

# *On Gerunds and the Theory of Categories*\*

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**Abstract:** Some recent theories of gerunds account for their hybrid properties by saying that the gerund is both a noun and a verb simultaneously. Such theories are inconsistent with the Reference-Predication Constraint (RPC), a cornerstone of Baker’s (2003) theory of lexical categories. In contrast, I defend the traditional idea that gerunds are fusions of a true verb and a syntactically distinct nominal Infl. Moreover, I give new evidence in favor of the RPC, showing how it explains the fact that nominal gerunds never show subject agreement in Mapudungun, and the fact that gerunds with verb-final word order have surprising agreement properties in Lokaa.

**Keywords:** gerunds, lexical categories, nouns, verbs, Mapudungun, Lokaa

## **1. Introduction: Can a category be both nominal and verbal?**

A foundational question for the theory of syntactic categories—and thus for syntax itself—is whether a single syntactic element can be simultaneously nominal and verbal. The answer to this question depends on one’s notion of what it is to be a noun and what it is to be a verb, so linguists have had different views on the matter. For example, a common functionalist view is that nouns and verbs are opposite poles on a continuum of categories, with adjectives falling in between the two extremes (see, for example, Wetzer 1996: 155-59). In such a view, it makes sense to say that there are nouny adjectives and adjectival verbs, but it does not make sense to talk of verby nouns and nouny verbs for the same reason that it makes sense to talk about light gray and dark gray, but not whitish black or blackish white. In contrast, generative theory, with its roots in Chomsky 1970, usually takes “nounness” and “verbness” to be two orthogonal

distinctive features, +/-N and +/-V. The two positive feature values +N and +V can combine to define a distinct lexical category, namely the adjective.

The traditional generative theory does not succeed, however, in deriving the morphological and syntactic properties of adjectives from known properties of nouns and verbs. The distinctive features are meaningless diacritics, which are ignored by the major principles of grammar. Thus, it is difficult to really substantiate the claim that adjectives are simultaneously noun-like and verb-like. One might just as well identify nouns, verbs, and adjectives as being completely distinct values of a multivalued category feature, as Pollard and Sag (1994) do.

In Baker 2003a, I argue at length that the syntactic properties of adjectives can be deduced from a theory that is independently motivated as an account of nouns and verbs. However, this is done by ascribing to adjectives the negative properties of nouns and verbs, not their positive properties. In place of the meaningless feature +V, I claim that the distinctive property of verbs is that they license a specifier. In place of the meaningless feature +N, I claim that the distinctive property of nouns is that they are associated with a criterion of identity and (therefore) they bear a referential index in the syntax. Adjectives can be understood as those lexical categories that have neither a specifier nor a referential index, as summarized in (1).

- (1)
- a. A noun is a lexical category that introduces a referential index.
  - b. A verb is a lexical category that has a specifier.
  - c. An adjective is a lexical category that has neither a specifier nor a referential index.

Adjectives are thus licit in a distinctive class of positions where a verb cannot appear (because it cannot discharge the theta role normally assigned to its specifier) and a noun cannot appear (because it cannot receive a theta role that licenses its index). This is a non-natural class of positions, including adjuncts to both NPs and VPs, secondary predicate positions, and the complement of degree heads. In essence, my theory says that adjectives are [-N, -V] rather than

[+N, +V]. Moreover, since there is no fourth kind of lexical category in languages of the world (adpositions being functional heads, I argue), I proposed the following as an axiom of syntactic theory, declaring by fiat that the answer to the question posed above is “no”.

(2) *The Reference-Predication Constraint (RPC):*

No syntactic node can have both a specifier and a referential index.

