls do not begin producing

²⁵ The authors attribute the rates to dominance of Cantonese.

wh- in-situ until much later; instead, the Cantonese grammar is argued to *interfere*. This view finds support in Strik & Perez-Leroux (2011), who demonstrate that 5-6 year old children acquiring Dutch and French simultaneously exhibit *wh*-structures that are qualitatively different from what is typically produced by monolingual controls: *wh*-in-situ questions and *wh*-fronted questions without inversion—cases of *interfering* transfer from French. Similar instances have been found in other domains: adjectival modification (cf. Nicoladis 2006 [French-English], Foroodi-Neizad & Paradis 2009 [Persian-English]), compounds (N-N and deverbal, cf. Foroodi-Neizad & Paradis 2009 [Persian-English], Nicoladis 2003); anaphor binding (cf. Kim, Montrul & Yun 2010 [Korean-English]), case (Austin 2009 [Basque-Spanish]), gender agreement (cf. Jorschick et al. 2010 [German-English], possessive (cf. Nicoladis 2011 [French-English]), tense marking (cf. Nicoladis, Soung & Mertinette 2011 [French-English, Cantonese-English]), clitic-doubling (Ramírez-Trujillo 2006 [Spanish-Nahuatl]), object-fronting (Gavarro, 1998 [English-Catalan], scrambling (Mykhaylyk 2009 [Ukrainian-English]).

Recall, however, that the model offered in (14) cannot account for the facilitation and interference data cited above without substantial modification: the transfer effects between the languages of a bilingual are not predicted at the levels of structure other than the CP and/or only at the interface between syntax and pragmatics. Yet, it is not immediately clear how this can be extended to compounds, agreement, binding, the Adj-N order, clitic-doubling and case/tense marking. Additionally, the effects are expected to subside with the knowledge of CP-related processes. It is, however, doubtful that 5-6 year old Dutch-French bilinguals in Strick & Perez-Leroux's study have no knowledge of

the CP and, instead, rely on discourse-licensing mechanisms for wh-question production. A similar observation can be made about the subjects of other studies: e.g. in Nicoladis (2006, 2010, 2011), some of the children exhibiting 'transfer effects' are over 5 years old while the subjects of Nicoladis et al (2011) are 5-12 years of age. It is difficult to imagine that the children of this age are yet unsure about the morpho-syntax of their languages.

In any event, although not without some dissatisfaction from the research community, the notion of cross-linguistic *transfer/influence* has continued to be used as a description of linguistic patterns of a bilingual, in line with the general tendency in the field to implicate the influence of the other language. On the whole, however, I hope to have illustrated that the often appealed to model suffers from some conceptual drawbacks; additionally, its descriptive and explanatory power is not sufficient. In addition, I have argued that the language interaction effects discussed in this chapter may be accounted by a *Minimalist* in spirit model of code-switching which I have labeled 'language-synthesis.' On this view, the language interaction data described above involves pieces of L_X and L_Y , and, in contexts where featural specifications of the various items are met, the question of the interface (or the C-domain) will not arise. The aforementioned statement invites much empirical scrutiny which lies outside of the bounds of this dissertation. Here, I focus on a domain of inquiry that has been well documented in monolingual English as well as bilingual (English-) literature—argument omission—and demonstrate that these predictions are borne out.

5. From theorizing to an actual case: Preview

Along the line of reasoning offered above, I argue that ASL-English bilinguals exhibit language-synthesis—i.e. certain structures in their English betray the presence of functional heads from ASL. In particular, I will focus on (5), repeated here as (27):

- (27) a. Inv: It’s a window. You are right. [English]
TOM: This is gonna be a cool.
Inv: It is going to be cool. Yeah.
TOM: Can Ø give me this?
- y/n?
- b. CAN 2-GIVE-1 IX [ASL]
‘Can you give me this?’
- y/n?
- c. CAN LEAVE NOW CAN
‘Can I leave now?’

In (27), Tom’s English arguably exhibits ‘incorporation of a grammatical property’ of L_X into his L_Y : the NS construction, grammatical in ASL, winds up in Tom’s English, where it is ungrammatical. Potentially, this ‘incorporation’ of ASL into English may be accounted via either cross-linguistic influence model in (14) or the language-synthesis model in (13), each of which sets up independent and, to some degree conflicting, predictions. In **chapter 4**, I illustrate that the language-synthesis model outlined above offers a better explanation for data such as (27).

By way of preview: **chapter 3** is devoted to showing that ASL exhibits a style of argument omission which has been tied in previous research to a particular nature of v° and T° . In other words, v°_{ASL} and T°_{ASL} in the Numeration result in the ASL-style argument ellipsis. In line with the approach to bilingual effects outlined above, if the only elements from ASL (L_X here) are v° and T° , nothing else—save argument omission—may betray the code-switch; that is, from the point of view of phonology, the

utterance will remain language-uniform. In **chapter 4** I show that this is precisely what we find here.

6. Conclusion

This chapter had two goals: on the one hand, it explicated in detail the influential and widely referred to model of cross-linguistic influence between the languages of a bilingual, known also as the model of cross-linguistic transfer (Hulk & Muller 2000). I hope to have demonstrated that at least in the framework this dissertation adopts, the model must be re-examined. My chief argument against the model was that it lacks both explanatory and descriptive power—i.e. it (i) neither elucidates the mechanism of what actually happens in the linguistic mind of the bilingual to bring cross-linguistic effects to the surface, nor (ii) is supported empirically, since a number of studies have shown the effects to arise/persist at the loci of the structure and the level of linguistic development unpredicted by the model. During the discussion of transfer effects as commonly used in the literature, and for every step of argumentation against the current view, I have offered a possibility most consistent with *language-synthesis*.

The second goal of this chapter was to introduce the model of language-synthesis—a model that takes its roots in code-switching. The reason for the new term is quite simple—it subsumes cases which appear language-uniform from the point of view of phonology; this type of code-switch will involve a silent LI from L_X and an overt one from L_Y . In approaching bilingualism effects this way, I merely extend the coverage of theories of language architecture that are independently argued for in the literature.

Having adopted these assumptions, however, I was able to offer novel predictions that the model of cross-linguistic influence a la Hulk & Muller (2000) cannot formulate: if the so-called cross-linguistic effects found in the languages of a bilingual are best viewed as the case of language-synthesis, then the presence of the effects in the bilingual production will be divorced from the knowledge of morpho-syntax and the instantiation of the C-domain. Moreover, if ASL-English bilinguals do not perform similarly to other bilinguals reported in the literature in a particular domain, then the hypothesized unidirectionality of the language-interaction effects will require a different explanation. This explanation will undoubtedly need to rely on the difference between unimodal and bimodal bilinguals. The study examining the validity of this prediction is reported in **chapter 4**.

CHAPTER 3

Null Arguments in ASL: A case of ellipsis

1. Introduction

In **chapter 2**, I argued that the term *cross-linguistic influence*, whose defining properties are due to the influential work by Hulk & Müller (2000, i.a.), is not easy to maintain in the framework assumed in this dissertation. Instead, I have offered an approach to the aforementioned bilingualism effect along the lines of code-switching, which I relabeled *code- or language-synthesis* in order to subsume instances typically excluded in the literature on intra-sentential code-switching. I assumed a *Minimalist* view of code-switching (e.g. MacSwan 2000), according to which intra-sentential switches between the languages of a bilingual result from the presence in the Numeration of elements from Language_A (L_A) and Language_B (L_B). The cornerstone of the framework is that successful feature-checking between such elements leads to licit derivations; therefore, code-switching is always possible unless something else blocks it. I furthermore argued that the aforementioned view of code-switching can be easily extended to the cases of what has become known as '*syntactic influence* between the languages of a bilingual.' For instance, the presence of the relevant functional head from ASL in an otherwise English clause may result in the licensing of null arguments in the bilinguals' English which, a priori, may be viewed as *influence* from ASL (a null argument language) onto English (a non-null argument language). The primary goal of this chapter then is to demonstrate that ASL betrays the presence in its inventory of the type of functional heads

which license a particular type of argument omission. In this, ASL behaves on a par with other languages of the relevant type. This finding will then entail the possibility of language-synthesis: if the bilingual selects the functional head from ASL while its complement remains in English, null argument structures may be expected in the bilinguals' English. In **chapter 4** I show that such structures do exist. The next question, of course, will be whether other bilinguals with the same type of language combination pattern this way. I set this question aside for now but take it up again in chapter 4.

Having offered some context for this chapter as an integral part of the dissertation, I move to the nature of the null argument in ASL (NA_{ASL}). In this chapter, I demonstrate that NA_{ASL} involves argument ellipsis, which, in turn, has been argued to be licensed by the lack of uninterpretable ϕ -features v° and T° in ASL (cf. Saito 2007). I argue that the argument ellipsis analysis goes farther than the alternatives in capturing various phenomena typically correlated with the presence/absence of morphological agreement: i.e. the grammaticality of structures and availability of interpretations otherwise necessarily excluded by the standard approaches to the NA_{ASL} .

2. Puzzles

2.1 Background

ASL differentiates between two classes of verbs: agreeing (for person/number and location/manner of movement) and plain (Padden 1988[1983]). Employing a basic definition of agreement along the lines "a grammatical element X match[ing] a grammatical element Y in property Z within some grammatical configuration" (Barlow & Ferguson 1988), it has been argued that the two classes of verbs display different

behaviors with respect to the referential use of space (see an overview in Sandler & Lillo-Martin 2006). The difference between the two types is typically connected to the (lack of) availability of manual marking spatial relationship between the verb and its arguments.²⁶ In short, by incorporating the arguments’ loci in space, ‘agreeing’ verbs mark referential properties of their arguments and adjuncts (for spatially” agreeing verbs, Padden 1988 [1983]), while ‘plain’ verbs typically do not. For the sake of exposition, I label the verbs below based on their typical usage.²⁷

Both types of verbs allow omission of subjects and objects. Following the widely adopted terminology, I mark their position in the data with ‘Ø’ and, for the sake of uniformity, amend data from the literature accordingly.

(1) a. A. Did John send Mary the paper?

B. YES, Ø a-EMAIL_{agreeing}-b Ø.
 ‘Yes, (he) e-mailed (it) to (her).’

b. A. Ø FINISH SEE 1-POSS CANDY^{y/n?}
 ‘Have (you) seen my candy?’

B. YES, Ø EAT-UP_{plain} Ø
 ‘Yes, (I) ate (it) up.’

(adpt. Lillo-Martin 1991)

²⁶ Much ink in Sign Language linguistics has been spilled over the nature of (non-)manual agreement (for an overview, see Lillo-Martin & Meier 2010). I return to the issues associated with the nature of this agreement in section 6.

²⁷ It should not be assumed, however, that agreeing verbs *necessarily* involve manual agreement—merely that they typically do (Padden 1988[1983], chapter 2). In fact, because typically agreeing verbs are sometimes uttered without manual agreement, and plain verbs are sometimes modified with respect to referents in the signing space, I adopt the following convention: when the verb is modified accordingly, a small case letter, corresponding to the locus of the referent, is added to the verb itself but separated from it with the hyphen. In this, thus identified loci are noted separately from the semantic indices of referential expressions, which, by a common convention, are noted in subscript.

However, the productivity (although see Wulf et al. 2002) of such omissions with agreeing vs. plain verbs is apparently not the same—an observation that has led to a debate with respect to the nature and the licensing mechanisms of null arguments in the language. The point of departure of this debate is best described using the terminology afforded by studies in Romance: for the class of verbs that identify their arguments in space (i.e. agreeing), ASL acts as a language in which 'rich' morphological agreement licenses/identifies a phonologically null pronoun (*pro*, e.g. Rizzi 1982, 1986), and null arguments of plain (i.e. not agreeing) verbs are necessarily something else. In other words, the licensing mechanism for the NA_{ASL} relies entirely on the presence (with agreeing verbs) vs. absence (plain verbs) of morphological agreement in the language. This view has become known as a hybrid analysis (Lillo-Martin 1986, 1991), as opposed to an alternative unified view (e.g. Bahan et al. 2000).

In this chapter, I introduce novel data and demonstrate that although the intuition behind the former account is on the right track, the implementation of the hybrid-style analysis must be re-examined. As a brief preview: the data I present demonstrate that the nature of both the null subject (NS) and null object (NO) in ASL does not neatly parallel that of Spanish, taken here to be a representative of languages licensing null arguments by 'rich morphology;' nor can the analysis of null arguments with a plain verb offered by Lillo-Martin (1986, 1991) be maintained. On the other hand, I show that the 'puzzles' are accounted for if the null argument is viewed as a case of argument ellipsis of a bare NP. I argue that the approach is empirically superior to the standard view and has far-reaching consequences for a) the analysis of loci used in what is known as morphological agreement, and b) the status of the nominal domain in ASL.

2.2 Data

This section presents data that represent as puzzles if the standard accounts of the null argument in ASL are assumed.

The first puzzle is related to the contrast in (2)-(3) vs. (4)-(5). Although both plain and agreeing verbs allow subjects and objects to remain null (as in (1)), the NA_{ASL} of plain verbs is disallowed only if the element it refers to has previously been assigned a locus—an area of space for reference purposes.²⁸

Consider the examples in (2)-(3). Lillo-Martin (1991) records the following asymmetry between agreeing and plain verbs: in certain configurations (namely, dislocations), while an agreeing verb does not require an overt pronoun corresponding to the dislocated element, the plain verb does.

- (2) a. $\overline{\quad\quad\quad t}$
a-MOTHER_i, 1-IX DON'T-KNOW WHAT \emptyset_i a-SEND_{agreeing-i}
 'Mother_i, I don't know what (she_i-) sent (-me).'
- b. $\overline{\quad\quad\quad t}$
a-MOTHER_j, 1-IX DON'T-KNOW WHAT a-IX_j/* \emptyset_j LIKE_{plain}
 'Mother_j, I don't know what she_j likes.'
- (3) a. $\overline{\quad\quad\quad t}$
a-EXERCISE CLASS_i, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c
c-MOTHER TAKE-UP_{agreeing-a} \emptyset_i
 'The exercise class, I hope my sister manages to persuade my mother to take (-it)'
- b. $\overline{\quad\quad\quad t}$
a-THAT a-COOKIE_j, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c
c-MOTHER EAT_{plain} a-IX_j/* \emptyset_j
 'That cookie, I hope my sister manages to persuade my mother to eat it.'
- (Lillo-Martin 1991)

²⁸ As a spatial language, ASL heavily relies on the use of space for referential purposes. If the sign is uttered in a particular area of space (*locus*), that space is henceforth associated with a referent and (typically) maintains that association (see, e.g., Berbera Altimira 2012 on the mechanism) throughout the discourse. In this, overt locus has been argued to be a morpho-phonological realization of the semantic index of the argument (Lillo-Martin & Klima 1999, Schlenker 2011, i.a.). Concretely, in (2), e.g., *b* and *c* have been assigned to and are, thus, associated with *SISTER* and *MOTHER*, respectively.

In fact, Lillo-Martin's account of the NA_{ASL} is rooted in this asymmetry (see section 2.1.3). Note, however, that in (2)-(3), the dislocated elements are uttered in/have been assigned loci in space (a-MOTHER and a-[EXERCISE CLASS], respectively). However, according to my consultants, if the loci had not been previously assigned (MOTHER and [EXERCISE CLASS]), the aforementioned asymmetry disappears, and the NA_{ASL} becomes possible with either an agreeing or a plain verb.

- (4) a. \overline{t}
 MOTHER_i, 1-IX DON'T-KNOW WHAT \emptyset_i a-SEND_{agreeing-1}
 'Mother_i, I don't know what (she_i-) sent (-me).'
 b. \overline{t}
 MOTHER_j, 1-IX DON'T-KNOW WHAT \emptyset_j LIKE_{plain}.
 'Mother_j, I don't know what she_j likes.'
- (5) a. \overline{t}
 EXERCISE CLASS_i, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c
 c-MOTHER TAKE-UP_{agreeing-a} \emptyset_i
 'The exercise class_i, I hope my sister manages to persuade my mother to take (it).'
 b. \overline{t}
 THAT COOKIE_j, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c
 c-MOTHER EAT_{plain} \emptyset_j
 'That cookie_j, I hope my sister manages to persuade my mother to eat it.'

The contrast between (4)-(5) and (2)-(3) constitutes the first puzzle: why should (2)-(3) be independently possible? Moreover, why should the presence of the previously assigned locus (as in (4)-(5)) make a difference?

The second puzzle concerns the nature of the null element in (1)-(3). To elaborate: if the \emptyset in (1)-(3) is pronominal in nature, a particular set of predictions arises. For instance, pronouns are typically thought of as referring to individuals, i.e. being definite. As (6) illustrates, the reference of the pronoun in typical contexts is limited to the previously established binder.

(6) a. A. [Three wizards]_i came to my house.

B. They_{i/*j} also came to my house.

(adpt. Takahashi 2010)

b. Peter_k washed his_k car, and John_i dried it_{k/*i}.

In (6), the set of wizards that came to B's house is necessarily the same as the set of wizards that came to A's house; the car that John dried is necessarily the car that Peter had washed. This phenomenon is known in the literature as the 'E-type'²⁹/strict reading (as opposed to the 'quantificational'/sloppy) and remains one of the defining properties of pronouns.

As the ASL data below show, however, in the relevant configurations, both NS and NO allow the quantificational (as in (7)/sloppy readings (as in (6)-(9)): in (7), B is making a statement about her own five students; in (6), Jeff hates his own students; and in (9), Mary answers her own teacher's questions.³⁰

(7) A. FIVE FOOTBALL PLAYER PASS_{plain} MY CLASS
'Five football players passed my class'

B. Ø FAIL_{plain} MY CLASS

'{The same five/different five} football players failed my class'

²⁹ For the discussion of reasons for such a label, see Takahashi (2008).

³⁰ Caveat: it is not the case that (7)-(9) are necessarily ambiguous. Even with plain verbs, signers tend to disambiguate the readings by employing space manually (by attaching an 'agreement morpheme' onto a verb) and/or non-manually (using eye-gaze, head-nod, body-shift, i.a., towards the referent). I set aside for now cases where space is utilized in this manner (see section 6 for a discussion). What is being examined here is what happens when spatial disambiguation is impossible—i.e. situations in which the signing space is reduced to a maximum, as in the case of whispering. Unlike whispering in spoken languages, whispering in Sign languages reduces the size of the signing space and, therefore, areas potentially associated with referents. I would like to suggest that in such a case, the true nature of the NA rises to the surface: having removed the possibility of reliance on 'agreement' for disambiguation of referents, ASL reveals the nature of the NA itself.

WHEN THE QUIET SURFACES:
 'TRANSFER' OF ARGUMENT OMISSION IN THE SPEECH OF ASL-ENGLISH BILINGUALS
 CHAPTER 3: NULL ARGUMENTS IN ASL
 (8) A. a-PETER LIKE_{plain} a-POSS STUDENT
 'Peter likes his students'

B. b-JEFF HATE_{agreeing} Ø
 'Jeff hates {Peter's / **Jeff's**} students'

(9) A. a-JOHN TEND_{plain-a} ASK_{agreeing+++} neu-POSS TEACHER
 'John is always asking his teacher questions'

B. b-MARY b-TEND_{plain} ANSWER_{agreeing+++} Ø
 'Mary is always answering {John's / **Mary's**} teacher'

This type of reading of the null argument is often attributed to ellipsis (Otani & Whitman 1990, Oku 1998, Saito 2007, Takahashi 2008, i.a.). In the subsequent sections, as I address each of the puzzles, basing the account on the data in (7)-(6) and extending it to cases such as in light of (4)-(5) vs. in light of (4)-(5). I demonstrate that both types of data introduced here present problems for the standard analyses of the NA_{ASL}. In a nutshell, and by way of preview, the chapter unfolds to reveal that NA_{ASL} is best seen as a direct consequence of ellipsis of a bare singular NP which must be a) an argument and b) both a head and a phrase.

3. Why is this a puzzle? Previous analyses

3.1 Previous analysis 1: Lillo-Martin (1986, 1991)

In her seminal work on the nature of NA_{ASL}, Lillo-Martin (1986, 1991) argues that they come, essentially, in two typologically distinct varieties: with agreeing³¹ verbs (as in (10)), the NA is the silent pronoun (*pro*) licensed/identified by agreement (in the sense of

³¹ Lillo-Martin's definition of *agreeing* here is limited to verbs that are actually manually marked for agreement (that is, she does not include potentially agreeing verbs which happen not to be marked). I follow suit here.

Rizzi 1982, 1986); with plain verbs (as (11)), the NO is a topic-bound variable while the NS is ambiguous between that and a referential pronoun (Huang 1984). In this respect, the distribution of NA in ASL suggests that ASL is a hybrid language in the following sense: depending on the type of verb, the paradigm mirrors either that of languages with "rich agreement" (e.g. Italian) or entirely without (e.g. Mandarin Chinese):

- (10) A. Did John send Mary the paper? = (1)
 B. YES, *pro*_{Agr} a-EMAIL_{agreeing}-b *pro*_{Agr}.
 'Yes, (he) e-mailed (it) to (her).'
- (11) A. FINISH SEE 1-POSS CANDY^{v/n?}
 'Have you seen my candy?'
 B. YES, EAT-UP_{plain} Ø_{-Agr}
 'Yes, (I) ate (it) up.' (adpt. Lillo-Martin 1991)

Let us first see what such an account implies.

3.1.1 *pro*_{Agr}

When one appeals to agreement licensing of an (null) argument in the style of Rizzi (1982, 1986), one commits oneself to an idea that reaches into the distant past (see a historical overview, beginning with Apollonius Dyscolus on Ancient Greek, in Roberts & Holmberg 2010). The idea, which has taken various forms in the history of argument-drop research, is that certain information is encoded on the verb that dispenses with the need for an overt argument. Spanish in (12) illustrates the point: a morpheme (i.e. the 1st or 2nd person singular) on the verb indicates the identity of the referent.³² That is, the

³² Languages with this property differ with respect to whether overt referents are allowed. For instance, Spanish permits the use of an overt argument for cases like (12) (although certain restrictions apply, see

form of the verb (or, more accurately, the agreement affix, in bold for exposition purposes) specifies/identifies the referent.

- (12) a. Ø Quiero algo. [Spanish]
 Want.1SG something
 'I want something'
- b. ¿Ø Quieres algo?
 Want.2SG something
 'Do **you** want anything?'

One commonly assumed instantiation of this view is that the morpheme licenses/identifies a silent pronoun *pro* found in the relevant argument position (cf. Rizzi 1982, 1986, Cardinaletti 1997, 2004, Holmberg 2005, Sheehan 2006, Roberts 2010, Holmberg 2010, i.a.). One of its characteristics is the ability to serve as a resumptive (which typically rescues a violation, see an overview in McCloskey 2006) in an island configuration. In addition, this pronoun is always definite and necessarily co-indexed with the verbal inflection.³³

- (13) María me recordó que Ø lo ha visto

Barbosa 2007 for an overview), while Modern Irish does not (cf. McCloskey & Hale 1984). In particular, McCloskey & Hale argue that in Irish, the 'agreement morpheme' serves as the '(inflectional) argument': for the sentence to be grammatical, either the referent must be overt and the morpheme absent, or vice versa.

³³ An alternative view is that there is no *pro* (in the relevant syntactic position), and Agr itself is pronominal (cf. Borer 1989, Alexiadou & Anagnostopoulou 1998, Barbosa 2007, i.a.). In the framework assumed in this chapter (Chomsky 1995, *et seq.*), this line of research is represented in (i)

- (i) There is no *pro* at all in null subject constructions. Instead, Agr (the set of ϕ -features of I) is itself interpretable; Agr is a referential definite pronoun, albeit being phonologically expressed as an affix. As such, Agr is also assigned a subject θ -role, possibly by virtue of heading a chain whose foot is in vP, receiving the relevant θ -role. (Holmberg 2005, *Hypothesis B*)

On this approach (i.e. *pro*_{Agr} does not exist, and the burden of the θ -role carrier must be placed on Agr), then Agr itself is referential, and other than the definite interpretations of the NA are unexpected.

Maria me reminded that him have.3SG seen

- i. *Out if the blue: Maria_i reminded me that she_i saw him*
- ii. *If j is has been the topic of conversation:
Maria_i reminded me that she_j saw him*
- iii. **Maria told me that {they/I/we/you} saw him*

The status of the morpheme, as well as of the silent argument, has been a locus of an ardent debate in the literature on the NS languages (see a detailed overview in Roberts & Holmberg 2010) with the following generalization: languages in which agreement throughout the paradigm is doing the kind of work alluded to in (12) are the 'consistent' NA languages—languages in which the silent argument is always a) 'identifiable' from the verbal affix and b) definite.

For the purposes of this chapter, the aforementioned suggests that if the \emptyset in (10) is *pro*_{Agr} (a phonologically null pronoun licensed/identified by agreement), its reference is expected to be limited to what is 'encoded' by the agreement morpheme on the verb.

3.1.2 \emptyset _{-Agr}

In principle, the aforementioned analysis of (10)) suffices; yet, (10) remains unaccounted: there is no verbal morphology in order to aid the 'recovery' of \emptyset . Here, Lillo-Martin appeals to Huang (1984).

Huang (1984) sets out to capture and motivate the differences in the distribution of \emptyset cross-linguistically. Note that in cases like (13), the reference of the missing argument can be recovered (along the lines of Taraldsen 1978) from the inflection on the verb; however, the question arises how such recovery might proceed in languages which

entirely lack verbal morphology yet allow a productive argument omission in finite clauses. One such language is Mandarin Chinese:

- (14) A. Zhangsan kanjian Lisi le ma? [Chinese]
Zhangsan see Lisi LE Q
 'Did Zhangsan see Lisi?'
 B. a. ta kanjian ta le.
 he see him
 'He saw him'
 b. \emptyset kanjian ta le.
 see him
 '(He) saw him'
 c. ta kanjian \emptyset le.
 he see
 'He saw (him)'
 d. wo cai [\emptyset kanjian \emptyset le].
 I guess see LE
 'I guess (he) saw (him).'
 e. Zhangsan shuo [\emptyset kanjian \emptyset le].
 Zhangsan say see LE
 'Zhangsan said (he) saw (him).'

(Huang 1984)

Clearly, a mechanism is required in order to 'recover' the features of the missing argument. A brief look at (10), containing NS and NO with a plain verb, makes it tempting to proceed with the analysis of NA_{ASL} along the lines of \emptyset from Mandarin Chinese in (14).

Huang proposes a Generalized Control Rule which, in conjunction with (a version of) the Binding Principle B (known as Disjoint Reference), accounts for the distribution of NAs.

- (15) a. *Disjoint Reference (DJR)*
A pronoun must be free in its governing category
- b. *Generalized Control Rule (GCR)*
Co-index an empty pronominal with the closest nominal element.

In particular, Huang argues that in cases like (14)B), the NA is ambiguous between being a pronominal and a topic-bound variable (Tsao 1977). However, given DJR and GCR, a (silent) pronoun is licit only in the embedded subject position, and not as a matrix subject/object or embedded object. This implies that in these languages, the NO may be possible but must be topic- (i.e. A'-)bound: (15) forces co-indexation with the closest nominal; however, for pronouns such co-indexation results in violation of (15). Therefore, the NO is not a pronoun but a variable.

Two consequences of this analysis are heavily exploited in Lillo-Martin (1986, 1991) with respect to ASL. First, if Agr is available for co-indexation/identification of the NA, and (15) is not violated, then the NA is *pro*(noun). This is the case with agreeing, but not plain, verbs. Additionally, since with plain verbs, the NA_{ASL} is almost always a variable, then when an actual pronoun is required, an overt pronoun will be obligatory.

3.1.3 ASL is a hybrid language

The rationale employed by Lillo-Martin is as follows: as (2)-(3) illustrate, the availability of the NA_{ASL} with a verb is contingent on the verb-type.

For the set of verbs exhibiting (manual) agreement (cf. (1a), (2a), (3a)), the agreement affixes on the verb 'encode arguments'—i.e. identify them in space in the manner often described for languages like Spanish and Italian. In short, she argues that agreeing verbs behave as if the 'rich agreement' licenses/identifies null pronouns co-indexed with Agr. On the other hand, plain verbs display the East Asian paradigm; i.e. in the absence of agreement, the NA, unless it is co-indexed with the closest NP, must be a topic-bound variable. In other words, in certain configurations, \emptyset is expected to be allowed with agreeing verbs and not with plain ones. One such configuration is left dislocation.

It has been long known that in left dislocation (Ross 1977) structures (as in (16)), a pronoun co-indexed with the dislocated element is required. The aforementioned is illustrated in (16).

- (16) a. *This book*, to whom should we give **(it)*?
b. (As for) *John*, who do you think saw **(him)*? (Chomsky 1977)

Such an approach suggests that in cases like (16), the gap corresponding to the dislocated element will be allowed only if it contains a silent *pro*(noun).

Note that the account that treats \emptyset occurring with agreeing verbs as pronominal while \emptyset with plain verbs as non-pronominal now offers concrete predictions. In particular, it predicts that in cases of left dislocation, plain verbs will disallow null arguments in lieu of overt pronouns. That is, although plain verbs allow NAs as well (cf. (1)), absence of an overt pronoun in cases necessarily requiring a pronoun is predicted to

be impossible. The prediction is confirmed: as illustrated in the left-dislocation³⁴ cases in (17)-(18), sentences with plain verbs are grammatical only if an overt pronoun is present, while sentences with agreeing verbs allow *pro* in the relevant position.

- (17) a. $\overline{\text{a-MOTHER, I-IX DON'T-KNOW WHAT a-IX/*}\emptyset \text{ LIKE}_{\text{plain}}}$ = (2b)
 'Mother_i, I don't know what she_i likes.'
- b. $\overline{\text{a-THAT a-COOKIE, I-IX HOPE b-SISTER SUCCEED b-PERSUADE-c c-MOTHER EAT}_{\text{plain}} \text{ a-IX/*}\emptyset}$ = (3b)
 'That cookie, I hope my sister manages to persuade my mother to eat it.'
- (18) a. $\overline{\text{a-MOTHER, I-IX DON'T-KNOW WHAT \{a-IX/\emptyset\} a-SEND}_{\text{agreeing-1}}}$ = (2a)
 'Mother_i, I don't know what {she/ \emptyset } sent (-me).'
- b. $\overline{\text{a-EXERCISE CLASS, I-IX HOPE b-SISTER SUCCEED c- MOTHER a-TAKE-UP}_{\text{agreeing}} \{a-IX/\emptyset\}}$ = (3a)
 'The exercise class, I hope my sister manages to persuade my mother to take{it/ \emptyset }.'

Thus, Lillo-Martin takes the data in (16)-(18) as confirmation of her view that the NA_{ASL} occurring with manually agreeing verbs (like SEND and TAKE-UP) is pronominal in nature, while the NA_{ASL} occurring with plain verbs is something else entirely and, crucially, not *pro*.

The aforementioned analysis has the following consequence: if the NA of the agreeing verb is, in fact, an agreement-licensed *pro*_{Agr} typically found in languages with rich morphological agreement, then this element, by assumption, ought to resemble in crucial respects its counterpart in other 'agreement-licensing null argument languages.'

³⁴Lillo-Martin (1991) argues that structures like (17)-(18) constitute a case of left dislocation and not movement. Her arguments hinge on the fact that although embedding (as in (18b)) in general and embedded wh-sentences in particular (as in (18a)) serve as clear islands for movement in ASL, the sentences remain grammatical. She examines other islands (Ross 1967) as well and arrives at the same conclusion. Note, however, that nothing hinges here on whether the relevant sentences are base-generated, rather than derived by movement. If the latter, such movement is expected to induce island effects; thus, a resumptive pronoun co-indexed with the moved element, is expected (see McCloskey 2006 for a comprehensive overview). Therefore, the non-pronominal \emptyset (i.e. a topic-bound variable) will remain excluded.

However, as discussed more at length below, it does not. Further, if the NA of the plain verb is ambiguous between a topic-bound variable and a pronoun, then in the environments forcing the pronoun, the sentence should be ungrammatical. In this respect, the data in (2)-(6) pose a problem: as long as the locus of the antecedent of the NA has not been assigned (as in (2)-(3) vs. (4)-(5)), the NA is possible with either an agreeing or a plain verb. In this respect, (2)-(5) remain problematic for the analysis insofar as the account does not predict the contrast between sentences with and without assigned loci. More to the point, although the NA occurring with agreeing verbs in (4a) and (5a) are accounted for by the *pro*_{Agr} analysis (a la, e.g., Rizzi 1986), the null-topic approach (Huang 1984) to the NA occurring with plain verbs in (2b) and (3b) fails.

3.2 Previous analysis 2: Bahan et al (2000)

The approach to the NA_{ASL} outlined above has not gone unchallenged. In particular, Bahan, Kegl, Lee, McLaughlin & Neidle (2000) argue that there is nothing Chinese-like about the NA_{ASL}, and the Italian-style paradigm spans across verb classes. On this account, cases (2)-(5) instantiate *pro*_{Agr}. Looking ahead, this view implies that the NA occurring with plain verbs is always pronominal and, thus, should always behave as a pronoun.

Bahan (1996) argues that certain non-manual markings (namely head-tilt and eye-gaze) instantiate Agr. (i.e. agreement); this analysis suggests that manual and non-manual markings in ASL should be viewed on a par with respect to a variety of functions. Among them is the licensing of empty categories. Bahan et al. (2000), in turn, argue that without *some* morphological agreement (manual or non-manual), NA_{ASL} is impossible.

The claim is supported by the data in (19)-(22): in (19)/(21), the verb is manually agreeing, and, thus, the utterance with (i.e. (19a)/(21a)) or without (i.e. (19b)/(21b)) the relevant non-manuals is grammatical. In (20)/(22), however, the verb is plain—manually non-agreeing—therefore, the non-manuals serve as the sole carrier of agreement (cf. (20b)/(22b)). Therefore, without them, the sentence is ungrammatical (cf. (20a)/(22a)).

(19) *Agreeing*

- a. $pro_i [+agr_i]_{AgrS} [+agr_j]_{AgrO} i$ SHOOT_j FRANK_j
'(He/She) shoots Frank.'
- head tilt-*i*
- b. $pro_i [+agr_i]_{AgrS} [+agr_j]_{AgrO} i$ SHOOT_j FRANK_j
eye gaze-*j*

(20) *Plain*

- a. * $pro_i [+agr_i]_{AgrS} [+agr_j]_{AgrO}$ LOVE MOTHER_j
'(He/She) loves mother.'
- head tilt-*i*
- b. $pro_i [+agr_i]_{AgrS} [+agr_j]_{AgrO}$ LOVE MOTHER_j
eye gaze-*j*

(21) *Agreeing*

- a. JOHN_i BLAME_j pro_j
'John blames (him/her).'
- head tilt-*i*
- b. JOHN_i BLAME_j pro_j
eye gaze-*j*

(22) *Plain*

- a. *JOHN_i LOVE pro_j
'John loves (him/her)'
- eye gaze-*j*
- b. JOHN_i [+agr_j]_{AgrO} LOVE pro_j

(Bahan et al. 2000)

(23) A. María cree que su propuesta será aceptada. [Spanish]
Maria believes that her proposal will-be accepted
 ‘Maria believes that her proposal will be accepted.’
 B. Juan también cree que Ø será aceptada.
Juan also believes that will-be accepted
 ‘Juan also believes that {Maria’s/***Juan**’s} proposal/it will be accepted.’
 (Oku 1998)

(24) A. FIVE FOOTBALL PLAYER PASS MY CLASS = (7)
 ‘Five football players passed my class’
 B. Ø FAIL MY CLASS
 ‘{The same five/**different five**} football players failed my class’

(25) A. a-PETER LIKE a-POSS STUDENT = (8)
 ‘Peter likes his students’

³⁶ The discussion is expanded in section 3.1.2

- B. b-JEFF HATE Ø
 'Jeff hates {Peter's / **Jeff's**} students'
- (26) A. a-JOHN TEND_{plain}-a ASK+++ neu-POSS TEACHER = (9)
 'John is always asking his teacher questions'
- B. b-MARY b-TEND_{plain} ANSWER+++ Ø
 'Mary is always answering {John's / **Mary's**} teacher'

The phenomenon is productive and occurs with both potentially agreeing and plain verbs³⁷ (labeled below for ease of exposition) and in both subject and object positions:

- (27) a. A. MY CLASS, THREE STUDENT JOIN_{agreeing}
 'Three students joined my class'
- B. MY CLASS, Ø DROP
 'My class, {the same three / **different three**} students dropped'
- b. A. SIX KID STOP MY HOUSE YESTERDAY
 'Six kids stopped my house yesterday'
- B. LUCKY 2-IX Ø STAY_{plain}+++ MY HOUSE
 'Lucky you, {the same six / **different six**} kids stayed at my house [for a while]'
- c. A. PETER FINISH REMEMBER_{plain} POSS QUESTION
 'Peter remembered his question'
- B. JEFF FORGET_{plain} Ø
 'Jeff forgot {Peter's / **Jeff's**} questions'
- d. A. a-MARY FEEL_{plain} COMMITTEE WILL ACCEPT_{plain} MY PROPOSAL
 'Mary thinks: "The committee will accept my proposal"'

³⁷ The defining feature of the paradigm I offer here is that neither *manual* nor *non-manual agreement* is possible: all of the sentences exhibiting the non-strict reading are uttered in significantly reduced signing space—i.e. they are whispered. Note that in such case the 'disambiguation' offered by referring to particular loci in space (see section 4.6) becomes unavailable, and the nature of the NA_{ASL} rises to the surface.

- The question arises: where does the additional reading (in **bold**) come from? That is, why is it possible for the NA_{ASL}, which is argued to be pronominal in nature, to refer to someone other than the antecedent it is expected to be bound by? If the NA_{ASL} is *pro*_{Ag_r}, then in (27), its reference should be limited to the antecedent in the (A) sentences, in parallel with Spanish in (23). In that case, the question that begs an answer is why the sloppy/quantificational reading typically not associated with a definite pronoun is available.

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non-agreeing verbs only. As the data demonstrate, however, the above predictions are not borne out: a reading other than the strict one is possible, and, when the locus of the argument has not been assigned, so is a NA_{ASL} when an overt pronoun is typically obligatory. Therefore, a new account of the facts is in order.

4. Account (part 1): What the NA_{ASL} is not

The remainder of the chapter focuses on the NA without manual agreement.³⁸

I account for the data presented in the previous section by arguing that the NA_{ASL} is best viewed as argument ellipsis of a bare singular NP. Thus, to the degree that the aforementioned NP is an argument, what is responsible for the NA_{ASL} is Argument Ellipsis (AE). The argument I offer has a few subparts: the first task is to demonstrate that range of readings/environments in which the NA_{ASL} can be found challenges a variety of potential accounts, including the standard ones. In particular, a number of options arise here which are discussed at length in the remainder of the chapter: that the NA_{ASL} is an implicit argument (i.e. never syntactically realized); that it is *pro*; and that it is a result of ellipsis. Below, I offer a summary of these options in *Table 1* (28), along with typical characteristics of each of these alternatives; they are discussed in the remainder of the chapter.

³⁸ I leave open the possibility that when verbs are thus modified, something akin to 'rich agreement' in the sense of Taraldsen (1978) is present and, in turn, serves the function of a licenser of pro_{Agr} , to use familiar from the literature terms. It would be good, of course, if all the instances of the NA_{ASL} were to be subsumed by one account; I leave this step for future research, having made some suggestions on the matter in section 6. Such an approach suggests that when manual agreement 'enters the picture,' it presents something *additional* to the phenomenon I describe below.

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(28) *Table 1. Ontology of NA*

Element	Referential	Definite	Indefinite	[-human]	Sloppy reading
Implicit	No	Yes (‘notice’)	Yes (‘read/eat’)	Yes	No
<i>pro</i> _{arb}	No	Yes	No	No	No
<i>pro</i> _{Agtr}	Yes	Yes	No	Yes	No
<i>pro</i> _{indef}	No	No	Yes	Yes	Yes
<i>pro</i> _{free/referential}	Yes	Yes	No	Yes	No
V-VPE	Yes	Yes	Yes	Yes	Yes
AE	Yes	Yes	Yes	Yes	Yes

Each of the options in (28), however, comes with a presupposition: if the NA_{ASL} is to be analyzed as one of the elements above, then it is expected to behave/be restricted in the way such elements have been shown to behave/be restricted. These restrictions apply to the types of readings a NA can have as well as the type of environments it can occur in. What this section aims to show, then, is that the NA_{ASL} boasts the spectrum of readings/interpretations uncharacteristic of implicit arguments or *pro* and typical of ellipsis.

Specifically, I show that the NA_{ASL} is clearly (i) not ‘implicit’ (section 3.1), (ii) not *pro* (section 3.2), and must be (iii) surface anaphoric in the sense of Hankamer & Sag (1976) (section 3.3). If surface anaphora implies ellipsis (Johnson 2009), then the question arises what type of ellipsis is responsible for the NA in ASL. In section 3.4, I show that (iv) VP ellipsis (V-movement out of the VP before ellipsis, cf. Goldberg 2005) cannot provide an explanation for the existence of the NA in either the subject or the object positions. I also show that (v) the AE analysis of a surface-similar phenomenon in East Asian languages (Saito 2007, Takahashi 2010) cannot be neatly applied to the NA in ASL (section 3.5) without certain amendments. Instead, I propose that what is elided is a bare singular NP (a non-branching element) that must be an argument of the verb, and

show that this account fares better than the alternatives in capturing the behavior of the NA_{ASL} . This account hinges on the language's ability to have NPs which are necessarily bare singulars and unconstrained in their distribution (section 3.6).

