On Zero Agreement and Polysynthesis[*]

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1. Introduction

Research on polysynthesis and nonconfigurationality in the tradition of Jelinek (1984) and Baker (1996) assigns great significance to the presence of agreement on verbs and other theta-role assigners. My Polysynthesis Parameter, for example, says that every argument of a predicate must be expressed by morphology on the word that contains that theta-role assigner:

(1) *The Polysynthesis Parameter* (Informal version, Baker 1996: 14)
Every argument of a head element must be related to a morpheme in the word containing that head (an agreement morpheme, or an incorporated root).
Yes: Mohawk, Nahuatl, Southern Tiwa, Mayali, Chukchee, (Mapudungun) …
No: English, Spanish, Chichewa, Japanese, Quechua, Turkish, (Kinande)…

Agreement morphology is the single most important way of satisfying this requirement, the other being incorporation. (1) implies that in a polysynthetic language like Mohawk, all verbs necessarily agreement with subjects, objects, and indirect objects, except for the special case when the direct object is incorporated into the verb. This accounts elegantly for paradigms like the following, found also in languages like Nahuatl and Chukchee:[1]

[*] This chapter was made possible thanks to a trip to Argentina in October 2000, to visit at the Universidad de Comahue in General Roca, Argentina. This gave me a chance to supplement my knowledge of Mapudungun from secondary sources (Smeets 1989, Salas 1992, Augusta 1903) by consulting with Argentine experts on this language (Pascual Masullo, Lucia Gulluscio, and Roberto Aranovich), and by interviewing their Mapuche consultants, as well as members of the Mapuche community that we met in Junin de los Andes, Argentina. Special thanks go to Pascual Masullo for making this trip possible. I also thank those who attended my class on polysynthesis at Universidad de Comahue, and the audience at the workshop on agreement and argument structure held at Utrecht University in August-September 2001 for their comments. The original Mapudungun data reported in this paper was gathered in a relatively short amount of time and under unusual circumstances (I asked various different speakers a few questions each, scattered over several different occasions, rather than working everything out systematically with one or two speakers.) Nevertheless inasmuch as my results agree well with what is in the published literature as far as it goes and with what is known to the collaborators listed above, I believe them to be accurate. The Kinande data in this article was collected from Ngessimo Mutaka during his visit to Rutgers University in the Spring of 2001. Any remaining mistakes are, of course, my own fault.

[1] Abbreviations used in the glosses include the following: AFF, affirmative head; APPL, applicative; ASSOC, associative particle; AUG, augment vowel; CAUS, causative; CIS, cislocative; DIR, directional; DIST, distributive; DS, dative subject; EXT, extension; FACT, factual mood; FCT, factitive; FOC, focus particle; FUT, future tense; FV, final vowel (Bantu); HAB, habitual; IMPER, imperative; IND, indicative mood; INST, instrumental case/preposition; IVN, instrumental nominalizer; LK, linker particle; LOC, locative; NEG, negative; NOML, nominalizer; NPST, nonpast tense; NRLD, nonrealized tense; OM, object marker; PAST, past tense; PLUR, plural; POSS, possessive particle; PRES, present tense; PUNC, punctual aspect; SM, subject marker (Bantu); T, tense (unspecified); TR, transitivizer. Agreement markers, when not simply given as OM or SM, are complex forms that indicate person (1, 2, or 3) or gender (M, F, N),

(2) a. *Ra-nuhwe'-s ne owira'a. (Mohawk, Baker 1996: 21)
MsS-like-HAB NE baby
'He likes babies.'

b. Shako-nuhwe'-s (ne owira'a).
MsS/FO-like-HAB NE baby
'He likes them (babies).'

c. Ra-wir-a-nuhwe'-s.
MsS-baby-Ø-like-HAB
'He likes babies.'

A transitive verb in Mohawk must contain an object agreement morpheme ((2b)) or an incorporated noun root ((2c)); an example like (2a) with neither one is ruled out by (1).

Agreement is also important in a second way: when it is present it is taken to induce dislocation of any overt NP associated with the agreement, as in (3) (from Baker to appear; see also Baker 1996: 83-89).

(3) [In a certain class of languages], a verb X agrees with an overt NP Y if and only if Y is in a dislocated, adjunct position.

Agreed-with NPs are thus found not in canonical argument positions, but rather in positions adjoined to the clause, and their syntactic properties are like those of clitic left-dislocated NPs in Romance languages (see Cinque (1990)). Among other things, this means that the NPs can appear in any order, on either side of the clause, and can be omitted without rendering the clause incomplete. In short, full agreement creates a particular kind of nonconfigurational syntax. The causal relationship between agreement and dislocation is a bit abstract for languages like Mohawk, which have the "yes" value of the Polysynthesis Parameter. Since every argument is agreed with, and every argument is dislocated it is hard to be sure that the one causes the other. Bantu languages like Chichewa and Kinande illustrate the collection more clearly. These languages have the "no" value of the Polysynthesis Parameter. Subject and object agreements are thus possibilities in these languages, but not requirements. One can then therefore see more clearly that dislocation of (say) the object is correlated with presence of object agreement on the verb, as shown in (4) and (5).

(4) a. Njuchi [$_{VP}$ zi-na-lum-a alenje] (Chichewa, Bresnan and Mchombo 1987)
Bees SM-past-bit-FV hunters.
'The bees stung the hunters.'

b. Njuchi [$_{VP}$ zi-na-*wa*-lum-a] alenje
Bees SM-past-OM-bit-fv hunters.'

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followed by number (s, d, or p), followed by series (S for subject or O for object). For more information about what these are, see the original sources.

‘The bees stung the hunters.’

(5) a. N-a-gul-a eritunda. (Kinande)
1sS-past-buy fruit
‘I bought a fruit.’

b. Eritunda, n-a-ri-gul-a.
fruit 1sS-past-OM-buy-FV
‘The fruit, I bought it.’

Bresnan and Mchombo 1987 provide evidence from word order and phrasal phonology that the object *alenje* ‘hunters’ is contained in the verb phrase in (4a) but not in (4b). The distinction is even more obvious in Kinande, which allows only left dislocation. The presence of agreement has an unsubtle affect on word order in this language: unagreed-with objects immediately follow the verb ((5a)), whereas agreed-with objects (if present at all) come at the front of the sentence as a whole ((5b)). Such facts put (3) on a solid grounding. This implies that agreement has strong syntactic effects, at least in a significant class of languages. Together (1) and (3) have approximately the same effect as Jelinek’s (1984) well-known Pronominal Argument Hypothesis, with a few minor technical differences concerning whether agreement is itself an argument or merely licenses null pronoun arguments. (See Baker (to appear) for a proposed parameter that distinguishes languages like Bantu and Mohawk, in which agreement always goes hand-in-hand with dislocation, from Indo-European languages, in which it does not.)

This general program for analyzing polysynthetic languages depends in a crucial way on the ability to recognize null agreement affixes. It is clear that not every argument in a polysynthetic language is associated with a manifest agreement affix on the verb. Mohawk verbs, for example, seem not to agree with third person neuter inanimate objects. The agreement prefix in the transitive sentence in (6a) is no different from the one on the intransitive sentence in (6b), showing that the presence of a neuter object has no effect on the verbal morphology. (6c) makes the same point in a different way, showing that incorporating the neuter object has no affect on the agreement borne by the verb. (6c) is different from (2c) in this respect, where incorporation of the object changes the agreement prefix because the object-agreement factor has become superfluous.