More dynamic evidence in favor of the RPC is the fact that whereas it is generally easy to derive verbs from predicate adjectives, it is much rarer and more difficult to derive verbs from predicate nouns. Parallel to *The screen is clear* in English, one can say *The screen cleared* and *Chris cleared the screen* (Hale and Keyser, 1993). One cannot, however, say *John manned* (meaning ‘John became a man’) or *The war manned John* (meaning ‘The war made John into a man’), parallel to *John is a man*. The RPC helps to explain this difference: an adjective can be turned into a verb by the simple, monotonic process of endowing it with a theta-role that it can assign to its specifier. If, however, one tries to endow a noun with such a theta-role, one creates a violation of the RPC; the resulting word is only well-formed if the noun’s inherent referential index is also suppressed in some way. For these reasons, I took the strong stand in (2), saying that it is impossible for a single node to be both verbal and nominal in the relevant sense. I thought of this as being a syntactic reflection of the logical truth that a single category cannot both refer and be a predicate.

There is, however, a more promising candidate for a category that is simultaneously noun and verb, namely the gerund. Gerunds exist in many other languages; (3) gives examples from the three languages that I focus on in this paper, English, Mapudungun, and Lokaa.<sup>1</sup>

- (3) a. [Mary’s suddenly giving him a book] caused an uproar. (English)  
 b. Ayü-y-mi [iñcheñi elu-fi-el iyal Maria]. (Mapudungun<sup>2</sup>)  
 like-IND-2sS I 1.POSS give-3O-GER food Maria

‘You like me to give food to Maria.’ (lit. ‘You like my giving Maria food’)

c. [Yo-nanang epaleepal ke-koi] o-da bong wa a-yeni. (Lokaa)

13-work quickly GER-go 1AGR-be thing REL 2sS-have

‘Going to work quickly is the thing that you do.’

A standard generative insight into these constructions is that they have the *external* syntax of a nominal projection and the *internal* syntax of a verbal projection. For example, gerunds take direct NP complements in unmarked (accusative) case in all three languages, just as verbs do. Indeed, the gerund takes two such arguments in the English and Mapudungun examples above.

This is also possible in Lokaa:

(4) Úbì ó-kòòmà [òbóól è-sàu kè-kai].

Ubi 1AGR-stop chief.1 7-fish GER-give

‘Ubi stopped giving fish to the chief.’

The gerund is also modified by an adverb, rather than an adjective, as seen in both the English example in (3a) and the Lokaa example in (3c). (5) shows that adverbial modification of the gerund is also possible in Mapudungun.

(5) ...kim-uw-ke-ingu ta ñi rüf pali-a-el engu müten.

know-REFL-HAB-3dS PRT 3.POSS effectively play.ball-IRR-GER they no.more

‘They let each other know that they will play the chueca effectively.’ (Salas, 1992)

(‘Lit. ‘They let each other know their effectively playing the chueca.’)

On the other hand, the subject of the gerund, when it is overt, is expressed as a possessive expression in precisely the way that the possessor of a simple noun would be expressed. This can be seen in (3a) and (3b) (compare (3b) with *iñché ñi wenüy* (I 1.POSS friend) ‘my friend’; both consist of the subject/possessor NP, followed by a possessive particle, followed by the gerund/possessed noun (Smeets, 1989)). (6) is an example with an overt subject in Lokaa,

showing that the same holds for this language, even though the syntax of possession is rather different in this language, with the gerund/possessed noun coming before the possessive particle rather than after it (see Carstens (2001: 155-59) for an analysis of this construction in Swahili).

- (6) Yo-nanang ke-koi ke-wu compare: li-táámì lí-wù  
 13-work GER-go 5AGR-your 14-farm 14-your  
 ‘your going to work’ ‘your farm’ (Iwara, 1982)

Finally, these gerund constructions as a whole have the distribution and behavior of NPs within the matrix clause that they appear in. For example, the gerund phrase as a whole functions as the subject of the matrix clause in (3a) and (3c), and as the object of the matrix verb in (3b), (4), and (5). (I demonstrate this in considerable detail in section 3 below.)