4.1 The NA_{ASL} is not an 'implicit argument'

I hope to have shown above that the account of the NA_{ASL} begs re-examining. Therefore, in what follows I take nothing for granted, including the possibility that the element is actually not present in the syntax/at LF. That is, the element is an 'implicit argument.' To that effect, this subsection demonstrates that this option cannot be correct.

The first question, of course, is how the argument is interpreted if it is not represented (in the syntax). One common answer to this question is that such argument is implicit—active semantically but not in any other way (e.g. syntactically). In their overview of implicit arguments, Bhatt & Pancheva (2006) demonstrate that the tests typically applied to implicit arguments in order to argue for or against their syntactic reality are often inconclusive, or, at the very least, the dividing line between syntactically real and otherwise arguments is often blurry. Therefore, here, I focus my attention on two diagnostics: an inability of occurring without a suitable antecedent concurrently with the ability to serve as an inner antecedent of a sluice,³⁹ and ability to control. I show that along these lines, the NA_{ASL} does not appear 'implicit.'

A suggestion that an argument is semantically, though not syntactically, real (i.e. 'implicit') is principally contingent on the lexical semantics of the verb. In other words,

³⁹ Although AnderBois (2011) eventually places *jealous*-type verbs (which pattern along the lines of both (28a) and (28b)) in a class of their own, he shows that with respect to the sluicing test, their 'implicit' arguments are clearly existential.

the predicate itself defines the nature of its 'implicit' argument. As originally observed in Fillmore (1969), 'implicit' arguments come in two varieties: existential and anaphoric. The former, but not the latter, can be uttered without any linguistic or a contextual antecedent.

To exemplify: the 'implicit' arguments of *read/eat* are existential/indefinite in nature and can occur without a suitable antecedent (as in (29a)) while the 'implicit' arguments of verbs like *notice* are necessarily anaphoric—i.e. they are anomalous/impossible without a(n contextual) antecedent (as in (29)) but fully grammatical with it (as in (29b)).⁴⁰

(29) a. *Context: a parent walks into the child's room and says:*

Have you eaten/read/played/#noticed ____ today?

b. *Context: Two guests staying at a pet-unfriendly hotel are walking in the hall-
 They are passed by a child with a dog on a leash. One guest says:*

Have you noticed ____?

ASL examples in (30)-(31) may be said to parallel the *notice*-cases in (29): without a clear antecedent, the NA_{ASL} occurring with the predicates in (30a-h) is impossible.

(30) A. What are the plans for today/what all happened today?

B. a. *PETER WILL SKIP_{plain} Ø
 'Peter will skip ____'

b. *I-IX FINISH ASK_{agreeing-a} Ø
 'I have asked ____'

⁴⁰ Note that I make not claim about the nature of this anaphoricity of certain 'implicit' arguments (see AnderBois 2011 for an overview of the relevant literature and a semantic account). What will be discussed at length is the nature of such anaphoricity in ASL, beginning in section 4.

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- c. *JOHN LOVE_{plain/agreeing} Ø
 'John loves _____',
 - d. *JEFF HATE_{agreeing} Ø
 'Jeff hates _____',
 - e. *MARIE FINISH SEND_{agreeing} Ø
 'Marie has sent _____',
 - f. *COMMITTEE IX WILL REJECT_{plain} Ø
 'Committee will reject _____',
 - g. *I-IX FORGET_{plain} Ø
 'I forgot _____',
 - h. *MOTHER BUY_{plain} Ø
 'Mother bought _____',
- B'. a. * Ø WILL SKIP_{plain} CLASS
 '____ will skip class'
- b. * Ø FINISH ASK_{agreeing-a} QUESTION
 '____ have asked questions'
 - c. * Ø LOVE_{plain/agreeing} IX
 '____ loved it'
 - d. * Ø HATE_{agreeing} IX
 '____ hated it'
 - e. * Ø FINISH SEND_{agreeing-a} LETTER
 '____ has sent a letter'
 - f. * Ø WILL REJECT_{plain} PROPOSAL
 '____ will reject the proposal'
 - g. * Ø FORGET_{plain} MY BOOK
 '____ forgot my book'
 - h. * Ø BUY_{plain} CAR

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However, with it, both (B) and (B') sentences become grammatical. In (31), Ø can 'replace' a variety of arguments, both external (subject) and internal (object). The latter can be either direct (e.g. (31a)), indirect (e.g. (31e)), or locative (e.g. (31h)).

- (31) a. A. Is Peter going to class?
B. NO, Ø WILL SKIP Ø TODAY
'No, (he) will skip (it) today'
- b. A. Any more questions (for me)?
B. ^{y/n?} IX NO, Ø FINISH ASK Ø
'Me? No, (I) have asked ({my questions/you})'
- c. A. Does Jeff like his new apartment?
B. YES, Ø LOVE Ø
'Yes, (he) loves (it)'
- d. A. Does Jeff like his new apartment?
B. NO, Ø HATE Ø
'No, (he) hates (it)'
- e. A. What did Marie do with the letter?
B. Ø a-SEND-b Ø
'(She) sent (it) off(/to John)'
- f. A. What did the committee think of the proposal?
B. Ø REJECT Ø
'(They) rejected (it)'
- g. A. Did you bring your book?
B. Ø FORGET Ø, SORRY
'Sorry, (I) forgot (it)'
- h. A. Did your mother make a decision about the car?
B. YES. REMEMBER TWO PLACE TWO? PAH Ø DECIDE. Ø a-BUY Ø

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‘Yes. Remember there were these two places? Finally, (she) decided. (She) bought (it) (at the first one)’

In other words, cases in (30)-(31) are reminiscent of the contrast in (29a-b) with respect to *notice*; thus, I conclude that the NA in (30)-(31) (ungrammatical in the former but grammatical in the latter cases) must be anaphoric.

As discussed at length in AnderBois (2011), anaphoric ‘implicit’ arguments (unlike their existential/indefinite counterparts) cannot antecede a sluice,⁴¹ thus confirming Filmore’s (1969) dichotomy.

- (32) a. *John noticed __ but I don’t know what [~~John noticed~~ ____].
b. John ate __ but I don’t know what [~~John ate~~ ____]. (AnderBois 2011)

Thus, we predict that if the NA_{ASL} in (30) is indeed an ‘implicit’ argument, it will not be able to serve as an inner antecedent of a sluice. Yet, with an appropriate context, NA_{ASL} can be followed by a sluice with the same set of verbs:

- (33) PETER WILL {SKIP/LOVE/HATE/SEND/ASK/REJECT/FORGET/ BUY} Ø
BUT NOT-KNOW {WHAT/WHO/WHERE}
‘Peter will {skip/hate/send/ask/reject/forget/buy}(something/someone) but I don’t know {what/who/where}[~~he will skip/hate/send/ask/reject/forget /buy~~ ____]’

This ability of the language is productive and, to my knowledge, available with any verb allowing the relevant argument.

⁴¹ Like AnderBois, I assume here that sluicing involves movement of the *wh*-element and the subsequent elision of the remainder of the clause (cf. Merchant 2000).

To summarize: on the assumption that the predicate dictates the properties of its ‘implicit’ arguments with respect to the necessity of the contextual antecedent (i.e. existential vs. anaphoric), we expect these arguments to pattern accordingly as antecedents of a sluice. These two characteristics have been shown to go hand-in hand (AnderBois 2011) and yielding the following generalization: if a NA is unable to occur without a contextual antecedent and yet able to serve as an inner antecedent of a sluice, this argument is unlikely to be ‘implicit’ in the relevant sense.

As the ASL data discussed in this subsection show, the NA_{ASL} does not fit this categorization neatly: although any argument of any verb can be omitted (Padden 1988[1983]), a hefty number of verbs pattern along the lines of *notice* in (29a) and *ate* in (32) simultaneously, cutting across the paradigm in Fillmore (1968) and AnderBois (2011).

Additionally, in his discussion of Italian, Rizzi (1986) argues that the ability to control correlates with other tests for presence in the syntax (see also Roeper 2000, Landau 2010, i.a.). On this diagnostic, the NA_{ASL} is decidedly syntactically real: both subject and object \emptyset can control.⁴²

- (34) A. $\overline{\text{KID a-IX}}^t$ STRANGE
 ‘That kid there is weird’
 B. $\overline{\text{WHY}}^{wh}$
 ‘Why?’

- A. \emptyset WANT [PRO STUDY ALL-DAY]
 ‘He wants to study all day long’

⁴² I abstain here from the discussion in, e.g., Williams (1985), (1987) who argues that an ability to control does not necessarily translate into syntactic reality. See Bhatt & Pancheva (2006) for an overview and Landau (2010) for extensive argumentation on the matter.

- (35) a. *Context: the parent has told the child numerous times to clean the car. The parent comes home—the car is dirty. The parent sits in front of the child; the child knows what is about to come next. The parent signs...*

IX-1 FINISH TELL-2, IX-1WANT Ø [PRO CLEAN]
 'I told you; I want (it/the car) clean'

- b. MARY POSS KID a-PITY FORCE Ø [PRO CLEAN HOUSE EVERY-DAY]
 'Poor Mary's kid. She forces her to clean the house every day'

Let me summarize the findings in this subsection: the fact that the NA_{ASL} (i) occurs productively with a variety of verbs but only if the antecedent is available while, at the same time, being able to serve as an inner antecedent of a sluice, and (ii) able to control PRO leads me to a conclusion that the NA_{ASL} is more than an 'implicit' argument; it is syntactically represented.⁴³ The question then arises, what is the nature (i.e. the syntactic representation) of the NA_{ASL}? The following subsections attempt to tackle the answer, beginning with what the NA is clearly not.

4.2 The NA_{ASL} is not *pro*:

Having shown in the previous subsection that the NA_{ASL} is, in fact, syntactically real, I now focus on what type of element it is by first excluding possibilities, some of which have become standard in the field.

It is well known that many languages allow argument drop, but not all null arguments are created equal. Since the early days of *pro*-drop research, much emphasis has been placed on agreement (Taraldsen 1978), which has been argued to serve as the

⁴³ Note that no claim has been made here about (un)availability of other types of 'implicit arguments' discussed in the literature. Instead, I simply argue that not all instances of NA_{SLA} should be analyzed as such.

licenser of *pro* (cf. Chomsky 1982, Rizzi 1986, i.a; see section 2.1.1). Recall that Lillo-Martin (1986, 1991) and Bahan et al. (2000) appeal to this mechanism in their account of the NA_{ASL}. Importantly, in the framework assumed both by Lillo-Martin and Bahan et al., *pro*_{Agr} is a special element—a particular type of empty category, in a number of ways different from an overt pronoun (cf. Rizzi 1986). However, the advent of *Minimalism* (Chomsky 1995) has forced a re-evaluation of this thesis while having provided a new set of tools which allow for the further refinement of what has become referred to in the literature as *pro*:

- (36) The null subject is specified for interpretable ϕ -features, values the uninterpretable features of Agr, and moves to Spec,IP, just like any other subject. This implies that nullness is a phonological matter: the null subject is a pronoun that is not pronounced. (Holmberg 2005, *Hypothesis A*)

In other words, there is nothing special about *pro*—it is simply a pronoun which happens to be silent for language-specific reasons. Thus, *pro*_{Agr} does not need to be the only instantiation of the null pronoun, as long as it meets the criteria for being such an element. In fact, a number of potential elements can fit the description, among which are *pro*_{arb} (occurring typically in impersonal constructions) and *pro*_{indef} (a silent variant of the English *one*). Note that the strong version of something like (36) suggests that all of the aforementioned versions of *pro*—i.e. a silent pronoun—are simply pronouns and, thus, should behave as pronouns do. In this section, I demonstrate that the analysis of the NA_{ASL} as an instance of *pro* does not hold up to empirical scrutiny. In particular, I will show that none of the various versions of *pro* available in the literature (*pro*_{arb}, *pro*_{Agr}, *pro*_{indef}.) adequately capture the ASL data. The argumentation throughout this subsection

4.2.1 Not *pro*_{Agr}

This subsection addresses the possibility that the NA_{ASL} is best viewed as agreement-licensed/-identified *pro* (*pro*_{Agr}). Here, I argue against this approach to the data; I demonstrate that the NA_{ASL} does not neatly correspond to what we know about *pro*_{Agr} because it does not have to be definite. Thus, this subsection serves most clearly as an argument against Bahan et al. (2000) (see section 2.2.2).

A defining characteristic of the element typically dubbed ‘*pro*_{Agr}’ is that it is necessarily definite in reference: if something like (36) is on the right track, then it must be the case that the null pronoun is fully specified for ϕ -features (and then values the ϕ -features of Agr).

In addition, as Frascarelli (2007) argues, *pro*_{Agr} must be bound by something like an Aboutness Topic (Reinhart 1983) in the CP; this allows *pro*_{Agr} to support inter-sentential anaphora as in (37).

- (37) Maria me dijo que *pro*_{Agr} estaba enojada ≈ (13)
Maria me told that was annoyed
‘Maria told me that (she) was annoyed’
i. *Out of the blue*: Maria (and not anyone else) was annoyed
ii. *In the context where we have been speaking of Julia*: Julia (and not Maria) was annoyed.

Informally, in (37i), the topic of the conversation is Maria, while in (37ii), it is Julia; *pro* is bound by the topic. The aforementioned observation implies that in an ellipsis scenario,

the reference of pro_{Agr} is always strict—informally, bound by whatever is in the

Aboutness Topic:

- (38) A. $Maria_i$ me dijo que $[su_i \text{ prima}]_j$ estaba enojada.
Maria me told that her cousin was annoyed
 'Maria told me that her cousin was annoyed'
- B. Ana_k me dijo que $pro_{Agr \ j}$ no estaba enojada si no cansada
Ana me told that not was annoyed if not sad
 'Anna told me that (she) was not annoyed but, rather, sad'
 i. * Ana_k told me that her_k cousin was sad
 ii. Ana_k told me that her_i cousin was sad
- (39) A. $María$ cree que su propuesta será aceptada. = (23)
Maria believes that her proposal will-be accepted
 'Maria believes that her proposal will be accepted.'
- B. $Juan$ también cree que pro_{Agr} será aceptada. (Oku 1998)
Juan also believes that will-be accepted
 'Juan also believes that {Maria's/*Juan's} proposal/it will be accepted.'

That is, \emptyset in (38B) can never pick out Anna's own cousin; \emptyset in (39B) can never refer to Juan's own proposal. In other words, pro_{Agr} cannot have a sloppy reading; instead, it has the strict interpretation only, ordinarily associated with definite pronouns. This observation remains true whether the pronoun is null (as in (39B)) or overt (as in (40B)):

- (40) A. $Maria_i$ me dijo que $[su_i \text{ prima}]_j$ estaba enojada.
Maria me told that her cousin was annoyed
 'Maria told me that her cousin was annoyed'
- B. Ana_k me dijo que $ella_{j/k}$ no estaba enojada si no cansada
Ana me told that not was annoyed if not sad
 'Anna told me that (she) was not annoyed but, rather, sad'
 i. * Ana_k told me that her_k cousin was sad
 ii. Ana_k told me that her_i cousin was sad

In contrast to the Spanish paradigm (which extends to other languages argued to display agreement-licensing of *pro*, see Biberauer et al 2010), the NA_{ASL} is not limited to the strict reading; rather, in (41), B is making a statement about B's own football players, and in (42), Jeff hates his own students (see also (7)-(9)):

- (41) A. SEEM MY FOOTBALL PLAYER MY CLASS (SELF) SMART
'It seems my football players (in my class) are smart [this semester]'
- B. LUCKY-2-IX. Ø STUPID
'Lucky you. (My football players) are stupid'
- (42) A. a-PETER LIKE_{plain} a-POSS STUDENT
'Peter likes his students'
- B. b-JEFF HATE_{plain} Ø
'Jeff hates {Peter's /Jeff's} students'

In other words, a non-strict interpretation is available. Furthermore, as (43)-(45) demonstrate, the NA_{ASL} can have an other-than-definite interpretation disconnected from the strict/sloppy dichotomy. In (43), the Ø refers to *some car/any of the cars on the lot*, but, crucially, not *the car* insofar as there is no such car:

- (43) Context: A mother and two daughters pull into a used car dealership. One daughter says:

HOPE b-SISTER b-PERSUADE-c c-MOTHER BUY_{plain} Ø
'I hope my sister persuades mother to buy {some car/any of these/*it}'

Additionally, in (44), Ø follows an existential HAVE (Chen Pichler et al. 2006), which has been known since Milsark (1974) not to allow definites following it:

- (44) a. There is a/*the man in the garden.

b. *Context: A student walks into the Sign Language Lab*

A. 1-IX NEED BOOK LINGUISTICS ^{y-n} HAVE Ø HERE
 'I need a Linguistics book. Is there {one /*it} here?'

B. LOOK HAVE MANY+++ ^{wh?} 2-IX WANT WHICH
 'Look, we have lots. Which one do you want?'

A. DOESN'T-MATTER ANY BOOK FINE
 'It doesn't matter; any (linguistics) book will do'

Finally, recall that the NA_{ASL} can serve as an antecedent of a sluice (as in (33), repeated here as (45), and (46)):

(45) PETER WILL {SKIP/HATE/SEND/ASK/REJECT/FORGET/BUY} Ø
 BUT NOT-KNOW {WHAT/WHO/WHERE}
 'Peter will skip/hate/send/ask/reject/forget (something) but I don't know
 what/who/where [~~he will skip/hate/send/ask/reject/forget/buy~~_____]'

(46) a. *Context: Marie loves children; she never minds the noise. But today,
 she had a migraine. I don't really know what happened but...*

HEAR SAY MARIE FINISH SPANK Ø BUT DON'T-KNOW WHO
 'I heard Marie spanked {some child/*him}, but I don't know who'

b. She spanked someone/*him but I don't know who.

If we assume that a sluicing construction involves a wh-question (cf. Merchant 2000) then the element that serves as the antecedent of the sluice is not known (45) (see also (33)), and, thus, indefinite. In other words, as illustrated by an English comparison in (46b), the Ø in (45) and (46a) cannot possibly be definite.

Additionally, because *pro*_{Agr} is necessarily definite, in order to achieve non-definite reference (e.g. generic), agreement-licensing NA languages resort to strategies other than the *pro*_{Agr}. The aforementioned results in the following generalization: in such

languages, generic impersonal inclusive pronouns (corresponding to the English *one* or *you*) cannot be null—either a clitic or a particular verb-form is mandatory (overview in Roberts & Holmberg 2010).⁴⁴

- (47) Qui no *(si) può fumare [Italian]
Here not *SI* can smoke
‘One/you_{impers.inclus} can’t smoke here’

In contrast with this generalization (and (47)), ASL allows such generic null subjects.⁴⁵

- (48) a. Context: *A car pulls up to a hospital and take a place of another car that had just left. A security officer patrolling the area expresses his annoyance: :*

1-IX FINISH ANNOUNCE. Ø CAN’T PARK_{plain} HERE. MEAN 1-IX CAN’T
2-IX CAN’T, a-IX CAN’T.
‘I just said that! *(One/you_{impers.inclus}) can’t park here/Parking here is not allowed. This means that I can’t park here, you can’t park here, and that guy over there can’t park here.’

- b. Context: *Usually, students ask many questions during the class, and the teacher welcomes them. However, today is a test day. One*

⁴⁴ The aforementioned is not the case with generic impersonal *exclusive* pronouns; compare the difference in Spanish:

- (i) Is Spanish spoken (here)? [Spanish]
a. ¿{^vSe/*Ø} habla Español? ≈ speaker included
b. ¿{^vSe/*Ø} hablan Español? ≈ speaker excluded

Here, I focus on the generic impersonal *inclusive* pronoun.

⁴⁵ Note that in certain environments, generic nulls are possible in English as well. However, as Sigurðsson (2011) shows, the distribution of these NS is constrained by being in the left-most edge position.

- (ii) a. (One/you_{impers.inclus}) Can’t smoke here!
b. Here *(one/you_{impers.inclus}) can’t smoke; outside—sure.

Therefore, I conclude that the ASL cases in (48) are crucially different: they are not restricted to the left-edge and are fully productive.

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student says to the other:

TODAY, Ø CAN'T ASK-QUESTION_{agreeing} ^{wh?} WHY TEST
 'Today *(one/you_{impers.inclus.}) can't ask-questions /asking questions is not
 allowed b/c we are having a test'

To summarize the findings in this section: the NA in ASL differs from what has been argued to be its Romance counterpart—i.e. *pro*_{Ag}—in the following respects: unlike *pro*_{Ag}, the NA in ASL can (i) be generic and indefinite and (ii) have sloppy interpretation under ellipsis. These data rule out (contrary to Bahan et al. 2000) the uniform analysis of the NA as *pro*_{Ag}.

4.2.2 Not *pro*_{arb}

In the previous subsection, I have shown that the analysis of the NA_{ASL} as an instantiation of *pro*_{Ag} does not account for (all) the data. That is, pace Bahan et al. (2000), it is clearly not the case that the NA_{ASL} is necessarily licensed by agreement. However, even in uncontroversially agreement-licensing languages (e.g. Italian), *pro*_{Ag} is not the only silent pronoun. Rizzi (1986) argues for the existence of another null element—*pro*_{arb(itary)} (roughly corresponding to the English *people in general/one*) In this subsection, I demonstrate that this version of *pro* does not adequately account for the data either.

Let me first illustrate why applying the *pro*_{arb} analysis to the NA_{ASL} might be tempting. Rizzi (1986) shows that in certain environments, a particular type of NA is allowed productively in Italian (though not in English). This element occurs in both the subject and the object position and appears syntactically real, since it controls (49a) and binds (49b):

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- (49) a. Questo conduce *pro_{arb}* a [PRO concludere quanto segue]. [Italian]
 This leads to conclude what follows
 'This leads (people/one) to conclude what follows'
- b. La buona musica riconcilia *pro_{arb}* con se stessi.
 The good music reconciles with self
 '*Good music reconciles (one) with oneself.' (adptd. Rizzi 1986)

Note that I have offered parallel evidence for the syntactic reality of the NA_{ASL} (see section 3.1). Therefore, it is potentially plausible that the relevant element in ASL is a counterpart of what Rizzi describes in Italian. However, as the following illustrates, this move would be in the wrong direction as well. I base my argumentation on the fact that the NA_{ASL}, but not the comparable '*arb*'s, can have non-agentive/[-human] and referential interpretations.

Rizzi (1986) (see also Cabredo-Hofher 2002, Malamud 2004, i.a.) shows that the element he dubs *pro_{arb}* has a defining characteristic: it is non-anaphoric/generic (as in (50a)) and agentive/[+human] (in (50b)).

- (50) a. Non so che cosa le sue parole possano indurre *pro_{arb}* a PRO [Italian]
 No know what thing the his words can lead to
 concludere.
 conclude
 'I do not know what his words can lead ____ to conclude'
 i. *What his_i words can lead him_i to conclude
 ii. What his_i words can lead people to conclude
- b. Certe innovazioni tecniche rendono *pro_{arb}* più efficienti.
 Certain innovation.PL technical.PL render more efficient.PL
 'Certain technical innovations render ____ more efficient'
 i. *Technical innovations render machines more efficient
 ii. Technical innovations render people more efficient (adptd. Rizzi 1986)

As (50a) shows, an anaphoric reading (even with an appropriate context) is unavailable, while (50b) illustrates that the reading in (i) (i.e. [-human]/non-agentive) is also unavailable.

In contrast, as most clearly seen in the contrast between (51), the NA_{ASL} must be anaphoric and may have [-human]/non-agentive reference:

- (51) A. 2-POSS CAR WHERE
 'Where is your car?'
 B. Ø MACHINE-BREAK-DOWN
 'It (= my car) broke down'

Recall that the goal of this subsection was to test a possibility that the NA in ASL is best analyzed as pro_{arb} —an element which has been independently argued to exist in natural languages. However, as the data reported here illustrate, the NA_{ASL} cannot easily be accounted along the lines of pro_{arb} : it exhibits characteristics pro_{arb} lacks, such as non-agentive and anaphoric reference.⁴⁶ These observations put together lead me away from the analysis of the NA in ASL as a case of pro_{arb} .⁴⁷

At this juncture, it seems that the NA_{ASL} —a syntactically real element—can surface in a variety of environments: generic, definite, and indefinite. Therefore, what we want is an element compatible with all of them.

⁴⁶ In addition, Malamud (2007, sbmtd.) argues that semantically, '*arb*'s are definite plurals. In argumentation, she relies on the diagnostic also employed in this chapter (see section 4.3)—quantificational variability effects (QVE) that arise with indefinites exclusively. Thus, the fact that NA_{ASL} allow for indefinite reference further argues against the '*arb*'-style account.

⁴⁷ Let me clarify that the tests conducted in this section do not speak to whether pro_{arb} independently exists in ASL. A question also arises whether together, pro_{Agr} and pro_{arb} can account for the distribution of the NA_{ASL} . To illustrate: it is potentially possible that in cases like (51) are, in fact, pro_{Agr} , which exists in ASL in addition to pro_{arb} (as Rizzi has argued for Italian). The problem with this view is that in (51b), the verb MACHINE-BREAK-DOWN is uttered without manual agreement—i.e. any spatial modification; that is, it is plain. I have shown in the previous sections that in such a case, the NA_{ASL} does not pattern along the lines of pro_{Agr} .

4.2.3 Not *pro*_{indef}

One of the 'offending' characteristics of the NA_{ASL} in this respect is its 'indefiniteness,' since both types of *pro* above have been argued to be non-indefinite. Therefore, it seems plausible to explore the possibility of an account of the NA_{ASL} that marries both its pronominal properties and its indefiniteness. The pronominal property under examination here is anaphoricity: recall that without any antecedent, the NA_{ASL} is impossible ((31)-(32)). So, what we need is an element that can be both anaphoric and indefinite. English offers an instantiation of such an element—i.e. the pronoun *one*. In this subsection, I demonstrate that although a priori, this analysis promises to account for the indefinite readings of the NA in ASL, it too falls short: it a) excludes the definite reference that the NA_{ASL} can have, and b) it predicts the readings of the NA_{ASL} that are unavailable.

To adopt the fairly standard view, pronouns (in languages like English) are determiners (Postal 1966, Longobardi 1994, Elbourne 2001, i.a.). This line of reasoning allows the word realized as *one* in English to be viewed as a phonological variant of the indefinite determiner *a* (e.g. Stockwell, Schachter & Partee 1973). The aforementioned implies that the null version of the *one* is what we might, informally, call a null indefinite pronoun, i.e. *pro*_{indef} (Hoji 1998).

First, consider (52): unlike a personal pronoun, *one* can pick out an indefinite antecedent.

- (52) a. John is looking for a gold watch, and Bill is looking for it too.
b. John is looking for a gold watch, and Bill is looking for **one** too. (Partee 1970)

In (52a), *it* is clearly referential/definite: the sentence does not mean that that Bill is looking for *any gold watch*; rather that he is looking for the same gold watch John is looking for. In (52b), on the other hand, Bill is looking for *some/any gold watch*, which might potentially be coreferential with the watch John is interested in. In other words, *one* picks out indefinite referents. Therefore, it might, at first glance, be fruitful to extend the analysis commonly applied to *one* in English to the NA_{ASL}.

The trouble that this line of reasoning creates is that unlike the NA_{ASL}, *one* is restricted to indefinites as potential antecedents. For instance, as the slightly modified (53) demonstrates, *one* cannot 'replace' a referential expression:

- (53) a. John is looking for {this/Mary's} gold watch, and Bill is looking for it too.
 b. *John is looking for {this/Mary's} gold watch, and Bill is looking for one too.

This, however, is not true for the NA_{ASL}, as illustrated in the previous sections:

- (54) *Context: The teacher tells the students that they are allowed to use books during the test.*
- a. PETER_i (a-IX) WORRY, WHY? Ø_i NOT BRING BOOK, FORGET
 'Peter_i is worried because he_i did not bring {the book/books}, he forgot'
- b. a-IX_{arc} BOY_j a-IX WORRY, WHY? Ø_j FORGET, NOT BRING Ø_k
 'Those boys there are worried because they forgot and did not bring {the book/books}'

Further, the context in (55) excludes an indefinite interpretation, since the Ø refers to the unique book under discussion.

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(55) *Context: John pulls a book off the shelf; the cover comes off. Mary signs...*

WORRY NOTHING, BOOK OLD. HAVE TAPE IX. WILL FIX Ø
'Don't worry, this book is old. There's the tape; I'll fix it/*some book'

These data undermine the possibility of analyzing NA_{ASL} on a par with the English *one*.

The other issue arises in relation to how much of the structure is being 'replaced' by the NA in ASL vs. *one* in English. The following data demonstrate that the elements are not parallel here either.

An account of NA_{ASL} that equates it to *one* in English (or, rather, a null version thereof) approaches (56) as an ASL counterpart of the English (57). The two examples appear parallel; but as becomes evident during the discussion with respect to (62)-(63), the parallelism disappears with scrutiny.

(56) A. JOHN FINISH WASH POSS CAR
'John washed his car'

B. $\frac{\text{t}}{\text{JEFF NOT WASH Ø NOT-YET}}^{\text{neg}}$
'Jeff hasn't washed ____ yet'
i. Jeff has not washed any car
ii. Jeff has not washed his own car

(57) John has washed his car, but Jeff has not washed *one yet*
i. Jeff has not washed any car
ii. Jeff has not washed his own car

Note that in (57), *one* has the sloppy reading (i.e. (ii)), on which Jeff did not wash his own car. In other words, the *pro*_{indef} approach to the NA_{ASL} predicts the sloppy reading in (7)-(9) and (56) to be possible for, informally, the same reason it exists in (57ii).

Let me spell out what this line of reasoning implies. A standard account of the English *one*, dating back to Jackendoff (1977), Edmonds (1985) and Kayne (1994)

capitalizes on the observation that *one* 'replaces' either the noun in the NP (as in (57i), cf. Partee 1970, i.a.) or the whole NP (as in (57ii), cf. Panagiotidis 2003). The field has seen quite a bit of a debate regarding how such a 'replacement' occurs. I assume here, following various strands in the literature, that pronouns (in a language like English) are composed of the definite article and a silent nominal complement (Postal 1969, Cardinaletti 1994, Ritter 1995, and Corver & Delfitto 1999, Panagiotidis 2003, Elbourne 2005, i.a.). Examined from this angle, *one* is precisely that complement that happens to be overt: as a noun-(phrase-)like element, it can be modified (with a demonstrative or an adjective) and pluralized; as a pronoun-like element, it lacks descriptive content and can refer only to discourse-salient entities.

- (58) a. *This one* is from New Jersey.
b. *The one I saw* is from New Jersey.
- (59) a. *A new one* is sometimes a challenge.
b. I find it annoying she lost *the new one*.
- (60) a. You should carefully file *the new ones*!
b. *New ones* are usually laser-printed. (Panagiotidis 2003)

In other words, *one* in English 'replaces' the NP (or the N' in the pre-DP Hypothesis (Abney 1987) literature) of the elided DP.

If this analysis of *one* is adopted, the sloppy reading of (56)-(57) is accounted for in the following manner: the NA_{ASL} and *one* in English are [~~CAR~~] and [e_{af}], respectively. This yields an interpretation that John has not washed (any) cars and, thus, he has not

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washed his own car. In other words, looking ahead, we might say that (56ii)/(57ii) is entailed by (56i)/(57i).

The aforementioned sets a prediction for the NA_{ASL}. For instance, if, as standardly assumed, adjectives are NP-adjoined, we expect *one* to (be able to) 'replace' [~~green-car~~] in (61)—a minimally amended (57).

(61) *Context: both John and Jeff own two cars each—a red and a green one.*

- John has washed {the/his} green car, but Jeff didn't wash one
- i. Jeff did not wash any car
 - ii. Jeff did not wash his own green car

And indeed, in (61), a reading is available according to which Jeff did not wash the/his green car although he could have washed the red one.

This minimal amendment breaks the parallelism between English and ASL above: (62) is expected to have a reading parallel to (61ii)—i.e. where Jeff has not washed the green car but has washed the red one. This would give us the analysis of the \emptyset as [~~GREEN-CAR~~]. However, this reading is unavailable in ASL:

(62) *Context: both John and Jeff own two cars each—a red and a green one*

- JOHN FINISH WASH GREEN CAR, ^tJEFF NOT WASH \emptyset NOT-YET^{neg}
 'John washed (his) green car, Jeff hasn't washed ____ yet'
- i. Jeff has not washed a car
 - ii. *Jeff has not washed the green car (but he could have washed the red one)

In (62), the [green car] is not a possible referent of the alleged *one*; no car has been washed by Jeff. In other words, although in English, the reference of *one* in (61) is

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 ambiguous between [the/his green car], [green car], and [car], only the latter option is
 allowed in ASL. A similar observation stands with respect to (63):

(63) *Context: A and B each own a green and a red car. Today is a car-washing day.*

A. PAH, (MY) GREEN CAR CLEAN
 'Finally, (my) green car is clean'

B. LUCKY 2-IX
 'Lucky you'

A. ^{wh?}WHY
 'Why?'

B. (FOR-FOR) Ø STILL DIRTY a-IX
 '(Because) _____ is still dirty, that one is'

B'. (FOR-FOR) Ø STILL DIRTY, ^{y/n?}SEE-IX-a
 '(Because) _____ is still dirty, see that?'

According to my consultants, the interactions above are possible only in the context in which no relevant cars have undergone washing. That is, in (62), no car-washing event has occurred on the part of Jeff. In (63), since the locus *a* is associated with the red car, Ø unambiguously refers to the red car. The aforementioned is signaled in the following manner: ASL disallows subjects to precede predicates—i.e. *a-IX* in (63B) is the Subject Pronoun Copy (SPC), Padden 1988[1983]). In (63B'), it is the object of SEE. This means that Ø in (63) must be able to refer to the red car: the reference to it as the one being dirty has been made explicit.

In other words, the data above thus illustrate that the Ø cannot 'replace' [GREEN CAR] in (62)-(63) in the way the English *one* does in (61). Clearly then, we need an account here that will allow the NA_{ASL} to 'stand' only for [CAR] in the sentences above,

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to the exclusion of the adjective(s) modifying it; an analysis of the NA along the lines of the English *one* falls short.

I will later return to the potential parallelism between the two elements under discussion in this subsection and demonstrate that they are not that different after all. At this stage, however, suffice it to say that whatever the final analysis of *one* in English, it does not straightforwardly extend to the NA_{ASL}: (i) *one* is unable to pick out a referential definite antecedent while the NA_{ASL} can, and (ii) the NA_{ASL} does not seem to 'replace' the same amount of structure that *one* does. That is, if *pro*_{indef.} is a silent counterpart of the English *one*, then the aforementioned serves as another argument against a *pro*-like approach to the NA_{ASL}.

4.3 An alternative

4.3.1 Surface anaphora

The previous section has demonstrated the NA_{ASL} is real, but that its analysis as a case of *pro* has serious shortcomings, one of which is the fact that the NA_{ASL} can have either indefinite or definite reference. Furthermore, as is illustrated in section 3.1, the NA_{ASL} must have some sort of antecedent in the context, without which its use is disallowed. The latter informally describes surface anaphora (a.k.a. ellipsis) in the sense of Hankamer & Sag (1976)—the view I turn to next. The issue is not trivial: establishing whether the NA is a case of surface vs. deep anaphora spawns further arguments related to whether the nature of its nullness is due to ellipsis.

Hankamer & Sag observe that in English, the presence of an overt linguistic antecedent in the discourse licenses ellipsis of the formally identical element in the

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- (65) a. *Context: Jim is juggling eggs and asks Peter...*

Can you?

- b. *Context: John and Mary are plotting a practical joke on Jane. They are watching Jim playing a particularly nasty and difficult to carry out joke on Bill. John turns to Mary and grins...*

M: No, we shouldn't

J: Yes, we should

M: But we couldn't

J: Yes we could.

(Bošković 1994)

Therefore, the formal dividing line between surface- and deep-anaphoric elements must lie somewhere else. Here, I assume Johnson (2009):

- (66) Deep anaphors [...] are expressions that have a referential index as part of their make-up. (Johnson 2009)

That is, in order to be able to meet the truth-conditional requirements of (65B') (irrespective of whether the *do it/the same thing* is overt), the speaker must be able to find the unambiguously relevant entity in the world; i.e. a deep anaphor must be referential. This approach suggests a potential disambiguation between deep and surface anaphors in terms of reference possibilities: i.e. as an element with a referential index "on its sleeve," a deep anaphor is, essentially, a definite description.

I prefer dad's [~~meat~~loaf]!

(Johnson 2009)

Elbourne (2005) points out that in the absence of a linguistic antecedent, NP ellipsis typically needs to rely on extra-linguistic "reconstruction by the hearer of what must be meant by the speaker; this explains the fact that it seems to be limited to cases where there is some immediate cue in the physical environment..." (Elbourne 2005). That is, a contextual antecedent will do as an antecedent of ellipsis (see Johnson 2009 for an overview of relevant cases).

The aforementioned, in turn, sets testable predictions: a deep-anaphoric element ought to be (a) compatible with linguistic as well as contextual antecedents but able to occur without them (as long as it could be anaphoric/referential in *some* sense), and (b) able to occur in contexts that warrant a definite description only. Such contexts include personal pronouns (overview and arguments in Johnson 2011), E-type (a.k.a. *donkey*-, Geach 1962) pronouns (cf. Schlenker 2003, Elbourne 2005, i.a.), and referential expressions. Crucially, however, deep anaphoric elements are not expected to be followed by a sluice.

(67) I need to ask someone, but I don’t know [who_i [~~I need to ask t_i~~]]

The reason for this is the following: standardly, sluicing constructions involve a wh-movement. Since sluicing involves an interrogative, the element serving as an antecedent of a sluice is unknown by definition (see section 3.1 for more discussion). Therefore, on the assumption that a deep anaphor is a definite description, a sentence containing it should not be able to be followed up by a sluice.

(68) a. *Context: A attempts to stuff a 9-inch ball through a 6-inch hoop*

B’. *It’s clear that you’ll be able to (do it/the same thing) but I don’t
 know what_j [~~you’ll be able to do t_j~~] (adpt. Hankamer & Sag 1976)

b. I think she kissed someone/*the guy, but I don’t know who [~~she kissed~~]

c. *Context: Looking at a car which exhibits signs of having been in an accident*

*Do you know who_k [~~t_k did it/hit the car~~]?

(68) confirms the plausibility of using sluicing as a diagnostic for disentangling deep- and surface-anaphoric effects. Note that here I do not attempt to offer any conclusions related to the general syntax/semantics of sluicing or deep anaphoricity; as far as I can tell, nothing hinges on a particular analysis. Instead, I rely on the empirical observation: a definite description cannot serve as an antecedent for a sluice. To that effect, if the NA_{ASL} can antecede a sluice, this will serve as evidence that the element—albeit real in all other ways—is (necessarily) not a case of deep anaphora.

As demonstrated in section 3.2.1 (cf. (45)-(46)) and further below, the NA_{ASL} shows its possibility for indefiniteness here as well: although it can occur with overt linguistic (69) and contextual (70) antecedents, serve as an E-type pronoun (71) and a clearly referential expression (72)—all of which attest to its characteristic as a definite description—it can also antecede a sluice (73).

- (69) A. WOW, LOOK-a, STORE a-IX. SELL COMPUTER
'Wow, look (there), a store. They sell computers'

- B. HOPE b-SISTER b-PERSUADE-c c-MOTHER BUY Ø
'I hope my sister persuades my mother to buy one'

- (70) *Context: My paranoid friend comes into the room and says...*

LOOK-FOR+++... ME SURE SOMEONE STEAL Ø
'I am looking for.... I am sure someone has stolen (it/the thing I am looking for)'

- (71) *Context: Bill can cook anything; that's what makes him a great camping companion*

- A. IF a-MARY CATCH b-FISH OR c-JOHN TRAP d-RABBIT
'If Mary catches a fish or John traps a rabbit...'

- B. DOESN'T-MATTER BILL WILL COOK Ø
'It doesn't matter, Bill will cook it'

(adpt. Schlenker 2009)

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- (72) *Context: A mother, two daughters and a friend pull into a car dealership and go straight to a red Ferrari. One daughter says to the friend:*

HOPE b-SISTER b-PERSUADE-c c-MOTHER BUY_{plain} Ø
‘I hope my sister persuades mother to buy (it)’

- (73) a. *Context: Marie loves children; she never minds the noise. But today, she had a migraine. I don’t really know what happened but...*

(1-IX) HEAR SAY MARIE FINISH SPANK Ø BUT DON’T-KNOW WHO
‘I heard Marie spanked (someone), but I don’t know who’ ≈(46b)

- b. *Context: When you were leaving the house, your child put on red lipstick. When you came back, the lipstick was smeared as if the child had kissed someone...*

(1-IX) SURE a-IX KISS Ø BUT 1-IX DON’T-KNOW WHO
‘I am sure he kissed (someone), but I don’t know who’

Further, compare the aforementioned with a ‘true’ deep anaphoric scenario:

- (74) *Context: Looking at a car which exhibits signs of having been in an accident*

_____ _{v/n?}
*TAP 2-IX KNOW WHO
‘*Hey, do you know who [~~did it/hit the car~~]?’⁴⁹ ≈ (68c)

The data above indicate that although it is a priori possible that the Ø in (69)-(72) are an instantiation of deep anaphora, something else must be said for (73): the element anteceding a sluice cannot be deep-anaphoric. This is especially true because sentences in (73) are impossible without the supporting context, since they are ungrammatical out of the blue (see (31)-(32) in section 3.2.1). Since the NA_{ASL} cannot occur in environments which provide no identifiable antecedent for it, either contextual or linguistic, but bearing in mind that (contrary to the original observation in Hankamer &

⁴⁹ My informants reported the sentence grammatical with the following interpretation: *Do you know who this is/belongs to?* That is, (68) is possible if the antecedent of the sluice is unambiguously definable entity in the world—here, the car (belonging to, clearly, a human). However, (68) is impossible on the relevant (indicated by the strike-through in the brackets) reading.