(6) a. Sak *ra*-nuhwe’-s ne atya’tawi.
Sak MsS-like-HAB NE dress
‘Sak likes the dress.’

b. Sak *ra*-rast-ha’.
Sak MsS-draw-HAB
‘Sak is drawing.’

c. Sak *ra*-[a]tya’tawi-tsher-a-nuhwe’-s.
Sak MsS-dress-NOML-Ø-like-HAB
‘Sak likes the dress.’

A more serious example, perhaps, concerns the theme objects of double object constructions. These can only be third person neuter NPs in Mohawk, and they too have no influence on the verb morphology, as shown by the fact that the version with the theme incorporated has the same prefix as the version without the theme incorporated:

(7) a. Sak wa-hiy-u-’ ne ashare’.
Sak FACT-1sS/1MsO-give-PUNC NE knife
‘I gave Sak the knife.’

b. Sak wa-hiy-a’shar-u-’.
Sak FACT-1sS/MsO-knife-give-PUNC
‘I gave Sak the knife.’

c. *Sak t-a-hiy-u-’ ne owira’a.
Sak CIS-FACT-1sS/MsO-give-PUNC NE baby
‘I gave Sak the baby.’

Such cases are found quite routinely in most polysynthetic languages. Some people (notably Austin and Bresnan (1996: 242-43)) have used them to argue against the Polysynthesis Parameter or the Pronominal Argument Hypothesis. But proponents of such theories are generally unmoved. We say that (6a) has an object agreement and (6b) and (6c) do not, but this is difficult to see because the form of the agreement happens to be Ø. Similarly, we say that (7a) has a third agreement in it, but triple-agreement forms are only possible when the third morpheme is a Ø. In one sense, this seems perfectly reasonable, since nearly all linguists, descriptive and theoretical, acknowledge the presence of zero agreement morphology in some cases. But this gambit, if used too freely, can look suspicious to a skeptic. If one can blithely appeal to zero morphology whenever one likes, ideas like the Polysynthesis Parameter and the Pronominal Argument Hypothesis could become untestable. Therefore, proving that it is correct to distinguish the presence of a null agreement from the absence of agreement and learning how tell when one has which are urgent tasks for evaluating the truth of this family of ideas.

In the remainder of this chapter I propose to investigate this general issue by way of a case study of Mapudungun, a polysynthetic language of the Chilean and Argentinean Andes (Augusta 1903; Smeets 1989; Salas 1992). This language is interesting in that it has an overt third-person object agreement marker *fi*, and this marker seems to be optional, as shown in (8).

(8) a. Nü-n mapu. (Smeets 1989: 19)
take-1sS land
‘I took land’

b. Nü-fi-n mapu.
take-OM-1sS land
‘I took the land.’

In this respect, Mapudungun seems on the surface to be like the Bantu languages shown in (4) and (5) and unlike Mohawk and other true polysynthetic languages. But I will argue that appearances are deceiving. Whereas agreed-with objects show very different syntactic behavior from unagreed-with objects in the Bantu languages, in Mapudungun there is no detectable syntactic difference. Rather, objects in clauses in which the verb bears *fi* have the same behavior as objects in clauses in which the verb does not. Furthermore, both objects have a syntax comparable to that of agreed-with objects in Bantu languages, not with unagreed-with objects. From this I conclude that it is reasonable to posit an agreement marker in (8b), the shape of which is Ø. Thus Mapudungun provides an example of Ø agreement and Kinande an example of absence of agreement. This distinction, which the Polysynthesis Parameter and the Pronominal Argument Hypothesis depend on, is thus seen to be valid.[2]

The Mapudungun-Kinande comparison raises an interesting learnability problem. How can children acquiring a language learn the very subtle distinction between absence of agreement and presence of null agreement, given only simple grammatical sentences? Normally Ø morphology is posited in cases of obvious paradigmatic "holes"—cases in which every cell of a paradigm but one has an overt morpheme. But there is no such hole in the Mapudungun paradigm, since the child will learn that third person objects go with *fi* agreement. There must, then, be a less direct way of acquiring this knowledge. I argue that the Polysynthesis Parameter plays a crucial role in this. The child is exposed to other kinds of evidence that Mapudungun is a polysynthetic language, but Kinande is not—evidence from noun incorporation, causative patterns, and nominalization of embedded clauses. I claim that this evidence is enough to tell the child that the Polysynthesis Parameter is set "yes" in Mapudungun, but "no" in Kinande. This in turn tells them that there must be a Ø object marker in (8a), but there is no such inference for (4a)/(5a), so their natural conservatism leads them to assume no null affix in Bantu. This shows that "macroparameters" like (1), which are not local to particular constructions but shape whole languages in a global way, are psychologically real and play an important role in how children come to have the language that they do.

But first I must convince you that the distinction is real, before I can expect you to join me in wondering how it could be learned.

2. Null Agreement versus Absence of Agreement

2.1 Agreement and Pro-drop

Agreement has long been associated with pro-drop phenomena. Languages that have rich agreement paradigms typically do not require a full NP argument in the agreed-with position, because (depending on one's theory) the agreement morpheme either counts as a pronoun in its own right or else it licenses the presence of a null pronoun. When a language that is otherwise a pro-drop language happens to lack an agreeing form for a particular combination of person, number, and tense, an overt noun phrase is sometimes

[2] The overall theme of this article is very similar to that of Mithun (1986). She too argues that some languages that seem to lack agreement markers really do, whereas others actually have phonologically null agreement markers. The languages she considers and the tests she uses to establish this result are quite different, however.

required in just such environments; Hebrew (Borer 1986) and Irish (McCloskey and Hale 1984) are two prominent examples. Thus, agreement is generally required in order to have a null pronominal interpretation in languages that have agreement at all (Jaeggli and Safir 1989).

(9) If a language has agreeing forms, then agreement is needed to license a null pronoun.

Kinande fits very well with this general picture. The verb in the main clause in (10a) bears object agreement, and this clause is understood as having a pronoun that refers back to 'potatoes', the object of the conditional clause. In contrast, the verb in the main clause in (10b) has no object agreement, and this clause cannot be interpreted as containing a pronoun. The second verb in (10b) can only be understood as an intransitive verb 'to do the cooking'.

(10) a. Ng-u-li-gul-a ebitsungu, Kambale a-luandi-*bi*-kuk-a.
if-2sS-npst-buy-FV potatoes Kambale SM-FUT-OM-cook-FV
'If you buy potatoes, Kambale will cook them.'

b. #Ng-u-li-gul-a ebitsungu, Kambale a-luandi-kuk-a.
if-2sS-npst-buy-FV potatoes Kambale SM-FUT-cook-FV
Only as: 'If you buy potatoes, Kambale will do the cooking.'

Mapudungun is different in this regard. A transitive verb that bears the object marker *fi* but has no overt NP object is interpreted as having a pronominal object, as expected, but so too is a transitive verb that does not bear *fi*. This is illustrated elegantly by the following minimal pair taken from the same page of a narrative text (Smeets 1989: 600). The story as a whole is reminiscences of the teller's father. The two sentences contain the same verb, but it is inflected with *fi* in the second case and not the first. In spite of this difference, both are understood as having third person singular pronouns that refer to the narrator's father, the topic of the text as a whole.

(11) a. Fey-mu fiy ta yepa-le-r-pu-y-iñ iñchiñ,
that-INST PRT PRT take.after-ST-ITR-LOC-IND-1pS we
'In this respect we take after him [our father].'

b. yepa-ntu-nie-r-pu-*fi*-y-iñ kümé dungu-mu yiñ kon-küle-al,
take.after-…-LOC-OM-IND-1sP good matter-INST we enter-NOML
'We take after him [our father] in that we get involved in good things.'