Overall, then, gerunds (unlike adjectives) do display a mixture of nominal and verbal properties that make it tempting to say that they are nominal and verbal simultaneously—an implicit challenge to the RPC taken as a foundational axiom of category theory. This challenge becomes direct and explicit in the work of Malouf (2000) and Hudson (2003). The standard generative insight about gerunds is that they have the *external* syntax of a nominal projection and the *internal* syntax of a verbal projection, as reviewed above. This has often been captured by having some kind of nominal phrase immediately dominate a verbal phrase in some way or another, with the details varying considerably. Malouf and Hudson’s version is more Spartan, and so potentially more elegant: they claim that one need only say that the gerund has the syntax of a nominal projection and the syntax of a verbal projection (see also Lefebvre and Muysken (1988) and Reuland (1988) for earlier expressions of a similar idea). Being a verb fundamentally involves the ability to take direct NP complements in a particular way, so verbhood is primarily a matter of internal structure. In contrast, being a noun fundamentally involves the ability to function as an argument—e.g. as the subject or object—of another head, so nounhood is

primarily a matter of external distribution. There is no need to posit an abstract and theoretically problematic structure where an NP projection dominates a verbal head, these researchers claim. It simply follows from what is essential to being a noun and from what is essential to being a verb that a word that is simultaneously a noun and verb has roughly the external distribution of the former and the internal structure of the latter, and not vice versa. If this is the correct theory of gerund constructions in languages of the world, then the fundamental idea expressed by the RPC is misguided.

In this paper, I defend the Reference-Predication Constraint. The first step in doing so is to reassert the more standard generative insight that gerund constructions contain two distinct projections, a purely nominal one and a purely verbal one, with the former dominating the latter. This defends the RPC from the challenge posed by the Malouf/Hudson analysis. But more than that, I show that the RPC makes a valuable positive contribution toward understanding why we find the particular kinds of gerund constructions we do in languages of the world. More specifically, I argue that gerund constructions are constructions that arise when VP is selected by an Infl with nominal properties rather than an Infl with verbal properties, where “nominal properties” is defined precisely by the category theory in (1) and (2). English happens not to provide very striking evidence on this matter one way or another, but Mapudungun and Lokaa do. In particular, the RPC can be used to explain the special relationship between agreement and argumenthood found in embedded clauses in Mapudungun, and the special relationship between word order and argumenthood found in Lokaa. The success of the theory of gerunds based on (1) and (2) illustrates the advantages of having a deeper and more principled theory of the lexical category distinctions than has been the norm in generative research.

## **2. Gerunds as verbs combined with a special Infl**

For convenience, I refer to the Malouf/Hudson claim that gerunds are words that are simultaneously nouns and verbs the “Dual Category Hypothesis” (DCH). In contrast, I refer to the analysis that gerund constructions involve a purely nominal projection that exceptionally dominates a purely verbal projection the “Split Category Hypothesis” (SCH). The DCH is simpler in some respects, because it posits a less articulated and less abstract syntactic structure, so it has some right to be considered the null hypothesis. Why should one not be satisfied by it, and adopt the more complex SCH instead?

One thing that immediately seems surprising from the DCH perspective is the fact that monomorphemic words never have the noun-and-verb properties that gerunds have. The phrase headed by a verbal root with a nominal suffix can have both nominal and verbal properties in English and Mapudungun, as shown in (3) and (5). But simple, underived words never have this combination of properties. For example, the word *picture* in English can be used as a noun ((7a)) or as a verb ((7b)), but it cannot be used as a noun-and-verb, equivalent to a gerund ((7c)).

- (7) a. Mary’s beautiful picture of Paris hangs on the wall.
- b. Mary pictured Paris quickly in her mind.
- c. \*[Mary’s quickly picture Paris in her mind] helped her answer the trivial question.

This is also true for Mapudungun. Many roots in Mapudungun can be used as either verbs or nouns (Smeets 1989: 153)—for example *wentru* ‘man’. But these roots cannot head a gerund-like construction without the help of an independent gerund affix such as *-n/-el*:

- (8) a. Ti wentru amu-y. (wentru as N)  
       the man leave-IND/3sS  
       ‘The man left.’
- b. Doy fūcha-ke we-che wentru-lu iñchiñ,... (wentru as V)  
       more old-DIST young-person man-PTCPL we (Smeets 1989: 490)

‘When we became older young men, ...’

c. \*Kim-ün            Antonio ñi            wentru. (\**wentru* as N-and-V (gerund))

know-IND/1sS   Antonio 3.POSS   man            (EL)

‘I know that Antonio became a man.’