Sag 1976) surface anaphora can have a contextual antecedent (see (65)), I conclude that the NA_{ASL} is a case of surface anaphora, i.e. ellipsis.

In fact, surface anaphora has been evoked in the analysis of NA in other languages—namely, in languages without morphological agreement, e.g. Mandarin Chinese and Japanese. Here, I will focus on Japanese, although the data have been argued to be replicable (though with amendments) for Mandarin Chinese (see H.-T. J. Cheng in prep).

Recent literature on East Asian languages has argued that the relevant element in Japanese is an instantiation of ellipsis—i.e. a surface anaphor in the sense of Hankamer & Sag (1976), the hallmark characteristic of which is the sloppy reading.

- (75) A. Taro-wa zibun-no hahaoya-o sonkeisiteiru [Japanese]
 Taro-TOP REFL-GEN mother-ACC respect
 'Taro respects his mother'
- B. Ken-mo [~~zibun-no~~ ~~hahaoya-o~~] sonkeisteiru
 Ken-also REFL-GEN mother-ACC respect
 'Ken respects his ({Taro's mother /Ken's mother}) mother too' (Oku 1998)

Note the difference in the range of available readings of the NA in (75) in comparison with, e.g., Spanish: the NA in Japanese has both strict (referring to Taro's mother) as well as sloppy (referring to Ken's mother) readings, while in Spanish, the sloppy (Juan's proposal) reading of the NA is unavailable (see section 3.2.1). That is, unlike a language like Spanish, which allows the strict/definite reading only, Japanese allows another reading, in which the anaphor in [*zibun-no hahaoya-o*] (*self's mother*) is directly bound by *Ken*. In other words, Ø in Spanish is a pronoun, but in Japanese it is something else—namely, a case of ellipsis. In the remainder of the chapter, I will offer

evidence that the NA_{ASL} in (7)-(9), partially reproduced below, is best viewed through the same lens.

- (76) a. A. FIVE FOOTBALL PLAYER PASS MY CLASS
 'Five football players passed my class'
- B. Ø FAIL MY CLASS
 '{The same five/different five} football players failed my class'
- b. A. a-PETER LIKE a-POSS STUDENT
 'Peter likes his students'
- B. b-JEFF HATE Ø
 'Jeff hates {Peter's /Jeff's} students'

Although what is missing in both Japanese and ASL is an argument of the verb, in principle, ellipsis of the *argument* is only one of the possibilities offered by the 'surface anaphoric' approach to Ø in configurations like (75). For instance, Hebrew, Modern Irish, Swahili and Russian also allow the NA with the sloppy reading that arises via ellipsis; however, their existence has been argued to result not from AE but, rather, from VP-ellipsis with the verb having been left behind/stranded (V-VPE) (Goldberg 2005; Gribanova 2011).

- (77) a. A. Šalaxt etmol et ha-yeladim le-beit-ha-sefer? [Hebrew]
 send[Past2Fsg] yesterday ACC the-children to-house-the-book
 'Did you send yesterday the children to school?'
- B. Ø Šalaxti Ø
 send[Past1sg]
 '(I) sent [yesterday the children to school].'
- b. Dúirt mé go gceannóinn Ø é agus cheannaigh Ø [M. Irish]
 said I COMP buy[Condit1sg] it and buy[PastAnI]

‘Said I that would buy [(I) it] and bought [I it].’ (Goldberg 2005⁵⁰)

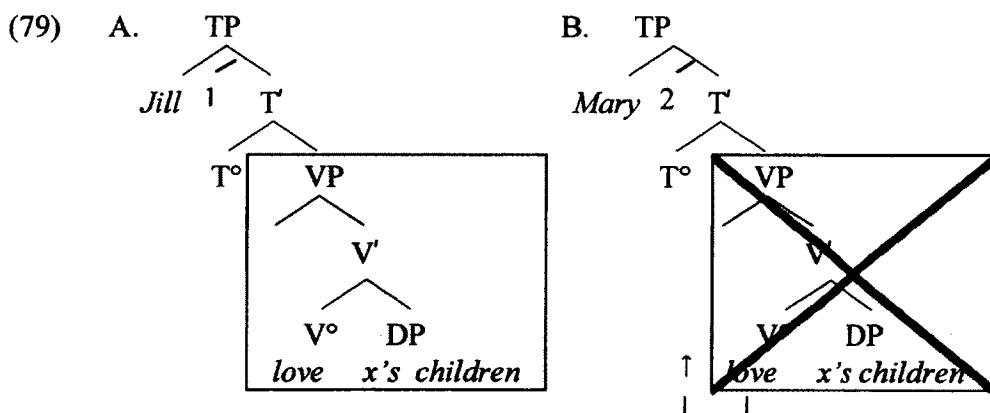
c. *Context: Something falls; no one wants to get it.* [Russian]

A. Ne vstavaj. Sejchas pridet papa, poprosim ego podnjat Ø'
not get-up.2SG now come.3SG.FUT dad ask.1PL.FUT him pick-up.INF
 ‘Don’t get up. Soon dad will come, we’ll ask him to pick (it) up.’
 (Gribanova 2011)

B. Somnevayus’. Vchera ne podnyal Ø.
doubt.1SG yesterday not pick-up.PAST
 ‘I doubt that. He didn’t pick (it/one) up yesterday.’

Note that each of the languages in (77) allows Ø in a finite clause. However, Goldberg (2005) and Gribanova (2011) show that this Ø is not pronominal in nature either (i.e. not *pro*); instead, it betrays characteristics of VP-ellipsis (as in (78)) with the verb having moved, as in (79).⁵¹

- (78) A. Jill loves her children
 = Jill1 {x, x love x’s children}
 B. Mary does [~~love her children~~] too
 = Mary2 {x, x ~~love x’s children~~} too.



⁵⁰ These sentences are due to Doron (1999) and McCloskey (1991), respectively.

⁵¹ The analysis has also been applied to the Japanese data in (75) (see Otani & Whitman 1991); however, a number of people have argued against this approach to Japanese (see, in particular, Goldberg 2005 and Takahashi 2010).

Standardly, VPE implies that the ellipsis site contains the entire VP, object included. However, if the verb moves out of the VP, then one can easily envision the scenario in (79B) indicated with the dashed line: ellipsis site contains both [*x's children*] and the trace/lower copy of *love* because *love* has moved higher up. As such, the higher copy of *love* will be overt (as higher copies of moved elements tend to); thus, while the entire VP has undergone ellipsis, only the argument of the verb remains silent.

The appeal is clear: nothing new needs to be explained, and certain 'ill-behaving' properties fall out naturally from its other properties: the defining characteristics of VP-ellipsis (VPE) is the sloppy reading resulting from the variable in the ellipsis site being bound by an element outside of the ellipsis site. The aforementioned then begs a question whether the NA_{ASL} is also analyzable is a case of AE or of the verb-raising (V-)VPE. In the following subsections I show that this route is fraught with problems.

4.3.2 Not (V-)VPE

Compare the outcome described above with the outcome of AE: in each case, there is \emptyset in the relevant position with the sloppy reading as a preferred interpretation. The account of this reading is identical on each of the analyses: the variable in the ellipsis site is (i) a copy of the one from the antecedent sentence, and (ii) bound by the relevant NP, i.e. *Jill* in the (80A) and *Mary* in the (80B). Thus, since it is potentially possible that the NA in

ASL arises via (V-)VPE, I examine this possibility next and argue that the analysis cannot be applied to ASL. I illustrate this claim with the NO⁵² data.

Let us first examine prerequisites of V-VPE. The most basic one is verb movement, so that the verb can escape elision.

Employing the well-known tests for movement (Pollock 1989), Braze (2004) and others (overview and arguments in Quadros & Lillo-Martin 2010) show that verbs that are not modified in any sense (spatially or aspectually) do not move in ASL: in (81), LOSE does not move past the adverb of frequency/quantification ALWAYS (standardly assumed to mark the edge of VP), or negation (Braze 2004).

- (80) a. JOHN ALWAYS LOSE_{plain} PAPER
 b. *JOHN LOSE_{plain} ALWAYS PAPER
 'John always loses paper' (Braze 2004)
- (81) a. ME NEVER SIGN_{plain} PAPER
 b. *ME SIGN_{plain} NEVER PAPER
 'I never sign papers' (adpt. Quadros & Lillo-Martin 2010)

The other prerequisite of the V-VPE is a general possibility of VPE in the language. This process, as standardly assumed, has (at least) two hallmark characteristics: (i) a low adverb that is a part of the anteceding VP is also a part of the elided VP, and (ii) although strict interpretation is available, the sloppy one is preferred.⁵³

⁵² Although the V-VPE analysis applies to NOs to the exclusion of NSs. However, a similar account may be proposed for NSs—e.g. v-vPE. I illustrate that concept with the NO data which would apply to the NS cases amended in the relevant manner.

⁵³ Since binding is typically preferred over coreference, the strict reading (achieved via coreference) remains but is less salient (cf. Fiengo & May 1994, i.a.).

In what follows, I illustrate that neither (i) nor (ii) hold for the relevant NA (i.e. the NO) in ASL.

As the data in (82) show, FAST qualifies as a 'low adverb': it remains below V.

- (82) a. 'John lost the paper fast'
i. JOHN FINISH LOSE_{plain} PAPER FAST
ii. *JOHN FAST LOSE_{plain} PAPER
iii. *JOHN LOSE_{plain} FAST PAPER
- b. 'I never sign papers fast [I read them first]'
i. I-IX NEVER SIGN_{plain} PAPER FAST...
ii. *I-IX NEVER FAST SIGN_{plain} PAPER...
iii. *I-IX NEVER SIGN_{plain} FAST PAPER...

Having established the plausibility of FAST as a tool for diagnosing (V-)VPE in ASL, we predict the following: if the NA is obtained via (V-)VPE, then FAST is expected to be included in the ellipsis site (i.e. the characteristic (i) above), and the bound variable interpretation ought to be preferred (i.e. characteristic (ii) above).

The aforementioned is, in fact, true if the predicate is elided: FAST is part of the interpretation of the elided constituent, and the bound variable reading of the NO is preferred.

- (83) a. a-PETER BUILD a-POSS HOUSE FAST, b-JEFF WILL SAME⁵⁴
'Peter built his (Peter's) house fast; Jeff also will [~~build his (Jeff's) house fast~~]'
i. Jeff will build his house fast
ii. *Jeff will build his house over time
- b. a-JEFF a-WILL FINISH a-POSS a-WORK a-FAST b-PAUL WILL NOT
'Jeff will finish his (Jeff's) work fast; Paul will not [~~finish his (Paul's) work fast~~]'
i. Paul will not finish his work fast
ii. *Paul will not finish his work

⁵⁴ This lexical item (at least in this context) translates as *also* and not *the same*.

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- c. a-JOHN a-TEND a-BOOK a-READ FAST BUT TODAY CAN'T
 'John usually reads books fast but today (he) can't [~~read books fast~~']
 i. John can't read books fast
 ii. *John can't read

However, the paradigm changes if the predicate is stranded (i.e. V-): the low adverb is no longer a part of the interpretation ((i) violated), and the strict reading is preferred ((ii) violated).

- (84) *Context: Peter always uses machines to build houses; Jeff always destroys them by hand*

- a. a-PETER BUILD a-POSS HOUSE FAST, b-JEFF SAME, WILL BUILD Ø
 'Peter built his (Peter's) house fast; Jeff too will build ____'
 i. *Jeff built {Peter's / Jeff's} house **fast**
 ii. Jeff built {Peter's / Jeff's} house over time
- b. a-JEFF a-WILL FINISH a-POSS a-WORK a-FAST, b-PAUL WILL NOT FINISH Ø
 'Jeff will finish his work fast; Paul will not finish ____'
 i. *Paul will not finish his work **fast**
 ii. Paul will not finish his work
- c. a-JOHN a-TEND a-BOOK a-READ FAST BUT TODAY CAN'T READ Ø
 'John tends to read books fast but today (he) can't read ____'
 i. *John can't read books fast
 ii. John can't read books (although he might be able to read magazines)'

- (85) a. a-PETER BUILD a-POSS HOUSE FAST, b-JEFF b-DESTROY_{plain} Ø
 i. *Jeff destroyed {Peter's / Jeff's} house **fast**
 ii. Jeff destroyed {Peter's / Jeff's} house over time

- b. *Context: Bob tends to take time to think about questions*

- A. a-JEFF WILL a-ASK_{agreeing} a-POSS QUESTION FAST
 'Jeff will ask his questions fast'

- B. b-BOB WILL b-ANSWER_{agreeing} Ø
 'Bob will answers {Jeff's / Bob's} questions
 i. *Bob will answer {Jeff's / Bob's} questions **fast**
 ii. Bob will answer {Jeff's / Bob's} questions over time

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c. *Context: Don never thinks his questions through; he either asks right away or just doesn't.*

- A. \overline{t} $\overline{a-POSS\ TEACHER\ WILL\ neu-ASK\ a\ FAST}$
 'Jeff asks his teacher his questions'
- B. $\overline{b-DON\ WILL\ ASK\ \emptyset}$ ^{neg}
 'Don will not ask _____',
- i. *Don will not ask {Jeff's / Don's} teacher fast
 - ii. Don will not ask his teacher after a long deliberation

As the data above demonstrate, the NO constructions differ in crucial respects from the environments where the verb is actually elided: the adverb is a part of the elided constituent in the VPE but not in the putative V-VPE cases, i.e. when the predicate (either the same or a different one) is present⁵⁵.

In addition, recall that on the standard analysis of VPE, the sloppy reading takes precedence over the strict one: the sloppy reading is obtained via binding which is more economical than co-reference. This property of VPE is most clearly exhibited with reflexives, as in (86) (see Oku 1998 for more discussion).

- (86) Peter loves himself, Jeff does too [~~love himself~~]
 i. Jeff loves himself (Jeff)
 ii. *Jeff loves Peter

The aforementioned predicts that if the NO in ASL were to arise via V-VPE, a similar effect would be expected. However, as (87) illustrates, with predicates containing reflexives and reciprocals (which I label 'reflexives' for exposition purposes), the bound-

⁵⁵ The fact that VPE and not V-VPE is available serves as additional evidence against V-movement in these configurations in general: languages tend to pick either one of the strategies, which is arguably correlated with the availability of V-movement. To that effect, Goldberg (2005) shows that languages allowing V-VPE disallow non-stranding of the verb. Thus, the data above, demonstrating that ASK picks the English-style VPE whereby the verb is elided, adds evidence against V-movement in ASL.

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variable reading of the NO—the preferred one if the verb is elided—is impossible if the predicate is stranded.

- (87) a. $\overline{\text{PETER, PAH, LOVE SELF, JEFF WILL, TOMORROW, SURE}}$
 ‘Peter, finally, loves himself; Jeff will [~~love himself~~] tomorrow, I am sure’
- b. PETER AND SUSAN WILL LOVE a-EACH-OTHER,
 $\overline{\text{JEFF AND JILL WILL NOT } \emptyset}$
 ‘Peter and Susan will love each other; Jeff and Jill will not [~~love each other~~]’
- (88) a. $\text{?PETER, PAH, LOVE SELF, } \overline{\text{JEFF WILL LOVE SELF/*}\emptyset \text{ TOMORROW, SURE}}$
 ‘Peter, finally, loves himself; Jeff will love himself tomorrow, I am sure’
- b. PETER LOVE SELF, $\overline{\text{JEFF HATE SELF /*}\emptyset \text{ STILL}}$
 ‘Peter loves himself, but Jeff still hates himself’
- c. PETER AND SUSAN LOVE a-EACH-OTHER, $\overline{\text{JEFF AND JILL NOT LOVE b-EACH-OTHER/*}\emptyset \text{ NO}}$
 ‘Peter and Susan love each other, but Jeff and Jill do not love each other’
- d. ALL PEOPLE a-THAT FAMILY a-IX_{arc} LOVE a-EACH-OTHER,
 $\overline{\text{PEOPLE b-IX}_{arc} \text{ HATE b-EACH-OTHER/*}\emptyset}$
 ‘Everybody in this family loves each other, but people in that family hate each other’

In other words, in typical VPE cases (e.g. (86)), speakers have a strong preference for the sloppy (bound-variable) reading; here, the NA_{ASL} behaves differently than VPE.

Let me briefly summarize the findings of this subsection: we started with the possibility that the NO in ASL arises via VPE in a manner argued for by Goldberg (2005) for Hebrew, Swahili, Modern Irish (though not for Japanese, pace Otani & Whitman 1991), and Gribanova (2011) for Russian—i.e. VPE with the verb stranded. However, this approach proved to be on the wrong track. Although the typical effects of VPE—a

low verb in the interpretation and the preference for the sloppy reading—are available in the language (see (83)/(87)), they disappear in the alleged V-VPE cases (as in (84)-(85)/(88)): the low adverb FAST does not 'carry over' to the second conjunct, the strict reading is always preferred, and the bound variable interpretation with reflexives is unavailable. Thus, the data point away from the V-VPE analysis of the NO in ASL. Further, these data provide evidence against Bahan et al (2000) approach to the NA in ASL: on their view, the NO is always *pro*_{Ag_r}, and the sloppy interpretation can only arise as a result of VPE. This section has shown that this view cannot be correct.

4.3.3 Not *general* argument ellipsis

Note that the issues discussed here with respect to ASL parallel the issues discussed in other NA languages that exhibit similar behavior: for instance, like the NA_{ASL}, the NA in Japanese can have a sloppy reading under ellipsis (cf. (75)). This section illustrates that this parallel is real but not complete.

As mentioned briefly in the beginning of this section, a number of accounts of the Japanese facts appeal to the ellipsis of the entire argument (AE, Oku 1998, Saito 2007, Takahashi 2008, Şener & Takahashi 2009, i.a.). On this analysis, the Ø in (89B) is a phonologically null version of [*zibun-no hahaoya-o*] that is copied directly from (89A). Because a part of the elided constituent is a reflexive element, a bound variable reading (i.e. sloppy) arises.

- (89) A. Taro-wa zibun-no hahaoya-o sonkeisiteiru [Japanese]
 Taro-TOP REFL-GEN mother-ACC respect
 'Taro respects his mother'

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B. Ken-mo [~~zibun-no~~—~~hahaoya-o~~] sonkeisteiu
Ken-also REFL-GEN mother-ACC respect
 ‘Ken respects {Taroo’s mother /Ken’s mother} too’ = (75)

Saito (2007), Şener & Takahashi (2009), Takahashi (2010), i.a., correlate the availability of AE in a language with the lack of morphological agreement (in the sense of Kuroda 1988), which, in turn, is tied to Case (cf. Chomsky 2000). In particular, on their view, morphological agreement blocks AE.

The relevant works assume ellipsis via copying of LF-objects directly⁵⁶—i.e. the missing objects are not present in overt syntax⁵⁷—and agreement along the lines of Chomsky (1995, 2000) as in (90)⁵⁸:

- (90) a. A set of uninterpretable ϕ -features on a functional head (=T or ν) searches for a matching ϕ -set in its domain. (A probe searching for a goal.)
- b. The operation is implemented by uninterpretable features. In particular, the goal must have an uninterpretable Case feature.
- c. The matching of ϕ -feature sets is agreement, and it induces the deletion of the probe and the Case feature of the goal. (ctd. in Saito 2007)

The aforementioned combination of assumptions is represented schematically in (91):

- (91) a. ... F{ ϕ } ... DP{ ϕ , Case} ...

⁵⁶ LF Copy Theory has undergone a few modifications over the years, but they are all based on the same idea that the LF object from the antecedent sentence is copied into the ellipsis site directly in LF (cf. Chung et al 1995, Oku 1998, i.a.).

⁵⁷ Since they are present in covert syntax, i.e. LF, they are still compatible with the claim defended earlier that the element in question is syntactically real.

⁵⁸ Thus, a general approach to *Agree* in Chomsky (2000) is as follows: (i) in order to serve as a probe (and undergo a checking relation with a goal), a functional head must have an uninterpretable feature; (ii) the goal must be active for the relevant checking relation to be possible; and (iii) upon the successful completion of the checking relation, the uninterpretable features are erased.

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 b. ... F{ ϕ } ... DP{ ϕ , ~~Case~~} ...

DPs are equipped with a Case feature which activates them for participation in a checking relation. The functional head F contains an uninterpretable ϕ -feature which must be erased. If there is a DP in the 'neighborhood' that can serve as F's a checking partner with respect to ϕ , as a result of the relation (*Agree*), the uninterpretable ϕ -feature of F and the Case-feature of DP are erased. The view outlined thus implies that if (i) F in (91) is T°/v° , and (ii) languages with uninterpretable ϕ -features on T°/v° are languages exhibiting morphological agreement, while languages without such features on T°/v° lack it, a logical extension of (91) follows. The Case-feature of the DP in a language with agreement (e.g. Spanish) is erased by (90c) (as in (91b)) but not in a language without (e.g. Japanese); this is because in the latter case, (90a) and, as a consequence, an *Agree* relation between a goal and a probe, does not take place. Therefore, the DP's Case feature is not erased, and it is able to undergo a relation with another F. Thus, the lack of morphological agreement (i.e. the lack of uninterpretable ϕ -features on T°/v°) results in the possibility of argument ellipsis—i.e. an ability to be interpreted as an argument of another verb.

Concretely, Spanish and Japanese sentences in (92)-(93) illustrate the system.⁵⁹ 'T1{ ϕ }' in (92) represents the T' with an uninterpretable ϕ -feature (such as the one in Spanish). This feature gets checked by the DP1 (which carries an interpretable version thereof) and, as a result, the Case feature, that makes the DP visible for *Agree* is erased

⁵⁹ While (92)-(93) schematize the NS case, the analysis is identical with respect to object agreement (and lack thereof), with the relevant functional head being v° (Saito 2007). Thus, the prediction is of the following form: NO via AE is impossible if v has an uninterpretable ϕ -feature.

(as in (92Aii)). Therefore, if the DP1 is copied into the argument slot of another verb (e.g. in (92Bii)), the derivation will crash: the feature which would enable DP1 to undergo a relation with the $T2_{\{\varnothing\}}$ in (92B) has been erased. As a result, argument ellipsis is impossible, as evidenced by the absence of the sloppy reading of the NA (typically associated with ellipsis) in (93).

- (92) A. i. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... DP1_{\varnothing, Case} ...]] ... [Spanish]
ii. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... DP1_{\varnothing, Case} ...]] ...
iii. ...[TP DP1_{\varnothing, Case} [_T $T_{\{\varnothing\}}$ [_{VP} ... t_{DP1} ...]] ...
- B. i. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... _____ ...]] ...
ii. *...[TP $T_{\{\varnothing\}}$ [_{VP} ... DP1_{\varnothing, Case} ...]] ...
- (93) A. María cree que su propuesta será aceptada.
Maria believes that her proposal will-be accepted
‘Maria believes that her proposal will be accepted.’
- B. Juan también cree que Ø será aceptada.
Juan also believes that will-be accepted
‘Juan also believes that {Maria’s/*Juan’s} proposal will be accepted.’

In contrast, in (94), ‘ $T1_{\{\varnothing\}}$ ’ represents the T° without uninterpretable \varnothing -features (i.e. such as the one in Japanese). Since the T will not enter an *Agree* relation with the DP1, the above problem discussed with respect to the Spanish derivation does not arise in Japanese. The DP1 can be copied into the argument slot of another verb.

- (94) A. i. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... DP1_{\varnothing, Case} ...]] ... [Japanese]
ii. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... DP1_{\varnothing, Case} ...]] ...
iii. ...[TP DP1_{\varnothing, Case} [_T $T_{\{\varnothing\}}$ [_{VP} ... t_{DP1} ...]] ...
- B. i. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... _____ ...]] ...
ii. ...[TP $T_{\{\varnothing\}}$ [_{VP} ... DP1_{\varnothing, Case} ...]] ...
- (95) A. Taro_i-wa [zibun_i-no kodomo-ga eigo-o sitteiru to] itta. [Japanese]
Taro-TOP self-GEN child-NOM English-ACC know C said

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 'Taro_i said that self's_i child knew English.'

B. Hanako_j-wa [$\emptyset_{i,j}$ furansugo-o sitteiru to] itta.
Hanako-TOP French-ACC know C said
 'Hanako said that {Taro's_i/Hanako's_j}child knew French' (Oku 1998)

Thus, morphological agreement, defined in terms of the presence of ϕ -features on the T^0/v^0 , blocks such 'recycling' of the DP. None of this, however, occurs in the case of $T_{\{\}} \}$: the DP does not enter *Agree* with T, and thus, the DP can be 'recycled.' In other words, arguments that participate in the *Agree* relation à là (91) (i.e. have uninterpretable ϕ -features on T^0/v^0) cannot be elliptic while arguments that do not—can. The former results in a language which exhibits morphological agreement; AE is unavailable, and, thus, the sloppy reading is excluded. In the latter, due to the lack of morphological agreement, AE is available and, thus, the sloppy reading is possible.

The account outlined above sets up the following prediction: if the NA_{ASL} requires a hybrid analysis (as in Lillo-Martin 1991), then AE may be expected with plain verbs (only), because they do not exhibit morphological agreement.⁶⁰ In this case, the NA_{ASL} is a result of ellipsis of an argument. This implies that adjuncts are ineligible for ellipsis along these lines.

Evidence for the latter comes from the paradigm in (83)-(85), repeated here as (96): as expected, the meaning of adverbs FAST and YESTERDAY (commonly assumed to be adjuncts) is not preserved.

(96) a. a-PETER BUILD a-POSS HOUSE FAST, b-JEFF SAME, WILL BUILD

⁶⁰ If, however, NA occurring with various types of verbs exhibit the effects of AE, then what has become known in the ASL literature as 'morphological agreement' might be something else entirely. See the discussion in section 6.

HOUSE

‘Peter built his (Peter’s) house fast; Jeff too will build a house ***[fast]**’

- b. a-JEFF FINISH a-POSS a-WORK YESTERDAY, ¹b-PAUL NOT FINISH
WORK Ø

‘Jeff finished his work fast; Paul did not finish his work ***[yesterday]**’

≠ Although Paul did not finish his work yesterday, he may have finished it since.

However, the data below demonstrate that the AE analysis is not fully extendable to ASL.

Although the AE analysis accounts for the sloppy reading of the NA_{ASL} (e.g. (7)-(9)), it over-generates with respect to other aspects of ASL. For instance, it predicts AE with reflexives as well as other—non-nominal—arguments; additionally, it predicts the ‘primacy’ of the sloppy reading. Yet, as the data below illustrate, the aforementioned predictions are not borne out. Therefore, either a different account or an amendment is in order, unless some independent property of ASL blocks AE in these cases.⁶¹

The reflexive paradigm below casts the first shadow on the *general* AE account of the NA_{ASL}. The AE analysis predicts that the reflexive item from the first conjunct can be copied into the second one (as in (89) for Japanese). Thus, the reflexive DP should be allowed to be ‘recycled,’ and, as a result, the NO is expected to be grammatical and have a bound variable reading. However, as (97) shows, this is not the case:

- (97) a. * PETER, PAH, LOVE SELF, ¹JEFF WILL LOVE [**SELF**]
TOMORROW, SURE
‘Peter, finally, loves himself; Jeff will love himself tomorrow, I am sure’
- b. * PETER LOVE SELF, ¹JEFF HATE [**SELF**] STILL
‘Peter loves himself, but Jeff still hates himself’
- c. * PETER AND SUSAN LOVE a-EACH-OTHER, ¹JEFF AND JILL
^{neg}NOT LOVE [~~b-EACH-OTHER~~] NO

⁶¹ In section 5, I argue for the latter approach. The goal here is to set the stage for this discussion.

‘Peter and Susan love each other, but Jeff and Jill do not love each other’

d. * ALL PEOPLE a-THAT FAMILY a-IX_{arc} LOVE a-EACH-OTHER,

↑
PEOPLE b-IX_{arc} HATE [~~b-EACH-OTHER~~]

‘Everybody in this family loves each other, but people in that family hate each other’

In addition, and perhaps more importantly, since (97) invites independent complications (see section 4.5), the *general* AE analysis of the NA predicts the existence of the so-called ‘quantificational reading’ (Takahashi 2008); this reading is unavailable in ASL.

Takahashi (2008) illustrates a welcome consequence of the AE analysis of the NA in Japanese—i.e. the availability of the ‘quantificational reading.’ On the assumption that in the examples like (98) QP is an argument of the verb to be copied, the interpretation containing the quantifier expected to be possible in the ellipsis site. In (98a), *most students* from the (A) sentence has been copied into the (B) sentence, and a reading arises according to which Taroo respects different teachers than the ones Hanako respects. (98b) illustrates that Takahashi’s observation with respect to *most* extends to other quantifiers:

- (98) a. A. Hanako-ga taitei-no sensei-o sonkeisiteiru. [Japanese]
Hanako-NOM most-GEN teacher-ACC respect
‘Hanako respects most teachers.’
- B. Taroo-mo [~~taitei-no sensei-o~~] sonkeisiteiru.
Taroo-also respect
‘Taroo respects (most teachers), too.’
- i. Taroo respects the same *most* teachers Hanako respects
- ii. Taroo respects different *most* teachers (Takahashi 2008[8])
- b. A. Hanako-ga {san-nin/nijuu-nin/takusan/ryoohoo/kanojo}-no sensei-o
H-NOM {three.CL/twenty.CL/many/both/her}-GEN teacher-ACC

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sonkeisiteiru

respect

‘Hanako respects {three/twenty/many/both/her} teachers.’

B. Taroo-mo [~~{san-nin/nijuu-nin/takusan/ryooohoo/kanojo}~~ no sensei-o]

T-also

sonkeisiteiru.

respect

‘Taroo respects ({three/twenty/many/both/her} teachers), too.’

- i. Taroo respects the same teachers Hanako respects
- ii. Taroo respects different teachers

Takahashi (2008) argues that the presence of the quantificational readings in (98) provides evidence that the relevant NA in the (B) sentences in Japanese is best viewed as the [QP] from the (A) sentences. However, as shown below, the (real) quantificational reading is unavailable in ASL.

Although the examples below reveal the ‘sloppy’ reading—Jeff answers/remembers a set of questions which may not necessarily be the same as Peter’s questions (indices are provided for exposition purposes)—this does not carry over to the examples with quantifiers. I.e. although the argument in the (A) sentences serving as an antecedent for ellipsis in the (B) sentences contains a quantifier, the meaning of this quantifier is not preserved in the B examples.

(99) a. A. **BOTH** FOOTBALL PLAYER PASS 1-POSS CLASS

‘Both football players passed my class’

B. \emptyset FAIL 1-POSS CLASS

‘{**Two/ten/all**} football players failed my class’

- i. The same football players who passed A’s class failed B’s class
- ii. Different football players failed B’s class

b. A. **SIX** KID STOP 1-POSS HOUSE YESTERDAY

‘A few kids stopped by my house yesterday’

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B. LUCKY IX-2, Ø STAY+++ 1-POSS HOUSE

'Lucky you, {**six/two/ten**} kids stayed in my house for a while'

- i. The same kids who stopped by A's house, stayed in B's house for a while
- ii. Different kids stayed in B's house

(100) a. A. **ALL FOOTBALL PLAYER PASS 1-POSS CLASS**

'All football players passed my class'

B. Ø FAIL 1-POSS

'{**All /?some**} football players class failed mine'

- i. The same football players who passed A's class failed B's class
- ii. Different football players failed B's class

b. A. 1-POSS CLASS, **FEW STUDENT JOIN**

'My class, a few students joined'

B. 1-POSS CLASS, Ø DROP

'My class {**a few/all/many**} students have dropped'

- i. The same students who joined A's class dropped B's class
- ii. Different students failed B's class

(101) a. A. PETER_i FINISH {ASK_{agreeing}/FORGET_{plain}} **FIVE QUESTION**

'Peter {asked/forgot} five questions'

B. JEFF_i ANSWER_{agreeing}/REMEMBER_{plain} Ø

'Jeff answered/remembered {**five/two/ten**} questions'

b. A. PETER_i FINISH{ASK_{agreeing}/FORGET_{plain}} **FEW POSS_i QUESTION**

'Peter_i {asked /forgot} a few of his_i questions'

B. JEFF_i ANSWER_{agreeing}/REMEMBER_{plain} Ø

'Jeff_j answered / remembered {**a few/many**} of his_j questions'

The data in (99)-(101) suggest that the NA_{ASL} (NS in (99)-(100) and NO in (101)) is not a copy of the elided constituent, i.e. the [QP] in the cases above.

This observation is further evidenced by the data in (102): on the general AE view, Ø is expected to be a phonologically null copy of [POSS CAR] in (a) and [THREE BOOK] in (b); therefore, the fact that the reading in (102ii.) is unavailable is puzzling.

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- (102) a. JOHN FINISH READ THREE BOOK, MARY NOT READ Ø
 'John has read three books; Mary did not read ____'
 i. Mary did not read any books (although she might have read magazines)
 ii. *Mary did not read three books (although she might have read one)
- b. JOHN FINISH WASH POSS CAR, JEFF ^t NOT WASH Ø NOT-YET^{neg}
 'John washed his car; Jeff hasn't yet washed ____'
 i. Jeff has not washed any cars (no car-washing event)
 ii. *Jeff has not washed his own car

Lastly, AE predicts that non-nominal elements (as long as they are arguments) should be able to get elided (and have the sloppy reading). The Japanese data below illustrate the point: (103)-(104) demonstrate ellipsis of a PP, AP and CP in (a)-(c), respectively.

- (103) a. Taroo to Hanako-ga otagai kara tegami-o [Japanese]
T. and H. -NOM each-other from letter -ACC
 moratta-ra, Ziroo to Yumiko-wa Ø densi meeru-o moratta
received-when Z. and Y.-TOP electronic mail-ACC received
 'When Taroo and Hanako received letters from each other, Ziroo and Yumiko received e-mail ____'
- b. Taroo-ga zibun-ni kibisiku natta-ra, Hanako-mo natta Ø.
Taroo-NOM self-with strict became-when Hanako-also became
 'When Taroo became strict with himself, Hanako became ____ too'
- c. Taroo-wa zibun-ga tensai da to omotteiru ga Ken-wa Ø omotteinai
Taroo-TOP self-NOM genius be that think while Ken-TOP think-not
 'Taroo thinks that he is a genius while Ken does not think ____'
 (Takahashi 2008)

However, ellipsis of similar verbal complements in ASL is impossible.

- (104) a. MARY FEEL HAPPY ABOUT neu-POSS TEST, PAUL NOT FEEL
 THAT/*Ø
 'Mary feels good about her test, Paul does not feel that/the same'

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- b. A. ^{neg}a-PETER NOT RECEIVE-AWARD FROM POSS BOSS NOT-YET BUT
 ^t ^{head-nod}
 b-JEFF YES, RECEIVE-AWARD Ø
 'Peter has not yet received an award from his boss, but Jeff has received ____'
- B. ^{wh?}WHO GIVE-AWARD-b WHO
 'Who gave him (Jeff) an award?'
- A. ^{neg}DON'T-KNOW, MAYBE OTHER PERSON. ^{wh?}WHY. POSS-b BOSS
 HATE-b
 'I don't know. Probably someone else, since his boss hates him'
- c. MARY FELL TEACHER a-IX PREFER BOOK PAPER, PETER NOT
 FEEL SAME/THAT/*Ø
 'Mary feels that the teacher prefers paper-made books [to kindle], but Peter
 does not feel the same/that/ _____'

As (103) vs. (104) demonstrate, Japanese and ASL do not parallel here. First, [AP] in ASL does not get copied into the second conjunct; the NO is impossible in (104a). Further, if the Ø in (104b) were a phonologically null copy of the [_{PP}FROM POSS BOSS], then A's response to B's question is unexpected. Furthermore, in (105c), the AE account predicts Ø to be [_{CP}TEACHER a-IX PREFER BOOK PAPER]; the sentence is expected to be grammatical, but it is not. Thus, the analysis of the NA in ASL as a Japanese-style AE, whereby the entire argument—irrespective of the type of the argument (DP, CP, AP or PP)—is elided, does not account for the data either. First, it seems clear that in ASL, ellipsis targets nominals only; moreover, the quantifier is 'ignored' for interpretation purposes.

At this point, an interim summary of the findings is in order. First, having shown that the NA_{ASL} is syntactically real, we hypothesized—following the standard view—that it is pronominal in nature. However, the data suggest that this approach is on the wrong track: NA_{ASL} can be either definite or indefinite in reference (and therefore cannot be

exclusively *pro*_{Agr/arb/indf}). The element is clearly anaphoric, as evidenced by the fact that without an antecedent, it is impossible; therefore, an ellipsis approach (independently motivated for a similar phenomenon in other languages) was tested. This view resulted in a number of problems as well: the NA_{ASL} does not exhibit characteristics of the (V-)VPE ellipsis, nor does it appear to neatly parallel AE cases in languages where AE is productive.

In other words, this section of the chapter has demonstrated what the NA is not. In the following section, I pursue the answer to what the NA actually is. As a brief preview, I will argue that the NA in ASL is an instantiation of bare NP ellipsis. To the degree that this bare NP is an argument, then the NA is a subcase of AE by implication.

5. Account (part 2): What the NA_{ASL} is

5.1 NPE: still ellipsis of an argument, but only of the NP

In the previous section I have shown what the NA_{ASL} is not: it is not (i) agreement-licensed/-identified *pro*, (ii) arbitrary *pro*, or (iii) indefinite *pro*. It is also not a case of VPE or general AE. In this section, I answer what the NA_{ASL} is: a case of ellipsis of a bare singular NP serving as a verb argument (i.e. a size of a DP in a language like English). This will involve showing that a bare singular NP is, in fact, an argument. Although I have demonstrated that the view of the NA_{ASL} as a case of AE in the absence of morphological agreement meets certain challenges, I will nonetheless ultimately adopt the account and resolve the problems outlined in section 4.3 appealing to independent properties of ASL. In particular, I will demonstrate that ASL imposes an independent constraint on this type of ellipsis—the element must be both a head and a phrase. This

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approach implies certain consequences for the the analysis of what has been called
'agreement' in ASL.

The argumentation has two parts: as illustrated in section 4.1, the NA_{ASL} behaves as a case of surface anaphora, a.k.a. ellipsis; however, it is confined to nominal elements only (section 4.2), i.e. NP-ellipsis (NPE). A question then arises: what is the size of the elided constituent? Two possibilities immediately present themselves: that (i) NPE targets the complement of something like a D^0/Q^0 , i.e. NPE elides a part of the nominal constituent; or (ii) the entire extended nominal projection gets elided (i.e. a constituent the size of a DP/QP). Below, I demonstrate that the NA_{ASL} exhibits what appears to be—but crucially isn't—such dual behavior. More precisely, NPE targets bare singular NPs.

The next step is to demonstrate that NPs are always bare, i.e. that ASL behaves as a language without a definite article in that bare NPs can productively function as arguments. I begin my argumentation with this observation. In particular, bare singular NPs in such a language have a distribution/range of reference unavailable to bare singular NPs in languages with overt definite articles. Here, I show that bare singulars in ASL do not act on a par with bare singulars in languages with overt definite articles, but, rather, they resemble greatly their counterpart in languages without articles. I will further be assuming, following independent arguments in the literature (see Bošković 2010 and references therein), that languages lacking an analogue of the English *the* do not project a DP. In such languages, the $NP_{<et>}$, which ordinarily serves as a complement of the D' (i.e. is only a part of the traditional NP), may function as an extended nominal projection and an argument of the verb. Following Bošković (2010), I label it 'T(raditiona)NP'. This, in turn, means that NPE targets the entire TNP, and not just its part. In other words,

I argue that the NA_{ASL} 'replaces' a bare singular NP, which compares to a DP in a language like English. I show that the data support this view: the NA_{ASL} parallels in its distribution bare singular NPs in ASL.

The approach to the NA I have just outlined predicts that (i) if a bare NP serves as a TNP (i.e. an argument of the verb), TNPE results in what resembles greatly AE in Japanese, but such ellipsis is a property only of certain arguments (i.e. NP arguments). In addition, because what is elided is both a head and a phrase, (ii) what we have thus far been labeling the *sloppy* reading is a misnomer: the interpretation of the elements in the ellipsis site is merely consistent with such a reading.

5.2 Initial evidence: A language with bare singulars

The main argument for the claim that the NA in ASL is a case of a deleted bare (T)NP comes from the observation that in crucial respects, ASL behaves as a language without an overt definite article. Following the work of Bernath (2009), but arriving at the opposite conclusion, I demonstrate that on at least some tests, ASL patterns with languages without a morphological exponent for the *t*-operator (Frege 1960[1892], Russel 1905, Strawson 1950), i.e. a correlate of the English *the*, which is typically assumed to be required for conversion of predicates (which are typically assumed in semantics to be of type $\langle et \rangle$) into arguments ($\langle e \rangle$; Heim & Kratzer 1998); therefore, it is not at all unexpected to see a bare singular NP in an argument position having a variety of readings.