There are on the order of four or five examples of this kind in the 125 pages of texts in Smeets 1989. There are two in the second sentence in (12), referring back to the NP 'cattle' found at the end of the first sentence (Smeets 1989:513):

(12) … pichi-ke ngül-üm-nie-rki-y plata ngilla-ya-m kulliñ.
Little-DIST join-CAUS-PRPS-REF-IND/3sS money buy-NRLD-IVN cattle.

'…little by little he saved money to buy cattle.'

Ngilla-ye-m elfal-ke-fu-y ñi pu wenüy-mew.
buy-DIST-INST entrust-CF-IPD-IND/3S poss3 PLUR friend-INST
'Whenever he bought [some], he used to entrust [them] to his friends.'

Another example is found in Augusta (1903: 288). These facts, taken together with the principle in (9), imply that Mapudungun has a Ø object agreement but Kinande does not.

2.2 Agreement and Word Order

It is well-known that languages with extensive agreement systems often tolerate more freedom of word order than languages without agreement. English, for example, has sparse subject agreement, no object agreement at all, and is a rigid SVO language; Mohawk has agreement with both subject and object and it permits the major constituents of the clause to come in any order (Baker 1996). Chichewa is a particularly interesting case in this regard, because object agreement is optional. Bresnan and Mchombo (1987) show that when object agreement is absent, the object must be right-adjacent to the verb, as in English, whereas the subject can be on either edge of the sentence. When object agreement is present, then any order of subject, object, and verb is acceptable, as in Mohawk. These patterns are summarized in (13), all of which have the same meaning as (13a).

(13) a. Njuchi zi-na-(wa)-lum-a alenje
bees SM-past-OM-bit-FV hunters.
'The bees stung the hunters.'

b. Zi-na-(wa)-lum-a alenje njuchi.
SM-past-OM-bit-FV hunters bees

c. Alenje zi-na-*(wa)-lum-a njuchi.
hunters SM-past-OM-bit-FV bees

d. Alenje njuchi zi-na-*(wa)-lum-a.
hunters bees SM-past-OM-bit-FV

e. Njuchi alenje zi-na-*(wa)-lum-a.
bees hunters SM-past-OM-bit-FV

f. Zi-na-*(wa)-lum-a njuchi alenje.
SM-past-OM-bit-FV bees hunters

Chichewa thus demonstrates a perfect correlation between agreement and freedom of order: subjects are always agreed with and can come on either side of the verb; objects can be agreed with and can appear on either side of the verb only when they are. This gives us the following crude working generalization:

(14) In head marking languages, an argument X is freely ordered with respect to the verb only if the verb agrees with X.

Consider now word order in Mapudungun. (15) shows that the understood object can come either before or after the verb when the object marker *fi* is present, as expected.

(15) a. Metawe pe-fi-n.
vessel see-OM-1sS
'I see the vessel.'

b. Pe-fi-n metawe.
see-OM-1sS vessel
'I see the vessel.'

Agreed-with objects also do not need to be adjacent to the verb; rather, they can be separated from the verb by an overt subject (or an adverb), giving OSV or VSO word orders:

(16) a. Metawe iñche pe-fi-n.
vessel I see-OM-1sS
'I see the vessel.'

b. Pe-fi-n iñche metawe.
see-OM-1sS I vessel
'I see the vessel.'

Indeed, all six orders of subject, object, and verb are possible, just as in Chichewa. This is in accordance with Smeets's (1989: 459) observation that word order in Mapudungun is "basically free". This is also consistent with the descriptive generalization in (14).

Unlike in Chichewa, however, Mapudungun word order is just as free when the object marker *fi* is absent. Apart from this morphological difference, the examples in (17) are identical to those in (15) and (16).

(17) a. Metawe pe-n.
vessel see-1sS
'I see the vessel.'

b. Pe-n metawe.
see-1sS vessel
'I see the vessel.'

c. Metawe iñche pe-n.
vessel I see-1sS
'I see the vessel.'

d. Pe-n iñche metawe.
see-1sS I vessel
'I see the vessel.'

These patterns fall immediately into place if Mapudungun has a null object agreement as well as *fi*, whereas Chichewa does not.

The generalization in (14) will not do as a theoretical principle, of course. The theories of nonconfigurationality in Jelinek (1984), Baker (1996), and related work connect word order facts like those in this section to the pro-drop facts discussed in the previous section. We know that clauses in languages like Chichewa and Mapudungun are complete without any overt NPs and that the arguments of the verb in such a clause are inherently pronominal, thanks to the presence of agreement morphology on the verb. We can suppose that the same is true in clauses that contain overt NPs. These overt NPs may then have the status of dislocated phrases, which are adjoined to the clause as extra "topics" and the like. Even in configurational languages like English, such dislocated expressions can occur on either edge of the clause, as long as pronouns are present in the relevant position(s) inside the clause:

(18) a. That vessel, I saw it near the sink.
b. I saw it near the sink, that vessel.

The idea, then, is that the syntax of "simple" clauses in Mohawk, Chichewa, and Mapudungun are comparable that that of dislocated clauses like that in (18) in English, except that the pronominal arguments are null/realized as agreement on the verb. This is the underlying source of free word order in head-marking languages.

This perspective also gives us a way of thinking about the fact that word order is more free in some head marking languages than in others. Kinande, for example, is like Chichewa in that the object NP must be right-adjacent to the verb when there is no object marker. But (as already mentioned in section 1) it is more restrictive than Chichewa in that when the object marker is present, an associated NP can only come at the beginning of the clause, not at the end:

(19) a. N-a-(*ri)-gul-a eritunda.
1sS-T-OM-buy-FV fruit
'I bought a fruit.'

b. Eritunda, n-a-*(ri)-gul-a.
fruit 1sS-T-OM-buy
'The fruit, I bought it.'

This difference can be described by saying that Kinande allows only left-dislocation, whereas Mapudungun and Chichewa (like Mohawk and English) allow both left- and right-dislocation. The difference can also be observed with subjects: agreed with subjects appear on either side of the clause in Mapudungun ((16)) (Smeets 1989: 454-55) and Chichewa ((13)), but they can only come before the verb in Kinande:

(20) a. Omukali mo-a-sat-ire.
woman AFF-3s/T-dance-EXT
'The woman danced.'

b. *Mo-a-sat-ire omukali.
AFF-3s/T-dance-EXT woman
'The woman danced.'

Thus, I take it that the deeper property that underlies (14) is (21) (repeated from (3)).[3]

(21) In [a certain class of] languages, an argument X is dislocated if and only if the verb agrees with X.

Dislocation in turn produces free word order to varying degrees in different languages depending on whether they allow both left and right-adjunction of topic NPs.

In Baker (1991; 1996), to appear) I pushed this line of reasoning a bit further, arguing that the reason why agreement forces dislocation in these languages is because it absorbs the Case features of the head that it attaches to (T for subject agreement; V (or v) for object agreement). As a result, overt NPs cannot appear in the corresponding argument positions; only null NPs like pro or trace can. Overt NPs can only appear in clause-peripheral positions, to which the Case filter does not apply. But this layer of analysis is not particularly crucial to my topic here. To detect null agreement as opposed to absence of agreement, all that is needed is for there to be some kind of principled relationship between agreement—which one cannot always observe—and dislocation—which one can observe, in this case by looking at word order.