More generally, there are no monomorphemic words in English that can simultaneously take a genitive possessor and an accusative case object. Nor are there monomorphemic words in Mapudungun that can simultaneously take a possessor and show object agreement with a complement the way that the morphologically complex gerund in (3b) does:<sup>3</sup>

(9)    (Juan ñi)            nge(-\*fi)    trewa

Juan    3.POSS   eye-3O    dog

‘(Juan’s) eye of a dog’

I do not see how the DCH can provide any deep explanation for this fact. While nouns, verbs, and adjectives can certainly be formed by derivational morphology, all of these uncontroversial lexical categories also have morphologically simple members in the majority of languages. Why should the “noun-verb” category be different in this respect, the only lexical category that no roots belong to intrinsically? Gerunds seem fundamentally different from the uncontroversial lexical categories in this respect. In contrast, the SCH can make sense of this, inasmuch as it is compatible with the RPC, which can form the basis of an explanation for the facts in (7)-(9).

A proponent of the DCH might respond along these lines. Suppose that we think of nounness and verbness as being marked properties, with adjectives being the default lexical category. Then a noun-verb would be a doubly-marked category, and this could explain why languages tend not to have simple roots that are members of this category. It is not worth a language’s while to have basic vocabulary items in this doubly-marked category; rather the language derives items of this category from other, less marked categories when they are needed.



Even if we grant these assumptions,<sup>4</sup> the DCH still misses an important fact about gerunds: they always consist of a verb root and a nominal affix, and never the other way around. Existing gerunds like *giving* in English or *eluel* ‘giving’ in Mapudungun are derived within the DCH by adding a nominal suffix (*-ing* or *-el*) to a verbal root (*give* or *elu*) to get a noun-verb. Why couldn’t one just as well form a noun-verb (i.e., a gerund) by starting with a nominal root and adding a verbal suffix to it? Both English and Mapudungun have verbalizing suffixes like *-ize* and *-tu*. These suffixes can form verbs from nouns, but they can never form noun-verbs (gerunds) from nouns. This is illustrated in (10) and (11).

- (10) a. Mary hospitalized her mother.  
 b. \*I am relieved at Mary’s finally hospitalize her mother.
- (11) a. Juan (rumé) pulku-tu-y. (JA)  
 Juan very.much wine-VBLR-IND/3sS  
 ‘Juan drinks wine a lot.’
- b. \*Kim-ün Juan ñi (rumé) pulku-tu-(y). (EL)  
 know-IND/1sS Juan 3.POSS very.much wine-VBLR-(IND/3sS)  
 ‘I know that Juan drinks wine a lot.’

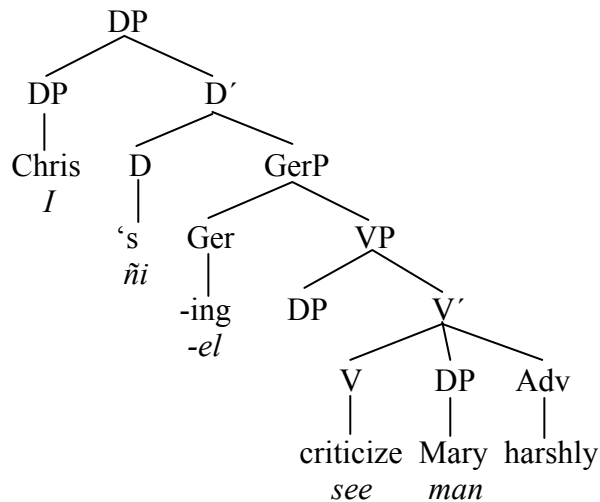
This fundamental asymmetry in the morphological structure of gerunds also receives no natural account in the DCH, as far as I can see.