In this respect, ASL sharply contrasts with, e.g. Norwegian and Spanish—languages with overt articles that allow bare singular NP in an argument position. In

other words, the first step here is to show that it is reasonable to view ASL as a bare singular TNP language.

Bošković (2008, 2010, i.a.) argues that languages with and languages without overt definite articles (i.e. a morphological exponent for the *t*-operator) form two distinct classes in terms of many seemingly unrelated properties. He further deduces the aforementioned properties by arguing that languages without, unlike languages with the definite article, do not project the DP (Abney 1987).⁶² Bošković's argumentation is involved; I will not attempt to reproduce it here. I will simply assume it.

(105) Generalizations:

- a. Only languages without definite articles may allow left-branch extraction (LBE).
- b. Only languages without definite articles may allow adjunct extraction from a TNP.
- c. Only languages without definite articles may allow scrambling.
- d. Multiple *wh*-fronting languages without definite articles do not show superiority effects.
- e. Only languages without definite articles may allow clitic doubling with definiteness effects.
- f. Languages without definite articles do not allow transitive nominals with two genitives.
- g. Head-internal relatives display island sensitivity in languages without but not in languages with definite articles.
- h. Polysynthetic languages do not have definite articles.

⁶² Thus, Bošković labels languages with definite articles 'DP languages' and languages without 'NP languages.'

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- i. Languages without definite articles disallow negative raising.
- j. In languages without definite articles, negative constituents must be marked for focus.
- k. Possessors may induce an exhaustivity presupposition only in DP languages.
- l. Only languages without definite articles allow radical pro-drop (in the absence of verbal morphology).
- m. Only languages without definite articles may allow non-obligatory number morphology.
- n. Only languages with overt articles allow the 'majority' and 'plurality' readings of *most*.
- o. Negative constituents must be marked for focus in article-less languages.
- p. The negative concord reading may be absent with multiple complex negative constituents only in negative concord languages with articles.
- q. Elements undergoing focus movement are subject to a verb adjacency requirement only in languages with articles.
- r. In ordinary cases, inverse scope of the quantifier is unavailable in languages without definite articles.
- s. The Sequence of Tense (SOT) phenomenon is found only in languages with articles.
- t. Elements undergoing focus movement are subject to a verb adjacency requirement only in DP languages.
- u. Obligatory nominal classifier systems are available only in NP languages.
- v. Second position clitic systems are found only in NP languages.

Bernath (2009) notes that testing ASL along the lines of (105) is not a trivial enterprise for a variety of reasons: a number of generalizations are one-way,⁶³ and many

⁶³ Note that a number of generalizations in (105) are one-way insofar as they do not speak definitively to the lack of the DP but not necessitate it either. Among the relevant one-way generalizations in (105) are (r)

relevant processes in ASL are still poorly understood (*italics are mine*): ‘...Because ASL does not have *unambiguous* negative-polarity items, *unambiguous* clitics, overt Genitive case marking, *unambiguous* head-internal relative clauses⁶⁴, polysynthesis, or *unambiguous* negative concord items, we cannot subject ASL to all of his [Bošković’s] tests.’ (Bernath 2009).

and (s). I begin with (105r). It is well-known that in English, a sentence like (i) has more than one reading:

- (i) Someone loves everyone. *some > every, every > some*

It is traditionally assumed that the quantifier *everyone* raises in LF (QR, Heim & Kratzer 1998 for an overview). This movement (as evidenced by the availability of the inverse scope, i.e. the second reading) appears available in English, Spanish, Brazilian Portuguese, Hebrew and Macedonian but is impossible in German, Dutch, Icelandic, Bulgarian, Welsh, Romanian, Japanese, Korean, Turkish, Hindi, Bangla, Persian, Chinese, Russian, Polish, Slovenian, Ukrainian, and Serbo-Croatian (see Bošković 2010). Although the latter group contains languages with and without articles, the former group is comprised only of languages with articles. Undoubtedly, more research is needed, but the conjecture that Bošković puts forth is of the following type: a language without a morphological exponent for the ι -operator will not allow QR. If ASL exhibited QR effects, this would then provide evidence against the view of ASL as an article-less language (or, alternatively, a need to revise (105)). To that effect, as (ii) demonstrates, ASL remains well-behaved, as it does not appear to allow QR in cases like (i):

- (ii) HERE, LINGUISTICS DEPARTMENT, SOME PERSON LOVE ALLa-c
‘Here, in the Linguistics Department, someone loves everyone’ *some>every,*every>some*

In other words, in such cases, QR appears unavailable. However, the study of scopal interactions in ASL invites a number of independent complications; I leave it for future research.

Another one-way generalization of the type discussed above is recorded in (105s) and is related to the unavailability of the SOT effects in (iii).

- (iii) John believed that Mary was ill.

Informally, SOT effects result if the interpretation of the tense of the subordinate clause is constrained by the interpretation of the main clause. In SOT languages (e.g. English, Dutch, Modern Greek, Spanish, French, German and Italian), but not in non-SOT languages (e.g. Russian, Polish, Czech, Serbo-Croatian, Romanian, Hebrew, Japanese, Korean, Hindi, Turkish), (iii) has a ‘simultaneous’ reading, on which the time of John’s belief of Mary’s being ill coincides with the time of Mary’s illness. In other words, Mary’s being ill occurs at the time of John’s belief about it. Here again, if ASL were to exhibit the ‘simultaneous’ reading, it would be acting as a language with a definite article. However, here too, ASL behaves well: (iv) has an anteriority reading only—the time of Mary’s sickness is necessarily prior to John’s belief.

- (iv) JOHN FINISH THINK MARY SICK FINISH
‘John thought that Mary was ill’

An interfering factor is the fact that ASL has no clear exponent for tense; rather, the language employs aspectual marking. This is expected on the recent proposal by Bošković (2010a)—a language without a D(P) is a language without a T(P) as well, and encodes temporal information in alternative ways, such as aspect. More research is in order here.

⁶⁴ See here Galloway in prep.

Although undertaking a large-scale inquiry into the status of ASL with respect to the entirety of (105) lies outside the scope of this chapter, I focus on two one-way generalizations from the list above: (105 l-m)—i.e. radical pro-drop and the non-obligatoriness of number morphology—and offer some preliminary data for two others (i.e. (105 a, k)).⁶⁵

⁶⁵ For the purposes of this chapter, I set aside (105n). Bošković & Gajewski (2011) show that languages without definite articles lack the ‘majority’ reading of *most*:

- (i) Najviše ljudi pije pivo [SC]
Most people drink beer
 ‘Most people drink beer’
 = People drink beer more than any other drink (‘plurality’ reading)
 ≠ More than half the people drink beer (‘majority’ reading) (Živanović 2007)

Bernath (2009) demonstrates that in this respect, ASL behaves on a par with languages like English.

- (ii) a. *Context: There exist 10 movies featuring Superman. André owns 4, while Jeff owns only 2, and Diane just 1.*

ANDRE OWN MOST SUPERMAN MOVIE
 ‘André owns the most Superman movies.’
 = André owns a plurality, but not a majority, of Superman movies.

- b. *Context: There exist 10 movies featuring Superman. Jeff owns all 10, while André owns 8, and Diane just 4.*

ANDRE OWN MOST SUPERMAN MOVIE
 ‘André owns most Superman movies.’
 = André owns a majority, but not a plurality, of Superman movies.

Bernath (2009) concludes that ASL patterns with languages with definite articles, since—on Bošković & Gajewski (2011) account in particular—only in these languages the superlative morpheme [-EST] is able to adjoin to the NP_{<e>} because the NP is not an argument. However, this diagnostic shows independent complications. For instance, Bernath’s arguments come from *most* in the object position, while upon further inspection, it seems that at least for some speakers of article-less languages, *most* lacks the ‘majority’ reading only in the subject position. Consider (iii) in the context of (i): *There exist 10 movies featuring Superman*

- (iii) André poseduje najviše filmova o supermenu [SC]
André own most movies about Superman
 ‘André owns most Superman movies’
 = André owns 4, while Jeff owns only 2, and Diane just 1 (‘plurality’ reading)
 = Jeff owns all 10, while André owns 8, and Diane just 4 (‘majority’ reading)

The difference between the two cases of *most* requires an independent explanation, which I leave for the future research (see Kotek, Sudo, Howard & Hackl 2011). Suffice it to say that the diagnostic is not trivial for ASL: my informants generally disallow MOST in the subject position (as in (i)).

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One reason to subject ASL to the battery of the generalizations above is the status of the lexical item typically assumed to be the analogue of the English *the*. First, the element that is used in ASL in cases requiring *the* in a language like English—glossed here IX—is homophonous with a demonstrative, a pronoun, a predicate, and an adverbial; however, it has been argued by some authors to act as a definite article (at least sometimes) when used prenominally (Zimmer & Patschke 1990, MacLaughlin 1997, Neidle et al. 2001, Bernath 2009).

The element that is used in cases requiring *the* in a language like English is homophonous with a demonstrative, a pronoun, and, as MacLaughlin (1997) argues, an adverbial; however, when used prenominally, it is argued to act as a definite article.

- (106) [IX_{DET} WOMAN IX_{variable pathlength}]_{DP} BORROW VIDEOTAPE
'The woman (more or less far away) borrowed the videotape.'
(MacLaughlin 1997: 124)

As Bernath (2009) notes, what makes ASL typologically odd (among languages with definite articles) is the fact that the use of this determiner is optional. In other words, the sentence in (106) can be uttered as (107) with no detectable change in meaning:

- (107) WOMAN IX_{variable pathlength} BORROW VIDEOTAPE
'The woman (more or less far away) borrowed the videotape.'

The notion that IX is, in fact, a lexicalized version of the *t*-operator is suspect for two additional reasons.

In principle, the [IX WOMAN] in (106) is paraphrasable as *that woman*. On this view, IX is analyzable as a demonstrative. The existence of demonstratives in a language

must be independent of the existence of the definite article, since the two cannot possibly have exactly the same semantics (cf. Löbner 1985) or syntax (Bošković 2007, i.a.). For instance, in many languages with definite articles, demonstratives and articles co-occur (cf. (108a). Moreover, even in languages without articles, demonstratives exist (cf. (108b):

- (108) a. La chica esta me lo dijo. [Spanish]
 The girl this me it said
 'This girl told me that'
- b. Eta kukla mne nadojela [Russian]
 This doll me fed-up-with
 'I am fed-up with this doll'

So, arguably, (106) is misleading. But how can we tell whether a lexical item actually encodes 'ι'? Dayal (2009), following Löbner (1985), reminds that if a lexical item encodes 'ι,' "it leads to a contradiction when the noun phrase it is the head of is an argument to a predicate in its affirmative and negative. This maximality/uniqueness effect distinguishes a true definite determiner from its close-kin demonstrative determiner" (Dayal 2009). To exemplify:

- (109) a. #*The dogs* are sleeping and *the dogs* are not.
- b. *Those dogs* are sleeping and *those dogs* are not. (Dayal 2009)

Subjecting the prenominal IX in ASL to the diagnostics in (109) is not trivial: although in the English sentence above, the two instantiations of *those dogs* are homophonous, in ASL, this is impossible. Different (groups of) entities get assigned different loci in space;

therefore, homophony of the kind we see in spoken languages (as between the two NPs in (109b)) does not exist. However, what we can do is focus on the original observation about the element encoding 'ι': uniqueness (cf. Frege 1960[1892], Russell, B. 1905, Heim 1991, i.a.). Here, we might say that the prenominal IX is unambiguously a definite article in the sense of the English *the* if it exhibits the uniqueness effect in a context in which the 'demonstrative factor' is controlled for. To be specific: we need a scenario in which the prenominal IX—as an element encoding ι—will (obligatorily) pick out *the unique/maximal x* in the set, even if the set consists of one individual. In such a context, a demonstrative is impossible/anomalous, and the definite article is necessarily expected:

- (110) a. ¿Cual es *(la)/#esa capitula de Francia? [Spanish]
 Which is the this capital of France
 'What is *(the)/#this capital of France?'
 b. ¿Quién ahora es *(el)/#ese papa?
 Who now is the this pope
 'Who is *(the)/#this Pope now?'

Subjecting ASL to the aforementioned diagnostic results in the following observation: the prenominal IX (labeled IX_{DET} above) cannot be used in a construction that unambiguously involves the kind of uniqueness ordinarily attributed to ι:

- (111) a. $\overline{\text{FRANCE}}^{\iota} \text{ (*IX) } \overline{\text{CAPITAL}}^{\text{wh}} \text{ WHAT}$
 'What's *(the) capital of France?'
 b. $\text{(*IX) POPE NOW } \overline{\text{WHO}}^{\text{wh}}$
 'Who is *(the) Pope now?'

Further, as has been shown in numerous works, languages that have definite articles typically⁶⁶ force singular kind terms to appear with a definite article (Krifka 1995, Chierchia 1998, Dayal 2004, among others). The aforementioned predicts that if the prenominal IX is, in fact, a morphological exponent for the *ι*-operator, the analogue of the English (112a) should be possible on the kind reading. However, as (112b) demonstrate, the kind reading is unavailable.

- (112) a. *(The) dodo is extinct. (Chierchia 1998)
b. (*IX) DINOSAUR GONE
The dinosaur is extinct = *kind*

Thus, I take the data in (111)-(112) as initial evidence for the possibility of the non-DP analysis of the nominal domain in ASL: the fact that the prenominal IX is ungrammatical in the environments unambiguously requiring a definite article casts a shadow of a doubt on its analysis as an element encoding *ι*.

Let us now return to (105). Regarding (105a), Bernath (2009) demonstrates that ASL lacks LBE of type observed in languages like Russian and Serbo-Croatian (SC).

- (113) a. Skupa_i je vidio [t_i kola] [Serbo-Croatian]
expensive is seen car
'The/an expensive car is seen.' (Bošković 2008)
b. *EXPENSIVE PETER a-IX SEE CAR
'*Expensive he saw car.' (Bernath 2009)

However, let me point out that that LBE and adjunct extraction generalizations are one-way generalization because many article-less languages do not exhibit this property (e.g.

⁶⁶ Some exceptions are noted in Chierchia (1998).

Chinese, Japanese, Korean, etc.). So, although (113b) demonstrates that the SC-style extraction out of the TNP is disallowed in ASL, this may not be because ASL projects a DP but because something independent blocks LBE from being allowed in the language. That the aforementioned might be on the right track is indicated by the fact that, as illustrated in (114), with *wh*-questions, structures resembling LBE are allowed.

- (114) a. WH-COLOR YOU WANT SWEATER^{wh?}
 'What color sweater do you want?'
 b. WH-KIND YOU WANT BOOK^{wh?}
 'What kind of book do you want?'
 c. WH-MANY YOU WANT CHILDREN^{wh?}
 'How many children do you want?'
 d. WHICH ICE-CREAM YOU LIKE WHICH^{wh?}
 'Which ice-cream do you like?'
- (Boster 1996)

ASL then does seem to allow LBE in interrogative contexts. There may, however, exist independent factors that block such extraction in non-interrogative contexts. I leave this matter for future research.⁶⁷

Another generalization that is relevant for the discussion at hand is (105k).

Partee (2006) observes that a possessive phrase in English carries an exhaustivity presupposition: i.e. in (115), the speaker makes a statement about all of John's sweaters (and not a portion of them). Bošković notes that the aforementioned is true for Spanish, Brazilian Portuguese, Italian, Hebrew, Arabic and Dutch. However, in languages like

⁶⁷ At first blush, one might implicate the focus feature that is inherent to wh-words. Note also that Bošković (2009) shows that LBE as in (114a) is possible only if the relevant elements (adjective and the noun here) agree. Given the line of reasoning in section 4.6, nouns and adjectives may not agree in ASL. The diagnostic is complicated by the fact that some adjectives are body-anchored (e.g. STUPID) and, thus, cannot move in space; in addition, nouns are necessarily singular (see below). I leave this issue for future research.

Russian, Serbo-Croatian, Turkish, Chinese, Japanese, Korean, Hindi, Bandla and

Malayam—all languages without articles—this observation does not hold (115b-c).

- (115) a. John's three sweaters
= John owns exactly three sweaters
≠ John owns five sweaters
- b. Zhangsan de san jian maoxianyi [Chinese]
Zhangsan DE_{poss} three CL sweater
'Zhangsan's three sweaters'
= Zhangsan owns exactly three sweaters
= Zhangsan owns five sweaters (adpt. Partee 2006)
- c. Mashini tri svitera
Masha.POSS three sweater.ACC
'Masha's three sweaters'
= Masha owns exactly three sweaters
= Masha owns five sweaters

In this respect as well, ASL patterns with languages without definite articles:

- (116) $\overline{\text{2-POSS THREE STUDENT SMART}}^{\text{t}}$
 ‘Your three students are smart’
 = You have exactly three students
 = You have ten students, but the three of them are smart

Here, (116) serves as yet another piece of evidence that ASL patterns with languages argued not to project a DP.

Another relevant generalization is (1051): only languages without definite articles allow radical pro-drop—i.e. a drop of an argument without the presence of agreement. This is true for Chinese, Japanese, Korean, Kokota, Turkish, Hindi, Wichita, Malayam, Thai, Burmese, Khmer and Indonesian.

Recall that this entire chapter is devoted to a radical-style ‘pro’-drop, which has, in the recent works, been defined as AE. Previous sections have illustrated that whatever

the ultimate account of this phenomenon in ASL is, it is difficult to implicate agreement (pace Bahan et al. 2000). More accurately, taking into consideration the findings of the previous sections, one might say that ASL exhibits the radical argument drop insofar as agreement/case does not license it. In the discussion of Japanese and ASL, we have seen that this radical argument drop is better viewed as an elided NP; similar observations have been offered for Chinese (Chen in prep, Takahashi 2011), Japanese (Saito 2007) and Turkish (Şener & Takahashi 2009). ASL then fits (105l) as an NP language.

Finally, and crucially for the argumentation below, ASL allows non-obligatory number morphology (i.e. (105m)). In this respect too, ASL mirrors languages without definite articles: e.g. Japanese, Korean, Chinese, Dyirbal, Walpiri, Warrgamay, Kuku-Yalanji, Indonesian, Turkish, and Vietnamese.

The relevant observation about ASL is that although some nouns are inherently plural (as in (117a)), bare NPs can always surface in their singular form (as in (117b)).

- (117) a. CHILDREN IXa-c SMART
 'Those kids there are smart'
- b. CHILD IXa-c SMART
 'Those kids there are smart'

Above, (117a-b) are identical in meaning but contain different lexical items:

CHILDREN, which is inherently plural (cf. (117a)), and CHILD, which is inherently singular (cf. (117b)). However, even the 'inherently plural' ones seem collective in some sense, since the verb, expected to agree with them in number, can be singular (as in (118c)):

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'The students are frustrated, teachers are upset'

- ii. *Context: The argument between the teacher A and the student B needs to be resolved with a help of the Principal's Office. At the moment...*

'The student is frustrated, the teacher is upset'

- (123) a. $\overline{\text{CAR}}$ ^t, TWO STUDENT BUY
i. 'Two students together bought a car' → more salient
ii. 'Two students bought a car each'
- b. $\overline{\text{BOOK}}$ ^t, TWO STUDENT BUY
i. 'Two students each bought a book' → more salient
ii. 'Two students together bought a book'
- (124) a. $\overline{\text{a-STUDENT}}$ ^t, BOOK ANN GIVE-a[exhaustive]
'Ann gave a (different) book to each student'
- b. $\overline{\text{a-STUDENT}}$ ^t, PICTURE ANN SHOW-a[exhaustive]
'Ann showed the (same) picture to each student' (adpt. Petronio 1995)

As (120) above shows, the agreement morpheme on the verb restricts the quantificational value of the NP; the classifier in (121) (CL:/1/ indicating a single person and CL:/44/ indicating many people) plays the same role. At the same time, if neither of the aforementioned tools is employed, the quantificational value of the NP is defined by what is in the previous context (as in (122)) and/or what is more plausible given the knowledge of the world (as in (123)). In addition, the event-type matters: unlike the *accomplishment* GIVE, each subsequent act of which introduces a new event, the *activity* SHOW can merge with another act of the same type without introducing a new event (Vendler 1967); therefore, quantificational interpretations of the NPs in (124a) vs. (124b) differ in the crucial respect. In other words, the quantificational value of bare singular NPs in ASL does not depend on the number morphology; bare singular NPs (whether interpreted as

singular or plural) are productive in ASL as they are in some other languages without definite articles, as evidenced by (125) below.

- (125) a. Ma wo kanjian le [Chinese]
 Horse I see PAST
 ‘I saw horse(es)’
 b. Mal-nin na-ka po-at- ta [Korean]
 Horse-TOP I-NOM see-PAST-DECL.
 ‘I saw horse(es)’ (adpd. Petronio 1995)

Reflecting on the data introduced above, there is a good reason (five, to be exact) to place ASL into the class of languages without definite articles: (i) in the clearly ‘uniqueness’ cases (where the definite article must be obligatorily present), the prenominal IX_{DET}-the ASL contender for encoding the ι , i.e. a definite article—cannot be used, implying that ASL has no definite article; (ii) there is a potential possibility that ASL allows extraction from the TNP in the form of LBE; (iii) possessives do not induce an exhaustivity presupposition; (iv) argument-drop is not agreement licensed; (v) number morphology is not obligatory. In turn, this observation carries consequences for the nature of bare TNPs in the argument position: this TNP can surface as a bare singular.

5.3 Bare singular = TNP

One consequence of the observations above is that a TNP in an argument position can always surface as a bare singular. This suggests that in its distribution and the range of readings, this bare singular will differ sharply from its counterparts in languages with definite articles—i.e. it can refer to a definite or indefinite individual.

Bare singulars are not a new finding in languages with and without articles. In the former, they are typically—albeit not always—limited to object positions. Their precise syntax and semantics (more to the point, their status as arguments) is far from being clear (cf. Grønn 2006 for an overview), their syntactic distribution and scopal properties have been well documented: they do not (i) control or bind reflexives (cf. (126)-(127)), (ii) allow for a partitive/specific indefinite readings (cf. (128)), or (iii) take wide (inverse) scope (cf. (129)-(134)). Additionally, they do not (iv) allow for deictic/anaphoric readings (cf. (133)); instead, their interpretation is typically *generic/kind* (cf. (134)).

- (126) a. Den første oppgven var mate [_{NP} krokodille]. [Norwegian]
the first task.DEF was to feed crocodile
‘The first task was to feed a crocodile.’
- b. *Den andre oppgåven var å vaske [_{NP} sykkel]_i [PRO_i ren].
the second task.DEF was to wash bike clean
‘The second task was to wash a bike clean.’
- (127) *Den tredje oppgåven var å sette [_{NP} papegøye]_i på pinnen sin_i.
the third task.DEF was to put parrot on perch.DEF 3.REFL.POSS
‘The third task was to place a parrot on its perch’
- (128) a. Jeg hadde på meg [_{DP} en viss gul skjorte i går].
I had on me a certain yellow shirt in yesterday
‘I wore a certain yellow shirt yesterday.’
- b. *Jeg hadde på meg [_{NP} viss gul skjorte i går].
I had on me certain yellow shirt in yesterday
‘I wore a certain yellow shirt yesterday.’
- (129) a. Det var igjen mange sykler etter salget.
It was left many bikes after sale.DEF
‘There were many bikes left after the sale,
- b. ...så jeg ga [_{DP} én sykkel] til Kari.
so I gave one bike to Kari
‘...so I gave one of the bikes to Kari.’
- c. #... så jeg ga [_{NP} sykkel] til Kari.

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so I gave bike to Kari

‘...so I gave Kari a bike (any bike).’

(Pereltsvaig 2006)

- (130) a. Alle barna prøvde [_{DP} en jakke]. *jacket > try, try > jacket*
All children.DEF tried a jacket
 ‘All the children tried on a jacket.’
- b. Alle barna prøvde [_{NP} jakke]. **jacket > try, try > jacket*
All children.DEF tried jacket
 ‘All the children tried on some some jacket or other.’ (Borthen 2003)
- (131) a. Jeg ønsker ikke sykkel. (Kallulli 1999)
I want not bike
 ‘It is not the case that I want a bike’/#’There is a bike that I don’t want.
- b. Mange barn prøvde jakke.
Many children tried jacket
 ‘Many children tried on some jacket or other’/#’There is a jacket that
 many children tried on’ (Pereltsvaig 2006)
- (132) a. El niño no trajo una pelota. [Spanish]
The boy neg brought a ball
 ‘The boy didn’t bring a ball.’ *neg > ball, ball > neg*
- b. El niño no trajo pelota. *neg > ball, *ball > neg*
The boy neg brought ball
 ‘The boy didn’t bring a ball.’ (Miller & Schmidt 2005)
- (133) a. **(The) dogs*, namely Fido and Rover, are barking.
- b. Some dogs_i are barking. **(The) dogs_i* must be hungry.
- c. El niño no trajo pelota. = (132b)
The boy neg brought ball
 ‘The boy didn’t bring {the/a} ball.’
- (134) a. Bil^[bare singular] er ikke det samme som buss^[bare singular]. [Norwegian]
 ‘A car is not the same as a bus.’
- i. **there is a certain/unique car s.t. it is not the same as a certain bus*
 ii. **there is a certain/unique bus s.t. it is not the same as a certain car*
 iii. generally speaking, cars are not the same as busses
- b. Tiger^[bare singular] og løve^[bare singular] er beslektede arter.
 ‘The tiger and the lion are related species.’
- i. **there is a certain tiger/unique s.t. it is related to a certain lion*
 ii. **there is a certain/unique lion s.t. it is related to a certain tiger*

iii. generally speaking, tigers and lions are related species

- c. Tiger^[bare singular] er i motsetning til løve^[bare singular] en truet dyreart.
 'The tiger is, unlike the lion, an endangered species.'
 i. *there is a certain/unique tiger s.t. it is unlike a certain lion and is an endangered species
 ii. *there is a certain/unique lion, s.t. it is unlike a certain tiger and is not endangered species
 iii. generally speaking, tigers, unlike lions, are endangered species
 (adpt. Grønn 2006)

In other words, in languages with overt definite articles, bare singular NPs are, informally speaking, constrained against being able to act as indefinites or definite individuals.

In contrast to Spanish and Norwegian, and given an appropriate context, bare singular NPs in ASL (i) can be specific (cf. (135)), (ii) have a partitive interpretation (cf. (136)), (iii) control and bind (cf. (137)-(138)), and (iv) be anaphoric to entities salient in discourse (cf. (139)):

- (135) A. ^tMARY a-IX LOOK HAPPY. ^{wh}KNOW WHY
 'Mary looks happy. Do you know why?'
 B. YES, BOY SEE-a
 'Yes {the/a particular/some} boy saw her'
- (136) A. a. What do you want for Christmas?
 b. What do you want to keep from your brother's old possessions?
 c. What do you want from the Bike & Scooter store?
 d. I am thinking about getting you a new yellow thing that you always ask me about. What is it that you want?
 B. I-IX WANT BIKE
 'I want {a/the/one of the/a certain} bike(s)'
- (137) a. I-IX SURPRISE, a-MOTHER TEND [PRO HATE FISH], BUT
 TODAY a-IX LOVE Ø
 'I am surprised; mother usually hates fish, but today she loves it.'
 b. a-IX FORCE KID [PRO CLEAN HOUSE EVERY-DAY]
 'She forces {the/a} kid to clean the house every day'

- (138) a. TEACHER MY CLASS LOVE neu-POSS STUDENT^t
'The teacher in my class loves her students [though she hates all the other kids in the school]'
- b. a-IX FORCE KID [PRO CLEAN neu-POSS ROOM EVERY-DAY]
'She forces her kid to clean her room every day'
- (139) *Context: two adults and two children are on the bus. The bus stops and the children get off. The driver closes the doors. One of the adults says:*
- LOOK-b, BOY FORGOT POSS+++ BOOK
'Look, the boys forgot their book'

In addition, bare singular NP in ASL can (v) take wide (inverse) scope with respect to negation and allow interpretations other than generic/*kind*.

- (140) a. BOY (a-IX) RELIEVED, WHY? FINISH BUY DICTIONARY
'That boy is relieved because he bought {a dictionary/dictionaries}'
i. 'there is a dictionary, s.t. the boy bought it (and brought to school)'
ii. 'the boy bought some kind of dictionary'
- b. BOY (b-IX) WORRY, WHY? NOT BUY DICTIONARY
'That boy is worried because he did not buy {a dictionary/dictionaries}'
i. 'there is a particular dictionary, s.t. the boy did not buy it'
ii. 'the boy did not buy any dictionaries'
- (141) SUPPOSE COMPARE a-BUS b-CAR. 1-IX PREFER CAR. WHY BUS SLOW^{wh}
'If I compare a bus and a car, I prefer the car. Why? Because the bus is slow'
i. there is a certain bus s.t. it is slow
ii. generally speaking, busses are slow

As (140)-(141) illustrate, bare singular NPs act more in line with indefinites and definite individuals, unlike what is observed in Norwegian/Spanish. In this, ASL parallels languages without definite articles. The data below are from Russian, where bare singular NPs can take wide inverse scope (as in (142a i.)), have a partitive/specific

interpretation (as in (142b)), control/bind reflexives (as in (143)), and have deictic/anaphoric reading (as in (143)), in addition to the generic/*kind* one (as in (144)).⁶⁸

- (142) a. Ja ne hochu odevat' koftu [Russian]
I not want to put-on cardigan
 'I do not want to put on a cardigan' *cardigan > put-on, put-on > cardigan*
- b. Ya hochu pomeryat' opredelennuju rubashku
I want to try on particular shirt
 'I want to try one a particular shirt'
- (143) a. Uchenik hochet [PRO poluchit' pjaterku]
Student want to receive five
 'A/the student wants to get an 'A''
- b. Malchik_i sel na svoje_i mesto
Boy sat on self's place
 'The boy took his place'
- (144) Sobaka bila dikim zhivotnim poka ejo ne priruchili.
Dog was wild animal until she.ACC not domesticated
 'The dog was a wild animal until it was domesticated'

Furthermore, in these languages, bare singular NPs betray their dual (definite and indefinite) nature by exhibiting Quantificational Variability Effects (QVE).

It has been observed (Lewis 1975) that certain adverbs (Q-adverbs) denote quantifiers that at least sometimes target situations; e.g., *usually* yields an effect of quantification over a variable introduced by the indefinite (cf. Heim 1982), and the QVE reading *for most situations* arises. In contrast, QVE over definites are achieved via other

⁶⁸ I do not mean to suggest here that bare singulars are necessarily indefinite in languages without a lexicalized definite article: plethora of evidence exist to suggest otherwise (cf. Dayal 2004). The point here is that however this comes about, bare NPs can "become" indefinite individuals. Semantic tools required for this are fairly uncontroversial—i.e. \exists -closure (cf. Heim 1982, Diesing 1992) and type-shifting (Partee 1987).

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operators (Nakanishi and Romero 2003), and the QVE with Q-adverbs become unavailable. The aforementioned is illustrated in (145).

- (145) a. A Penn student is **usually** smart
 → 'Most students = QVE on students'; QVE available
- b. **The student sitting over there** now is **usually** smart.
 → The only reading: 'Now they are smart, now they are not'; QVE not available (Malamud 2012)

Consider Russian and ASL below: in both languages, bare singular NPs exhibit QVE effects.

- (146) Student MGU obychno horoshij chelovek / ljubit dekana.
 Student MGU.GEN usually good.SING person / loves dean.ACC
 'A student of Moscow University usually is a good person/loves the dean'
 → 'Most students = QVE on students'; QVE available (Malamud 2012)

Although the semantics of quantification in ASL in general and Q-items in particular lie outside the scope of this work, I take TEND to fulfill the function of the Q-adverb above and focus on the empirical observations.

- (147) a. TEACHER TEND WORK HARD
 '{A teacher / teachers} usually work(s) hard'
 → 'Most teachers = QVE on teachers'; QVE available
- b. TEACHER a-IX TEND WORK HARD
 'Those teachers usually work hard'
 → The only reading: 'In most situations, this teacher works hard'; QVE not available

That is, we can take (147) as suggesting that TEND quantifies over the variable introduced by the indefinite in (147a) but not in (147b). These data confirm that the bare singular in ASL (like the bare singular in Russian) can denote a definite or an indefinite.

To summarize: the data offered in this section demonstrate that bare singular NPs in ASL behave on a par with bare singular NPs in languages which lack the definite article.⁶⁹ Adding this observation to the possibility of no number marking on the NP in ASL, the availability of non-agreement licensed argument drop, (potential) possibility of LBE, and the possibility of bare NP in configurations demanding a morphological exponent for the ι in a language that projects a DP (Abney 1987), paves the way for viewing ASL as a language without a definite article—an NP language in which a bare NP is/can be the whole TNP productively.

Let me push the possibility that a language exhibiting the properties we have thus far seen in ASL—i.e. a language without an exponent for *the*—does not project a DP

⁶⁹ One option to consider is that the bare NP in ASL is actually semantically plural (and, therefore, compatible with both singular and plural interpretations; cf. Sauerland et al. 2005): in other words, they are the ASL counterpart of bare plurals. This option, however, does not pin out: unlike bare singulars in ASL, bare plurals make reference to particular individuals only by entailment.

Compare ASL with English. English, like many languages with and without definite articles, allows bare plurals. However, bare plural NPs in languages with definite articles tend to refer to individuals by entailment only. Although in the surface string, the NP in (i) precedes negation, negation itself is a sentential element (i.e. it adjoins to the proposition, or a $\langle t \rangle$ node; Heim & Kratzer 1998). Therefore, the sentence below is expected to have the '*not* > *dogs*' scope; in other words, (i) can make reference to individual dogs Fido and Jack only by entailment.

- (i) Dogs are not barking
a. Fido and Jack are not barking b/c no dogs are barking (entailment)
b. *Fido and Jack are not barking although other dogs might be barking (scope)

However, the aforementioned is not true for the bare NP in ASL (ii) or Russian (iii):

- (ii) NOW DOG NOT BARK. $\overline{\text{DO-DO}}$, $\overline{\text{CL-SIT-STARE}}$, $\overline{\text{WHY}}$ a-IX WANT MORE
'Now the dog is not going to bark. But what's he doing now? Sit and stare. Why? Because he wants more.'

- a. Fido is not barking b/c no dogs are barking (entailment)
b. Fido is not barking although other dogs might be barking (scope)

- (iii) Nakonez-to sobaka perestala layat'. A chto-zhe teper'? Uselas' ryadyshkom i smotrit.
Finally dog stopped bark And what now Sat near and look
'Finally the dog has stopped barking. And what now? It sat nearby and is staring.'

- a. The dog is not barking b/c no dogs are barking (entailment)
b. The dog is not barking, though other dogs might be barking (scope)

This view can be interpreted in the following manner: from the point of view of syntax, all quantifiers may be expected to be 'weak'—i.e. be allowed to occur with an existential construction. The study of quantification in ASL, though a worthy enterprise, involves independent complications and, thus, lies outside the scope of this work; therefore I will not undertake it here. I will, however, offer at least one modest piece of evidence that the approach is on the right track.

Since Milsark (1974), it has been standardly assumed that quantifiers fall into two natural classes—strong and weak. The dividing line between the two classes lies in the quantifier's ability to occur in an existential construction.

- (148) a. In the garden, there were/are {several/some/few/at least three} toys
b. *In the garden, there are {all/both/most/my} toys in the garden

Based on the paradigm above, it is generally assumed that the strong quantifiers are D's (in a language like English), i.e. they take the NP_{<et>} as a restrictor and head the projection of the element which, in turn, serves as the argument of the verb.

However, in a language without an overt definite article, and where NPs are arguments, the expectation may be that the difference between quantifiers with respect to the correlation between 'strength' and syntactic position will be bleached out. One

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consequence of this may be to say that strong quantifiers will be allowed in existential constructions. And, in fact, this is what we find for Japanese⁷⁰ and Russian⁷¹:

- (149) a. The number of attendants was {many/few/forty/*most/*every}.
- b. Kessekisha-ga{okat/sukunakat/yonju-nin/hotondo-in /zen-in }-ta [Japanese]
absentee-NOM many/ few /40-cl-DAT/most -DAT/every-DAT be.PAST
 ‘There were many/few/40/most/all people (who were) absent.’ (Nishiguchi 2009)
- (150) a. V komnate bilo {desjat’/mnogo/neskolko/bolshinstvo} igrushek [Russian]
In room were ten / many / a few /most toys.GEN
 ‘In the room, there were {ten/many/*few/*most} toys’
- b. V komnate bili {vse/tri/ moji} igrushki
In room were all/three/my toys.NOM
 ‘In the room, there were {*all/three/*my} toys’

In this respect, ASL parallels languages without definite articles, which may be taken as supporting evidence that even ‘strong’ quantifiers in ASL are not in D° syntactically⁷²:

- (151) A. ^{wh}HAVE 1-POSS ASL BOOK HERE
 ‘Is/are my ASL book/books here?’
- B. LOOK 2-SELF, HAVE {MANY/FEW/SOME/TEN/MOST} BOOK HERE
 ‘Look for yourself. There are {many/few/some/ten/most} books here’

Let me summarize: this section has shown that ASL patterns with languages without definite articles in a number of respects; in particular, it allows a singular NP to

⁷⁰ One might imagine a variety of ways in which languages without the D° might encode the relevant semantics. One option is pursued in Nishiguchi (2009) who argues that in Japanese, all quantifiers are adjectival. He offers evidence that quantifiers in Japanese are not GQs and provides alternative entries for them.

⁷¹ Note that the difference between the (150a) and (150b) is not related to the ‘strength’ of the quantifier but, rather, to the case accompanying the NP serving as the restrictor of the quantifier. Notably, all of them are allowed to occur in the existential construction.

⁷² I remain agnostic with respect to the semantics of quantifiers in ASL and Russian here, taking to heart issues outlined in Partee (2007).

be bare and to be interpreted as singular/plural and definite/indefinite individuals. Additionally, when such an NP serves as a restrictor of the quantificational expression, there are reasons to suspect that quantifiers are not D° from the point of view of syntax. Thus, a strong plausibility of the lack of the DP in ASL has been established. This then means that the bare singular NP in ASL is a full TNP.

5.4 NA = TNPE

Having established that bare singular NPs are TNPs in ASL, we proceed to the nature of the NA. Recall that section 4 has demonstrated that the account of the NA that appeals to ellipsis of the nominal constituent has a better chance of surviving in comparison to the alternatives. However, if we are to say that the NA_{ASL} arises via ellipsis of a TNP (a nominal constituent the size of a DP in a language like English), we commit ourselves to the NA having the same distribution and range of readings we observed with the overt bare singular TNP—i.e. it should be able to serve as singular or plural, definite or indefinite. In other words, it ought to parallel (138)-(143)/(153). On the other hand, if the NA is something other than a TNP (perhaps a part of it, i.e. the NP complement of some head within the TNP, akin to the NPE in English, standardly assumed to be licensed by the D°), then we expect the NA and the overt bare singular NP to behave differently. Here, the data support the former and not the latter prediction.

The first reason to suspect that ellipsis targets the entire TNP and not its part comes from the impossibility of the possessor stranding NPE, expected only if the entire NP must elide, rather than just a part of it.

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Lobeck (1990, 1995) and Saito & Murasugi (1990) show that cross-linguistically NPE appears to be allowed only if the functional head licensing ellipsis undergoes agreement with an element in the Spec position: e.g. English possessive *-s* is standardly assumed to be in D while the possessor is in its Spec. This makes NPE possible.

- (152) a. I have read Bill's book, but I haven't read [DP John's [NP book]]
 b. * I have edited a book, but I haven't written [DP a [NP ~~book~~]]
 c. *I have seen the book, but I haven't had a chance to read [DP the [NP ~~book~~]]
(Jackendoff 1971)

MacLaughlin (1997) argues that like in English, the possessor NP in ASL is in SpecDP, and the possessive marker POSS (an analogue to the English genitive *-s*) is in D. Thus, if ellipsis targets the NP-complement of a larger nominal projection (i.e. a DP), an ASL version of (152) is expected to be possible. However, as (152a) illustrates, the English-style NPE is disallowed in this configuration.⁷³ On the other hand, if the entire TNP must elide, rather than just a part of it, then both examples in (153) are accounted for.

- (153) a. ¹
 TALK-ABOUT CAR, 1-IX WANT JOHN-POSS {IX/CAR/*[CAR]}
 'As for cars, I want John's [e_{NP}]'

⁷³ Turkish exhibits a similar paradigm:

- (i) *[Pamuk-un kitab- 1- nı] oku- du- m, ama [Oe-nin ~~kitab-ı-nı~~] oku-ma-dı-m. [Turk]
P-GEN book-3SG-POSS.ACC read-PAST-1SG but Q.-GEN read-NEG-PAST-1SG
 'I read Pamuk's book, but didn't read Oe's.'
(Bošković & Şener 2012)

Bošković & Şener use data such as (i) to argue for the adjunct nature of possessives and other 'DP' elements in Turkish—also a language without a definite article and, therefore (on Bošković's account), a DP.

In fact, ASL and Turkish appear to parallel on a number of tests with respect to ellipsis which has been shown to exist for objects (though not subjects) in Turkish (Şener & Takahashi 2009). This parallelism deserves a further inquiry.