2.3 Agreement and Content Questions

The statement in (21) has other testable syntactic implications. It is known, for example, that *wh*-phrases can appear in situ in many languages, but they cannot be dislocated. This contrast is clearly seen in Kinande, in which *wh*-in-situ is possible if and only if there is no object marker on the verb:

(22) a. Kambale a-gul-a ebihi?
Kambale SM/T-buy-FV what
'What did Kambale buy?'

b. *Ebihi Kambale a-bi-gul-a?
What Kambale SM/T-OM-buy-FV
'What did Kambale buy?'

[3] Agreement does not imply dislocation in all languages; for example, agreed-with subjects act like they are dislocated in SVO orders in Greek and Spanish, but they are not dislocated in VSO orders (Alexiadou and Anagnostopoulou 1998). See Baker (to appear) for a proposed parameter that has (21) as a consequence in languages like the Bantu ones but not in languages like Spanish and Greek.

The reason behind this contrast is presumably that *wh*-expressions are less than fully referential. As such, they cannot form a binding chain with a pronominal argument, and thus are not licensed in dislocated positions (Cinque 1990; Baker 1995; Baker 1996).

Turning to Mapudungun, (23a) shows that when the object marker *fi* is present, *wh*-in-situ is impossible, as expected. Rather, an interrogative object must be moved to clause-initial position (presumably the specifier of CP) as in (23b).

(23) a. *Pe-fi-y-mi chem?
See-OM-IND-2sS what
'What did you see?'

b. Chem pe-fi-y-mi?
what see-OM-IND-2sS
'What did you see?

But unlike Kinande, wh-in-situ is bad in Mapudungun even when the object marker is omitted. Thus (24a) contrasts minimally with (22a). (24b) shows that the sentence becomes grammatical if *wh*-movement does take place.

(24) a. *Pe-y-mi chem?
see-IND-2sS what
'What did you see?'

b. Chem pe-y-mi?
what see-IND-2sS
'What did you see?

The pattern of facts in (24) is identical to the one in (23). This suggests that the verb in (24) also bears an object marker, but this time it is Ø. This object marker triggers dislocation of the object by (21), and a dislocated NP cannot be a *wh*-expression. This explains the badness of (24a) on a par with (23a) and (22b).[4]

This argument has even a stronger consequence than the others we have seen so far. My first two arguments suggest that Mapudungun has a Ø object agreement. This one points to the further conclusion that this Ø object agreement is *required* on transitive verbs that have no other object agreement. If the Ø object agreement were only an

[4] There is a second-order difference between Mapudungun and Kinande at work here as well: agreed with object can undergo *wh*-movement in Mapudungun, but not in Kinande, as shown in (i).

(i) Ebihi byo Kambale a-(*bi)-gul-a? (confirm)
what FOC Kambale SM/T-OM-buy-FV
'What did Kambale buy?'

But I believe this to be of little significance. Since the Polysynthesis Parameter in (1) holds in Mapudungun, there is no choice but to agree with a *wh*-expression. Kinande's "no" setting of the Polysynthesis Parameter means agreement is not required, so it is possible to have *wh*-movement of objects without object agreement. Furthermore, whenever it is possible not to agree with a *wh*-expression it seems to be preferred to not do so. This last observation is related to the so-called anti-agreement effect found with subject questions in a variety of languages.

option, then (all things being equal) the string in (24a) should still be possible without that marker, as (22a) is. Apparently, then, some kind of agreement is required in Mapudungun—which suggests that it really is a polysynthetic language in the sense of (1), even though this is partially concealed on the surface. I return to this in section 3.

2.4 Agreement and Nonreferential Noun Phrases

Wh-expressions are not the only noun phrases of dubious referentiality that are incompatible with dislocation. Various quantified noun phrases and nonspecific indefinites also have this property (Rizzi 1986; Cinque 1990). As a result, nonreferential quantified NPs are systematically absent in languages like Mohawk, in which all NPs are agreed with and dislocated (Baker 1995; Baker 1996).

As usual, the expected contrast shows up language-internally in Kinande. Common nouns in Kinande usually consist of three morphemes: a noun root, a gender/number prefix, and a pre-prefixal vowel. For example, the usual word meaning 'thing' is *e-ki-ndu* (pref-cl7/sg-thing). This vowel prefix is known as the augment vowel in the Bantu literature. However, a two-morpheme version of common nouns also exists, consisting of only a gender/number prefix and a noun root. This short form of the noun has a limited distribution and a special semantics: it is only possible in the domain of negation or some other scope-bearing element, and it is interpreted as an existentially quantified expression with narrow scope (Progovac 1993). These properties are illustrated in (25).

(25) a. Omukali mo-a-gul-ire *(e)-kindu.
woman AFF-SM/T-buy-FV AUG-thing
'The woman bought something.'

b. Omukali mo-a-teta-gul-a kindu.
woman AFF-SM-NEG/past-buy-FV thing
'The woman didn't buy anything.'
(¬ ∃x (thing(x)) [woman bought x])

The crucial fact for current purposes is that there is no agreement with the nonreferential augmentless object in (25b). When a suitable object marker is included and the object is dislocated to clause initial position, the augmentless version of the noun is impossible:

(26) *Kindu, omukali mo-a-teta-ki-gul-a.
thing woman AFF-SM-NEG/PAST-OM-buy-FV
'Anything, the woman didn't buy it.'

(The sentence becomes possible if *ki-ndu* is replaced by *e-ki-ndu*; in that case the NP is referential, and the whole sentence means 'The thing, the woman did not buy it.') This is just as we expect; the contrast between (25b) and (26) is like the English contrast between *I bought nothing* and **Nothing, I bought it*.

Mapudungun is systemantically different. It has an NP-internal element *rumé* (Smeets 1989: 96) which is often translated as *any* and appears in the scope of negation to give a narrow scope existential reading, as shown in (27).

(27) Pe-la-n metawe rumé.
see-NEG-1sS vessel any
'I did not see any vessel.'

One might naturally think of this as the Mapudungun equivalent of (25b) in Kinande. But unlike the Kinande example, the existential expression is not limited to a particular syntactic position; it can just as well come before the verb as after it:

(28) Metawe rumé pe-la-n.
vessel any see-NEG-1sS
'I didn't see any vessel.'

Assuming that the correct theory of free word order in head-marking languages is in terms of dislocation, then one or the other of (27) and (28) shows that NPs with *rumé* can be dislocated in Mapudungun. Put another way, seemingly nonreferential expressions have the same freedom of word order as any other dislocateable NP in Mapudungun. Even more tellingly, both orders are also possible with the object marker *fi* included:

(29) a. Metawe rumé pe-la-fi-n.
vessel any see-NEG-OM-1sS
'I didn't see any vessel.'

b. Pe-la-fi-n metawe rumé.
see-NEG-OM-1sS vessel any
'I did not see any vessel.'

This shows that it is a mistake to analyze NPs like *metawe rumé* as inherently nonreferential expressions, on a par with augmentless NPs like *kindu* in Kinande. Rather, these must be ordinary indefinite noun phrases, which have no inherent quantificational force. Some independent support for this is that *rumé* can occur in positive polarity environments too, in which case it means 'very' and the NP as a whole can be referential (e.g., *rumé küme wentru* 'very good man' (Smeets 1989: 95)). As indefinite NPs, nominals containing *rumé* can take part in ordinary pronominal anaphora, and thus they can form binding chains in dislocation structures. But at the same time they themselves can be bound by other items in the environment that are inherently quantificational, making them nearly equivalent to quantificational expressions themselves. This is how Baker (1995) analyzes putatively quantificational expressions in languages like Mohawk, following Heim's (1982) treatment of indefinite NPs in English.