Overall, gerund constructions display a systematic relationship between syntactic structure and morphological structure. Syntactically, gerund constructions have the structure of a verb phrases on the inside, with regard to combining with complements and modifiers, and the properties of a noun phrase on the outside, with regard to determiners, subjects/possessors, and their role in the larger sentence. Morphologically, gerunds are verbs on the inside (their root is verbal) and nouns on the outside (their outermost affix is nominal), and never the other way

around. There is a clear and presumably nonaccidental parallelism between the morphological structure of the word and the syntactic structure in which that word appears. This sort of parallelism between morphological structure and syntactic structure is precisely the kind of “Mirror Principle” phenomenon that lexicalist theories like Malouf’s and Hudson’s have a hard time capturing (cf. Baker (1985)) and that constitutes one a key motivation for incorporation-style derivations, in which complex words are derived in the syntax by head movement and similar mechanisms (Baker, 1988). On this basis, I reject the DCH, and adopt the SCH.<sup>5</sup>

In particular, I assume the version of the SCH shown in (12).

(12)



The VP here (or vP) is a normal one, headed by a verb like *criticize* or *pe* ‘see’. This VP may well have additional internal structure, including a vP layer, Larsonian shells, aspect projections, and the like; I put these issues aside, for the most part. The DP is also perfectly normal, headed by ‘s or *ñi*, and the phrase as a whole acts like a normal DP with respect to the outside world. *Ing* (English), *n/el* (Mapudungun), and *ke* (Lokaa) are the crucial distinctive elements in these constructions, which somehow glue together two projections, VP and DP, that would not normally co-occur. The verb combines with this Ger head in the syntax or after syntax, in the

same way that finite verbs combine with Tense/Infl in the language—either by head movement, or in some other way (e.g., merger under adjacency (Bobaljik, 2002), or base generation plus feature checking (Chomsky, 1993)).<sup>6</sup> This is essentially the theory that Abney (1987) proposed for “Poss-Ing” gerunds in English, which is also adopted by Hazout (1995) for similar constructions in Hebrew, by Borsley and Kornfilt (2000) for Turkish and other languages, and (in a different framework) by Bresnan (1997) for a variety of languages, among others.

(12) differs somewhat from much of the Abneyan tradition in one significant respect: I take the head Ger to be a nominal inflectional head, not a true noun. In this respect, I agree with Borsley and Kornfilt (2000), but not with Abney (1987), Hazout (1995), and Bresnan (1997). More specifically, I claim that Ger is an Infl with nominal properties.<sup>7</sup> This view, if it can be made coherent, has several immediate advantages. For example, Ger is clearly like a functional head inasmuch as it is a closed class item that has no encyclopedic meaning. There is nothing that looks much like a lexical noun head in the structure, as observed by Borsley and Kornfilt (2000) (see also Pullum (1991)). More importantly, it accounts for why a DP superstructure can be built over a VP foundation, a combination of categories that is not otherwise permitted (Grimshaw, 1991). Uncontroversial lexical nouns never to my knowledge select a bare VP complement, presumably for principled reasons. But Ger does select a VP complement in (12), and this is to be expected to the extent that Ger is a member of category Infl, since Infs routinely take VPs as complements. More precisely, Ger is like Infl (rather than some other clausal head, such as C or Aspect) in that it is compatible with aspect being expressed on the verb, but not with an expression of tense or mood. Thus English allows gerunds like *Mary’s having eaten the last piece of cake* alongside *Mary’s eating the last piece of cake*, but nothing like *Mary’s will eating the last piece of cake* or *Mary’s might eating the last piece of cake*. Mapudungun and Lokaa are formally parallel to English in this respect, with gerunds precluding expression

tense/mood but not aspect (although the details of what distinctions are expressed in the Infl and Aspect heads of each language vary somewhat; see Smeets 1989: ch. 26 on Mapudungun, and Iwara 1982 and Baker In press on Lokaa).