- b. TALK-ABOUT CAR, 1-IX WANT {[CAR]}, YES
 'As for cars, I want one'

Further, if the NA is a result of ellipsis of a part of the TNP (and not its entirety), then the NA is not expected to exhibit the width of distribution associated with the overt TNP. In other words, the TNPE (and not NPE, which is partial ellipsis) account predicts that the distribution of the NA should replicate the overt bare singular paradigm. To that effect, as has been shown in a number of places in this chapter, the NA can be indefinite (most visibly evidenced by the availability of a sluice follow-up), and like its overt counterparts, it can control (as in (154)/(155b)), allow for a partitive/specific indefinite readings (as in (155)), and take wide scope with respect to negation (as in (156)-(157)):

- (154) PITY KID, MOTHER FORCE [PRO CLEAN HOUSE EVERY-DAY]
 'Poor kid. His mother forces him to clean {the/some} house(s) every day'

- (155) a. 1-IX KNOW ONE MAN, [MAN] SELF GROW-UP TEXAS
 'I know this one man, (he) himself grew up in Texas'⁷⁴

- b. *Context: A mother, two daughters and a friend pull into a used car dealership.
 One daughter says to the friend...*

HOPE b-SISTER b-PERSUADE-c c-MOTHER [PRO BUY {CAR}]
 'I hope my sister persuades mother to buy {some car / one of these}'

- (156) 1-IX FINISH FEED DOG. PAH [DOG] NOT BARK+++1
 'I have fed the dog. Finally, (he) is not barking incessantly
 i. Fido is not barking b/c no dogs are barking (entailment)

⁷⁴ Elsewhere (Koulidobrova *to appear*) I argue, following the insights from Lee et al. (1997) and appealing to Eckardt's (2002) approach to the German *selbst*, that in sentences like (155), SELF denotes an identity function (Moravcsik 1972) of the form in (i), which is adjoined to the null argument.

(i) ID: $D_e \rightarrow D_e$

The sentence, thus, yields a specific indefinite interpretation.

ii. Fido is not barking although other dogs might be barking (scope)

(157) *Context: The teacher told students to bring books for the test.*

- a. BOY (a-IX) RELIEVED, WHY? {~~BOY~~} FINISH BRING {~~BOOK~~}
'That boy is relieved because he brought {a book/books}'
 - i. 'there is a book, s.t. the boy brought to school'
 - ii. 'the boy brought some kind of book'
- b. BOY (b-IX_{arc}) WORRY, WHY? {~~BOY~~} NOT BRING {~~BOOK~~}, FORGET
'Those boys are worried because they did not bring {a book/books}, he forgot'
 - i. 'there is a particular book, s.t. the boys did not bring it'
 - ii. 'the boys did not bring any books'

In addition, the NA_{ASL} is expected to exhibit a range of interpretations (both definite and indefinite) with respect to the QVE effects. As shown below, it does.

(158) a. A. What does your mother usually like for Mother's Day?

B. Ø TEND LOVE FLOWER IX⁷⁵

'She tends to love flowers, she does'

→ The only reading: 'In most situations, my mother likes flowers'; QVE not available

b. A. What does a person who is a mother usually like for Mother's Day?

B. Ø TEND LOVE FLOWER

'{A mother / mothers} tend(s) to love flowers'

i. A mother usually loves flowers

ii. Most mothers usually love flowers

→ 'Most mothers love flowers' = QVE on mothers; QVE available

In other words, the NA can refer to/'replace' a definite or indefinite (singular) individual; in addition, for each of (154)-(157), a plural reading of the NA is possible, as long as the NP in the antecedent is interpreted as plural or the context allows it (as in (154) and (158)). Thus, it stands to reason that the NA in the cases like (154)-(157) is

⁷⁵ In ASL, subjects are never postverbal; the final pronoun is the Subject Pronoun Copy (SPC), the influential analysis of which as an emphatic element is due to Padden 1988[1983])

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consistent with being viewed as ellipsis of the bare singular NP which serves as an argument of the verb (i.e. TNP). Because the antecedent NP can be interpreted as either definite or indefinite, generic or individual, singular or plural, so can the NA.

Additionally, it has been argued in the literature (Bošković 2008, Fukui 1986, Despić 2010, Runic 2011, i.a.) that in languages lacking overt articles, pronouns are Ns (and not Ds, as they are commonly assumed to be in a language like English). That is, they are, basically, bare NPs. Following this line of reasoning then, we expect that TNPE as stated above can target pronouns as well.⁷⁶ And, as (159) demonstrates, this too is the case:

(159) *Context: passing by and pointing to the door to Mary’s room...*

KNOW a-IX THINK WHICH COLLEGE WHICH. PAH a-IX DECIDE. [~~a-IX~~]
WANT PRO TRY HARVARD]. IF [~~a-IX~~] CAN’T, [~~a-IX~~] COME-1, UCONN
‘You know she has been thinking about which college she wants to go to? She has
finally decided. She wants to try Harvard. If she can’t, she’ll come here, to UConn’

Let us now see what this analysis accounts for. First, if the NA arises via TNPE, it is not a (definite) pronoun (*pro*) and, thus, is expected to yield readings other than the definite one. By the same token, if the NA ‘replaces’ a definite, then a definite reading ought to be expected. As has been shown in numerous places in this chapter, this seems to be the case: the NA ‘replaces’ whatever is in the antecedent, including a definite (and, thus, the NA is not *pro*_{indef}). Recall (cf. (148) vs. (151)) also that it is at least initially

⁷⁶ A potential objection might arise here: if nouns are of type <et>, and pronouns are nouns, then we might expect pronouns to be of type <et> as well. Therefore, a question arises why pronouns are always definite. However, nouns in languages without articles type-shift between <e> and <et> (Partee 1987, 1989; Chierchia 1998). Clearly something independent is needed to ensure that pronouns have an <e> interpretation (see Despić 2011 for one such proposal for Serbo-Croatian and Boskovic & Hsieh 2012 for Chinese). I leave this issue for future research, however, since it entails a further study of the pronominal system in ASL, which has recently spawned a new debate in the literature (cf. Schlenker 2011).

plausible to allow quantifiers in ASL not to be in D^0 , which means they would not head a projection in which the NP is a complement). Thus, on the assumption that a language lacking the definite article does not project a DP, NPE is expected to take the following form: when the NP elides, it leaves nothing behind. The aforementioned has been independently argued by Tomioka (2003). Consider English NPE (a partial TNPE, using the terminology adopted in this chapter):

- (160) Mary remembered {her/three/all} questions; Peter forgot {his/five/all}
[NP questions]

The quantificational expressions *his*, and *five* are 'survivors' of NPE. However, as (161) shows, this is not the case in ASL:

- (161) a. A. PETER FINISH ASK_{agreeing} POSS [NP QUESTION]
'Peter_i asked his_i questions'
- B.* JEFF_i ANSWER_{agreeing} POSS [NP QUESTION]
'Jeff answered his _____'
- B'. JEFF_i ANSWER_{agreeing} [POSS [NP QUESTION]]
'Jeff answered (his questions)'
- b. A. PETER_i FINISH FORGET_{plain} MANY [NP QUESTION]
'Peter forgot many questions'
- B. *JEFF_i REMEMBER_{plain} FEW [NP QUESTION]
'Jeff remembered (a) few _____'
- B'. JEFF_i REMEMBER_{plain} [FEW [NP QUESTION]]
'Jeff remembered ((a) few questions)'

In this respect, other adjectives behave on a par⁷⁷:

⁷⁷ It should be pointed out that some adjectives (e.g. color) allow stranding:

(162) A. Let's split the class. Which students do you want?

B. *WANT SMART [STUDENT]

B'. WANT [SMART [STUDENT]]
'I want the smart ones'

In other words, either the entire TNP must elide in the (B) sentences, or none of it: FEW, like POSS in (161) and SMART in (162), cannot be stranded in this configuration.⁷⁸ This state of affairs is predicted if what is elided is an argument NP with an adjective/quantifier adjoined to it.

To summarize the findings thus far: the data illustrate that NPE targets the entire nominal argument, i.e. the NPE is a case of AE; this can only be the case in a language without the definite article, where an NP is the whole argument, i.e. a TNP. Adjectives

-
- (i) WANT BLUE
'I want blue/the blue one'

ASL is not alone here: a number of languages (including French and English) allow such stranding of color adjectives. The question, however, is how productive the phenomenon is. In this, ASL parallels French and English—outside of color (and, perhaps, size) adjectives, such stranding is impossible.

⁷⁸ One might wonder whether it is the case that quantificational elements generally cannot be stranded. This is not so:

- (ii) RED APPLE, 1-IX WANT THREE/FEW _____
'I want three/a few red apples' (adpt. Boster 1996)

However, as Boster argues, cases like (ii) result from movement of [RED APPLE], and the interpretation of the QP in these 'stranding' (Boster 1996) cases is exclusively partitive, akin to the English counterpart in (iii a) and not (iii b):

- (iii) a. Of the red apples, I want three/few
b. I want three/few red apples

That is, the object of desire in (ii) is a subset of the set of red apples, while in (iii), the NP is best interpreted as an intersection of things that are red and things that are apples.

A plausible way of paraphrasing the intuition is that in (ii) and (iii a), the quantifier is predicative, resulting in a non-exhaustive reading.

and quantifiers have been argued to be adjoined to the NP. The account now predicts the following: in the ellipsis site, a reading should be available that 'disregards' the adjoined material entirely. That is, following the line of reasoning articulated above, if TNPE targets a bare singular NP_{<et>}, then neither the adjective nor the quantifier has to be a part of the material in the ellipsis site, and in (154)-(159) above, Ø is a phonologically null version of KID, MAN, CAR, DOG, BOOK, BOY, [a-IX], and MOTHER respectively.

This option suddenly allows some other possessor/number in (163B) to be potentially possible, i.e. that Peter can like/remember five, a few, his own, or other people's students/questions. By the same token, in (164B), Ø is an elided version of [FOOTBALL PLAYER]⁷⁹; thus, one expects a possibility in the interpretation that either five, a few, B's own, or A's students have failed B's class. This prediction is supported empirically: other readings do exist.⁸⁰

- (163) a. A. a-PETER LIKE_{plain} a-POSS STUDENT
'Peter likes his students'
- B. b-JEFF HATE_{plain} {STUDENT}
'Jeff hates {Peter's/Jeff's/some other person's} students'
- b. A. PETER FINISH REMEMBER_{plain} POSS QUESTION
'Peter remembered his question'
- B. JEFF FORGET_{plain} {QUESTION}
'Jeff forgot {Peter's/Jeff's/some other person's} questions'
- c. A. a-MARY FEEL_{plain} COMMITTEE WILL ACCEPT_{plain} 1-POSS PROPOSAL
'Mary thinks: "The committee will accept my proposal"'
- B. b-PETER FEELS_{plain} NO REJECT_{plain} {PROPOSAL}

⁷⁹ I assume here that [FOOTBALL PLAYER] is a compound.

⁸⁰ But strictly speaking, only the N is part of the sentence is elided under identity with the N in (163A), i.e. (163B), e.g. Since the possessor is not specified in (163B), interpretational options are available. Pragmatics, i.e. the context, will obviously be relevant here.

‘Peter thinks (the committee) will reject {Mary’s/Peter’s/some other person’s} proposal’

- d. A. CHRISTMAS CARD ANDREW a-IX a-SEND_{agreeing} {CARD}
 MAIL a-SEND_{agreeing}+++ ALL neu-POSS a-FRIEND
 ‘Christmas card, Andrew sent it by mail to all his friends’
- B. LAURA b-EMAIL_{agreeing}+++ {CARD}
 ‘Laura e-mailed it to {Andrew’s/Laura’s/some other person’s} friends’

- e. A. a-JOHN TEND_{plain}-a ASK_{agreeing}+++ neu-POSS TEACHER
 ‘John is always asking his teacher questions’
- B. b-MARY b-TEND_{plain} ANSWER_{agreeing}+++ {TEACHER}
 ‘Mary is always answering {John’s/Mary’s/some other person’s} teacher’

f. *Context: In preparation for the test, all students are required to create potential test questions with answers as well as be prepared to answer other students’ questions.*

A. a-JEFF a-ASK_{agreeing} a-POSS TEACHER (a-POSS) QUESTION
 ‘Jeff asks his teacher his questions’

B. b-BOB b-ANSWER_{agreeing} {QUESTION}
 ‘Bob answers {Jeff’s/ Bob’s/some other person’s} questions’

(164) a. A. FIVE FOOTBALL PLAYER PASS MY CLASS
 ‘Five football players passed my class’

B. {FOOTBALL PLAYER} FAIL MY CLASS
 ‘{The same 5/different 5/some other number of} football players failed my class’

b. A. MY CLASS, THREE STUDENT JOIN
 ‘My class, three students joined’

B. MY CLASS, {STUDENT} DROP
 ‘{The same 3/different 3/some other number of} students have dropped my class’

c. A. SIX KID STOP MY HOUSE YESTERDAY
 ‘Six kids stopped at my house yesterday’

B. LUCKY IX-2, {KID} STAY+++ MY HOUSE
 ‘Lucky you. {The same 6/different 6/some other number of} kids stayed at my house for a while’

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As confirmation, the paradigm in (163)-(164) extends to other quantifiers:

- (165) a. A. ALL FOOTBALL PLAYER PASS MY CLASS
 ‘All football players passed my class’
 B. ~~{FOOTBALL PLAYER}~~ FAIL MY
 ‘{All/?some} football players enrolled in B’s (but not in A’s) class failed it’
- b. A. MY CLASS, FEW STUDENT JOIN
 ‘My class, (a) few students joined’
 B. MY CLASS, ~~{STUDENT}~~ DROP
 ‘{A few/all/many} students enrolled in B’s (but not in A’s) class have dropped it’
- c. A. MOST KID STOP MY HOUSE YESTERDAY
 ‘Most kids stopped at my house yesterday;
 B. LUCKY IX-2, ~~{KID}~~ STAY+++ MY HOUSE
 ‘Lucky you. {Most/all/??few} kids who stopped by B’s (but not A’s) house stayed there for a while’

According to my informants, the readings in (165a-cB) are all possible, if supported by an appropriate context, but some remain preferred over others. In particular, *all* is preferred across examples. This is largely due to the fact that the most natural reading of the NA in the (B) sentences is the ‘in general’ one. That is, the NA in (163)-(165) induces a reading according to which students/questions/proposals/friends/teachers/football-players/kids *in general* answer/remember/reject/fail/drop/stay. This state of affairs remains consistent with the view of the NA as a bare TNP_{<et>}: assuming standard semantics of this effect (cf. Diesing 1992), the [NP ~~STUDENT/QUESTION/PROPOSAL/FRIEND/TEACHER/FOOTBALL-PLAYER/KID~~] yields an LF of the form $\exists x. x$ is a student/question/proposal/friend/teacher/football-player/kid, which is further bound by Gen_x. Irrespective of the approaches to ellipsis, the readings obtained under

ellipsis will not be the true quantificational/sloppy readings. If students/questions/proposals/friends/teachers/football-players/kids *in general* answer/remember/reject/fail/drop/stay, then this alone makes both strict and sloppy readings true. The same applies to the availability of reference to the red car in (166):

(166) *Context: A and B each own a green and a red car. Today is a car-washing day.*

A. PAH, (MY) GREEN CAR CLEAN = (64)
 'Finally, (my) green car is clean'

B. LUCKY 2-IX
 'Lucky you'

A. ^{wh}WHY
 'Why?'

B. (FOR-FOR) {~~CAR~~} STILL DIRTY a-IX (*a* is deictic to the red car)
 '(B/c) _____ is still dirty, that one is'

B'. (FOR-FOR) {~~CAR~~} STILL DIRTY, ^{y/n?}SEE-IX-a
 '(B/c) _____ is still dirty, see that?'

This is a natural outcome of TNP_{<et>}E—ellipsis of an NP that can act as either definite or indefinite semantically and is the whole argument of the verb.

5.5 Ellipsis of TNP or of NP_{<et>}

The previous section has shown that a number of puzzling data can be accounted for if the NA_{ASL} is a case of argument ellipsis of a bare singular TNP. Following standard assumptions in the literature, I treat TNPs in a language without a definite article as elements of type <et> (cf. Chierchia 1998,⁸¹ i.a.). This implies that in order to 'become'

⁸¹ Here, I am assuming Chierchia's treatment of Russian.

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definites, such elements type-shift from a predicate to an individual (as in (167b)) and ‘become’ indefinites when existentially closed (as in (167a)).

- (167) a. *Existential Closure* (cf. Heim 1982; Diesing 1992): \exists -closure
 For any $P \in D_{\langle et \rangle}$
 \exists -closure (P) = $\exists x. P(x)$
 b. *Type-shifting of a predicate to an individual* (cf. Partee 1987): *Iota*
 For any $x \in D_{\langle e \rangle}, P \in D_{\langle et \rangle}$
 Iota (P) = $\iota x.P(x)$ (= the unique x such that $P(x)$) (ctd. in Tomioka 2003)

We have now arrived at a fork in the road: on the one hand, it is plausible that the ellipsis under consideration can be defined semantically—i.e. what is in the ellipsis site might be an element of type $\langle et \rangle$. On the other hand, the alternative is that the defining property of this ellipsis is morpho-syntactic in nature: i.e. only *bare singular* NPs (i.e. non-branching, see below) can be elided. This section serves as a confirmation of the latter approach.

Consider the ‘semantic account’: the elided material is simply an element of type $\langle et \rangle$. Given that, as discussed above, adjectives/possessives are adjoined and that their adjunction does not change the semantic type of the NP, we expect a possessive/adjective modified TNP to be $[NP_{\langle et \rangle} \text{ Adj/Poss } [NP_{\langle et \rangle} \text{ NP}]]$. This view offers two predictions. First, we expect a possibility of possessive/adjective stranding—an adjoined element surviving the ellipsis of the $NP_{\langle et \rangle}$. As illustrated in (161)-(162), such stranding is impossible.

Second, such view implies that two readings should be possible in ellipsis cases without a stranded Adj/Poss: one with the adjoined element, since the element is still $\langle et \rangle$ (i.e. $[NP_{\langle et \rangle} [NP_{\langle et \rangle}]]$) and the other without it. In other words, we expect both the sloppy-/quantificational-like reading of the NA (as in section 4.4) as well as the true one

(as argued to exist in Japanese, cf. section 3.3.2), with the interpretation contributed by the adjoined material. However, (168)-(169) demonstrate the former, but not the latter, to be the case: the second conjunct does not necessitate that Mary read three books in (168) or that Jeff has washed his green car in (169).⁸²

- (168) a. *Context: Mary and John went to the library. John read books, Mary read magazines*

JOHN FINISH READ THREE BOOK, MARY NOT READ {Ø/BOOK}

'John has read three books; Mary did not read ____'

≠ Mary did not read the three books

= Mary did not read any books

- b. *Context: Mary and John came back from the library. Unlike Mary, John hardly ever reads.*

^{neg} BELIEVE. ^{neg} JOHN READ THREE BOOK. ^t MARY YES FINISH READ {Ø/BOOK} ^{head-nod}

'I don't believe it. John did not read three books, but Mary, yes, she read ____'

= Mary did not read books {three/some other number} of books

- (169) a. *Context: John and Jeff each own 2 cars and 1 bike each*

JOHN FINISH WASH POSS CAR FAST, JEFF NOT WASH {Ø/CAR}

'John has washed his car fast, but Jeff has not washed ____'

≠ Jeff has not washed John's car (Ø=*pro*)

≠ Jeff has not washed his own car fast (Ø=V-VPE)

≠ Jeff washed some car, but just not his own (Ø=[POSS{CAR}])

= no car has been washed by Jeff, although he may have washed a bike

(Ø=[CAR])

- b. *Context: A and B each own a green and a red car. Today is a car-washing day*

A. JOHN FINISH WASH GREEN CAR

'John washed (his) green car'

B. ^t JEFF NOT WASH {Ø/CAR} ^{neg} NOT-YET

'Jeff hasn't washed ____ yet'

≠ Jeff has not washed John's car (Ø=*pro*)

⁸² Although the reading in (168a) and (169a) can be obtained via entailment (i.e. if Mary/Jeff did not read/washed *any* books/cars, then they also did not *three/green* books/cars), entailment does not explain the facts in (168b)-(169b); see the discussion in section 3.2.3.

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≠ Jeff has not washed the green car, although he could have washed the
red one (\emptyset =[GREEN-CAR])
= no car has been washed by Jeff (\emptyset =[CAR])

Thus, the data speak against a purely 'semantic account' (cf. Tomioka 2003), which will allow ellipsis of an<et> element.

Consider, in turn, the 'syntactic account.' I have shown that NPs in ASL are necessarily bare singular, and that their null counterparts behave accordingly. Borer (2005) argues that such elements are non-branching; they are minimal elements/heads/ X^0 . Yet, the entire argument of the verb must elide (and not its part), leaving no survivors (such as adjectives or quantifiers); thus, the elided element is also maximal/a phrase/ X^{\max} . Being non-branching, bare singular NPs fit these requirements. In the bare phrase structure systems (Chomsky 1995), such elements have a special status in that these are ambiguous between being heads and phrases (see also Bošković 2002). I suggest that this is the defining property of the NA_{ASL} . In a sense, the NA_{ASL} is a sort of gapping—it elides a head, but this head is also the whole argument phrase. By being non-branching, the element in question is both a head and a phrase. On this view, then, \emptyset in (168)-(169) is the head/phrase [BOOK] and [CAR], respectively.

Recall also that ellipsis of arguments other than bare singulars is impossible in ASL. That is, neither PP, AP, or CP arguments can be elided on a par with NP arguments. All of these alternatives, however, are branching; thus, if only non-branching elements undergo ellipsis, PP, AP, and CP arguments are ineligible. The non-branching requirement then not only explains why bare singular NPs, but not other NPs can serve as 'elided arguments' (i.e. AE) but also why arguments of other categories cannot do that. In other words, this restriction seems to be general—not TNP-specific. Moreover, although

the entire TNP (with adjoined material) serves as an antecedent for ellipsis, only the non-branching part of it (i.e. the bare singular itself) is interpreted in the ellipsis site, which accounts for the data discussed above. Thus, I conclude that NA_{ASL} is a result of ellipsis of a non-branching TNP which is both a head and a phrase.

6. Speculations

There is, of course, a question, lurking between the lines: how does a language distinguish between the potentially derivable readings of the NA? That is, how does the language—and its users—make reference to the intended reading of the elided TNP. Below, I show that the answer to this question implies a revision of the theory of morphological agreement in ASL. Note that this section is not meant to provide definitive answers to the questions above but, rather, suggest a path to pursue.

The view of the NA_{ASL} , as well as its overt counterpart, outlined in this chapter carries consequences for some other phenomena in the language. For instance, the account I have advocated thus far predicts that the NA is an elided version of a bare NP which, in turn, can type-shift between a predicate and an individual depending on the context (see (167)). Therefore, one might say that context plays a non-trivial role.

Additionally, as suggested earlier, context can provide a suitable antecedent for ellipsis. For instance, if uttered out of the blue, (170) is ungrammatical:

(170) *Out of the blue...*

* PLEASE LOOK-FOR $\{\{SOMETHING\}/\{IX\}\}$
'Please, look for {something/it}'

However, if an appropriate context is available to allow the “reconstruction by the hearer of what must be meant by the speaker” (Elbourne 2005), then NPE becomes available⁸³:

- (171) *Context: Jane walks into the room, clearly searching for something. Peter leans over to Mary and says...*

a-IX LOOK-FOR [SOMETHING] ^{wh}KNOW WHAT
'She is looking for something. Do you know what?'

Another way context might, informally speaking, disambiguate matters is via introduction of the overt locus. A number of independent issues arise here, but what follows seems a plausible path to pursue.

Lillo-Martin & Klima (1990) argue that locus is an overt manifestation of the referential index in space. Schlenker (2010) further develops this idea, showing that overt locus in ASL and LSF (French Sign Language) serves as a morphological realization of the semantic index for the purposes of binding and coreference. This applies to various types of anaphora (Schlenker 2011); cases of person and temporal anaphora are illustrated below.

- (172) a. IX-1 KNOW a-BUSH IX-1 KNOW b- OBAMA. IX-b SMART BUT IX-a
NOT SMART
'I know Bush and I know Obama. He [=Obama] is smart but he [=Bush]
is not smart.'
- b. TOMORROW WILL a-RAIN DAY-AFTER-TOMORROW WILL b-SNOW
IX-b IX-1 HAPPY IX-a IX-1 NOT HAPPY.
'Tomorrow it will rain and the day after tomorrow it will snow. Then [= the day
after tomorrow] I will be happy but then [= tomorrow] I won't be happy.'

⁸³ Employing Elbourne's (2008) situation semantics, Johnson (2009) argues that antecedent powers of the context are limited to situations in the technical sense (cf. Kratzer 1989). I leave the issue for future research.

In other words, we might say that overt locus acts as a pronoun.

In the recent work, Lillo-Martin & Meier (2011) have advocated the following view of agreement in ASL:

- (173) a. An agreeing verb copies the index of its argument, including values for person (first/non-first) and number.
b. Co-indexing is interpreted as coreference at the meaning level, and is expressed by directing the sign (pronoun or verb) to the same locus.

At face-value, (173) makes no reference to agreement morphology *per se*; rather, it makes a statement about the pronominal property of agreeing verbs. The aforementioned is corroborated by the data from Schlenker & Mathur (2011): the 'agreement morpheme' acts as a resumptive in Weak Crossover (WC) configurations—a configuration where a *wh*-element moves across the pronoun it is co-indexed with, inducing ungrammaticality. The aforementioned is true for many languages, English and ASL included:

- (174) a. *Who_i do her_i parents love *t_i* unconditionally?
b. *?WHO-a POSS-a PARENT LOVE NO-MATTER WHAT?
'Which person *x* is such that *x*'s parents love *x* unconditionally?'
(adpd. Schlenker 2011)

It has been known for quite some time that in many languages, WC effects are obviated when a resumptive pronoun is present in the position of the variable bound by a *wh*-phrase (see an overview in McCloskey 2006). Thus, the dramatic improvement of (170b) once the 'morpheme' (i.e. the overt locus *a*) encoding the relevant argument is added to

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the verb suggests that agreeing verbs pattern like constructions with resumptive pronouns (Lillo-Martin 1991, Schlenker 2011).

- (175) (?)WHO-a POSS-a PARENT LOVE-a NO-MATTER WHAT?
 ‘Which person *x* is such that *x*’s parents love *x* unconditionally?’
 (adpd. Schlenker 2011)

In this way, ASL patterns with many spoken languages.

With the aforementioned in mind, we expect that the presence of an overt locus on the verb implies the presence of an overt pronoun. In other words, the presence of the overt locus signals the presence of the morpho-phonological realization of an index (e.g. a cliticized pronoun (potentially) doubling the argument of the verb). Bypassing many potential complications, and for exposition purposes only, I will label this pronoun a ‘pronominal affix’ (*PrnAff*), which, following a number of criteria outlined in Corbett (2003b) and (2006), can be distinguished from the ‘morphological agreement morpheme’ per se.⁸⁴ This implies that (176a) is best viewed as (176b):

- (176) a. a-PETER LOVE-a a-POSS STUDENT
 ‘Peter likes his students’
 b. a-PETER LOVE-*PrnAff*.a a-POSS STUDENT

Following this line of reasoning, the interaction in (177) might be viewed as follows:

⁸⁴ This view of the agreement, in conjunction with the fact that an overt lexical NP is possible concurrently with the pronominal nature of the morpheme opens the door for the pronominal affix- or cliticization-style analysis of agreement in ASL (as, originally, in Kegl 1986, Koulidobrova 2010, Nevins 2011).

- (177) A. a-PETER LIKE a-POSS STUDENT ≈ (163)
 'Peter likes his students'
- B. b-JEFF HATE-*PrnAff*.a STUDENT
 'Jeff hates Peter's students'
- B'. b-JEFF HATE-*PrnAff*.b STUDENT
 'Jeff hates Jeff's students'

Recall also that the TNP can be elided (via TNPE); the interpretation of POSS is 'ignored' in the ellipsis site. This leaves (177) as (178).

- (178) A. a-PETER LIKE a-POSS STUDENT
- B. b-JEFF HATE-*PrnAff*.a {STUDENT}
 'Jeff hates {'Peter's'/*Jeff's/*some other person's} students'
- B'. b-JEFF HATE-*PrnAff*.b {STUDENT}
 'Jeff hates {*Peter's/'Jeff's/*some other person's} students'

In other words, the presence of the *PrnAff* indicates reference of the elided NP: [*PrnAff*.a] refers to PETER, and [*PrnAff*.b] refers to JEFF.

The presence of the overt locus can also be implicated in the unacceptability of the 'AE' sentences involving a reflexive. In (96), repeated below as (179), the anaphor is uttered with two hands; this is a sign commonly glossed as SELFG and has been argued to be an instantiation of an indexical classifier (Fischer & Otsugi 2000). As Fischer & Gong (2010) point out, these indexical classifiers have been argued to take the place of the referential locus in both subject and object agreement in various sign languages, ASL included. In other words, the function of the indexical classifier mirrors the function of an overt locus—a morpho-phonological realization of an index, i.e. a pronoun. What this

means for us is the following: in a Condition A configuration, the element serving as the variable (SEFG) is bound by the NP it is co-indexed with and is interpreted accordingly. Therefore, the locus of the bound variable becomes 'associated' with the NP with the same index. That is, since the locus has been assigned (and, thus, the referential index of the anaphoric expression is 'frozen'), the interpretation of the element in the relevant part of the signing space is limited to the interpretation of the index; i.e. PETER in (179a-b) and [PETER AND SUSAN] in (179c) and [ALL PEOPLE a-THAT FAMILY a-IX_{arc}] in (179d).

- (179) a. PETER_i, PAH, LOVE $\left[\begin{smallmatrix} \text{SELF} \\ \text{neu-CL}_i \end{smallmatrix} \right]$, JEFF_j WILL LOVE $\left[\begin{smallmatrix} \text{SELF} \\ \text{neu-CL}_i \end{smallmatrix} \right]$
TOMORROW, SURE
TOMORROW, SURE
'Peter_i, finally, loves himself_i; Jeff_j will love him/*himself_j tomorrow, I am sure'
- b. PETER_i LOVE $\left[\begin{smallmatrix} \text{SELF} \\ \text{neu-CL}_i \end{smallmatrix} \right]$, JEFF_j HATE $\left[\begin{smallmatrix} \text{SELF} \\ \text{neu-CL}_i \end{smallmatrix} \right]$ STILL
'Peter loves himself, but Jeff still hates himself'
- c. [PETER AND SUSAN]_i LOVE a-EACH-OTHER_i, $\overline{[\text{JEFF AND JILL}]_j}$
 $\overline{\text{NOT LOVE } *[\text{a-EACH-OTHER}]_i}$ ^{neg} NO
'Peter and Susan_i love each other_i, but Jeff and Jill_j do not love them/*each other_j'
- d. ALL PEOPLE a-THAT FAMILY a-IX_{arc} LOVE a-EACH-OTHER_i,
PEOPLE b-IX_{arc} HATE $*[\text{a-EACH-OTHER}]_i$
'Everybody in this family_i loves each other_i, but [those people there]_j hate them/*each other_j'

In other words, it is not the case that the anaphor (SELF or EACH OTHER) in ASL can be found in the ellipsis site by itself. Unlike what has been argued for in Japanese and Mandarin (Oku 1998, Takahashi 2010), interpretational index must accompany the anaphor in ASL; therefore ellipsis of the anaphor in the second conjunct of (179a-d)

creates a configuration in which the anaphor is non-locally bound. In other words, ellipsis in (179a-d) yields a Condition A violation. The data above serve as evidence for other types of inquiry. For instance, if the analysis advocated here is on the right track, it reinforces the view of anaphora in ASL as local (and not long-distance), as I have argued elsewhere (Koulidobrova 2009, Koulidobrova *to appear*).

This inquiry began with the puzzle in (2)-(3) vs. (4)-(5): the NA of the plain verb was allowed in a configuration where a pronoun is expected, but only if the locus had not been previously assigned. I have spilled some ink arguing that \emptyset in such cases is not pronominal in nature (rather, it results from TNPE) but left open a possibility that in the cases involving manual agreement, the NA is, in fact, something like *pro*_{Agr}. An argument based on the Occam's Razor, however, suggests that a unified account of the NA_{ASL} makes for a better theory when compared to a theory with more than one empty element. Moreover, considering the fact that *with* agreement (either in the sense of Lillo-Martin 1986, 1991) or Bahan (1996), the sloppy reading—a major player in the argumentation in this chapter—does not disappear (see the translations in (178)), the data reported in this chapter point to the direction of a revised notion of 'agreement.' That is 'agreement' in ASL may not parallel 'agreement' in Spanish/Italian after all.

Instead, I have suggested that agreement in ASL should be viewed as something else—perhaps pronominal in nature. However, nothing needs to change with respect to the possibility of ellipsis. Thus, (2)-(3) and (4)-(5), following the suggestion above, may be viewed as (180)-(181) and (182)-(183), respectively:

- (180) a. a-EXERCISE CLASS, 1-IX HOPE b-SISTER SUCCEED = (2)
 b-PERSUADE-c MOTHER TAKE-UP-*PrnAff*.a [~~EXERCISE CLASS~~]
 'The exercise class, I hope my sister manages to persuade my mother to

take (-it)’

- b. ^t
a-THAT a-COOKIE, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c
c-MOTHER EAT_{plain} *PrnAff*.a [~~COOKIE~~]
‘That cookie, I hope my sister manages to persuade my mother to eat it.’
- (181) a. ^t
a-MOTHER, 1-IX DON'T-KNOW WHAT [~~MOTHER~~] *PrnAff*.a-SEND-1
‘Mother_i, I don't know what (she_i-) sent (-me).’ = (3)
- b. ^t
a-MOTHER, 1-IX DON'T-KNOW WHAT *PrnAff*.a [~~MOTHER~~] LIKE
‘Mother_i, I don't know what she_i likes
- (182) a. ^t
EXERCISE CLASS, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c =(4)
c-MOTHER TAKE-UP-*PrnAff*.a [~~EXERCISE CLASS~~]
‘The exercise class, I hope my sister manages to persuade my mother to take(-it)’
- b. ^t
THAT COOKIE, 1-IX HOPE b-SISTER SUCCEED b-PERSUADE-c
c-MOTHER EAT [~~COOKIE~~]
‘That cookie, I hope my sister manages to persuade my mother to eat it’
- (183) a. ^t
MOTHER, 1-IX DON'T-KNOW WHAT [~~MOTHER~~] *PrnAff*.a-SEND-1 =(5)
‘Mother_i, I don't know what (she_i-) sent (-me).’
- b. ^t
MOTHER, 1-IX DON'T-KNOW WHAT [~~MOTHER~~] LIKE
‘Mother_i, I don't know what she_i likes

The paradigm in (180)-(184) resembles pronominal doubling and, thus, promises to shed further light on the nature of the nominal domain: among the generalizations in (105) is (105e): “only languages without definite articles may allow clitic doubling with definiteness effects” (Bošković 2010). At first blush, it seems that ASL may serve as an amendment to the generalization above, as the data presented in this dissertation behave differently with vs. without a locus/semantic index. I leave this issue for future research.⁸⁵

⁸⁵ With respect to the generalization in (105e) stands, the ‘true clitic doubling’ is characterized by the obligatory definiteness/specificity effects the fact that the doubled NP remains in situ. For instance, Runic (2011) has shown that various languages without definite articles can exhibit a phenomenon resembling such clitic doubling but without the definiteness/specificity effects. While the definiteness/specificity

Let me then summarize. It seems that the puzzling data in (4)-(5)/(7)-(9) have now been accounted for (while a suggestion has been made for a focused pursuit of (2)-(3)): the NA_{ASL} is a result of ellipsis of the TNP argument, which happens to be a bare singular. The road to the larger conclusions about the nature of the TNP forks here. On the one hand, I have demonstrated in numerous places throughout the chapter that the NA_{ASL} can have definite, as well as indefinite reference. This is only possible in languages in which bare singulars can serve as full-fledged arguments—i.e. without the morphological exponent for the t -operator, a.k.a. the definite article; in other words, such ellipsis requires an NP-(and not a DP-)language (see also H.-T. J. Chen in prep).

I have also argued that TNPE is a subcase of general argument ellipsis. I have appealed to Saito (2007) account of argument ellipsis which relies on the lack of morphological agreement (in terms of uninterpretable ϕ -features of v' and T') as the chief reason for the existence of such ellipsis in languages. The account along these lines suggests that what is typically referred to as 'morphological agreement' in ASL is not that at all; rather, it resembles greatly pronominal arguments having cliticized/affixed to the verb. Yet, I have shown that here, ASL differs from Japanese; the strongest arguments against the general AE analysis of the NA_{ASL} was the unavailability of the interpretation of the adjoined elements in the ellipsis site and the impossibility of ellipsis of other types of arguments (e.g. PP, AP, and CP). I have argued that the data are best captured if ASL presents Japanese-style AE with an additional constraint: what must be elided is an element that is non-branching; that is, it is both a head and a phrase. Having

requirement appears to hold in ASL when agreement is present, the other characteristic of the 'true clitic doubling'—whether in such cases the NP remains in situ—deserves a closer examination, which I leave for future research. Braze (2004) offers the first step in this direction, as he argues that in 'agreeing' (i.e. our 'doubled') cases, object NPs obligatorily move.

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said that, if TNPE is a subcase of AE, then the 'morphological agreement' roots of AE (à la Saito 2007) will need to be re-examined. I leave the issue for future research.

7. Conclusion

This chapter began with an observation that the distribution, as well as the range of readings of the NA in ASL cannot be easily accounted by the standard accounts. These view the NA as either (i) an agreement-licensed *pro*_{Ag}, thus attributing to the ASL verbal domain the characteristics observed in languages like the Romance (Biberauer et al. 2010), or (ii) ambiguous between *pro*_{Ag} and a topic-bound variable typically found in languages without morphological agreement, e.g. East Asian languages (Huang 1984). I have additionally entertained other options ordinarily appealed to in the analyses of NA in Romance vs. East-Asian languages and have shown that they all fall short of handling the data.

Instead, I have shown that, taking into consideration additional properties of ASL, the account of NA as resulting from argument ellipsis in the absence of morphological agreement derives the facts. This ellipsis targets only non-branching elements; as a result, it can only target NPs. I have shown, additionally, that ellipsis targets the entire TNP and not its part, and that it is syntactic in nature. On the way to this conclusion, I have demonstrated that ASL is best viewed as a language lacking a definite article, which means that TNPs in ASL are NPs, not DPs. In a language without an analogue of *the*, NP-ellipsis is, in fact, full TNP-ellipsis and, initially, gives an appearance of ellipsis of elements of type <et>. I have, however, offered evidence against this appearance: I have provided evidence that this ellipsis is not semantic in nature—i.e. it is not the case that

any element of the relevant type (<et> here) is able to get elided). In such a case, the interpretation of the NP-adjoined constituents would have been expected in the ellipsis site. Instead, the data point to the conclusion that ellipsis targets full arguments that are both a head and a phrase. Therefore, I conclude that the account must be syntactic in nature: ellipsis of a non-branching NP where NP is a maximal projection (TNP).

The combination of these conclusions implies that NA_{ASL} is a result of NP-ellipsis as subcase of argument ellipsis in a language that lacks a definite article and morphological agreement in terms of uninterpretable ϕ -features on v° and T° . This argument ellipsis targets a non-branching element. The 'non-branching' requirement restricts AE to nominal elements and, thus, excludes other types of elided arguments, such as APs, PPs, and CPs, as well as adjuncts.

The data presented here render an account of overt locus on the verb as an agreement-licensing mechanism for *pro* suspect. On the other hand, the view according to which the overt locus is a pronoun (able to cliticize/affix to the verb and thus provide a definite reading, e.g.) may potentially account for the data. I leave this implication for future research.

Having thus argued that it is plausible to view ASL as a language with v° and T° whose presence results in argument ellipsis, I move to the predictions directly arising from **chapter 2**, where I claimed that effects of 'cross-linguistic transfer' between the languages of a bilingual are best captured as language synthesis, a.k.a. code-switching. The aforementioned amounts to saying that we expect ASL-English bilinguals to elide arguments in the manner advocated in this chapter (i.e. via TNPE) in their English if

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these v° or T° from ASL are *Selected* for the *Numeration* otherwise containing English

lexical items.

CHAPTER 4

Influence uninhibited: argument omission in the speech of ASL/English bilinguals

1. Introduction

This chapter examines linguistic patterns of ASL-English bilinguals focusing on argument omission: a phenomenon productive in ASL (see **chapter 3**) and also found (though constrained) in monolingual child English.