Given all this, we do not have a genuine minimal comparison between Kinande and Mapudungun in this domain, because the stock of indefinite/nonreferential NPs in the two languages is somewhat different. But even so, (27)-(29) make it clear that sentences with *fi* in Mapudungun are not different syntactically from sentences without it. This is

consistent with the claim that all transitive sentences in Mapudungun bear an object agreement, whether it is visible or not. In contrast, (25) and (26) give strong evidence that Kinande does not require a Ø object agreement.

2.5 Agreement and Extraction from Objects

My last official probe into agreement in Mapudungun concerns the possibility of *wh*-extraction from NP. Under ideal circumstances, it is possible to extract a question word out of a complex NP in English, so long as that NP is a direct object ((30a)). It is never possible to extract a question word out of a dislocated NP, however ((30b)). This is a subcase of the adjunct island effect, which quite generally bars movement out of phrases that are adjoined.

(30) a. Who do you think Chris will paint a picture of -- ?
b. *Who do you think, a picture of --, Chris will paint it?

Suppose then that we apply this test for dislocation to Mapudungun. The language has two kinds of complex NPs that could be relevant: possessed NPs, which contain a particle that agrees with the possessor (Smeets 1989: 170-172), and a kind of noun-complement structure that has no overt agreement (Smeets 1989: 173-174).

(31) a. Pe-(fi)-n Maria ñi metawe?
see-OM-1sS Maria poss vessel
'I saw Maria's metawe.'

b. K'a-i-n troke pizza.
want-eat-1sS piece pizza
'I want (to eat) a piece of pizza.'

When the object marker *fi* is present, causing dislocation of the object by (21), we expect extraction out of the NP to be impossible, just as in (30b). (32) shows that this is correct, at least for possessive NPs.[5]

(32) *Iney pe-fi-y-mi ñi metawe?
who see-OM-IND-2sS poss vessel
'Who did you see the metawe of?'

If Mapudungun did not have a Ø agreement, there would be nothing to force the dislocation of the object in similar sentences without *fi*. Then extraction from the object could be possible, as in (30a). But this is not the case; rather objects in *fi*-less sentences are islands to all extraction:

(33) a. *Iney pe-y-mi ñi metawe? (Possessor extraction)
who see-IND-2sS poss vessel

[5] I do not have data on this point that involves noun complements, but predict that those would work the same way.

'Of whom did you see the metawe?'

b. *Tuchi pizza k'a-i-y-mi troke? (Complement extraction)
which pizza want-eat-IND-2sS piece
'Which pizza do you want a piece of?'

On the other hand, (33) is just what we expect on the hypothesis that Mapudungun has a Ø object marker in addition to *fi*, and like *fi* it forces all objects to be dislocated.[6]

2.5 Conclusion

The five arguments in this section all have the same logical structure. Whether an object marker is present or not has a profound influence on the syntax of the object in Kinande, determining whether it can be omitted, where it appears in the clause, and whether is can be realized as a wh-word or an augmentless noun phrase. This makes sense under two assumptions: (i) agreement is syntactically significant, licensing null pronominals and forcing dislocation of overt NPs, and (ii) when one doesn't see an object agreement in Kinande there is no object agreement. Mapudungun is quite different. There too sentences may or may not have the object marker *fi*. But this morphological variation has no detectable syntactic effect: objects can be omitted, freely ordered, negatively quantified, require wh-movement if interrogative, and count as islands for extraction either way. Moreover, the syntax of all objects in Mapudungun is like the syntax of agreed-with, dislocated objects in Kinande, not like that of unagreed-with objects.[7] Therefore, I conclude that Mapudungun has a Ø agreement marker. Like *fi* in Mapudungu and the various object markers in Kinande it counts as/licenses a pronoun and absorbs the verb's Case, making it impossible for an overt NP to appear in argument

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[6] One cannot extract out of objects in Kinande either, even when no object marker is present. But I claim that this is for different reasons. Kinande does not have any NP complements, only possessors, and there is no agreement with the possessor. Thus the trace of an extracted possessor would be neither lexically governed nor governed by an agreement marker in Kinande, so such extraction violates the Empty Category Principle quite apart from questions of whether the object as a whole is agreed with or dislocated.

(i) *Kambale yo n-a-seny-a [olukwi (lwa) --]
Kambale FOC 1sS-T-chop-FV wood ASSOC
'It's Kambale that I chopped his wood.' (cf., olukwi lwa Kambale 'wood of Kambale')

[7] Baker (1996) gives one additional way of testing for dislocation in Mohawk, which hinges on Condition C of the Binding Theory. An R-expression embedded in a normal direct object cannot be coreferential with a pronoun in subject position. If, however, the object is dislocated, its possessor is no longer in the c-command domain of the subject, and coreference becomes possible (sometimes, depending on connectivity issues). I was unable to apply this test to Mapudungun because of the language's free word order. A relevant example would look like (i).

(i) Nü-(fi)-y ti wentru ñi chaketa.
take-OM-ind/3S the man his jacket
'He took the man's jacket.'

The problem is that an example like (i) is structurally ambiguous: it could be parsed as [pro V [NP N]], with a pro-dropped subject and an overt NP as the possessor (the intended structure), but it could also be parsed as [verb NP [pro N]], with an overt subject in VSO order and a pro-dropped possessor. Since Mapudungun word order is quite free, I was unable to clearly rule out the alternative structure.

position. It is identical to other object markers in every way except for its special phonological form.

3. How can null agreement be learned?

We have seen that the subtle distinction between absence of agreement and presence of null agreement is a well-justified one. In one sense, this is not too surprising, since in practice a very wide range of linguists assume the existence of null agreement in at least some cases. But it is still fair to ask how children can learn whether the language being spoken around them has a Ø agreement marker or not. We can assume that children are like good scientists in being conservative in the way that they posit null structure, that they are assume nothing means nothing unless there is evidence (or innate imperatives) to the contrary. Given this, the task of Kinande-acquiring children is straightforward: they assume from the start that no audible object agreement implies no object agreement and never have cause to change their minds. Mapudungun-acquiring children have a harder task. They cannot know from the start that they are learning Mapudungun rather than Kinande, so they too must conservatively assume that there is no agreement in transitive clauses without *fi*. What moves them beyond this assumption to the truth?

The most common justification for a null morpheme is a paradigmatic gap. A linguist analyzes the verbal morphology and realizes that there are overt agreement morphemes for every relevant category but one. The last category (often the one with least-marked features) necessarily corresponds to a verb form with no relevant morpheme. In these circumstances it is natural to complete the paradigm by assuming a Ø affix that enters into the same obligatory agreement relation that the overt affixes do. Spanish verbs present a trivial case of this kind:

(34)

Subject Agr for 'hablar'	Singular	Plural
1st person	habl-[a]-o*	habl-a-mos
2nd person	habl-a-s	[habl-a-is]**
3rd person	habl-a-(Ø)	habl-a-n

*Theme vowel [a] deletes before another vowel.
**Used in European Spanish only.