Another advantage to saying Ger is a functional head is that it helps to explain the parallelism between the syntactic structure of a gerundive clause and the morphological structure of its lexical head. The syntactic fact that gerund constructions are like verbal projections lower down and like nominal projections higher up follows from the familiar fact that functional heads select lexical heads within the main projection line of the phrase, not vice versa (Abney, 1987; Grimshaw, 1991). The morphological fact that gerunds have a verbal root and a nominal affix follows from the familiar fact that lexical heads normally correspond to roots and functional heads correspond to affixes, not vice versa. In this way, the SCH together with familiar assumptions about functional categories and how they are expressed morphologically can explain the systematic relationship between the morphology and the syntax that eludes the DCH.

The most sophisticated evidence that Ger is an Infl-like functional category and not a lexical noun comes from incorporation evidence. (13) is a well-established descriptive generalization concerning head movement, discovered by Li (1990).

(13) Li's Generalization: A lexical head cannot move into a functional head and then into another lexical head.

(13) covers the fact that bare nouns can incorporate into verbs in some languages, including Mapudungun (see (14b)). However, the functional heads *chi* (Determiner) and *pu* (arguably Number) that appear with the unincorporated noun in (14a) are not incorporated along with the noun in (14b). Rather, they are not generated. Thus, one can move N to V, but one cannot move N to Num or D and then to V, in accordance with (13).

- (14) a. ñi chao kintu-le-y ta chi pu waka.  
 my father seek-PROG-IND/3S the PL cow  
 ‘My father is looking for the cows.’
- b. ñi chao kintu-waka-le-y. (Salas 1992:195)  
 my father seek-cow-PROG-IND/3S  
 ‘My father is looking for the cows.’

Similarly, bare verbs can incorporate into verbs to form morphological causatives and similar constructions, but tensed verbs cannot incorporate, because V to Infl to V movement is ruled out (see Li 1990). Now what about verbs that select gerunds as complements in Mapudungun: can the verb+Ger stem incorporate into them? The answer is no: if such verbs allow incorporation at all, only the bare verb is incorporated, stripped of the gerund ending as well as any mood/aspect markers. (15) presents a minimal pair. The verb *kim* ‘to know’ selects a gerundive complement in Mapudungun. Whenever incorporation does not apply, the embedded verb bears the gerund affix *n/el* ((15a)). Incorporation can optionally take place with this verb, but never with the gerund affix, only with the bare root, as seen in (15b).

- (15) a. Kim-la-n ülkantu-n. (Augusta 1903)  
 Know-NEG-1sS sing-GER  
 ‘I don’t know how to sing.’ (Lit. ‘I don’t know singing’)
- b. \*Kim-ülkantu-n-la-n. (EL)  
 Know-sing-GER-NEG-1sS  
 ‘I don’t know how to sing.’
- c. Kim-ülkantu-la-n (EL)  
 Know-sing-NEG-1sS  
 ‘I don’t know how to sing.’

This shows that, like other instances of Infl, the presence of Ger blocks a head movement that would otherwise be possible. The contrast in (15) argues against those versions of the SCH that treat Ger as an ordinary noun, hence a lexical category.

In light of evidence like this, one might wonder why previous researchers have tended to identify Ger as a noun, rather than as a nominal Infl. I suspect the reason is because they didn't have a theory of the category distinctions that could make sense of what a "nominal Infl" would be. Under some reasonable conceptions of categories, the expression "nominal Infl" might sound a lot like the expression "square circle"—it attributes two contradictory properties to the same entity. On this point, the theory of categories in Baker (2003a) has something to offer. In this context, the term "nominal Infl" is neither a contradiction nor a vague impressionistic statement: rather, it is defined by (1) and (2) as an Infl that has a referential index but no specifier. More generally, the RPC in (2) induces a precise typology of Infl-like categories that allows for Ger as well as other, more conventional Infs, while not allowing other sorts of hybrid heads that are not attested. Demonstrating this positive role for the RPC within a theory of gerunds is the burden of the remainder of this paper.