ASL-English bilinguals represent a group of learners typically referred to as *bimodal bilinguals*. The term makes reference to the fact that the two languages of these bilinguals rely on two different modalities (visual-manual vs. auditory-oral). Linguistic patterns of this population have been examined by various researchers over the past three decades (Todd 1971; Schiff & Ventry 1976, Sachs et al. 1981; Schiff-Myers 1988; Johnson et al. 1992; Seal & Hammet 1995; Messing 1999; Marshall et al. 2005; Chamberlain & Mayberry 2008; Kovelman et al. 2008; Kovelman et al. 2009; Bishop 2009; Jarque 2010). Recently, bimodal bilinguals have become a subject of increased interest, the chief focus of which is their bilingualism (rather than, e.g. problems surfacing in their spoken language, see Prinz & Prinz, 1981). Studies concur that this population can be characterized on a par with uni-modal bilinguals: for instance, children exhibit parallel lexical growth in sign and spoken modalities, produce “translation equivalents,” and are sensitive to the language of the interlocutor (cf. Petitto et al. 2001, Petito & Holowka 2002, Holowka et al. 2002, Petitto & Kovelman 2003, Brackenbury et a. 2006). In addition, in bimodal bilingualism, much as it is in unimodal bilingualism,

linguistic patterns of children are affected by the nature of the input (Caprici et al. 2002, Van Bogaerde & Baker 2005). Similarly, researchers have also noticed that both spoken and sign languages of this population often show what may be described as instances of 'incorporation of grammatical properties' from the other language. These effects have been recorded for at least five language pairs: ASL-English (cf. Todd 2009, Lillo-Martin et al. 2010), Brazilian Sign Language (Libras)-Brazilian Portuguese (Lillo-Martin et al. 2010, et seq.), Italian Sign Language (LIS)-Italian (Donati & Branchini 2009), the Sign Language of the Netherlands (NGT)-Dutch (Van Bogaerde & Baker 2005) and British Sign Language (BSL)-English (Morgan 2000).⁸⁶

However, none of the aforementioned studies (save Lillo-Martin et al. 2009, i.a.) discuss their findings in terms familiar from the spoken language bilingualism literature, e.g. as *syntactic cross-linguistic influence* in the sense of the Hulk and Müller (2000) model. The remainder of this chapter frames the questions (and, consequently, predictions) about bimodal acquisition precisely in those terms. In particular, the chapter focuses on a phenomenon well-documented in both monolingual and bilingual English acquisition—argument omission. I demonstrate that ASL-English bilinguals exhibit effects of 'transfer' of ASL in this domain.

In **chapter 2**, I offered an approach to bilingualism effects, typically attributed to '*cross-linguistic influence*,' along the lines of code-switching. In order to subsume instances typically excluded in the literature on intra-sentential code-switching, I labeled this approach *language-synthesis*. I assumed a *Minimalist* view of code-switching (e.g.

⁸⁶ In fact, grammatical structures surfacing in the speech of this population are so clearly at odds with the relevant spoken language and remain a part of the child's grammar for so long that some have suggested impairment (cf. Schiff & Ventry 1976, Sachs et al. 1981, Murphy & Slorach 1983).

MacSwan 2000), according to which intra-sentential switches between the languages of a bilingual result from the presence in the Numeration of elements from Language X (L_X) and Language Y (L_Y). The cornerstone of the framework is that successful feature-checking between such elements leads to licit derivations. For instance, the presence of a functional head that typically licenses argument ellipsis in L_A in the otherwise L_B clause may result in the licensing of null arguments in L_B . In this chapter, I test this possibility with a population who, I argue, offers a unique contribution to the study of bilingualism effects—ASL-English bilinguals.

In **chapter 3**, relying on Saito (2007), I argued that in ASL (L_X here), two functional heads are relevant for licensing of null arguments: v° and T° , both of which lack uninterpretable ϕ -features. The aforementioned suggests that if such v° or T° were to be *Selected* for an otherwise English (L_Y here) clause, argument ellipsis may be expected in the English of ASL-English bilinguals. In this, ASL-English bilinguals are expected to perform differently than monolingual English learners. In addition, since, as argued in **chapter 3**, the NA_{ASL} is crucially different from its counterpart in languages like Italian (i.e. it is not an agreement-licensed pro_{Agr}), ASL-English bilinguals may perform differently from bilinguals whose null argument language contains pro_{Agr} , e.g. Italian-English bilinguals. Following the line of the analysis advocated in **chapter 3**, because v° and T° in Italian (as in English) have uninterpretable ϕ -features, argument ellipsis is impossible; the null argument in Italian is a pronoun that happens to be silent (cf. Holmberg 2005). Thus, although cases of argument ellipsis and pro_{Agr} may overlap, bilingual children whose languages have one and not the other are not expected to pattern alike. In other words, ASL-English bilinguals should not be expected to behave as

Italian-English bilinguals with respect to argument omission. On the other hand, one expects ASL-English bilinguals to perform on a par with bilinguals learning a similar language combination. In **chapter 3**, I showed that the argument ellipsis analysis typically applied to Japanese is extendable to ASL (with an additional constraint). Then, we expect ASL-English bilinguals to pattern with Japanese-English bilinguals with respect to argument omission in English. If they do not, something else (i.e. additional) will need to be said about ASL-English bilinguals.

In this chapter, I demonstrate that the hypotheses informally outlined above are confirmed: ASL-English bilinguals perform differently from monolingual English learners (insofar as they allow external (subjects) and internal (objects) arguments of verbs to remain null) and from bilinguals whose null argument language contains *pro*_{Ag} (represented here by an Italian-English bilingual). I furthermore show that ASL-English bilinguals perform differently from bilinguals whose null argument language allows argument ellipsis, e.g. Japanese-English bilinguals. In search of a solution for this puzzle, I suggest the solution lies in a unique characteristic of ASL-English bilinguals—namely that they are able to produce two languages simultaneously. I will argue that because of this characteristic, instances of language-synthesis ordinarily hidden from view in unimodal bilingualism (speech-speech or sign-sign) rise to the surface in bimodal bilingualism (speech-sign). This line of reasoning leads to two conclusions. First is that *syntactic transfer/cross-linguistic influence*—an elusive term discussed at length in **chapter 2**—can be captured via the mechanism of *language-synthesis* (a.k.a.

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Minimalism-friendly code-switching).⁸⁷ Second is that examination of bimodal bilingual language patterns offers a more comprehensive picture of potential loci for such *influence* to be observed: the unique characteristic of bimodal bilinguals—i.e. the lack of forced inhibition of one of the languages at the expense of the other—brings to light patterns otherwise obstructed from view due to other bilingualism effects.

2. Previous research: Argument omission in English

This chapter is devoted to argument omission in spontaneous child English. The following subsections describe the NA phenomenon in spontaneous production of monolingual and bilingual comparison cases.

2.1 Monolinguals

English falls into the class of languages typically forcing arguments to be overt (see the discussion below). Yet, it is a matter of basic observation that young English-speaking children produce more null subjects than it seems they should. The study of argument omission in monolingual English learners boasts a long history and has served as vehicle for a variety of proposals for the general view of early grammar. Many of the by now standard views on various aspects of child language take root in the examination of argument omission/suppliance patterns of young English-speaking children. For instance, argument omission/suppliance rates have served as evidence for discoveries about (i) processing difficulties in linguistic performance (e.g. Bloom 1990, Boster

⁸⁷ Note that much like what is found in the unimodal bilingualism literature, a number of works have examined overt code-switching in the languages of bimodal bilinguals (Berent 2004, Quinn 2004, i.a.). Although overt code-switching is subsumed by under the language synthesis, I set these data aside and focus on the cases of 'transfer.'

1997), (ii) metrical effects in child language (e.g. Gerken 1991), (iii) parameter triggering mechanisms (cf. Borer & Wexler 1987, Roberts & Holmberg 2010, i.a.), (iv) the amount of structure initially available to the child and how much of it 'comes on-line maturationally' (Borer & Wexler 1992, Hyams 1992, i.a.); (v) the role of information structure in children's language (Allen 2000, Guerriero et al. 2001, Hughes & Allen 2008, i.a.), and many others. A number of methodologies have been employed—from spontaneous production (Bloom 1990, Valian 1991, Hyams and Wexler 1993, i.a.) to various types of experimental manipulation in the form of truth-value judgment tasks, imitation, picture choice, narrative, and so forth (Gerken 1991, Valian 1996, Orfitelli and Hyams 2007, Orfitelli 2008, i.a.). In what follows, I review two influential hypotheses related to the rates of argument omission/suppliance in child English; the first one informally marks the beginning of focused inquiry into the phenomenon, while the second one is recent and, arguably, subsumes much of the data that have surfaced since the dawn of the inquiry.

Hyams (1983, 1986) put forth a hypothesis that resulted in much subsequent research: that child language—irrespective of the status of null arguments—betrays characteristics of the Italian-style *pro*-drop (see **chapter 3** section 3.2.1). That is, she argued, the child learning English, Spanish, Danish, French, Inuktitut, Chinese or ASL may initially treat Agr as pronominal (as in Rizzi 1982) and, thus, allows null arguments in the relevant position. This view has become known as the 'NS-parameter-setting account.' As the child learns the relevant aspects of the grammar (i.e. 'rich' agreement, modals and expletives) which serve as triggers, the parameter is re-set. Borer & Wexler (1987) further suggest that since grammar appears to undergo maturation, so do

parameters. In other words, the parameter will not mature until, roughly, the age of three; up until that point a) triggers are irrelevant, and b) English-learning children are, in effect, producing Italian-style syntax in terms of the licensing of null arguments. Though clearly not without problems (see the overview in Hyams 2011), the 'NS-parameter' as envisioned in Hyams (1986) (see also Lillo-Martin 1991) opened the door for a fruitful discussion which led to both the fine-tuning of the theory and an emergent body of knowledge with respect to what/when/how much children actually omit. Among the subsequent findings are a) root position effects (Roeper & Weissenborn 1990, Valian 1991); b) dissociation of argument drop⁸⁸ rates in the English-type from the Italian-type languages (Lillo-Martin 1991, Valian 1991); and c) correlation effects between argument drop and the Optional Infinitive (OI) stage (cf. Guilfoyle 1984, O'Grady et al. 1989, Sano and Hyams 1994, Hoekstra & Hyams 1998)—the stage at which children do not always supply necessary verbal morphology, using a non-finite form of the verb instead. It is not immediately clear how/whether the 'NS Parameter' theory will ever be able to subsume the aforementioned generalizationRos (Hyams 2011), and therefore other approaches have been proposed in its place.

Irrespective of whether the aforementioned theory is on the right track in principle (in its assumptions of (i) parametric variation, (ii) parametric maturation, and (iii) parametric default), subsequent studies have shown that an account of argument omission in child English may need to rely on converging theoretical explanations, each of which offers an independent contribution. One such approach, which has arguably subsumed various observations recorded since Hyams (1986) is the *R(oot) S(ubject) D(drop)* account

⁸⁸I use the terms *argument drop* in the same manner as *argument omission*—as a theory-neutral label to for a non-pronounced argument of a verb.

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(Rizzi 2005)—an account of argument omission that takes into consideration grammatical, production, and performance properties of child language.

Rizzi (2005) observes that in early non-argument drop languages (e.g. English and French), omitted arguments are typically found in the specifier of the root, and he thus proposes that children are not always clear on the nature of the root clause. The latter idea originates in Rizzi's (1993, 1994) *Truncation Hypothesis*—the view that young children do not know the grammatical axiom that the clausal root is CP. Therefore, their root projections may be smaller (IP or VP)—i.e. *truncated*. It follows from the model that if a child truncates a part of the CP-layer (which is articulated in recent proposals to include *Force*, *Top*, *Foc*, *Fin*, ...) or all of it (e.g. terminating at the IP or even VP), a subjectless structure will result. As Hyams (2011) points out, the RSD model accounts for a number of properties in early child language.

Whatever the ultimate explanation, the last 20-30 years of inquiry have yielded some empirical outcomes. Although the results (as well as methodologies) of studies cited above vary to some degree, it is by now well documented that in spontaneous production, monolingual English children exit the stage in which they incorrectly omit arguments (primarily subjects) by the age of 3 and $MLU_w > 3$, more or less concurrently with having exited the Optional Infinitive (OI) stage (cf. Shütze 1997). Although they often omit close to 50% of required subjects and around 5% of objects (cf. the data in section 2.2) when younger, at this stage of development, the rate of subject omission tends to hover well below 10% (depending on the study). Before this age, structurally, subjects may be missing at the left edge (Sigurðsson 2011) and in non-finite clauses; there are never missing subjects of finite embedded clauses. The rate of object omission

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is typically recorded to be below 1% and non-existent after the age of 3; they are always
3rd person singular.

This sharply contrasts with parallel data from languages like Italian (see Serratrice & Sorace 2003 for an overview) and Chinese (Wang et al. 1992), where children's rates of argument omission mirrors the adult rates—typically above 50%. Since this chapter examines argument omission in spontaneous production of children for whom English is *a* first language, we might expect them to pattern in the manner described above.

2.2 Bilinguals

The question of argument omission has surpassed the domain of L1 inquiry. In fact, precisely because much monolingual data are available, it is tempting to draw a comparison between monolinguals and bilinguals in order to bring into focus processes characteristic of and unique to bilingualism. For instance, a question arises whether effects of knowing more than one language will be observed in the domain of argument omission. The question is not trivial: various descriptions of *bilingual effects* yield falsifiable hypotheses, which, in turn, bring the field closer to understanding how languages share the linguistic space in one mind. To that effect, studies on bilingual argument omission, like other studies in bilingual acquisition, shed light on phenomena that are associated with (a) bilingualism in general, as well as (b) language-specific bilingualism. I begin with the latter.

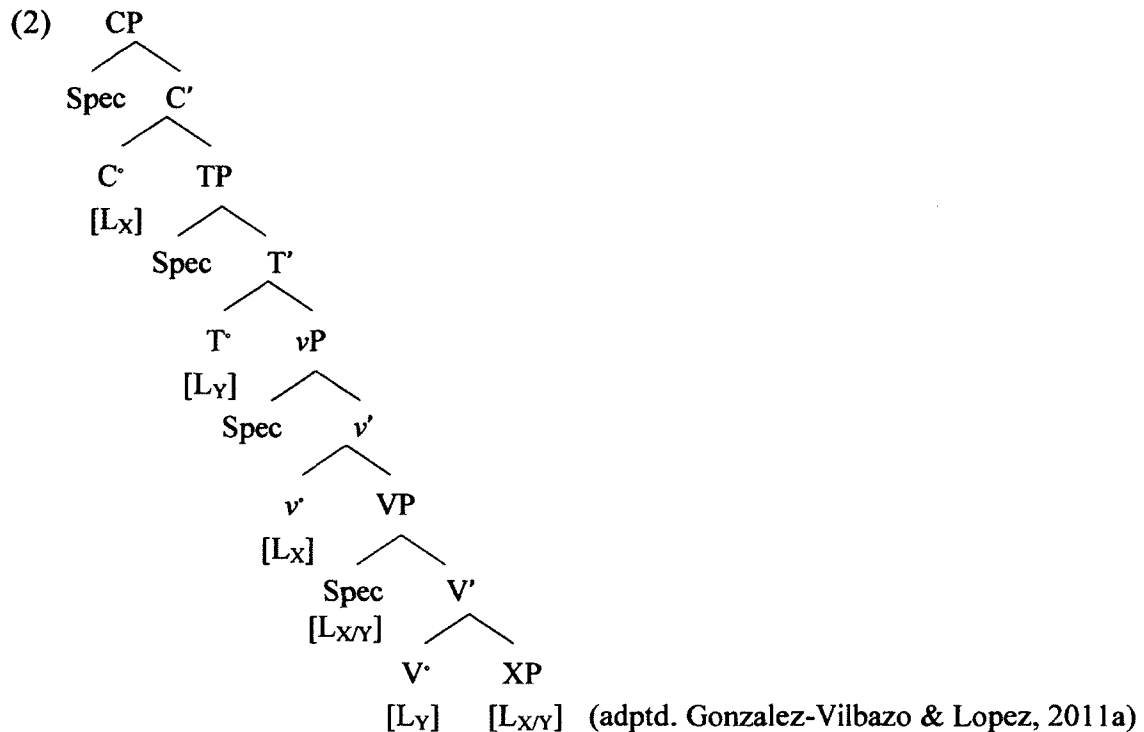
2.2.1 Bilingualism effects: Language-interaction

A question inherent to the field of bilingualism research is this: do the languages of the bilingual interact amongst themselves (however that is accomplished)? It seems clear from the literature that the answer to this question is positive; languages of bilinguals exhibit apparent interaction in various domains: wh-movement, compounding, Adj-N ordering, etc. The next question, of course, is what is behind these interactions.

Chapter 2 was devoted exclusively to the nature of this interaction. An influential model examined there states that languages of a bilingual influence each other in a non-trivial manner as in (1):

- (1) a. Cross-linguistic influence occurs at the interface between two modules of grammar, and more particularly at the interface between pragmatics and syntax in the so-called C-domain, since this is an area which has been claimed to create problems in L1 acquisition also.
- b. Syntactic cross-linguistic influence occurs only if language A has a syntactic construction which may seem to allow more than one syntactic analysis and, at the same time, language B contains evidence for one of these two possible analyses. In other words, there has to be a certain overlap of the two systems at the surface level. (Hulk & Müller, 2000:228-229)

In **chapter 2**, I offered some arguments (conceptual and empirical) against the model, and suggested that an account that views 'bilingualism effects' in terms of *elements from L_X amidst of L_Y* deserves some attention. This approach to the linguistic patterns of bilinguals goes by the name of code-switching/-mixing and is well known in the literature; in **chapter 2**, I offered a new term for the phenomenon (in order to subsume certain, typically overlooked, instantiations)—*language-synthesis*. This view is captured in (2), where the clause contains elements from both L_X and L_Y .



In whichever way one approaches the aforementioned effects, (1) and (2) make reference to language-specific interactions—i.e. *influence/transfer* (as in (1)) and *code-switching/-mixing* (as in (2)) takes place between L_X and L_Y .

Along this line of reasoning, an overwhelming majority of studies on argument omission in bilinguals examine language combinations in which at least one of the languages allows (some) arguments to remain null (Spanish-English, Juan-Garau & Pérez-Vidal 2000; Italian-English, Serratrice, Sorace & Paoli 2004; Italian-Dutch, Pinto 2006; French-English, Hebrew-English, Hacoheh & Schaeffer 2007; Italian-German, French-German, Schmitz et al. 2012; Japanese-English, Mishina-Mori 2007; Chinese-English, Huang 1999; Turkish-English, Haznedar 2009; and Inuktitut-English, Zwanzier et al. 2004). Although varying in methodology, the studies above demonstrate no visible effect on the bilingual child's non-NA language with respect to subject omission. On the

other hand, many of the aforementioned studies record an oversuppliance of overt arguments in the bilingual's NA language. The question then arises whether the latter observation provides evidence for a necessary unidirectionality of (some) transfer effects or bears witness to some other bilingualism effect divorced entirely from the NA status of the languages in question. Although this chapter focuses on spontaneous production and not experimental studies, which often yield somewhat different results⁸⁹, the latter have recently offered a new explanation for the aforementioned findings.

2.2.2 Bilingualism effects: general (Experimental detour)

Based on experimental results, Sorace, Serratrice, Filiaci & Baldo (2011) and Privulescu et al. (2011) argue that the answer to the above question seems to lie—at least partially—in the domain of general bilingualism effects.

Sorace et al. (2009) report that children acquiring Spanish and Italian (both of which are NA languages) simultaneously oversupply overt subjects. An example of the stimuli is provided in (3):

(3) *Context: Minnie and Daisy in the foreground; Mickey and Donald in the background*

- a. Minnie: Ø sono caduta! [Italian]
'I've fallen!'
- b. Donald: Minnie ha detto che Ø e' caduta.
'Minnie has said that (she) has fallen.'
- c. Mickey: Minnie ha detto che lei e' caduta.
'Minnie has said that she has fallen.' (Sorace et al. 2009)

⁸⁹ See Snyder (2007) for an expanded discussion.

The authors show that bilingual children accept overt pronouns (i.e. *lei*) in contexts inappropriate from the point of view of both Italian and Spanish grammars. In other words, even though both of the languages require/allow NAs in a particular context, bilinguals supply these arguments overtly. In this, Spanish-Italian bilinguals perform on a par with English-Italian bilinguals, who too oversupply overt arguments in their Italian. The results then imply that English-Italian bilinguals, much like Spanish-Italian bilinguals, do not show 'transfer effects' in the domain of argument omission, but rather a general bilingualism (vis-à-vis a language-specific one) effect.

Interestingly, no argument is being made by Sorace and colleagues that bilingual children necessarily have a non-target grammar from the point of view of their NA language. In fact, they offer evidence that bilingual children accept NA in expected environments (cf. Serratrice 2010, Serratrice et al. 2011), suggesting that their NA grammar is not 'impaired' by the knowledge of a language in which all arguments are typically overt. However, considering the fact that (i) both languages of the Spanish-Italian subjects in the study allow (3b) as an appropriate description of the situation in (3a), and (ii) monolingual adults and children prefer (3b) over (3c), it stands to reason that even for pairs of languages where one is a NA language and one is not, bilinguals' over-suppliance of overt arguments in the embedded subject position, cannot be an effect of cross-linguistic transfer from an overt argument language to the one allowing argument omission. That is, there is something about being a bilingual, irrespective of the requirements on argument suppliance in each of the languages, which forces arguments to be overt, even if language-specific violations result.

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Similarly, Privulescu et al. (in prep.) show that French-English bilinguals exhibit a higher rate of object clitic omission with optionally transitive verbs, resulting in NO constructions, as compared to monolingual controls. An example of their stimuli is provided in (4):

- (4) Qu'est-ce que le garçon méchant fait au chien? [French]
'What is the mean boy doing to the dog?'

Target: He is hitting it. Il le frappe.
he it hit

Null Object: He is hitting _____. Il frappe.
he hit

Note that although the verb *hit* allows a transitive/intransitive alternation, the situation in (2) forces production of the object; yet, bilingual children omit the object clitic to a higher degree and for a longer period than monolinguals. The authors reason that since the NO cannot have come into the children's French from English (English is not a NO language), the data indicate a general bilingualism effect, rather than transfer between the languages. That is, under the influence of English as a simultaneously acquired language, the bilingual child converges onto the target grammar later than the monolingual and, thus, exhibits the 'default' [sic] N-drop (Privulescu et al. prep.) at a higher rate/longer than otherwise observed in each of the languages separately. In other words, the data reported in the studies above offer evidence of something unique about being a bilingual (i.e. knowing more than one language) that results in particular patterns in the domain of argument omission/suppliance. The two studies mentioned above arrive at different conclusions: Sorace et al. (2009) argue that the bilingual patterns above result

solely from the bilingual's requiring additional processing aid during anaphora resolution and, thus, oversupplying pronouns. Pirvulescu et al. (in prep.) advocate the view that bilingualism delays acquisition of certain aspects of grammar and, thus, reveals 'default'-like forms.

Thus, among the contributions of previous bilingual argument omission studies is a potential answer to the question how knowledge of more than one language affects linguistic patterns of a bilingual. To expand: if knowledge of more than one language (irrespective of the languages' ability to omit arguments) necessarily results in elevated/lowered rates of argument omission as compared to controls, then the data speak to a general bilingualism, and not language specific, effect. Alternatively, if the bilinguals' performance differs from control groups based on argument omission/suppliance requirements of the languages involved (either uni- or bi-directionally), then such data speak to language-specific interactions.

3. Study: **Argument omission in the English of ASL-English bilinguals**

3.1 Predictions

The language pair under discussion here is ASL-English. As demonstrated in **chapter 3**, ASL allows any nominal argument to remain silent. Previous literature has argued that (at least in some contexts) the nature of this argument is pronominal—i.e. an Italian-style *pro*_{Ag} (Bahan et al. 2000; Lillo-Martin 1991). However, in **chapter 3**, I offered a number of arguments against such a view. Instead, I argued that it is best analyzed as a case of argument ellipsis of a bare singular NP. Moreover, I have suggested that it is

plausible to view this ellipsis as a consequence of lack of morphological agreement in ASL. The question then is whether this NA is expected to 'transfer' into the English of an ASL-English bilingual.

As discussed at length in **chapter 2**, the model in (1) crucially consists of two components: i) string overlap (i.e. in order to be eligible for *cross-linguistic influence*, both languages must allow arguments to remain null at least sometimes) and ii) lack of full knowledge of the *root* requirements—i.e. lack of knowledge related to the C-domain. In this, the 'bilingual errors' reveal the delay, rather than blatantly wrong analyses of the phenomena under examination.

English allows utterances lacking overt subjects, though they are much more limited than what we find in ASL and occur only under certain syntactic and pragmatic conditions (cf. Sigurðsson & Maling 2009, Sigurðsson 2011), i.e. discourse factors moderate their distribution as well:

(5) a. Don't think I can make it tonight.

b. Should really go to the gym tomorrow.

(Weir 2009)

A similar observation can be made about objects. English typically disallows object omission. However, it allows 'implicit arguments' in certain scenarios, and it is not entirely clear that these arguments are not syntactically represented/active (see an overview in Bhatt & Pancheva 2006). In other words, a child might potentially treat cases such as those in (6) as object-omission.

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(6) a. Let's go out. Mary is buying (drinks) today.
b. She is reading (something).

In **chapter 3**, I have demonstrated that ASL allows null arguments that—on the surface—resemble their English counterparts in (5) and (6). Moreover, both the English 'NA' and the ASL NA are constrained in their distribution by factors crucially involving discourse/contextual requirements.

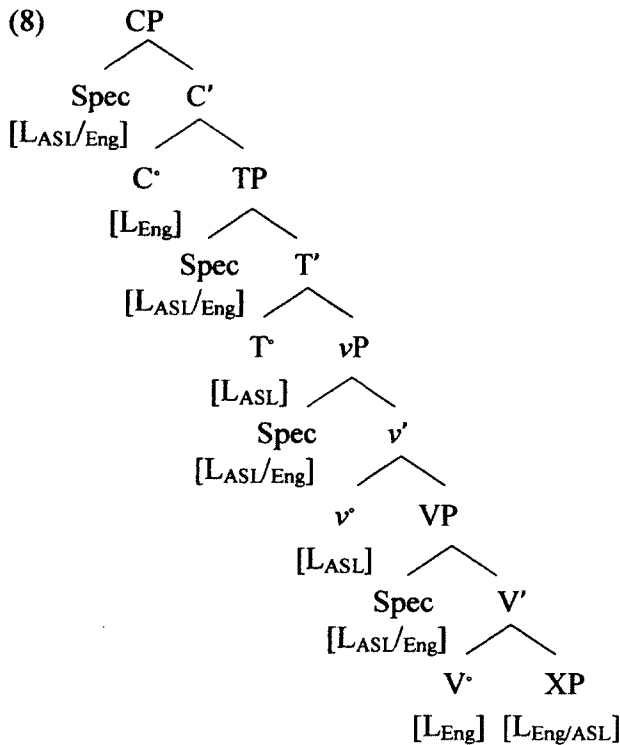
The aforementioned implies that the original requirements of the cross-linguistic influence hypothesis (as in (1)) is satisfied: a) there is a surface overlap, and b) discourse factors are involved; therefore, transfer is predicted. Thus, the model predicts (6):

- (7) The rate of subject-/object-omission in the English of ASL-English bilinguals will be longer/higher, as compared to monolinguals, but subside with the child's emerging knowledge of the C-domain. The 'influenced language' will be quantitatively but not qualitatively different from monolingual controls.⁹⁰

Thus, the condition on transfer is satisfied: the model in (1) predicts a higher rate of NS and NO in the English of an ASL-English bilingual.

In **chapter 2**, I have offered a number of conceptual and empirical arguments against (1) and in favor of (2). Concretely, (2) translates into (8):

⁹⁰ The model predicts over-suppliance of overt arguments in ASL. However, due to the lack of relevant corpus data, I leave this prediction for future research



On this view, the Numeration may consist of lexical items (LIs) from both ASL and English, i.e. an LI from ASL may be found in an otherwise English clause. If this item is a functional head (e.g. v° or T°), the phrase/utterance will remain language uniform from the point of view of phonology, though not from the point of view of syntax. This approach, in turn, predicts that the effects may remain in a bilingual's production significantly after the instantiation of the knowledge of the C-system in the target language(s). Thus, one might provide an alternative to (8) as (9):

- (9) The rate of subject-/object-omission in the English of ASL-English bilinguals may be higher when compared to monolinguals or bilinguals; the phenomenon is unrelated to/not expected to subside with the knowledge of the C-domain. The 'influenced language' may be both quantitatively and qualitatively different from the monolingual control.

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Note that viewed from this angle, the domain of argument omission remains a fertile ground: if the arguments in **chapter 3** are on the right track, then the rates of argument omission in the English of an ASL-English bilingual are not predicted to mirror the NA rates of English bilinguals whose other language exhibits *pro*_{Agr} (e.g. Italian-English bilinguals). In addition, if specific language interaction effects are observed with this language combination—and not with others—this contrast too will be revealing. This chapter, then, subjects a number of ideas to test: (i) whether the cross-linguistic influence model in (1) should be abandoned in favor of a model that allows such effects past the instantiation of the C-domain, i.e. (2); (ii) whether cross-linguistic influence in the domain of argument omission is necessarily unidirectional (from the non-NA to the NA language, as has been argued in the literature, overview in Sorace 2011); and (iii) whether the NA in ASL parallels its Italian counterpart (*pro*_{Agr}).

Let me add a caveat: ideally, the data presented in this chapter should also be compared to the relevant studies of Japanese-English bilinguals. That is, recall that **chapter 3** argues for a certain similarity between ASL and Japanese; thus, ideally, these two languages would have presented a perfect control case. However, I am aware of only one argument omission/suppliance-related study using spontaneous production of simultaneous Japanese-English bilinguals: Mishina-Mori (2007). Unfortunately, a comparison between ASL- and Japanese-English bilinguals in the aforementioned study is problematic: Mishina-Mori's (2007) subjects are 3;3;02 years old, with the highest MLU of 2.3. Recall that the prediction we are testing includes a later stage of development, in order to ensure the full knowledge of the C-domain. Therefore, the subjects reported in Mishina-Mori (2007) cannot serve as the unimodal bilingual controls

for this study. In other words, we need a unimodal bilingual whose argument omission/suppliance has been tracked through a variety of developmental stages, reaching well into the stage of CP maturity.

Another language exhibiting Japanese-style argument ellipsis is Chinese (H.-T. J. Cheng, in prep). This suggests that in relevant respects, Chinese-English bilinguals should be expected to parallel ASL-English bilinguals. Yip & Matthews (2007), based on Huang (1999), examine argument omission rates in the English of six Cantonese-English bilinguals whose ages range from 1;06 (earliest, Sophie) to 4;06 (latest, Kathryn). Out of the six children, only Kathryn's data can, in principle, be viewed as an appropriate comparison for the current study: observations of the other children end around the age of ~3;05.⁹¹ Additionally, due to differences in methodology, no statistical comparison can be made between the subjects of the study reported below and Kathryn. However, an informal look at the data allows for an observation along the same lines as in research on other language-pairs: Kathryn's rate of object omission (in the environments analyzed by Yip & Mathews) does not differ quantitatively or qualitatively from the monolingual range.

Thus, I limit my focus to Serratrice et al. (2004)—a study of Carlo, an Italian-English bilingual. This decision on my part is based on the fact that a) the methodology described in Serratrice et al. is easily replicable; and b) Carlo's English is examined at various stages of development.

⁹¹ Yip & Mathews reiterate that all the children in their study but Kathryn exhibit clear characteristics of being dominant in Chinese. Note that *dominance* as a variable plays no explicit role in either (1) or (2). In order for dominance to matter for (1), it must be stated explicitly as part of the model (as in Yip & Mathews 2007, e.g.). In (2), however, dominance effects result naturally: it simply translates into more relevant LIs from L_X vs. L_Y.

3.2 Control: Serratrice et al. (2004)

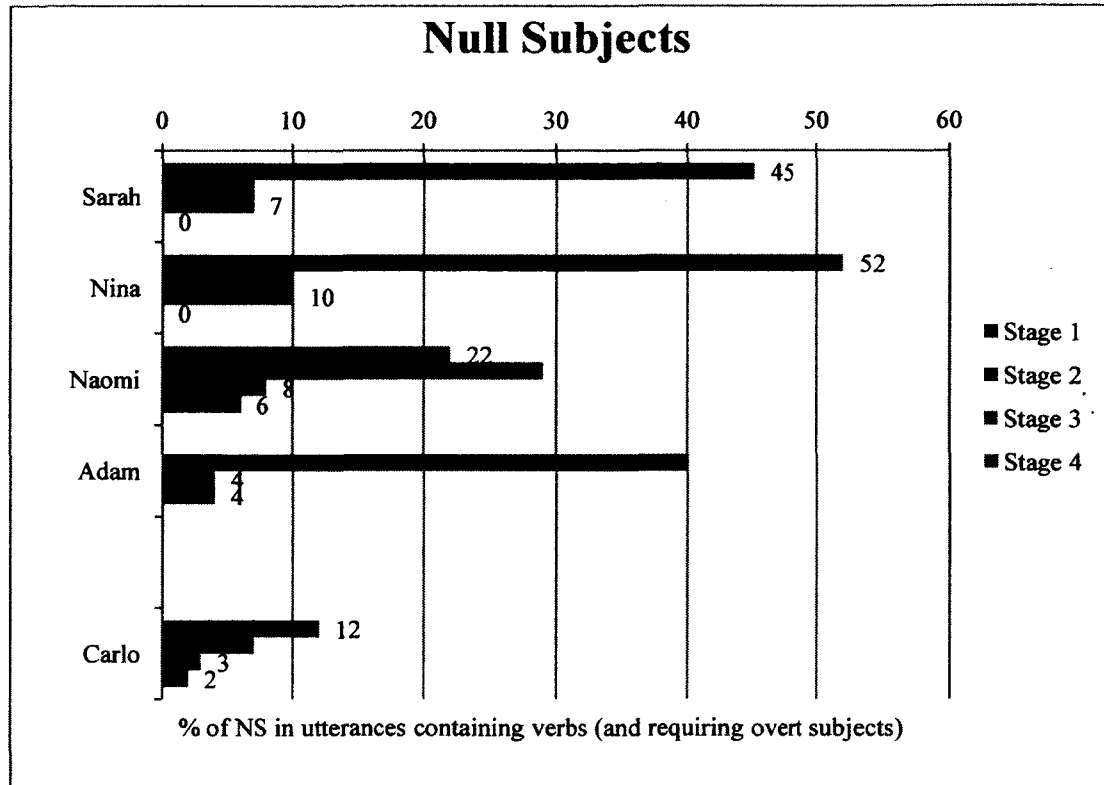
Serratrice, Sorace & Paoli (2004) examine the rates of argument omission in the two languages of a balanced (45% of waking hours per language) Italian-English bilingual named Carlo (age 1;10-4;06), and illustrate that he converges on the target English grammar in terms of subject and object suppliance even before monolingual controls do. The authors separate the child's data into four stages, using $MLU_{w(ords)}$ as the marker of linguistic development: Stage 1 (MLU_w 1.5–2.0), Stage 2 (MLU_w 2.0–3.0), Stage 3 (MLU_w 3.0–4.0), Stage 4 ($MLU_w > 4.0$). The findings demonstrate that at the stage of development typically associated with the knowledge of the relevant aspects of English morpho-syntax (age 3, $MLU_w > 3$, see section 1.1)—i.e. Stage 3—monolingual English speakers have mastered the language's requirement for the (i) overt subject of the clause, and (ii) overt object/complement if one is required in the adult grammar. Reproduced directly from Serratrice et al., (10)–(11) record subject- and object omission rates by Carlo and the monolingual English controls they studied.

(10) a. *Table 1:* Rates of subject omission in Carlo's English as compared to monolinguals (raw numbers and proportions)

Stage	Carlo _{It-Eng}	Adam	Naomi	Nina	Sarah	ENG _{Mean}
1	4/32 (.12)	---	17/78 (.22)	128/248 (.52)	36/80 (.45)	181/406 (.45)
2	51/700 (.07)	163/411 (.39)	32/109 (.29)	101/555 (.18)	30/174 (.17)	323/1249 (.26)
3	9/304 (.03)	22/520 (.04)	13/162 (.08)	78/755 (.10)	19/282 (.07)	132/1719 (.08)
4	8/461 (.02)	41/1004 (.04)	18/321 (.06)	----	----	59/1384 (.04)

b. *Figure 2:* Rates of subject omission in Carlo's English as compared to monolinguals (reported in percentages for exposition purposes)

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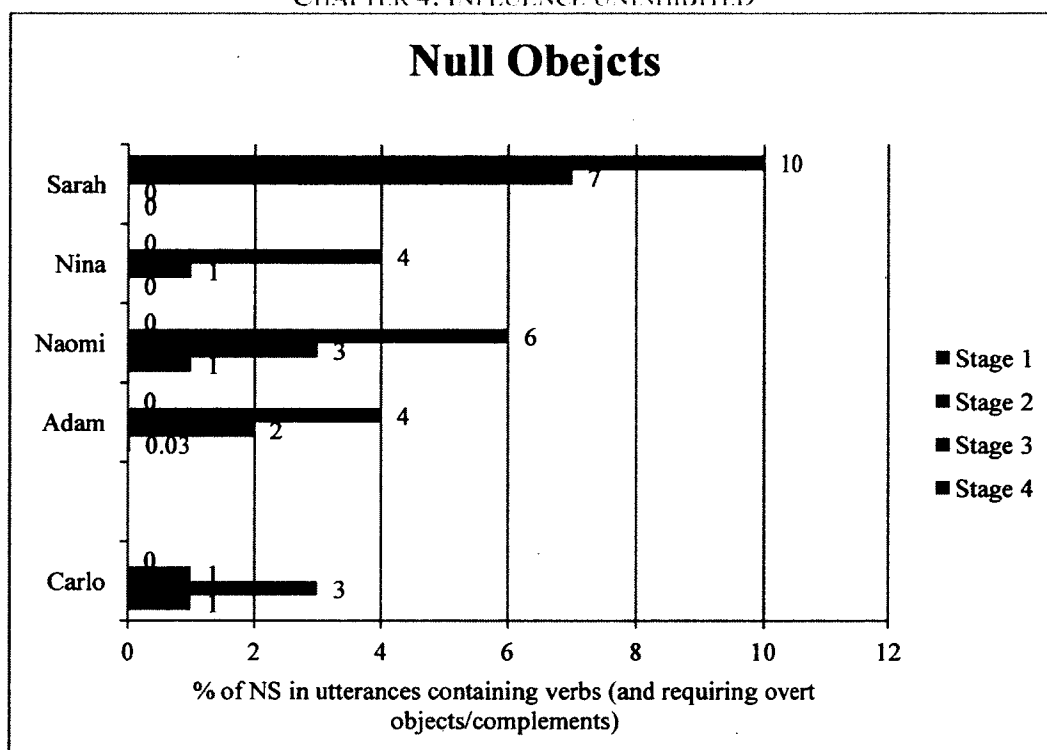


(11) a. *Table 2:* Rates of object omission in Carlo's English as compared to monolinguals (raw numbers and proportions)

Stage	Carlo _{It-Eng}	Adam	Naomi	Nina	Sarah	ENG _{Mean}
1	---	---	0/22 (0)	0/42 (0)	4/41 (.10)	4/85 (.04)
2	2/186 (.01)	8/194 (.04)	3/47 (.06)	10/226 (.04)	7/96 (.07)	28/563 (.05)
3	3/89 (.03)	6/228 (.03)	3/85 (.03)	4/270 (.01)	0/107 (0)	13/690 (.02)
4	2/176 (.01)	1/380 (.003)	1/66(.01)	---	---	2/446 (.004)

b. *Figure 3:* Rates of object omission in Carlo's English as compared to monolinguals (reported in percentages for exposition purposes):

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The first observation about the data presented above is that Carlo supplies overt subjects in English in line with the monolingual controls. Although discourse-bound Italian subjects are allowed/preferred to remain null (unless in shifted topic scenarios as in (3), see Frascarelli 2007), Carlo begins supplying subjects in English correctly very early.

A word on objects: recall that a common characteristic of English and Italian is that neither allows null objects productively. English is not an argument-drop language at all (although ‘implicit arguments’ as in (6) are found); Italian objects are typically present in the form of a pronominal clitic or an overt DP. However, Italian allows NOs in at least one form: *pro*_{arb} (Rizzi 1986)⁹²

⁹² See chapter 3 section 3.1.2 for a discussion.

- (12) La buona música riconcilia Ø con se stessi.
The good music reconciles with self
'Good music reconciles __ with oneself.' (Rizzi 1986)

Therefore, it is at least in principle possible for both NS and NO to transfer into Carlo's English from his Italian. However, as (11) shows, the rate of null objects in Carlo's English does not differ from monolinguals' either. Moreover, as Serratrice et al. report, the rare cases of null arguments in Carlo's English are consistent with the English grammar; i.e. they are not qualitatively different either. In other words, as (10)-(11) attest, in his English, Carlo performs in line with monolinguals.⁹³

The findings in Serratrice et al. have been supported by various studies in various language combinations at least one of which is a NA language. Crucially, studies have

⁹³ In fact, at some stages of linguistic development Carlo's NS and NO rates are lower than those of monolingual English learners (Brown, 1973; Suppes 1974; and Sachs, 1983). This might be considered an *accelerating effect* (Genessee & Paradis 1996; see chapter 2). For instance, there is a possibility that exposure to the morphologically rich Italian focuses the child's attention on the *pro*-licensing role of morphology in consistent NS languages like Italian (cf. Holmberg & Roberts 2010); thus, having realized the lack of 'morphological richness' in English, the bilingual child will conclude that English requires an overt subject. This suggestion is, of course, problematic in light of the existence of morphologically 'rich' languages demanding non-elliptical arguments to be overt (like Russian) or morphologically 'poor' languages allowing arguments to be null (like Chinese). Due to the availability of Italian in the input, a bilingual Italian-English child is thus expected to arrive at the aforementioned conclusion before the monolingual English child does. However, the *acceleration* view, albeit promising for the account of the rate of the relevant NAs in English, fails to account for what happens in Carlo's Italian. The rate of argument suppliance in Carlo's Italian (a NS language) is higher than that in monolingual controls. Here, Serratrice et al. argue that independently of transfer effects, lack of pragmatic knowledge plays a role in the distribution of overt vs. null forms. In particular, the authors reason, since (i) overt pronouns are specified for discourse features (i.e. topic/focus; Frascarelli 2007) in Italian but not in English, and (ii) elements which involve knowledge of discourse factors are independently problematic, Carlo resolves anaphora via the lexical item whose distribution involves less knowledge of discourse-related processes. For Carlo, this lexical item is the English pronoun. Serratrice et al. further suggest that the possibility that balanced exposure to both English and Italian may lead to "the bleaching of the interface features that constrain subject realization in the latter" (Serratrice et al. 2004). However, as far as I can tell, nothing hinges on the 'bleaching of features' part of the explanation. For instance, one might interpret Serratrice et al.'s proposal as suggesting the following: when Carlo pronounces an overt pronoun in Italian, he is, in effect, uttering an English lexical item whose phonological matrix is Italian. According to the authors, the latter results in oversuppliance of overt forms in the null argument language. At any rate, in line with the view that the knowledge of morpho-syntax, as evidenced by the instantiation of the C-domain, rules out the possibility of the null argument in the child's English (unless on the left edge, Sigurðsson & Maling 2009), Carlo exits the null argument- (a.k.a. the NS-) stage in his English by 3 years of age, in line with monolinguals (see section 1.1). In other words, Carlo does not exhibit the presence of the Italian-style NA in his English.

reported similar results irrespective of the type of NA the language is argued to have (cf. Holmberg & Roberts 2010). For instance, Japanese-English/-French bilinguals are reported to exhibit similar patterns in argument omission, both in relatively early ages and significantly past the instantiation of the C-domain: young Japanese-English bilinguals (3;00-3;02) supply subject and object arguments at the same rate as monolinguals (Mishina-Mori 2007); the rates of object suppliance in 4-6 year olds acquiring Japanese and French betray no effects in French but oversuppliance in Japanese (Blaise et al. 2010).