Whether this paradigm-based approach is a good or sufficient reason for positing a null morpheme need not concern us here. What makes the Mapudungun case particularly interesting is that its paradigm does *not* have a gap of this kind. There is, after all, an overt third person object agreement, namely *fi*. Every box in the Mapudungun paradigm would be comfortably occupied by a visible agreement morpheme, just as it is in Kinande.[8] And yet children apparently learn that Mapudungun has a second third person agreement form in free variation with the first—which is surely a marked and unusual

[8] In fact, the Mapudungun paradigm has a rather unusual topology, because a person/animacy hierarchy constraint applies, to the affect that the object cannot be 1st or 2nd person in the context of a 3rd person subject. Thus, object markers have an impoverished paradigm, express only 3rd person. I take this to be independent of the basic point at hand. See note xx below for brief discussion and references.

state of affairs. Moreover, they learn this without being able to hear the second form, because it is Ø. How?

It is unlikely that Mapudungun children learn that the language has a Ø object agreement in the same way that we did in section 2, by considering evidence from *pro*-drop, word order, constituent questions, indefinite NPs, and extraction from objects. The impossibility of *wh*-in-situ and of extraction from direct objects is the kind of obscure negative evidence that is unavailable to the child under standard assumptions. The facts concerning negative sentences containing *rumé* are as likely to deceive as to enlighten, because the child must also learn that *rumé* marks a potentially referential noun phrase, rather than a fully nonreferential one. Without this piece of information, he or she could hear sentences like (27) and mistakenly infer that Mapudungun permits the absence of an object agreement. The only relevant facts that could be directly observed in natural discourse are that *fi*-less verbs allow pro-drop of the object and free word order of the object. But even this would not be so easy to observe. Object-verb order is less common than verb-object order (Smeets 1989: 456-57), and how could a child be sure that a sporadic object-initial example was not the result of a *wh*-movement of the focus/topicalization type? Similarly, pro-drop is less common without *fi* than with it, and how could a child be sure that the *fi*-less verb was not being used as an intransitive? As anecdotal evidence, I can add that for six months I simulated the experience of a child learning Mapudungun by having access only to grammatical, unsystematically presented examples (the texts and examples in Smeets 1989), and I failed to acquire the Ø object agreement under those conditions. A couple of carefully constructed consultant sessions were enough to clarify the situation—but the children never get this opportunity.

I suggest that the null agreement of Mapudungun is actually learned indirectly, by way of the Polysynthesis Parameter in (1). The Polysynthesis Parameter is a "macroparameter" which places substantive conditions on every clause of every sentence of a language. As such, it has a pervasive, global affect on the morphology and syntax of a language. The various repercussions of having the "Yes" setting of this parameter are explored in great detail in Baker (1996). It so happens that Mapudungun has several other salient properties of a polysynthetic language, which do not directly concern object agreement. Kinande, in contrast does not have these properties. I claim that these other signs of polysynthesis are sufficient for a child to conclude that Mapudungun (but not Kinande) is a polysynthetic language. The child can then deduce that every Mapudungun sentence must have complete agreement inflection, and fill in Ø agreement morphemes as required by this hypothesis. In essence, they use the Polysynthesis Parameter to learn about agreement in their language in a top-down fashion, rather than using agreement to learn the Polysynthesis Parameter bottom-up.

The most obvious effect of the Polysynthesis Parameter apart from agreement is noun incorporation. Moving the nominal head of the direct object NP to adjoin it to the verb is the second way to have a morpheme expressing the object inside the word that contains the verb. Thus Mohawk sentences with transitive verbs typically have either object agreement or an incorporated noun but not both, as shown in (2). Baker (1996) further argues that the positive setting of the Polysynthesis Parameter is the unique trigger for syntactic noun incorporation, without which it would not apply. (Since noun incorporation generally has the morphology of compounding, rather than affixation, no

obvious morphological selection requirements are at work.) Mapudungun does, in fact, have noun incorporation, as shown in (35).

(35) a. ñi chao kintu-waka-le-y. (Salas 1992:195)
my father seek-cow-PRES-IND/3S
'My father is looking for the cows.'
(paraphrase: ñi chao kintu-le-y ta chi pu waka.)
my father seek-cow-PRES-IND/3S the PLUR cow

b. Are-tu-ketran-e-n-ew. (Smeets 1989:421)
borrow-TR-wheat-OM2-IND/1sS-DS
'He borrowed wheat from me.'

The question then is whether noun incorporation in Mapudungun is a lexical compounding process or a true instance of incorporation. Smeets gives the impression it is lexical: she devotes only two pages to the topic, refers to it as a form of compounding, and claims that it is only found with familiar, institutionalized events and nonspecific objects. Noun incorporation is also not too common in her texts. In contrast, Salas describes noun incorporation in Mapudungun as "very productive", and paraphrases (35a) in both Mapudungun and Spanish with a definite object. Salas also claims that the most traditional Mapudungun speakers actually prefer the incorporated version, and attribute the unincorporated version to Spanish influence. This is compatible with saying that NI in Mapudungun can be "type 3" (discourse sensitive) noun incorporation within Mithun's (1984) typology, a type that Baker (1996) takes to be syntactic. My data and that of my collaborators agrees with Salas in this respect. Not only is noun incorporation very productive, but the incorporated nouns take part in coreference relationships in discourse. (36) gives examples in which the incorporated noun in the first clause introduces a new discourse referent and the pronoun in the second clause refers back to it.

(36) a. Nicassio ngilla-pulku-pe-y. Inche küme-ntu-ñma-fi-n.
Nicassio buy-wine-PAST-3sS I good-FCT-APPL-OM-1sS
'Nicassio bought (some) wine. I like it (the wine that he bought).'

b. Ngilla-waka-n. Fei elu-fi-n Pedro. (R. Aranovich, p.c.)
buy-cow-1sS then give-OM-1sS Pedro
'I bought a cow. Then I gave it to Pedro.'

(37b) gives an example in which the incorporated noun in the last sentence seems to have a definite interpretation, referring back to the unincorporated noun in the first sentence of (37a). A similar example is found internal to (37c).

(37) a. Müle-y mate. Mate-tu-nge.
exist-IND/3S mate mate-take-2sS/IMPER
'There is mate (a vaguely tea-like infusion). Have some.'

b. Fem-lai-a-n. Juan furk-üm-mate-y. (R. Aranovich, p.c.)

do-NEG-FUT-1sS Juan be.cold-CAUS-mate-IND/3S
'I won't do it. Juan made the mate cold.'

c. Kiñe metawe ka kie rali nie-y. Inche ngilla-metawe-a-n.
one vessel and one plate have-IND/3S I buy-vessel-FUT-1sS
'They have one metawe and and one plate. I will buy the metawe.'

Thus, noun incorporation in Mapudungun seems to satisfy Baker's (1996) criteria for being syntactic. And the existence of syntactic noun incorporation implies that Mapudungun is a polysynthetic language. In contrast, there is no question of Kinande having noun incorporation of any sort. Examples like (38) are completely out.

(38) *Kambale mo-a-tunda-gul-ire.
Kambale AFF-3sS/T-fruit-buy-EXT
'Kambale bought (some) fruit.'

A second characteristic of polysynthetic languages that is not directly related to agreement concerns morphological causatives. Polysynthetic languages typically do have morphological causatives—not surprisingly, given their overall morphological complexity. But the morphological causatives of polysynthetic languages are typically quite restricted. In particular, only intransitive verbs can be causativized in prototypical polysynthetic languages like Mohawk, Mayali, and Chukchee. Without going into details, the intuition behind my (1996) account of this was that languages that are constrained by (1) can have difficulties with "valence-increasing" processes like causative. Since causative formation increases the number of arguments that the verb-word takes without increasing the agreement resources that the verb can use to express those argument morphologically, problems potentially arise. The most straightforward solution to the difficulty is to avoid it, by having a type of causative construction that applies only to intransitive verbs.[9] A morphological causative process that applies to intransitive verbs creates at most a monotransitive verb, which is still within the powers of any polysynthetic agreement system to handle.

Mapudungun causatives behave just like those of polysynthetic languages in these respects, according to the detailed study of Gulluscio (2001). In addition to a less productive, quasi-lexical causative *–m*, Mapudungun has a productive causative *–(e)l*. This can attach to intransitive verb roots, as in (39a). It also has a causative morpheme *–fal*, that can attach to transitive verbs, but gives them a passive-like meaning, in which the agent of the lower verb is not expressed. What Mapudungun crucially does not have is productive uses of *–(e)l* or *–fal* on a transitive verb root in which both the subject and object arguments of the lower verb are expressed, as well as the causer argument that comes in along with the causative affix. (39c), for example, cannot have a causative reading (but only an applicative one).

[9] Other, rarer options are available. For example, Southern Tiwa allows causatives of transitive verbs, but only if the object of the transitive verb has been incorporated; Nahuatl allows causatives of transitive verbs but only if the lower verb has undergone passive. Both can be seen as ways of productively detransitivizing the lower verb so that it can be retransitivized by causative.

(39) a. Kidaw-el-fi-i-n Pedro.
work-CAUS-OM-IND-1sS Pedro
'I made Pedro work.'

b. ñi patron ngütrüm-fal-e-n-ew.
My boss call-CAUS2-OM-1sS-DS
'My boss had me called.'

c. #Nentu-l-me-a-fi-n ta ñi poñi
take.out-CAUS-DIR-FUT-OM-1sS the his potato
'I made him dig out (his) potatoes'
(OK as benefactive applicative: 'I dug potatoes for him.')

Rather, the causative of a transitive verb in Mapudungun is usually rendered with a periphrastic construction with two distinct verbs. Mapudungun is in this respect just like canonical polysynthetic languages such as Mohawk.

Kinande, however, is not like this. As in other Bantu languages, transitive verbs in Kinande can participate in morphological causatives in a very productive fashion:

(40) Mo-n-a-seny-es-irie Kambale y' olukwi.
AFF-1sS-T-chop-caus-EXT Kambale LK wood
'I made Kambale chop the wood.'

Once again, Mapudungun can be recognized as a polysynthetic language without considering agreement paradigms, whereas Kinande cannot be.

The last consequence of the Polysynthesis Parameter that I discuss here has to do with embedded clauses. Baker (1996: ch. 10) shows that the Polysynthesis Parameter creates pressure for a polysynthetic language not to have embedded CP complements. CPs do not bear person-number-gender features, so they cannot be agreed with; nor do they have a lexical head that can be incorporated. It thus seems that they have no way to satisfy the condition in (1). Polysynthetic languages respond to this pressure in a variety of ways: some nominalize embedded clauses so that they can be agreed with on a par with ordinary NP objects (Nahuatl); some incorporate a special noun that acts as a classifier for the clause (Mohawk); some eschew clausal complementation entirely (Nunggubuyu). Mapudungun clearly behaves like a polysynthetic language in this respect. All embedded clauses must be nominalized by one of several affixes (Smeets 1989: 238-39) (Salas 1992:161-62), the most neutral of which is *–n*. One clear reflex of this nominalization is that the subject of the embedded clause is treated as a possessive expression. Another reflex, more to the point, is that the embedded clause can trigger agreement on the verb (either *fi* or Ø). There is no possibility of tensed clausal complements in Mapudungun. These properties are illustrated in (41).

(41) a. Ayü-(fi)-n Maria ñi amu-n.
like-OM-1sS Maria 3poss go-NOML
'I like (it) that Maria left.' (lit. I like it, Maria's leaving.)

b. *Ayü-(fi)-n Maria amu-y.
like-OM-1sS Maria go-IND/3s
'I like (it) that Maria left.'

Again, Kinande is quite different in this regard. Kinande does allow tensed CP complements with verbal complementizers and no hint of nominalization:

(42) Mo-ba-nyi-bw-ire ba-ti Kambale mo-a-gul-ire eritunda.
AFF-3pS-1sO-tell-EXT 3p-that Kambale AFF-3sS-buy-EXT fruit.
'They told me that Kambale bought fruit.'

Such clauses cannot trigger object agreement on the Kinande verb—but that is not required, because Kinande is not a polysynthetic language.

Overall, then, children learning Mapudungun are presented with various kinds of evidence that Mapudungun is a polysynthetic language. Some of this evidence concerns agreement and related phenomena: the fact that subject agreement is required on finite verbs, the fact that object agreement occurs, the facts that word order is free and null anaphora is common. Other evidence does not have anything to do with agreement directly: that noun incorporation is possible, that causatives are formed only from intransitive verbs, that embedded clauses are always nominalized. Taken altogether, this range of facts is enough to justify the global assessment that Mapudungun is a polysynthetic language in the sense of (1). If it is a polysynthetic language, then every transitive verb that does not have an incorporated object must bear an object agreement. But there is no audible object agreement in some sentences. Such sentences must therefore contain an object agreement the pronunciation of which is Ø.[10]

[10] One might wonder why Mapudungun has the unusual choice of Ø vs. *fi* for 3rd person objects, from the perspective of discourse structure and/or language change. Two hints can be gleaned from the literature. First, the overt object agreement marker *fi* is said to be an incorporated version of the very common pronoun/demonstrative particle *fey* (Smeets 1989:193). This might be a comparatively new innovation in the language, which is gradually replacing the "eroded" Ø form of agreement.

The second hint is that there is a third form of object agreement in Mapudungun, namely *e*. This *e* is used in place of *fi* or Ø when the object is topicalized (Grimes 1985) Smeets 1989:198; (Salas 1992: ch. VI) Augusta 1903: 76-80):

(i) a. Fey amu-y; chali-fi-y ñi wenüy.
he go-IND/3S greet-OM-IND/3S poss3 friend
'He went and greeted his friend.' (OM=*fi*; subject of S2=topic of discourse)

b. Fey amu-y; chali-e-y-ew ñi wenüy
he go-IND/3S greet-OM2-IND/3S-DS poss3 friend
'He went and his friend greeted him.' (OM=*e*; object of S2=topic of discourse)

I assume this *e* form is a special 3rd person agreement triggered by the presence of a *wh*-trace left behind by topicalization. 1st and 2nd person objects in the context of a third person subject must always be topicalized in this way. This is a kind of animacy hierarchy effect, similar to the one that triggers inverse voice in Algonquian languages, or obligatory passivization in Southern Tiwa :

(ii) a. Pe-fi-y-mu (Smeets 1989:17)
see-OM-IND-2dS
'You saw him/her/it/them.'

Contrast this with children learning a Bantu language like Kinande or Chichewa. What they are exposed to in terms of agreement is not so different: subject agreement is required on finite verbs in Kinande too, object agreement is possible, null anaphora is common, and free word order is found (especially in Chichewa). The only differences have to do with second order correlations between these properties—the fact that free word order and object pro-drop are contingent on there being an overt object agreement. But these correlations could be due to accidental gaps in the data. The clearer difference in the linguistic experience of a child learning Kinande or Chichewa is that they get no evidence outside the realm of agreement that the language is polysynthetic: there is no noun incorporation, morphological causatives are not restricted in transitivity, and embedded clauses are found without nominalization. The central African child can thus make a global judgment that the local language is not polysynthetic. As a result, there is no top-down driven expectation that agreement is required in every sentence, and when these children hear sentences with no audible object agreement, they conservatively assume that those sentences do not contain object agreement. They acquire absence of agreement, rather than presence of null agreement. In this way, an otherwise difficult learning problem becomes solvable, thanks to the Polysynthesis Parameter.