Let me now summarize: unimodal bilingual studies in general,⁹⁴ and, crucially, the study of an Italian-English bilingual in particular, have illustrated that children acquiring a non-null argument language and a language containing *pro*_{Agf} simultaneously show no delay in 'exiting the NA stage' in their non-NA language. In other words, the hypothesis arising from the model in (3) is not supported by the data in Serratrice et al. as well as, reportedly, by other relevant works in bilingual acquisition. At least in their non-NA language, bilinguals are reported to perform in line with monolinguals.

As the following section demonstrates, in this respect, ASL-English bilinguals differ from Carlo—treated here as a representative of other unimodal bilinguals—in that they a) exhibit a higher rate of null arguments (NS and NO) in their English than either monolingual or unimodal bilingual controls during different stages of linguistic development, b) the rate of argument omission remains relatively high during the stage of development unambiguously associated with the knowledge of the C-domain, and c)

⁹⁴ However, relying on this generalization may be problematic—although studies report their findings in this light, replication is not always possible.

(some of) their NAs are qualitatively different from those typically found in monolingual and unimodal bilingual controls.

3.3 Subjects and Methodology

In this study, I examine the English of two young hearing children of Deaf adults (Kodas⁹⁵): TOM and LEX, both of whom were originally part of the Gallaudet Koda Study (Chen Pichler & Quinn 2007), which was later integrated into the ongoing BIBIBI project (Lillo-Martin et al. 2009, Chen Pichler et al. 2010). Both children are balanced bilinguals, with at least one Deaf parent and a number of hearing family members.⁹⁶ Each of the children has been attending an English-based preschool from an early age. The subjects are filmed biweekly for each language. Filming takes place either at the child's home, daycare, or at Gallaudet University; sessions range between 35-50 min.

Data were transcribed and analyzed using ELAN (<http://www.la-mpi.eu/tools/elan/>), following the conventions established by Chen Pichler et al. (2010), many of which are parallel to those used in CHILDES (MacWhinney 2004). For this study, only English-target sessions for each child were included: 16 sessions for TOM and 6 for LEX. MLU_w was calculated based on the guidelines from Brown (1973).

Following the methodology offered in Serratrice, Sorace & Paoli (2004), four stages of linguistic development were isolated: Stage 1 (MLU_w 1.5-2.0), Stage 2 (MLU_w 2.0-3.0) Stage 3 (MLU_w 3.0-4.0), and Stage 4 (MLU_w > 4.0). The largest gap between

⁹⁵ We distinguish here between "Coda" and "Koda," the former referring to an adult and the latter to the young hearing child of Deaf adults.

⁹⁶ Although no quantitative data are available in order to establish support the claim, I submit that it is highly unlikely that the children's dominant language is ASL. Although at least one care-giver is Deaf, the children are constantly surrounded by the spoken language—both from hearing family members and the daycare and playgroups which they began to attend before the age of 5 months.

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sessions is 6 months for LEX (between stages 2 and 3) and 5 months for TOM (at both edges of stage 3). The correspondence of ages and MLU_w is recorded in (13) and (14) for each child respectively:

(13) *Table 3: TOM*

Stage	Nu. of transcripts	Age	MLU	Total nu. of utterances
1	3	1;11.21-2;03.13	1.2-1.96	239
2	5	2;04.15-3;03.00	2.14-2.55	1426
3	6	3;05.08-4;05.01	3.03-3.45	2222
4	2	4;07.09-4;11.09	4.09-4.3	1030
Total	16	1;11.21-4;11.09	1.2-4.3	4917

(14) *Table 4: LEX⁹⁷*

Stage	Nu. of transcripts	Age	MLU	Total nu. of utterances
1	-----	-----	-----	-----
2	1	3;03.12	2.91	336
3	3	3;08.27-4;03.11	3.1-3.75	1933
4	2	4;08.27-4;09.20	4.5	1179
Total	6	3;03.12-4;09.20	2.91-4.5	3448

In congruence with the predictions, Stage 3 was examined for the instantiation of the C-domain: the point in the linguistic development of both monolingual and well as bilingual children at which the evidence of the knowledge of complex morpho-syntax has been demonstrated (Hulk & Müller 2000 and references therein). The examples in (15) below can be taken to indicate the existence of the CP-layer in the linguistic productions of each of the subjects during Stage 2-3: utterances contain finite subordinate clauses, that are

⁹⁷ The earliest transcript of LEX's English begins at 3;03.12.

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typically thought of as being CPs, and/or wh-questions (standardly assumed to move from the verbal domain to SpecCP).

(15) a. TOM

- i. Who read this? (2;06.17)
- ii. What that sound? (2;08.06)
- iii. What are you doing? (3;02.09)
- iv. Who's hiding? (3;03.00)
- v. I don't like kings because they are really mad at me. (3;10.26)
- vi. Where's the outside (door)? (3;10.26)
- vii. That's what bats sees[=?says] (4;07.09)

b. LEX

- i. What did they close? (03;00.04)
- ii. Who needs to help you? (03;04.03)
- iii. Where is it going? (3;05.07)
- iv. What make them go that way? 03;05.14)
- v. Who could[=?gonna] make a garage? (03;07.09)
- vi. What are we making? (03;07.23)
- viii. But I am trying to clean up because I want to go. (3;09.26)
- ix. I know where this goes (4;03.11)
- x. This is what I was gonna talk (04;03.11)

In other words, by this stage the C-domain appears to be in place. This is not surprising: by the end of Stage 3, the children are over 4 years old—from the developmental point of view, they are expected to perform adult-like on many linguistic tasks.

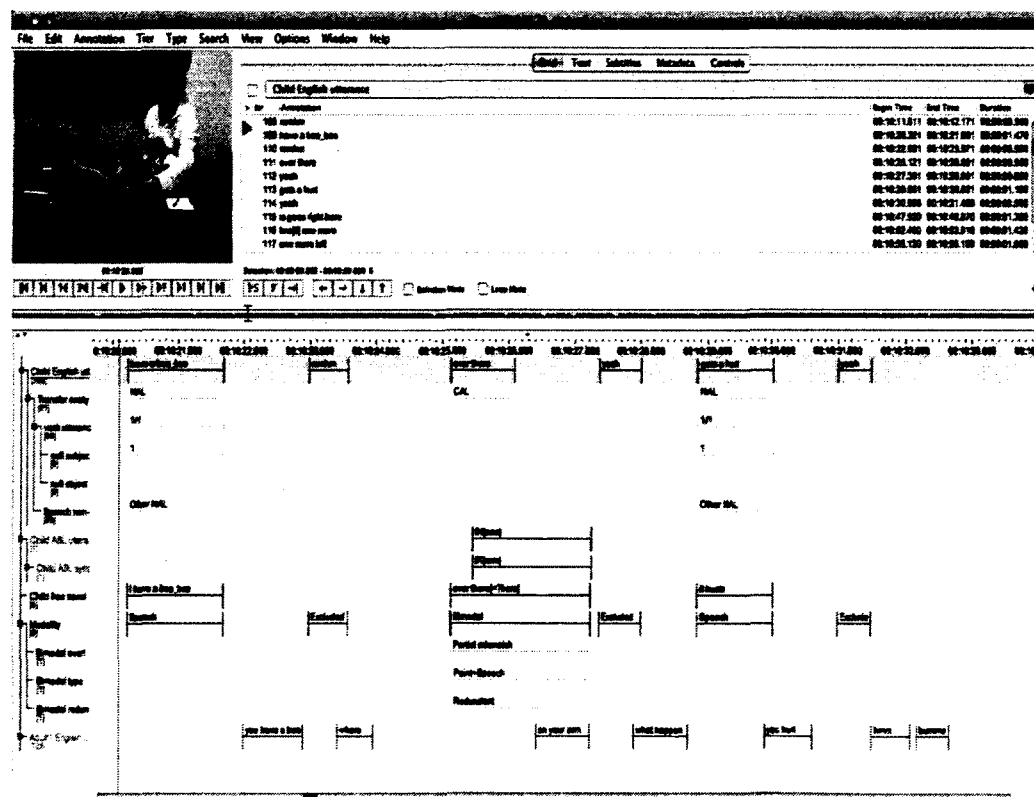
3.4 Coding

Across the stages, all utterances subject to the analysis were coded according to their compatibility with the adult language in a given context. All non-linguistic utterances (i.e. vocalizations, xxx, yyy), repetitions and direct imitations were excluded from the

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analysis. Utterances were coded based on the existence of verbs (“1/_”). If in a given context the complement of the verb was not required (e.g. intransitive or VP-ellipsis environments), the utterance was coded as “1/0”. If, however, the verb obligatorily required a complement in adult language, the utterance was coded as “1/1”. Independent tiers were created for null subjects and objects (subsuming other types of complements): “1” if the relevant argument was omitted. The coding decisions above were initially checked by 1-3 native speakers; additionally, 10% of total utterances were subjected to a reliability check involving independent coding by a separate, trained coder, with 99% agreement attained. An example of the ELAN coding window is shown in *Figure 4*.

(16) *Figure 4*: ELAN window.



3.5 Findings

Recall the predictions: the transfer model in (1) allows a higher rate of argument omission at the Stages 1-2 only; transfer from ASL is unexpected during Stages 3-4. Instead, they are expected to mirror English monolinguals in argument suppliance, i.e. by the age of 3 and $MLU_w > 3$ they will have exited the ‘NA-stage.’ In other words, at Stage 3, as well as the subsequent one, argument omission in English is unexpected. However, if TOM and LEX pattern differently from monolinguals and Carlo, this will serve as evidence that ‘cross-linguistic influence’ in the domain of argument omission/suppliance across language combinations is not unidirectional (and, thus, should not be built into the model of language-to-language influence/transfer. In addition, if TOM and LEX significantly differ from Carlo in this respect, the data will serve as confirmation of the findings in **chapter 3**—that the NA in ASL is not of the same variety as that of Italian (i.e. not *pro_{Agf}*). Finally, if the NA in the English of TOM and LEX—if found—appear qualitatively different from the NA in monolingual English, the hypothesis in (2) will be supported.

Table 5 shows that as expected, both TOM and LEX produce NSs and NOs in their English. Both raw numbers and proportions are provided, with the data collapsed across stages:

(17) *Table 5*: by subject across all stages

Subject	Nu. of utterances with verbs	Nu. of NS (proportion)	Nu. of utterances requiring verbal complement	Nu. of NO (proportion)	Total nu. of utterances
TOM	2157	280 (.13)	1691	77 (.05)	4932
LEX	1708	205 (.12)	1615	96 (.06)	3448

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Tables 6 and 7 below provide the raw (and in proportions) NS and NO⁹⁸ data per child and per stage. Stages 3-4 are highlighted.

(18) Table 6: TOM

Subject	Nu. of utterances with verbs	Nu. of NS (proportion)	Nu. of utterances requiring verbal complement	Nu. of NO (proportion)	Total nu. of utterances
1	42	11 (.26)	28	2 (.07)	239
2	509	92 (.18)	341	24 (.07)	1426
3	1102	131 (.12)	892	28 (.03)	2222
4	504	46 (.09)	430	23 (.05)	1045

(19) Table 7: LEX

Subject	Nu. of utterances with verbs	Nu. of NS (proportion)	Nu. of utterances requiring verbal complement	Nu. of NO (proportion)	Total nu. of utterances
1	-----	-----	-----	-----	-----
2	177	49 (.28)	168	17 (.11)	336
3	1058	123 (.12)	984	71 (.07)	1134
4	533	33 (.06)	470	8 (.02)	1179

The data were collapsed across the two children and the mean (henceforth $KODA_{Mean}$) is provided for each stage in Table 8:

(20) Table 8: $KODA_{Mean}$

Subject	Nu. of utterances with verbs	Nu. of NS (proportion)	Nu. of utterances requiring verbal complement	Nu. of NO (proportion)	Total nu. of utterances
1	42	11 (.26)	28	2 (.07)	239
2	626	141 (.23)	502	41 (.08)	1762
3	2160	254 (.12)	1876	99 (.05)	4155
4	1037	79 (.08)	900	32 (.04)	2224

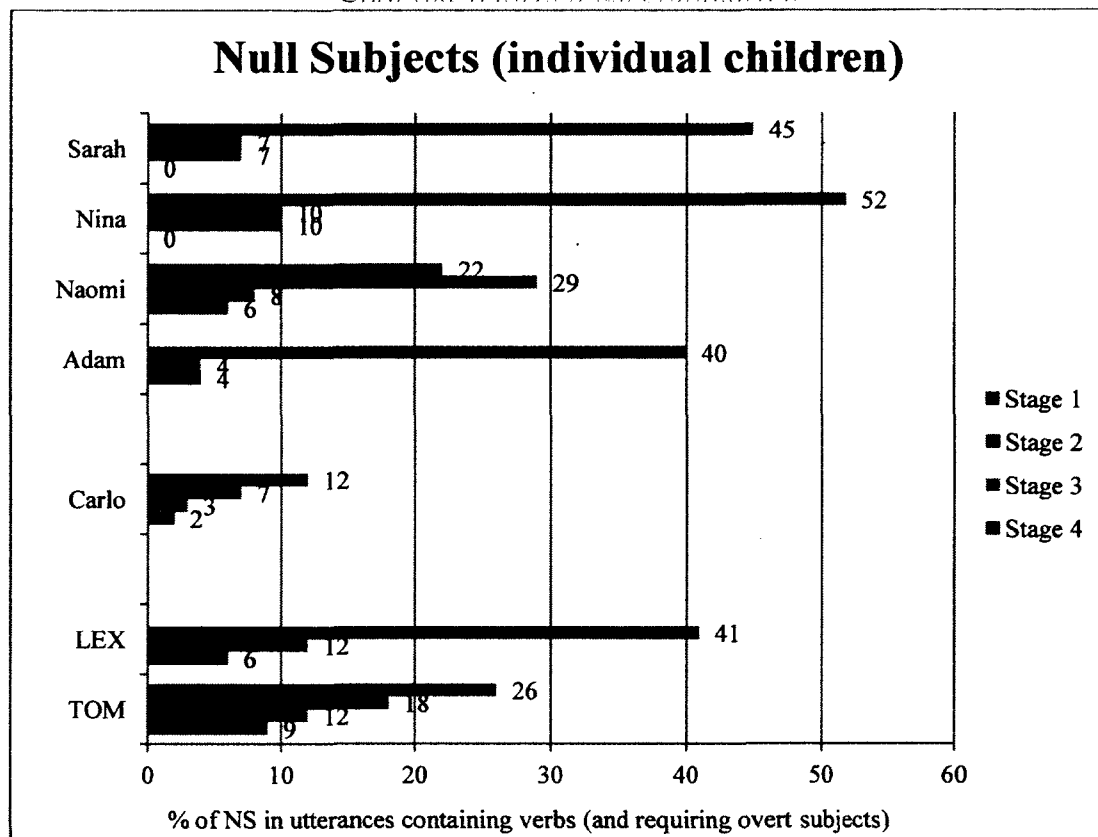
⁹⁸ 93% of NO are nominal, 6% may be interpreted as VPE (a phenomenon productive in both English and ASL, see chapter 3).

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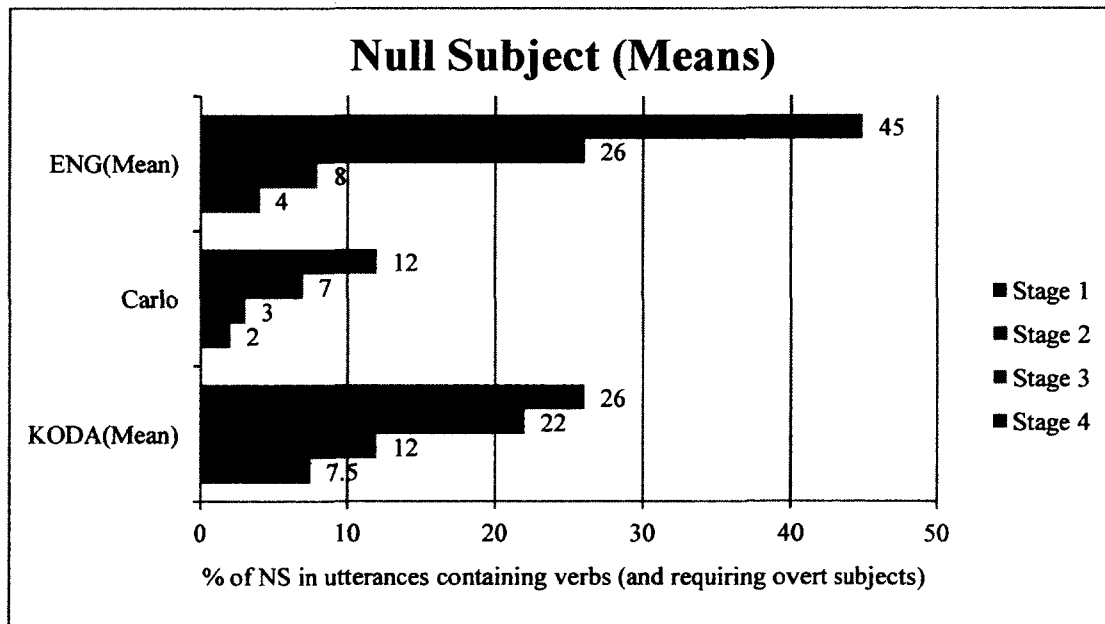
- (23) a. We have to make Ø backwards. (TOM 75)
b. Can't fix Ø. (TOM 84)
c. Needs Ø. (TOM 84)
d. I found Ø. (TOM 91)
- (24) a. I got a wrong Ø. (LEX 35)
b. No no no, you gotta do Ø inside the car. (LEX 45)
c. Make a big Ø. (LEX 45)
d. The inside Ø. (LEX 47)

Following the methodology of Serratrice, Sorace & Paoli (2004), the proportions of NS in TOM and LEX's English (individually and as a mean) was compared to that of Carlo and Adam, Sarah, Naomi and Nina (Brown 1973, Suppes 1974 and Sachs 1983, respectively) for each Stage (1-4) of linguistic development as recorded in Serratrice, Sorace & Paoli (2004); see (10)-(11). Results are reported in percentages for the ease of exposition.

- (25) a. *Figure 4: The rate of NSs for individual children*

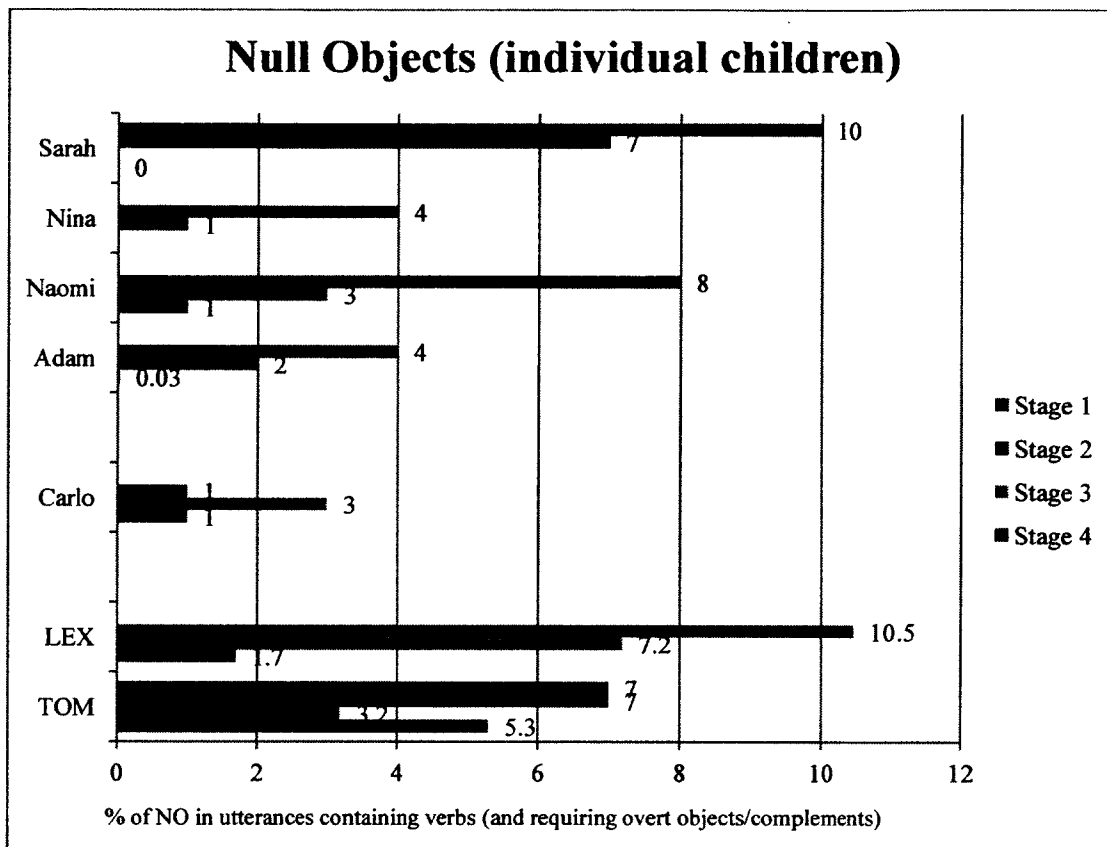


b. Figure 5: The rate of NSs as Means

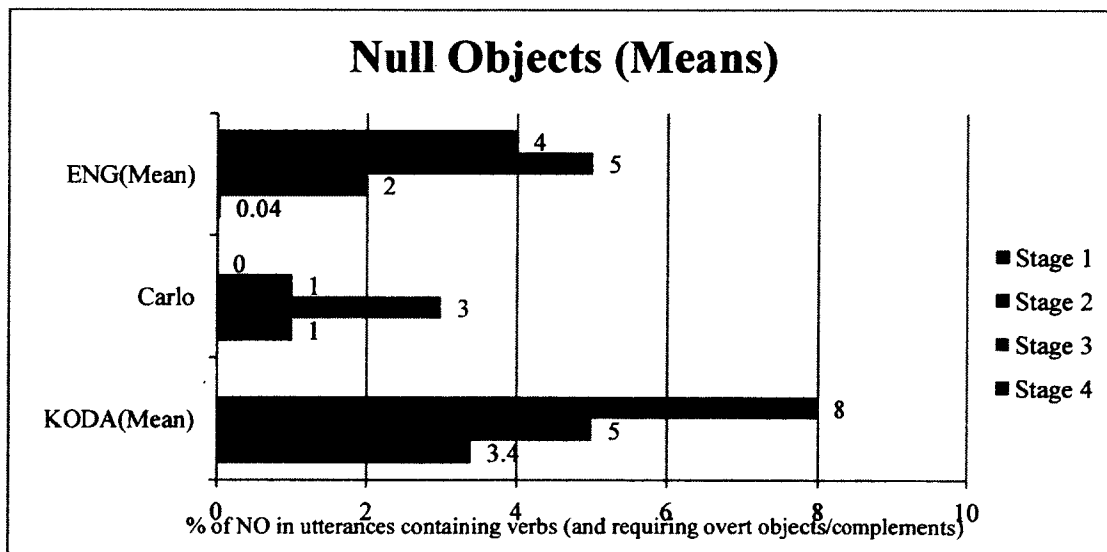


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(26) a. *Figure 6: The rate of NOs for individual children*



b. *Figure 7: The rate of NOs as Means*



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It becomes immediately clear from the graphs in (27)-(32) that at some—though not other—stages, TOM and LEX do not pattern with either monolingual English speakers or Carlo. In particular, at Stages 3 and 4 (with the age approaching 5;00 and the MLU>4), the rate of subject omission for Kudas (taken as a mean) hovers above 5%, while both monolinguals and Carlo (a representative of a larger unimodal bilingual population) are well below that in their English. By the same token, while both TOM and LEX exhibit the well-documented (Valian 1991) asymmetry between the rates of subject- vs. object-omission, at least at Stages 3-4, Kudas clearly differ from English monolinguals and Carlo in omitting more objects. Note that the numbers here are not strikingly large. However, I would like to suggest that the difference even in small numbers is important here: some of the NA in the Koda’s English exhibit characteristics unexpected in either monolingual or bilingual English: not at the left edge, but as subjects of subordinated clauses, or with modals.

Below, the difference between ASL-English bilinguals and controls is reported in z-scores; due to the relatively small size of some of the samples, either the Fisher Exact (FET) or the Yates-corrected chi-square tests were conducted in addition. The rates of NSs for TOM and LEX individually, as compared to the controls, are in (27)-(28) and collapsed as KODA_{Mean} in (29).

(27) *Table 9: TOM’s NS rate*

Stage	In comparison to ENG _{Mean}	In comparison to Carlo _{It-Eng}
1	z-ratio = -2.293; <i>p</i> _{two-tailed} = .0218	z = 4.289; <i>p</i> _{two-tailed} <.0002
2	z-ratio = -3.487; <i>p</i> _{two-tailed} = .0005	z-ratio = 5.735; <i>p</i> _{two-tailed} <.0002
3	z-ratio = 3.751; <i>p</i> _{two-tailed} = .0002	z-ratio = 4.602; <i>p</i> _{two-tailed} <.0002
4	z-ratio = 5.343; <i>p</i> _{two-tailed} <.0002	z-ratio = 5.843; <i>p</i> _{two-tailed} <.0002

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(28) *Table 10: LEX’s NS rate*

Stage	In comparison to ENG _{Mean}	In comparison to Carlo _{It-Eng}
1	-----	-----
2	z-ratio = 3.722; $p_{two-tailed} < .0002$	z-ratio = 10.578; $p_{two-tailed} < .0002$
3	z-ratio = 3.498; $p_{two-tailed} < .0002$	z-ratio = 4.6501; $p_{two-tailed} < .0002$
4	z-ratio = 4.932; $p_{two-tailed} < .0002$	z-ratio = 6.032; $p_{two-tailed} < .0002$

(29) *Table 11: KODA_{Mean} NS rate*

Stage	In comparison to ENG _{Mean}	In comparison to Carlo _{It-Eng}
1	z-ratio = -2.293; $p_{two-tailed} = .0218$	----
2	z-ratio = 1.579; $p_{two-tailed} = .1143$	z-ratio = 7.872; $p_{two-tailed} < .0002$
3	z-ratio = 4.131; $p_{two-tailed} < .0002$	z-ratio = 4.618; $p_{two-tailed} < .0002$
4	z-ratio = 5.168; $p_{two-tailed} < .0002$	z-ratio = 5.551; $p_{two-tailed} < .0002$

As (28)-(30) attest, although at Stage 2, the difference in the rates of NS in the English of Kodas vs. monolinguals is only marginally significant, at all other stages, and in comparison with Carlo, it reaches significance.

The rates of NOs are reported below. Here too, although the difference between the overall Koda_{Mean} rate of object omission and that of Carlo does not reach significance at Stages 3-4⁹⁹, Koda children perform differently from monolinguals.

(30) *Table 12: TOM’s NO rate*

Stage	In comparison to ENG _{Mean}	In comparison to Carlo _{It-Eng}
1	z-ratio = -0.49; $p_{two-tailed} = .62^{100}$	----
2	z-ratio = 1.292; $p_{two-tailed} = .1964$	z-ratio = 3.021; $p_{two-tailed} = .0025$
3	z-ratio = 1.558; $p_{two-tailed} = .1192$	z-ratio = -0.119; $p_{two-tailed} = .953$
4	z-ratio = 4.355; $p_{two-tailed} < .0002$	z-ratio = 2.367; $p_{two-tailed} = .0179$

(31) *Table 13: LEX’s NO rate*

⁹⁹ The aforementioned may need to be treated as the ‘floor effect’—the numbers are too small.

¹⁰⁰ FET $p_{two-tailed} = .605$

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Stage	In comparison to ENG _{Mean}	In comparison to Carlo _{It-Eng}
1	-----	-----
2	z-ratio = 2.589; $p_{two-tailed} = .0096$	z-ratio = 3.873; $p_{two-tailed} < .0002$
3	z-ratio = 4.918; $p_{two-tailed} < .0002$	z-ratio = 1.371; $p_{two-tailed} = .1704^{101}$
4	z-ratio = 1.825; $p_{two-tailed} = .068$	z-ratio = 0.519; $p_{two-tailed} = .6038$

(32) *Table 14: KODA_{Mean} NO rate*

Stage	In comparison to ENG _{Mean}	In comparison to Carlo _{It-Eng}
1	z-ratio = -0.49; $p_{two-tailed} = .62$	----
2	z-ratio = 2.114; $p_{two-tailed} = .0345$	z-ratio = 3.066; $p_{two-tailed} = .0022$
3	z-ratio = 3.73; $p_{two-tailed} = .0002$	z-ratio = 0.7292; $p_{two-tailed} = .4284$
4	z-ratio = 3.346; $p_{two-tailed} = .0008^{102}$	z-ratio = 1.624; $p_{two-tailed} = .1044^{103}$

To briefly summarize the results: the subjects of this study do not pattern with either the monolingual English children or the English-Italian bilingual. The proportion of null arguments in the Koda speech (individually and as mean) differs significantly from the proportion of null arguments in the speech of Sarah, Nina, Naomi, and Adam; moreover, in the relevant respects, Kodas perform differently from Carlo—an Italian-English bilingual, serving as a representative of English-NSL bilinguals. In other words, the rate of subject and object omission in the English of TOM and LEX is on the whole significantly higher than what is found in both monolingual as well as bilingual controls.

4. Discussion

4.1 Overview of the results

The findings of the study reported above demonstrate the following: ASL-English bilinguals TOM and LEX pattern with English monolinguals with respect to overt

¹⁰¹ Yates-corrected chi-square=1.33, $p = .248$

¹⁰² Yates-corrected chi-square=9.97, $p = .002$

¹⁰³ Yates-corrected chi-square=1.97, $p = .160$

argument suppliance at the earlier stages of linguistic development only—i.e. at the later stages, they perform differently from either monolingual or bilingual comparisons in argument omission.¹⁰⁴ Crucially for the predictions we set out, at Stages 3 and 4 (the latter capturing the linguistic development of the children at almost 5 years of age), TOM and LEX continue to omit arguments in contexts disallowed in adult English. Individually and in terms of mean, omission of subjects and objects is significantly different from monolinguals and, for TOM, from Carlo. Particularly striking is the fact that among such contexts is the embedded subject position of a finite clause (cf. (21c) and (22d))—never a grammatical option in English:

(33) *She_{ij} said Ø_{ij} will come

(33) records a well-known fact about English: although the matrix clause may allow a null argument under certain syntactic and pragmatic conditions (cf. (5)), the subject of an embedded clause can never be omitted, irrespective of whether it co-refers with the

¹⁰⁴ Before delving deeply into the discussion of the data, a caveat is in order: individually, TOM and LEX differ from English monolingual and Carlo at almost every stage; but LEX always omits subjects more than monolinguals/Carlo while TOM performs more target-like at Stages 1 and 2 than even some of the monolinguals. At first, this might constitute a puzzle of its own. However, I doubt that this is a true reflection of the facts: at stage 1, although TOM's NS rate is much lower than Nina's and Sarah's (individually and in terms of mean), it is, nevertheless, comparable to Naomi's (z-ratio = 0.573; $p_{two-tailed}=0.5871$). At Stage 2, although TOM's NS rate is much lower than the ENG_{Mean} as well as Naomi's and Adam's (individually and as mean), it is, nevertheless, comparable to Nina's and Sarah's (z-ratio = 0.047; $p_{two-tailed}=0.9625$). Therefore, I set aside the potential possibility that TOM outperforms English monolinguals at Stages 1 and 2.

By the same token, we may need to revisit the results for $KODA_{Mean}$ at Stage 2 as well. That is, due to the relatively low subject omission rate in TOM's speech, the mean proportion of NSs produced by TOM and LEX is not significantly (or, rather, only marginally) different from the English monolinguals; however, at Stage 2, LEX is producing significantly more NSs than Naomi, Nina and Sarah (z-ratio = 4.027; $p_{two-tailed}<0.0002$). Having said that, LEX's NS rate at this stage remains comparable to Adam's (z-ratio = 0.432; $p_{two-tailed}=0.666$). Therefore, I cautiously conclude that the ASL-English bilinguals in this study do not differ from English monolinguals (as represented by Adam, Naomi, Nina and Sarah) at the early (i.e. Stages 1 and 2) stages of linguistic development. In this, they dramatically differ from Carlo—an Italian-English bilingual whose NS rate is always lower than that of monolinguals.

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matrix subject. Yet, examples in (23), repeated below, reveal NSs in exactly this configuration:

- (34) a. TOM: It says Ø hafta build a king of the king's horsies.
 Target: It says I have to build a king (or a king's house?) for the king's horses
- b. LEX:
- i. and then Ø wanna make a train.
 Target: And then I want to make a train
- ii. Mister Conductor said Ø won't crashed# he said.
 Target: Mister Conductor said that that it wouldn't crash; that's what he said

Note that these occur at the stage of linguistic development associated with morpho-syntactic—and not discourse—licensing of the relevant elements in the clause for NA languages. Although accounts of null subjects in child English vary, none of them predicts (34): (i) the influential *Truncation Hypothesis* (Rizzi 2005) allows only the subject of the root clause to be missing—(a) and (b ii.) remain unaccounted; (ii) the view that all children begin with the 'Italian' setting of the parameter (Hyams 1986) would account for the presence of the null argument in (34) but not for the rate, which should be much higher than what is reported here. For instance, the 'parameter setting' view predicts that ASL-English bilinguals should act as, e.g., ASL monolinguals in terms of argument omission rates. Although data are not available for an exact comparison that would warrant a statistical analysis, previous studies have shown that young monolingual Deaf signers omit subjects and objects in their ASL to a much higher degree than what is reported here for ASL-English bilinguals. For instance, Quadros et al. (2001) demonstrate that between the ages of 1;08-2;10 (approximately

corresponding to Stages 2-3 above¹⁰⁵), Deaf signers omit over 75% of subjects and over 10-70% of objects (depending on the verb-type) in their ASL. At any rate, the claim that the 'NS-parameter' is not yet set in the linguistic mind of the children approaching 5 years of age would be at odds with the findings of other studies (see section 1.1).

A similar observation can be made about the NO constructions recorded in (35):

- (35) a. We have to make Ø backwards. ≈ (24)
 b. Can't fix Ø.
 c. Needs Ø.
 d. I found Ø.
 e. No no no, you gotta do Ø inside the car.

Although English allows *some* argument omission (as in (5)-(6)), utterances produced by the subjects of this study are never grammatical in adult-English, or found in child language (Snyder, Senghas & Innman 2001). For instance, none of the verbs in (35) exhibit such effect in terms of, e.g., transitive/intransitive alternation.

- (36) a. *Don't make ____ / *Will you have a chance to make ____ today?
 b. *Please fix ____ / *Will you have a chance to fix ____ today?
 b. *I need ____ / *Have you ever needed ____ ?

In other words, the type of NS in (34) and NO in (35) in the English of simultaneous ASL-English bilinguals is unexpected and thus constitutes (for our

¹⁰⁵ Since the MLU information is unavailable, placing the subjects of the Lillo-Martin et al. study along the linguistic continuum as employed here (i.e. Stages 1-4) will serve as a rough approximation only.

purposes) the first puzzle to be solved. To be precise, the English sentences above seem to allow the NA in a manner consistent with the grammatical properties of ASL, consistently with the possibility of *transfer* from the NA language into the non-NA language.¹⁰⁶ The second puzzle is this: if we entertain the possibility that the null arguments in the English of the ASL-English bilinguals come from ASL (in whichever manner this is achieved), (34)-(35) record a surprising fact: ASL-English bilinguals stand alone as “victims” of what might be termed a null argument- onto a non-null argument language influence. Why should this population be any different?

4.2 Language interaction: Predictions revisited

4.2.1 Traditional

The data reported above (albeit limited: only two ASL-English bilinguals are examined here), address the predictions in (7) (based on (1)): according to the *cross-linguistic influence/transfer hypothesis*, the NA stage in the English of the ASL-English bilinguals was expected to be potentially longer and the rate of NSs potentially higher; however, at the stage when the knowledge of the C-domain is clearly manifested, such appearance of discourse-based null arguments (i.e. from ASL) was highly unexpected. Moreover, the NA occurring in the subjects' English was expected to be consistent with the NA observed in monolingual child English. These predictions were not confirmed by the data: both TOM and LEX exhibit a rate of subject and object omission which is significantly different from their monolingual and bilingual controls, both quantitatively

¹⁰⁶ That is, as the study above demonstrates, it is clearly not the case that the unidirectionality effects related to the overt argument omission/suppliance observed in many language pairs must be built into the model of language-to-language influence.

and qualitatively. Structures violating the English grammar remain in TOM and LEX's English past the age/MLU_w of 4.

Further, if it is the case that the NA in the speech of ASL-English bilinguals is a direct result of ASL's influence on English, and the NA_{ASL} is *pro*_{Ag_r} (cf. Bahan et al. 2000)—a view against which **chapter 3** argued directly—then TOM and LEX should be expected to pattern in their English with Carlo, whose NA-language is standardly assumed to contain *pro*_{Ag_r}. This prediction was not borne out either—TOM and LEX show rates of argument omission that are significantly different than that of Carlo (whose performance appears representative of bilinguals acquiring a similar language combination).

4.2.2 Language-synthesis

The *language-synthesis* approach to the cross-linguistic influence effects predicted that if an element from ASL were to be *Selected* for the Numeration consisting otherwise of English words, ASL-like structure would result.

Chapter 3 has argued that the NA in ASL is the case of bare NP ellipsis—a process that elides the nominal argument of the verb. This analysis of the NA_{ASL} is consistent with an account of argument ellipsis employed in other similarly behaving languages (cf. Takahashi 2010 for cross-linguistic observations, putting aside an additional constraint discussed in chapter 3 that is not relevant to the current purposes). Given the analysis adopted in the chapter, such ellipsis is contingent on the lack of

morphological agreement (concretely, the lack of ϕ -features on v° and T°).¹⁰⁷ Cashing this idea out offers an explanation for why the same process may be observed in the English of the ASL-English bilinguals. I suggest that the study reported above demonstrates a direct involvement of ASL grammar in terms of ASL-style argument ellipsis—a phenomenon which does not exist in Italian (see **chapter 3**)—in the English of ASL-English bilinguals. Structurally, the aforementioned implies that TOM and LEX *Select* for Numeration (in the relevant cases) v°_{ASL} or T°_{ASL} , rather than v°_{Eng} or T°_{Eng} .

To elaborate: in **chapter 3**, I adopted the Saito (2007) account of argument ellipsis, the main components of which are as follows. If the relevant functional head (T° or v°) is supposed to undergo an *Agree* relation with a TNP¹⁰⁸) does not have uninterpretable ϕ -features, the LF-object corresponding to the TNP may be re-cycled, which results in argument ellipsis (see **chapter 3** for an extended discussion).¹⁰⁹

¹⁰⁷ In the chapter, I showed that (i) when space was not (able to be) utilized in order to differentiate between referents, ambiguity arose; (ii) when space was utilized, the paradigm did not mirror that of other NA languages standardly assumed to exhibit morphological ‘richness’ in agreement, e.g. Spanish. Therefore, it is plausible to assume that ‘agreement’ in ASL is something other than ‘agreement’ in languages like Spanish.

¹⁰⁸ Note that all languages that have been argued to have argument ellipsis are languages without a definite article, which, on the assumptions adopted in **chapter 3**, lack the DP layer entirely. It stands to reason that (the lack of) agreement is only a part of the picture. Bošković (2008), (2010) argues that ‘radical *pro*-drop’ (which may be yet another term for argument ellipsis) is, in fact, contingent on the lack of D(P). H-T. J. Cheng (in prep.) explicitly makes this claim for argument ellipsis. This view might also offer an explanation why ASL disallows ellipsis of non-nominal arguments, e.g. PPs, CPs, and APs.