4. Conclusion and Implications

This case study has implications for ideas like the Polysynthesis Parameter and the Pronominal Argument Hypothesis at several levels.

First, the idea that there can be phonologically null agreement markers, which these ideas crucially depend on, has found support. A particularly interesting case of such a marker occurs in Mapudungun. Mapudungun allows overt agreement with third person (nontopical) direct objects, in the form of *fi*, and this agreement has the expected effects of licensing pro-drop, allowing free word order, and forcing dislocation. But when overt object agreement is not present, the syntax of the clause is identical. This is strong evidence that a null agreement marker is present in such cases. Mapudungun contrasts systematically with Bantu languages like Chichewa and Kinande. In these languages, whether an overt object marker appears or not does have a large impact on the syntax of the clause: the object acts like it is dislocated if and only if the marker is present. This shows that having the option of leaving out an object agreement is quite a different matter from having a null object agreement, and both sitations are attested in languages of the world. Thus it is not possible to do without the theoretical device of Ø

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b.	pe-e-y-mu-mew	(*pe-mu?-y)
	see-OM-IND-2dS-DS	see-2dO-IND/3S
	'He/she/they saw you two.'	'He/she/they saw you two.'

As a result of this animacy effect, there is no true object agreement for 1st or 2nd person objects; the only forms of object agreement in Mapudungun are *fi*, *e*, and Ø. Object agreement in Mapudungun thus has less to do with person than it does with A-bar distinctions like topic, focus, and unmarked. Perhaps from this perspective it is not so surprising that Mapudungun has several different realizations of "3rd person" object agreement.

That agreement in Mapudungun is A-bar related related than A-related sheds light on other areas of the language as well, such as the complex grammar of "nominalizations". I hope to return to this in future work.

agreement. This result protects the infrastructure of theories like Jelinek's and Baker's that depend on there being a very tight relationship between agreement and argument structure in some languages.

Second, I explored the question of how children, who have access only to positive evidence, unsystematically presented from a single language can learn the very subtle distinction between null agreement and absence of agreement. The answer, I suggested, is that this is learned top-down, thanks to the Polysynthesis Parameter. The Polysynthesis Parameter is a macroparameter that has wide-ranging impact on the syntax of a language. As a result, children can look at the overall character of the language they are learning to decide its setting. Once this is done, they can use their answer as a tool to evaluate gaps in an agreement paradigm, to see if they must be filled with Ø morphemes or not. If this is correct, then children are using syntactic parameters to learn morphological paradigms, rather than the other way around, as is often thought in (for example) the literatures on pro-drop and verb movement. This has implications for the morphology-syntax interface. It suggests that syntax drives morphology, as in Distributed Morphology-style frameworks, rather than morphology driving syntax, as in more traditional, lexicalist theories. It also provides a new kind of support for the existence of macroparameters like the Polysynthesis Parameter. If there were no parameters that had a global effect on languages, then the kind of indirect learning that I have argued for would be impossible. There would be no legitimate reason for observing that "this language, on the whole, looks polysynthetic, so therefore its verb paradigms must be such-and-such." Questions of learning Ø morphology would then be much more difficult.

The kind of reasoning developed here has implications for the study of polysynthetic languages beyond the quirky case of Ø object agreement focused on here. Mapudungun is slightly exceptional in having Ø as well as overt agreement for direct objects. But it is much more common for languages to have a similar agreement gap in ditransitive sentences. The Polysynthesis Parameter implies that there must, in some sense, be three agreements in such sentences (putting aside incorporation): agreement with the subject, with the direct object, and with the indirect object. But typically only two agreement morphemes show up overtly: one for the subject and one for the indirect object. The direct object is usually constrained to be 3rd person and of unmarked gender, and it triggers no overt agreement (see (7) in Mohawk). Presumably this is due to some kind of morphological constraint to the effect that in most languages at most two distinct agreement "factors" can be spelled out in the surface morphology. This looks like a more systematic and serious failure of agreement than the one we studied in Mapudungun. In particular, it is not sufficient to assume that Ø agreements can be learned by identifying the holes in a paradigm, because there is no distinct ditransitive paradigm to begin with. One cannot recognize Ø agreement with 3rd person direct objects in the presence of indirect objects by parallelism with overt forms of agreement for 1st and 2nd person direct objects in the presence of indirect objects, because there are typically no such forms. Skeptics of the Polysynthesis Parameter/Pronominal Argument Hypothesis conclude that there is no principled reason for saying that agreement is present in these cases. Nevertheless, the nonconfigurational effects of pro-drop, free-word order, and dislocated syntax still apply to these apparently unagreed with objects. (43) shows this for Mapudungun. (43a) shows that a simple ditransitive verb does not bear a third agreement

(a second *fi*?) beyond what an ordinary transitive verb would have (see also Augusta 1903: 71). (43b) shows that the unagreed-with theme object can be pro-dropped (from Smeets 1989:580). (43c) compared to (43a) shows that the theme object is freely ordered with respect to other clausal constitutents. (43d) shows that *wh*-in-situ is not allowed even for unagreed-with theme arguments.

(43) a. Inche elu-fi-n Roberto kiñe metawe.
I give-OM-1sS Roberto one vessel
'I gave Roberto a metawe.'

b. Ngilla-y pichin mapu. Welu mapuche ngilla-ñma-la-fi-y.
buy-IND/3S little land but Mapuche buy-APPL-NEG-OM-ind/3S
'He bought a little land. But he did not buy it from a Mapuche.'

c. Roberto kiñe metawe elu-fi-n.
Roberto one vessel give-OM-1sS
'I gave Roberto a metawe.'

d. *Elu-fi-y-mi chem Roberto? (confirm)
give-OM-ind-2sS what Roberto
'What did you give to Roberto?'

Similar facts hold in Mohawk and other polysynthetic languages. In short, there is generally no difference between the syntax of second objects and that of other argumental expressions, even though these second objects cannot be agreed with. Therefore, critics of the Pronominal Argument Hypothesis conclude that this must be the wrong theory of nonconfigurational effects. And if they mean surface, morphological agreement, their argument is correct.

But Mapudungun shows clearly that the Polysynthesis Parameter should not be interpreted as referring to overt surface agreement, but rather to a notion of abstract, syntactic agreement. This agreement is related to surface agreement in systematic ways, but is not isomorphic to it; rather the syntactically significant agreements undergo the battery of impoverishment and readjustment rules of Distributed Morphology prior to being spelled out as actual morphemes (Halle and Marantz 1993). The logic of objects in Mapudungun applies just as well to ditransitive constructions in a wide range of polysynthetic languages. Children get abundant evidence that Mapudungun (and Mohawk) is a polysynthetic language, without considering ditransitive clauses at all. They thus acquire the "yes" value in (1). Then when they see no overt agreement with the second object of a double object construction in a sentence like (43), they are not particularly disturbed. Rather, they automatically posit a Ø agreement marker for the second object, and this goes along with nonconfigurational syntax in the usual way. In this domain too, a global appreciation of the syntax can drive the learning of morphological details through the mediation of macroparameters—not the other way around.

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