¹⁰⁹ Below, (i)-(ii) represent this possibility schematically for subjects (for more discussion, see **chapter 3**). $T_{\{\phi\}}$ represents a T° with uninterpretable ϕ -features (as in, e.g., Spanish), and $TNP1_{\{\phi, \text{Case}\}}$ is the TNP with an uninterpretable Case feature which will erase when TNP1 undergoes *Agree* with $T_{\{\phi\}}$. When LF-object corresponding to the TNP1 is copied into the argument slot of the verb in (i.B.b.), the derivation will crash.

- (i) A. a. ...[TP $T1_{\{C\}}$ [vP ... $TNP1_{\{\phi, \text{Case}\}}$...]] ... [Spa/Eng]
 b. ...[TP $T1_{\{\phi\}}$ [vP ... $TNP1_{\{\phi, \text{Case}\}}$...]] ...
 c. ...[TP $TNP1_{\{\phi, \text{Case}\}}$ [T' $T1_{\{\phi\}}$ [vP ... t_{TNP1} ...]] ...
 B. a. ...[TP $T2_{\{\phi\}}$ [vP ... _____ ...]] ...
 b. *...[TP $T2_{\{\phi\}}$ [vP ... $TNP1_{\{\phi, \text{Case}\}}$...]] ...

In turn, $T_{\{\phi\}}$ represents a T° without uninterpretable ϕ -features. Thus, the Case feature of TNP1 is not erased; hence no problems arise when it is copied into the verb argument slot in (ii.B.b.), as in , e.g., Japanese.

This system derives both null subjects and null objects. If the T° or v° lacks ϕ -features, it will not undergo *Agree* that would de-activate the TNP, the may be copied into the ellipsis site, resulting in the NS or NO construction in (34) and (35), respectively. In other words, if T°_{ASL} or v°_{ASL} is selected for the Numeration, a context for the ASL-style ellipsis results even if the verb is uttered in English.

Note that this possibility is entirely divorced from the knowledge (or lack thereof) of the C-domain in the child’s languages; what needs to be learned, however, is which language to ‘pull from’ for the Numeration. This is, arguably, a separate type of learning.¹¹⁰ This stance suggests then that in the context where such code-switch is particularly appropriate—such as during an interaction with other bilinguals with the same/similar language combination—the rates of phenomena of this sort will be elevated. Translating the aforementioned into a general description of bilingual language production: in an environment that naturally lends itself to code-switching, ‘cross-linguistic influence’ will be observable at higher rates.

4.3 General bilingualism effects

-
- (ii) A. a. ...[$TP\ T1_{\{\}}[vP\ \dots\ TNP1_{\{\phi, Case\}}\ \dots]]\ \dots$ [Jap/ASL]
 b. ...[$TP\ TNP1_{\{\phi, Case\}}[T\ T1_{\{\phi\}}[vP\ \dots\ t_{TNP1}\ \dots]]\ \dots$
 B. a. ...[$TP\ T2_{\{\}}[vP\ \dots\ \underline{\hspace{2cm}}\ \dots]]\ \dots$
 b. ...[$TP\ T2_{\{\}}[vP\ \dots\ TNP1_{\{\phi, Case\}}\ \dots]]\ \dots$

The aforementioned suggests that if the v°_{ASL} or T°_{ASL} is *Selected* for the Numeration (which otherwise contains English lexical items), the derivation will proceed as (ii) and not (i). The result here is the possibility of ellipsis of the TNP—i.e. subject omission (cf. (33)–(34)).

¹¹⁰ One may ponder whether the aforementioned is the case for functional, as well as lexical items. E.g. DenDikken (2011) argues that unlike their lexical counterparts, functional elements actually compete in the linguistic mind of the bilingual. On this view, the linguistic mind of a bilingual is affected by the knowledge of more than one language in a non-trivial manner: language-synthesis becomes obligatory.

Based on previous research, although not explicated formally, two other types of linguistic behavior was expected, related to *general bilingualism effects* (see section 1.2.2). That is, in accord with other studies on argument omission/suppliance, ASL-English bilinguals were not expected to omit subjects at a higher rate than monolinguals. On the other hand, if they were to omit arguments, such omissions would have a flavor of *default*. As the results of the study attest, these expectations were not met either.

Since bilingual children tend to show an overwhelming preference for supplying overt arguments where the null ones are due, arguably due to resource allocation and processing difficulties in juggling two languages (the view stemming from the *Interface Hypothesis*, Sorace & Figliaci 2006; see **chapter 2**) and not vice versa, TOM's and LEX's null argument rates may have been expected to be comparable to that of monolinguals; in fact, TOM & LEX could have been expected to perform better than monolinguals and comparable with Carlo. Here, the hypothesis was not supported: TOM and LEX omit arguments at a much higher rate than Carlo at every Stage and significantly more than monolinguals at Stages 3-4.

On the other hand, the children might have been expected to exhibit *default* behavior with respect to argument omission. The reasoning (due, largely, to Pirvulescu et al. 2011, i.a.) went as follows: juggling more than one language is complicated, and, consequently, children continue to resort to *default* forms even at an older age (at least under pressure of an experiment). The first question that arises here is what this default form might be with respect to argument omission. Tsimpli (2011) calls for a differentiation between a *linguistic* and a *learner* defaults, and argues that one can take precedence over the other. She further suggests that although the *linguistic* default

might very well be the silent element (cf. Cardinaletti & Starke 1999), the *learner* default is the overt pronoun (cf. Roeper 1999).

However, neither of the options is viable as an explanation of the data presented here. If the children rely on the overt pronoun as a 'learner default,' then their omission rates in English remain unaccounted for. If, instead, Kudas in this study rely on the 'linguistic default,' null arguments might have been expected but with necessarily alternating verbs (i.e. N-drop in the object position) and not in an embedded subject position—in other words, not qualitatively differently from monolinguals. Neither hypothesis was supported: TOM and LEX omitted subjects and objects in their English (particularly in the later stages of linguistic development) at higher rates and for longer than monolinguals. In addition, certain NA constructions in the Kudas' English are never possible in the adult language.¹¹¹ To that effect, I set the general bilingualism-related predictions aside.

Further, recall from **chapter 2** the "context dependencies" that have been argued to affect the linguistic patterns of young bilinguals: input and dominance. For the purposes of the discussion related to *transfer* effects, the following is implied: the aforementioned null argument constructions are necessarily a part of the Kudas' English grammar; this has happened due to the kind of English input they receive. The intuitive appeal of such explanation is obvious: since a) children do learn from their care-givers,

¹¹¹ In addition, the notion of *default* in child language has been contested (see Snyder 2007 for an overview). Here, one's theoretical persuasion on the issue carries consequences for the nature of cross-linguistic influences. E.g., if one assumes that there is no such thing as a *learner* default, then from the point of view of monolingual acquisition of parametric variation related to the construction A, the child must wait before she makes up her mind about which side of the parameter her language falls in, and only after this decision has been made will she start producing A (and other constructions guided by the same parameter). The implication here is the following: since bilingual children are essentially, monolingual twice (Meisel 2004), bilingual data in question must be accounted for in some other ways.

and b) many Deaf care-givers tend to speak to their hearing children, typically voicing the appropriate sign language structures (cf. Van den Bogaerde & Baker 2005), it stands to reason that c) Kudas’ English will display characteristics of what could be informally termed “spoken Sign Language.”¹¹² This road, however, is dangerous if one were to suggest that the language of the surrounding environment is not the children’s dominant language.¹¹³ First, it implies that the English input children receive everywhere else in their world (daycare, other family members, etc.) is ignored. Second, it implies that for Kudas, the linguistic system of the spoken L_X (English) is, essentially, a fundamentally different system from the L_X spoken by other L_X users. The aforementioned suggests that Kudas receive input from their Deaf caregivers, which most closely resembles L2 English (which often tends to be influenced by the language user’s L1), and ignore the rest. To that effect, many studies have shown that this familial situation does not preclude young children of L2 learners from acquiring English natively. Having said that, proposals have been put forth that being a bilingual child is much like being a child growing up in a language-contact environment (Meisel 2007); i.e. that language change stems from childhood bilingualism as a phenomenon because bilingual children tend to bring pieces of different languages into the same utterance. However, this observation is meant to range over all bilinguals, without isolating any one group in particular. Therefore, I put the “what’s in the input” as a potential explanation of the facts reported in this chapter aside.

¹¹² Similar claims have been made about unimodal spoken language bilingualism. See Paradis & Navarro (2003) for an overview and additional arguments, as well as Comeau et al. (2003), Gutiérrez-Clellen & Simon-Cereijido (2009), i.a.

¹¹³ The case is potentially made easier if the situation is reversed, as in Yip & Mathews (2007): the children in their study reside in Hong Kong; they may be argued to be receiving more of appropriately (from the point of view of acquisition) varied input in Cantonese than they do in English.

The other possibility is related to the language dominance effects. Yip & Mathews (2007) attribute elevated rates of NOs in the English of young (prior to the age of 4) Cantonese-English bilinguals' to their dominance in Cantonese. Such an account would imply the following: ASL is the dominant language for the child (since the primary caregiver is a Deaf ASL user, as is the case with both TOM and LEX); therefore, the child prefers/uses primarily ASL and resorts to English only when there is no other possibility. This view of facts, crucially, unfolds thus: if ASL is the children's dominant language, then they are using structure of ASL even when the utterance sounds like it might be in English. But before I leap to that explanation, it is worth noting that a) bilingual children allow pieces of both languages into the same utterance irrespective of which of the languages is 'stronger' for them (Cantone 2007); and b) as demonstrated in Pizer (2008), Kodas tend to treat the spoken language as their 'dominant' language—i.e. the preferred language of discourse¹¹⁴—and resort to sign only when required in a particular communicative scenario. To that effect, in many of the ASL-based sessions in the BiBiBi corpus, TOM and LEX use their spoken language to address their Deaf caregivers and experimenters. It is, therefore, doubtful, that Kodas in this study treat ASL as the dominant language. If they did, however, this fact would still point away from the transfer-based account and toward the one allowing a bilingual (at any age) to incorporate parts of (the structure of) L_X into L_Y without resorting to the

¹¹⁴ As Cantone et al. (2008) show, this approach only scratches at the surface of a potential definition of *dominance*. Historically, *dominance* has been defined in the literature in terms of the (i) MLU (cf. DeHower 1990, Genesee 1995), (ii) standard deviation from the MLU (cf. Müller et al. 2002), (iii) multi-morphemic utterances (Genesee et al. 1995), (iv) mixing (cf. Cantone 2007), (v) lexicon (cf. Müller & Kupisch 2005, Bernardini & Schlyter 2004), (vi) number of utterances per session (Paradis et al. 2000, Cantone & Müller 2005), (vii) emergence of functional morphemes and a number of others.

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notions such as default, C-domain, interface, etc.—an account based on code-mixing/-
switching/-synthesis.

In other words, predictions arising from the 'general bilingualism effect' line of inquiry were not supported.

5. Implications

If the cross-linguistic effects in the speech of ASL-English bilinguals can be described as evidence of code-switching/-mixing—i.e. language-synthesis—between the two languages, then two other predictions arise. The first is that we might expect these effects in other syntactic domains where such switches are possible but unexpected on the Hulk & Müller (2000) model in (1).¹¹⁵ And finally, we predict that the above results should be replicable in a similar language combination. If they are not, the explanation will necessarily lie in the uniqueness of bimodal bilingualism, in which case an account of this uniqueness will be required.

5.1 Influence in other domains

To address the first prediction: in Lillo-Martin, Koulidobrova, Quadros & Chen Pichler (2009), we examine the speech of 3 bimodal bilinguals simultaneously acquiring ASL-English or Brazilian Sign Language (Libras) and Brazilian Portuguese (BP) and find that they use in their speech structures that show no surface overlap with the spoken languages.

¹¹⁵ Furthermore, we predict the effects in both ASL and English, to the degree that the switch is possible. In Lillo-Martin, Koulidobrova, Quadros & Chen Pichler (2011) we find such effects that can be directly accounted for by the code-switching/-mixing model. However, since the focus of this dissertation is the spoken language, I set these data aside.

Recall that the cross-linguistic influence hypothesis in (1) (i.e. Hulk & Müller

For instance, among the properties of both ASL and Libras (though not English

- a. ICE-CREAM BOY LIKE
= 'The boy likes ice-cream.'
= '*Ice-cream boy likes'
- b. WHO LIKE NANCY WHO^{wh}
= 'Who likes Nancy?'
= '*Who likes Nancy who?'
(Petronio & Lillo-Martin 1997)
- c. MOTHER SINCE a-PERSUADE-b SISTER b-COME a-IX
= 'My mother has been urging my sister to come and stay here, she has.'
= '*My mother has been urging my sister to come and stay here she'
(adptd. Padden 1988[1983])

SPC in (39).¹¹⁶

¹¹⁶ We also find structures with respect to which languages overlap on the surface, such as *wh-* in situ. Note that English allows *wh-in situ* (e.g. in echo/disbelief questions, Pires & Taylor 2007). However, in a

- (37) a. Igor (2;10): Em casa a vovó taí [BP]
Target: *A vovó está em casa?*
‘Is grandmother at the house?’
- b. Igor (2;10): Mãe, Laura cabeça bateu
Target: *Mãe, a Laura bateu a cabeça.*
‘Mom, Laura hit her head.’
- (38) Ben (2;01): Sleeping mouse sleeping
Target: ‘The mouse is sleeping’
- (39) Ben (2;03): Stuck it
Target: It’s stuck, it is[?]

Following the line of reasoning advocated in this dissertation—that cross-linguistic effects are best viewed as cases of language-synthesis—we appeal to the relevant part of ASL and Libras syntax directly.

For instance, doubling in ASL and Libras has been described as being directly related to the E(mphatic)-focus projection dominating the TP (Lillo-Martin & Quadros 2004). Nunes & Quadros (2007) argue that doubling proceeds as follows: the relevant element undergoes head-moves to E-focus, leaving a copy behind. One of the copies of the doubled element is able to undergo morphological fusion with the focus-head; thus, the copy is no longer identical to its ‘original’ and is, thus, pronounceable (see Nunes & Quadros 2007 for the details of the analysis).

Here, I abstain from a detailed discussion of the feature specification of the E-focus-head in ASL and Libras ($E-F^{\circ}_{ASL/Libras}$), but to phrase (38) in terms advocated in

neutral information-seeking scenario, they are typically (Zocca 2010) impossible in English (though fully grammatical in ASL). Moreover, studies show that monolingual English children do not begin to use *wh*-in situ structures until much later in development (Grolla 2005). However, in Lillo-Martin, Koulidobrova, Muller de Quadros & Chen Pichler (2011), we find that bimodal bilinguals spontaneously produced more non-fronted *wh*-structures than their English and BP-speaking counterparts, and from an earlier age. Thus, we conclude that in this domain also the child’s spoken languages are exhibiting ‘influence’ of the sign languages. Much the same observation is made for focus-fronting constructions.

this dissertation, one might say the following: if $E-F^{\circ}_{ASL/Libras}$ is *Selected* during a 'spoken language' derivation (i.e. instead of $F^{\circ}_{English/BP}$), a structure will result which will be non-target from the point of view of the spoken language.¹¹⁷ In essence, the *Numeration* of (37) contains some (phonologically covert) head H°_{Libras} while the *Numeration* of (38)-(39) contains H°_{ASL} .

In other words, as predicted, the cross-linguistic influence effects—i.e. language-synthesis of the two languages with phonological representation of the utterance remaining language uniform—occur even when no surface overlap between the languages is observed.

5.2 Additional contribution of bimodal bilingual studies: Lack of (necessary) inhibition

Having addressed why ASL-style null arguments may appear in the English of ASL-English bilinguals (and why they do not in the English of Italian-English bilinguals¹¹⁸), the time has come to tackle the reason why they are not seen in the English of Japanese-English bilinguals. That is, the question is why, to date, ASL-English bilinguals behave differently than other bilinguals acquiring a comparable language combination. I would like to suggest that here, ASL-English bilinguals offer a special contribution due to the fact that—unlike their Japanese-English or Italian-English counterparts—they can use two languages simultaneously.

¹¹⁷ Lillo-Martin et al. (2009) argue that (38) can be described as resulting from choosing a functional element with an uninterpretable focus feature.

¹¹⁸ An alternative explanation of the Romance-Germanic data—i.e. the lack of the 'transfer effects'—is offered in Tamburelli (2008). His system, based on a number of assumptions with respect to morphology, derives un-transferability of pro_{Agr} ; however, it does not straightforwardly extend to argument ellipsis (the analysis of null arguments in ASL advocated in chapter 3).

Using converging methodologies, Kroll and colleagues (Kroll et al. 2008; see also Costa, Miozzo & Caramazza 1999, i.a.) have argued that in the bilingual mind, both languages are always active, and one of them needs to be inhibited for the purposes of production of the other. Arguably, this task demands a certain amount of mental resources. Thus, controlled 'juggling' of more than one language places a unique cognitive burden on bilinguals. In various works, Sorace (an overview in Sorace 2011) has suggested that in this scenario, overt arguments appear. These elements are not 'grammaticalized' (Asudeh 2004); they might be thought of as 'complexity resumptives' (Erteschik-Shir 1992), which, albeit unnecessary from the point of view of syntax, arise due to processing complexity, as in (40):

- (40) This is the girl that Peter said that John thinks that yesterday his mother had given some cakes to (**her**).
(Erteschik-Shir 1992)

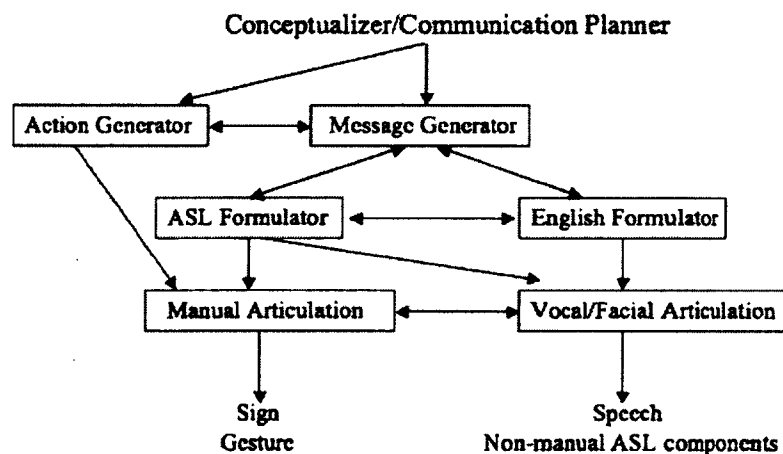
Crucially, this effect is expected irrespective of (and despite) the language requirements for overt argument suppliance. The outcome of this view is that what *appears* on the surface to be a case of unidirectional influence from a non-NS language (like English) into a NS language (like Italian or Japanese) may in reality result from some other bilingual effect associated with inhibiting one of the languages. Thus, even if language-specific interaction (along the lines of (1) or (2)) were possible, its effects on argument omission/suppliance rates would be obscured by the presence of other (e.g. processing related) factors.

The aforementioned implies that the high rate of overt arguments in Italian of an Italian-English bilingual does not betray transfer from English or language-synthesis (i.e.

lexical items from both English and Italian). Rather it reflects a *general bilingualism effect* (i.e. a characteristic of a linguistic mind that is unique to bilinguals) and is, then, also predicted to surface in the languages of a bilingual if both of her languages allow NAs, e.g. Spanish-Italian bilinguals. This prediction appears supported empirically (see section 1.2.1). However, arguably, it also constitutes a *unimodal bilingualism effect*.

In a number of studies, Emmorey and colleagues (Emmorey et al. 2005, Emmorey, Borinstein, Thompson & Gollan 2008, Emmorey & McCullough 2009, Emmorey, Luk, Pyers & Bialystok 2008, Emmorey & McCullough 2008) have argued that what makes a bimodal bilingual different from a unimodal bilingual is simultaneous access to two modes of conveying a message. The authors suggest that a bimodal bilingual uses the gestural system, independently available to all (unimpaired) language users, in producing an utterance in both languages simultaneously. Emmorey et al. (2008) represent the architecture of the bimodal bilingual brain along the lines of (41).

(41) *Figure 1: Bimodal bilingual language architecture (Emmorey et al. 2008)*



This view of the processes associated with bilingual production allows a bimodal bilingual to encode the message in both languages (code-blend, Emmorey et al. 2008, Emmorey et al. 2012). Note a particular consequence of (41): what is possible is simultaneous selection of two lexical representations but not two propositions; although parts of the utterance can come from two different languages (or both), they constitute the same proposition.

This, in turn, translates into the following: in bimodal bilingual production, neither language *needs* to be inhibited. The aforementioned predicts that bimodal bilinguals will code-switch less, as compared to unimodal bilinguals; instead, they will use both languages simultaneously—i.e. code-blend. And, in fact, this prediction is supported empirically. Studies have shown that bimodal bilinguals exhibit a strong preference for code blending (90%) over code switching (<10%) (Emmorey et al. 2008; van den Bogaerde & Baker 2005; Petitto et al. 2001). Emmorey et al. conclude that lexical suppression (inhibition) is computationally more costly than lexical selection. The flip side of this observation relates to the presence (or lack thereof) of the 'bilingualism advantage' in executive control. As research has shown, the constant practice in having to choose the right language for the context (or, rather, to inhibit the other one) leads to a bilinguals' tendency to outperform monolinguals on tests involving competing stimuli (see an overview in Bialystok 2009). However, since an ASL-English bilingual, unlike, e.g., an Italian-English bilingual, is not constantly required to inhibit one of the languages, this kind of 'bilingualism advantage' is unexpected. As Emmorey, Luk, Pyers & Bialystok (2008) show, this prediction is borne out as well: ASL-English bilinguals perform with monolinguals, and not with unimodal bilinguals, on the tasks

related to sorting out competing stimuli (e.g. Flanker and picture-naming tasks). Emmorey et al. (2012) argue that this ability of bimodal bilinguals to produce code-blends without any cost to either of the languages¹¹⁹ implies a potential to bypass the competition.

The view of bimodal bilingualism outlined above suggests that the examination of the linguistic patterns of this population makes it possible to hold the *general bilingualism effects* constant. If language users are not required to (necessarily) inhibit (the production of) one of their languages, then the processing difficulties caused by tasks such as anaphora resolution are diminished.¹²⁰ In such a scenario, language-specific interaction effects will be allowed to surface. Therefore, if the theory of bilingualism effects requires a model of language-specific interactions (as in (1) and (2)) independently from the general bilingualism effects, this need will rise to the surface with bimodal bilinguals, while in unimodal bilinguals, it may be masked by independent factors. Thus, arguably, the juxtaposition of the language-synthesis model and the aforementioned effects, in a way that may be impossible for unimodal bilingualism, allows for a finer-grade theory of bilingualism. To be explicit here: if bimodal bilinguals perform differently from the controls, then the theory of the inter-language influence must take into consideration the unique characteristic of bimodal bilinguals—the lack of a forced language choice. This, of course, brings us back to the fact that the theory of *transfer* will have morphed into a theory of language choice, i.e. a theory of language-synthesis.

¹¹⁹ Although Emmorey et al. (2012) report a 'surface' cost to English—i.e. longer reaction times—they argue that the reason for it is an attempt to synchronize the two languages being produced simultaneously.

¹²⁰ A prediction arises here: in anaphora resolution tasks, bimodal bilinguals should differ from unimodal bilinguals in allowing argument ellipsis in anaphora resolution tasks in their NA language.

6. Conclusion

This chapter has reported a study of argument omission in spontaneous production of ASL-English bilinguals. The language of investigation is English. The study was chiefly guided by two questions: (i) whether ASL-English bilinguals would exhibit cross-linguistic effects in argument omission—arguably the consequence of ASL on their other language—and if they do, (ii) whether the model of cross-linguistic transfer along the lines of Hulk & Müller (2000) would be able to predict the nature of such effects. Further, in light of the findings in **chapter 3**, the question arose (iii) whether the rates of argument omission in the English of ASL-English bilinguals will match that of Italian-English bilinguals; this was checked in an attempt to offer converging evidence that the nature of null argument in ASL is not *pro_{Agr}* as commonly argued for Italian (cf. Holmberg & Roberts 2010).

The results of the study have demonstrated the following: (i) ASL-English bilinguals do exhibit elevated/protracted rates of argument omission in their English typically unobserved in monolinguals, but (ii) the influential model of cross-linguistic influence cannot capture the results. On the other hand, the language-synthesis model advocated in **chapter 2** can account for the omission rates at the relevant stages of development. Moreover, (iii) in support of the findings in **chapter 3** (which has argued against the view of the NA in ASL as a case of *pro_{Agr}*), the study has demonstrated that the argument omission rates in the English of ASL-English bilinguals differ significantly from that of an Italian-English bilingual. Finally, I have suggested further possibilities where the study of linguistic development/production by bimodal bilinguals in general promises to contribute to the study of bilingualism effect. In this, this dissertation joins

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the ranks of other researchers advocating examination of linguistic patterns of bimodal
bilinguals in order to shed light into processes underlying language and cognition (see,
e.g., Pyers, Gollan & Emmorey 2009, i.a.).

Chapter 5

Compendium

1. Questions

This dissertation is best described as an inquiry into linguistic development of multilinguals. This inquiry has taken two distinct forms. On the one hand, I addressed the observation, much discussed in the literature, that one language of a multilingual tends to exhibit certain effects typically associated with their other language(s). These effects have often been described as 'transfer' (Lado 1957), or 'grammatical incorporation' (Genessee & Paradis 2003), of properties from language X (L_X) into language Y (L_Y). The question this dissertation takes on is what the nature of this 'transfer'/'grammatical incorporation' is. It thus contributes to the broader discussion related to what it means to be acquiring more than one language simultaneously, and, consequently, if/why/how the languages might (not) interact.

On the other hand, because questions about linguistic development of multilinguals, with respect to the question just presented, necessarily involves an appeal to properties of L_X and L_Y , I focused on a particular property of one (and lacking in the other) of the languages being acquired by the subjects in this study. The rationale guiding the inquiry is as follows (though not necessarily in this order): (i) L_X exhibits characteristics of having a particular property which L_Y lacks; (ii) the question arises whether children acquiring both L_X and L_Y simultaneously will exhibit L_X -style property in their L_Y ; (iii) if yes, then why? Specifically, I asked whether the currently influential

model of transfer/incorporation of grammatical properties of L_X into L_Y would be able to account for the data. If not, a new account would be in order.

2. Answers

The language pair under examination was ASL-English; the relevant property was argument omission, typically allowed in ASL and disallowed in English. The question addressed in the dissertation, then, was whether ASL-style argument omission was to be expected in the English of ASL-English bilinguals. I argued that the answer to this question was contingent on a revised account of argument omission in ASL.

In **chapter 3**, I demonstrated that standard accounts of the null argument in ASL (NA_{ASL}) fail to capture a number of empirical observations. One such observation is that the NA_{ASL} has a reading which is typically considered a hallmark of ellipsis, rather than a pronoun—i.e. the sloppy reading. Standard accounts view the NA_{ASL} as either (i) an agreement-licensed pro_{Agr} , thus attributing to the ASL verbal domain the characteristics observed in languages like Spanish and Italian (Roberts & Holmberg. 2010), or (ii) ambiguous between pro_{Agr} and a topic-bound variable typically found in languages without morphological agreement, e.g. East Asian languages (Huang 1984). Instead, I showed that taking into consideration additional properties of ASL, the account of the NA_{ASL} as resulting from argument ellipsis (Saito 2007, i.a.) derives the facts. This ellipsis targets only nominal arguments—i.e. NPs, due to the additional ASL-specific requirement that argument ellipsis target only non-branching nodes. On the way to this conclusion, I demonstrated that ASL is best viewed as a language lacking a definite article, which means that bare NPs in ASL can be arguments. Incorporating the

aforementioned into the account of ellipsis, the data presented in the chapter point to the conclusion that ellipsis targets a full argument that is both a head and a phrase—i.e. a non-branching NP where NP is a maximal projection.

The combination of these conclusions implies that NA_{ASL} is a result of NP-ellipsis as a subcase of argument ellipsis in a language that lacks a definite article and morphological agreement in terms of uninterpretable ϕ -features on T° and v° , under Saito's (2007) account of argument ellipsis. That is, the main differences between ASL and English with respect to the property of argument omission lie in the feature specification of T° and v° (containing uninterpretable ϕ -features in English but not ASL) and the nature of the nominal domain (the ability of bare NPs to serve as arguments in ASL but not in English). Thus, **chapter 3** made an independent contribution to the field of ASL syntax.

Having clarified the nature of argument omission in ASL (i.e. the property of L_X (ASL), absent in L_Y (English)), I took on the question whether this property 'transfers' into the English of children who acquire ASL and English simultaneously. But before this issue could be tackled, another question needed to be answered, namely whether the potential transfer was to be viewed in terms of the *property of argument omission* or in terms of the feature specifications of T° and v° , for instance—i.e. the nature of the *elements from L_X vs. L_Y* . The difference is not trivial, and its discussion took place in **chapter 2**. The discussion unfurled as follows.

In the domain of simultaneous multilingual language acquisition, in recent years, a new term has been applied to 'transfer effects,' which resulted from the seminal work

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by Hulk & Müller (Hulk & Müller 2000, i.a.)—i.e. ‘cross-linguistic influence.’¹²¹ On this view, under the *influence* of L_X (in terms of surface forms in the input), acquisition of L_Y by multilinguals may proceed in a manner different from that of L_Y - and, potentially, consistent with that of L_X -monolinguals, but its effects are expected to disappear with the instantiation of the C-domain. As discussed at length in **chapter 2**, the model approaches the phenomenon under examination as the *property* L_X rather than the nature of some *element from* L_X . In the chapter, I challenged the Hulk & Müller model on conceptual, as well as empirical grounds, and proposed an alternative which appeals to direct involvement of lexical items from multilinguals’ languages—i.e. the presence of *elements* from L_X amidst L_Y . That is, certain surface properties of L_X are observable in multilinguals’ L_Y because some *element* (i.e. a lexical item) from L_X has wound up in the clause made-up of L_Y items. I argued that this approach to linguistic patterns of multilinguals is more consistent with the view of language architecture assumed in this dissertation: the dissertation is couched in the *Minimalist* framework (Chomsky 1995, *et seq.*), where language variation is considered to be lexical in nature.

In other words, I claimed that language interaction effects observed in the languages of multilinguals are best viewed as the result of a larger inventory of lexical items. Such an approach resembles in great detail the *Minimalist* model of code-switching/-mixing (e.g. MacSwan 1997, 2005, i.a.). However, it is usually assumed in the code-switching literature that the aforementioned elements/lexical items are always overt; thus, the phonological form of the utterance will always betray the switch: some lexical items are pronounced in L_X while others are uttered in L_Y . Yet, this switch may

¹²¹ Although a priori the terms ‘transfer’ and ‘influence’ are clearly distinguishable, in the wake of Hulk & Müller’s proposal, they have often been used interchangeably.

not be easily detected. For instance, if the element from L_X happens to be silent (e.g. a functional head), then one must rely on the structure and other information, rather than phonology, to detect code-switch/-mix in L_Y (cf. Gozalez-Vilbazo & Lopez 2011, den Dikken 2011, Shim 2008, Bok-Su Chan 2008, i.a.). That is, if the lexical item does not have any phonological import, the utterance may never exhibit the presence of both L_X and L_Y overtly: informally, words will be from L_Y though (parts of) structure—from L_X (i.e. a direct result of the presence of a functional element from L_X). This approach allows the language of the phrase/utterance to remain uniform with respect to phonology.

In order to subsume such cases under the notion of code-switching/-mixing, and in order to bypass the connotations normally associated with these terms, I labeled the general notion involving elements from both L_X and L_Y in one Numeration *language-synthesis*. Overall, in **chapter 2**, I demonstrated that in capturing language interaction (a.k.a. transfer) effects between the languages of a multilingual, *language-synthesis* is a worthy competitor to the *cross-linguistic influence* view both conceptually and empirically.

In **chapter 4**, I subjected both models outlined above to the test. Concretely, having shown that argument omission in ASL results from the T° and v° with specifications different from their English counterparts, and that such argument omission may in principle be expected in the English of ASL-English bilinguals, the language-synthesis model implies that if the ASL-English bilingual child were to *Select* T°_{ASL} and/or v°_{ASL} (i.e. *elements*) for the Numeration containing otherwise English lexical items, argument omission may result (subject and/or object ellipsis, respectively). The possibility of this occurring in the ASL-English bilinguals' English is divorced entirely

from the knowledge of the adult languages' morpho-syntax (i.e. having *acquired* the English T^0 and v^0 , for instance); rather, some other knowledge, regulating an ability/necessity of suppressing one of the languages during the use of the other is required. Conversely, the account of argument omission in the English of ASL-English bilinguals à la cross-linguistic influence offers different predictions. In particular, Hulk & Müller (2000) would predict that ASL-English bilinguals may exhibit argument omission (i.e. *property*) in their English, which results from their observations of argument omission in ASL. However, the pattern of argument omission in their English will be only quantitatively (and not qualitatively) different from the monolingual comparison cases; i.e. there should be nothing clearly ASL-like about argument omission in the speech of these bilinguals. Crucially, if at all present, it will subside with the instantiation of the C-domain in the children's English.

Chapter 4 reported a study of linguistic patterns of two balanced ASL-English bilingual hearing children of Deaf adults (Kodas): TOM (age: 1;11-4;11.09; MLU: 1.2-4.3; total number of utterances: 4917) and LEX (age: 3;03.12-4;09.20; MLU: 2.91-4.5; total number of utterances: 3448). Both children are a part of the BIBIBI corpus (Lillo-Martin et al. 2009, Chen-Pichler et al. 2010). In the study, the children's rates of subject and object omission were compared quantitatively and qualitatively to those of monolingual English learners and Carlo—an Italian-English bilingual subject of Serratrice et al. (2004). As the study showed, Kodas continue to omit arguments significantly later, and differently, than both monolinguals and Carlo: TOM and LEX exhibited ASL-style cases of argument omission in fairly complex sentences in the very last transcripts—i.e. at 5 years of age (and possibly longer, but data are not available). In

other words, NAs appear to be/remain a part of their grammar; these NAs may be viewed to involve the relevant lexical items from ASL. In other words, the data presented in **chapter 4** lend support to the language-synthesis view of 'transfer effects': although it is clearly the case that TOM and LEX's English grammar is sufficiently complex (with respect to the instantiation of the C-domain, see discussion in **chapter 2**), the rates and environments of argument omission in their English are incompatible with argument omission patterns observed in monolingual English speakers. The findings in the study are inconsistent with the cross-linguistic influence view of language interaction in the linguistic mind of a multilingual.

3. Directions

The data provide a number of directions for future research.

In terms of the discussion in **chapter 2**, additional questions unfurl. First, although the model of language-synthesis is conceptually appealing and, thus far, empirically sound, it should be tested for a number of 'properties' directly involving particular pieces (i.e. lexical items) from L_X and L_Y . The question arises, for instance, whether any combination of lexical items from any two languages will yield a grammatical language-synthesis. The answer, most likely, will be 'no.' For example, a clear constraint on the set of possibilities comes from the size of the Spell-Out domain. To that effect, Gonzalez-Vilbazo & Lopez (2011) argue that code-switches are phase-constrained. This approach offers predictions for the patterns of 'transfer effects' in the same manner as it may explain patterns of overt code-mixes (Cantone 2007). Second, den Dikken (2011) suggests that functional elements (unlike other types of lexical items)

compete for insertion. This view too offers concrete predictions for the nature of multilingual utterances—namely that (i) the languages of multilinguals are never separated and always in competition with one another, and (ii) therefore, their linguistic production is thus forever affected by the presence of competing (and winning the competition) elements in their inventory. More research is in order here as well.

In turn, **chapter 3** offers a number of other directions to pursue. First, I have argued that on a variety of tests, ASL patterns with languages without an overt definite article and, on the assumptions adopted in the chapter, lacks DP. More needs to be done here in defense of this view. Additionally, the data presented in the chapter derive argument ellipsis effects based on the lack of (i) agreement in the relevant cases and (ii) D° , which takes NPs as complements. This suggests that if, in a particular configuration, some X° were to (necessarily) take the NP as a complement, the facts presented in **chapter 3** may change,¹²² on a par with other similarly behaving languages, such as Japanese (M. Takahashi 2011). Furthermore, quantification in ASL, and how it compares to other languages behaving on a par (such as Russian, see Partee 2007, and Japanese, Nishiguchi 2009) should be checked. For instance, Nishiguchi (2009) argues that quantifiers in Japanese act semantically differently than their English counterparts—i.e. they are not type $\langle\langle et \rangle t \rangle$. This route of inquiry promises to offer an additional explanation regarding ellipsis cases in **chapter 3**: the fact that the quantifier, much like a regular adjective, is not interpreted in the ellipsis site. No doubt, additional predictions will arise as well. Also, a cross-linguistic investigation of Sign languages with respect to the phenomena described in the chapter is warranted. For instance, Quer (2011) argues

¹²² Bošković (2010) has argued that such cases do exist in some NP languages, though the X° is not a D° .

that Catalan Sign Language (LSC) exhibits effects reminiscent of argument ellipsis (AE) in Japanese but without the argument/adjunct asymmetry. In this, LSC and ASL differ. Finally, I have suggested a route for investigation the nature of pronouns and agreement in ASL—the two topics that permeate Sign linguistics. I have suggested a route to exploring both.

The study presented in **chapter 4** calls for an obvious parallel in the subjects' other language. That is, the language-synthesis view of ASL-English effects predicts that if ASL-English bilinguals *Select* T°_{Eng} and/or v°_{Eng} while the rest of the lexical items are ASL, ASL-style subject and/or object ellipsis will not result. That is, due to the fact that T°_{Eng} and v°_{Eng} are in principle available to the children acquiring English simultaneously with ASL, we may expect a higher rate of overt arguments in the bilinguals' ASL compared with monolingual signers.

In addition to the aforementioned venues of inquiry, two independent questions arise. The first one is directly related to the population under discussion in this dissertation—namely whether the types of processes observed in bimodal bilingualism are also predicted to surface in unimodal bilingualism (see **chapter 1**). I have shown that Kodos behave in a manner comparable with neither monolinguals nor Carlo (Serratrice et al. 2004)—the unimodal bilingual comparison. Independently, Sorace and colleagues (see an overview in Sorace 2011) argue that the multilingual children tend to supply overt arguments, irrespective of the NA-status of their languages (see **chapters 2 and 4** for the discussion). This linguistic behavior results directly from a processing-based necessity: because one of the languages always needs to be inhibited (see, e.g., Kroll 2006), processing becomes too complex, and, thus, multilinguals may insert 'complexity-

resumptives' (Asudeh 2004, Sells 1984). Note, however, that unlike their unimodal bilingual counterparts, bimodal bilinguals do not suffer from the effects of the constant inhibition of one of the languages in favor of the other. In fact (see the discussion in **chapter 4**), they can, and do, use both of their languages at the same time. The aforementioned may thus predict that with respect to argument omission, or, rather suppliance, patterns, bimodal bilinguals in general, and ASL-English bilinguals in particular, may behave differently.

The second question results from the theory of 'transfer' outlined in **chapter 2**. Looking back at the history of the term reveals an interesting path to pursue: if 'transfer' in 2L1 acquisition is to be viewed as language-synthesis, then what precludes it from being viewed as such in L2 learning? Note that 'transfer' when it comes to L2 has also been viewed in terms of 'influence'—the approach I have spilled some ink arguing against. Consider (1):

- (1) 'Transfer is the influence resulting from the similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired' (Odlin 1989: 27)

Odlin (2009) argues that a real boundary exists between code-switching and transfer cases in L2; this boundary is rooted in the overt contrast between the languages involved. However, as I have argued in **chapters 2 and 4**, if code-switching is, in fact, a phenomenon along the lines of (2)—i.e. language synthesis—then this boundary is, at best, artificial: .

- (2) A lexical item from L(language)_x appears amidst the items from L(language)_y

That is, if the element from L_X is covert, then no overt contrast between the languages within the utterance will be observed.

In fact, some of the literature on L2 learning has argued that analysis of L2 patterns reveals that L2 learners often behave as if they analyze functional elements of the target language in terms of their L1 but give them a phonological make-up from L2 (cf. Lardier 2008). Note that this view is in accord with the suggestions arising from **chapter 2**.

Interestingly, the difference between code-switching and other language-interaction effects has also been appealed to in assessment of bimodal bilingual patterns. E.g., Emmorey et al. (2008) demonstrate that *instead* of code-switching—a practice common among unimodal bilinguals, bimodal bilinguals tend to code-blend. That is, they use both languages at the same time. Yet, on the view advocated in detail **chapter 2**, the aforementioned still implies a kind of code-switch (in terms of language synthesis) though its P(honological)F(orm) outcome is overt in each of the modalities independently. An implementation of this idea deserves further inquiry.

Finally, the account of language interaction effects offered in this chapter carries obvious consequences for multilingual adults: when and how do they separate their linguistic inventories, or do they at all? It seems that the view of 'transfer' between the languages of a multilingual child as outlined here is extendable to phenomena observed in languages in contact—namely, pieces of L_X in an utterance otherwise containing lexical items from L_Y , or, at the very least, their phonological incarnations. Suggestions along these lines have recently been made in the literature (Winford 2009, Wei 2009, i.a.;

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see also Mathews & Yip 2009) and offer concrete predictions for future research. Various examples of such predictions are found in van Dulm (2009), van Gelederen & MacSwan (2008), Treffers-Daller (2005), Amuzu (2005), Al-Qudhai'een (2004)

Undoubtedly, a number of other predictions will surface as a result of further investigation of the phenomena discussed in this dissertation. I leave them all for future research.

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