### **3. Gerunds may have a referential index**

Baker 2003a gives a precise analysis of what it is to be nominal: to be nominal is to have a referential index. In this section, I show more systematically that gerunds are (or may be) nominal in this sense, and this accounts for the major features of their external distribution, including how they differ from finite IPs.

The simplest and most important way to see if a given phrase can have a referential index within my theory of categories is to see if it can receive a theta role associated with a verb or

some other theta-marking head. Bare NPs in general can do this (if the language allows them), but bare APs and VPs cannot:

- (16) I admire women<sub>i</sub> /\*sincere<sub>i</sub> /\*sing<sub>i</sub>  
 <Exp, Theme<sub>i</sub>>

More technically, I adopt William's (1989) idea that theta-roles are a kind of anaphor, which need to be locally bound by an index-bearing antecedent. This is stated in (17).

- (17) X can receive a theta role from Y only if X has a referential index.

Nouns and their projections have referential indices, by definition, so they can be the binder of the theta role, whereas adjectives and verbs and their immediate projections do not. On this view, the contrast in (16) reduces to the well-known fact that NPs can antecede reflexives but other categories cannot (e.g. *Italy's destruction of itself* versus *\*the Italian destruction of itself*; see Kayne (1984)).

Indeed, gerunds can receive (bind) theta-roles in all the languages under study. Gerunds can satisfy the object role of a matrix verb in English, in Lokaa ((18)) and in Mapudungun ((19), see also examples (3b), (5) and (15a)).

- (18) a. Ubi ke-paala òó-kooma.

Ubi GER-fly NEG/1AGR-stop

'Ubi did not stop flying.'

- (19) a. Kon-ke-fu-y-ngün ñi ngan-ün. (S246)

start-HAB-IMP-IND-3pS POSS sow-GER

'They used to start sowing.'

- b. Pi-y-mi mi küdaw-a-l. (S259)

want-IND-2sS 2.POSS work-IRR-GER

'You wanted to work.'

c. Kim-nie-ke-n kuyfi ñi nge-nu-n traktor. (S246)

know-PRPS-HAB-1sS formerly 3.POSS be-NEG-GER tractor

‘I know that in the old days there were no tractors.’

Gerunds can also serve as subjects in all three languages; this is shown in (20) for English, (21) for Lokaa, and (22) for Mapudungun.

(20) Eating dog meat is dangerous.

(21) Ke-paala ke-tum ke-tawa.

GER-fly 5AGR-be.very 5AGR-be.difficult

‘Flying is very difficult.’

(22) a. fali-y ta-mün kellu-el. (S257)

be.worth-IND/3sS PRT-2p.POSS help-GER

‘It is worthwhile that you (plural) helped.’

b. Küme-la-y (mi) i-ya-el ilo trewa. (EL)

be.good-NEG-IND/3sS 2s.POSS eat-IRR-NOM meat dog

‘It is not good (for you) to eat dog meat.’

And gerunds can be objects of adpositions in English and Mapudungun, as shown in (23) and

(24) (I don’t have information about this particular point in Lokaa):

(23) a. I counted on finding my key quickly.

b. I am surprised by Mary’s solving the problem first.

(24) a. Lladkü-le-n kim-nu-n-mu ñi chum-le-n ñi püñeñ.

sad-STAT-1sS know-NEG-GER-INST 3.POSS how.do-STAT-GER 1.POSS son

‘I am sad for not knowing how my son is doing.’ (S245)

b. Ayü-w-küle-n fey ñi mule-pa-n-mew. (S245)

love-REFL-STAT-1sS he 3.POSS be.there-DIR-GER-INST



‘I am glad because he is here.’

If gerunds only appeared in complement positions like (18) and (19), one might avoid saying that they are nominal by saying that they undergo some kind of complex predicate formation (see Baker 2003a:150-51). But the fact that they appear as subjects and inside PPs as well shows that this is not the whole story, and they must indeed have a referential index to bind the theta-role.

Examples like (19a) show that Mapudungun is a little different from English and Lokaa, in that it is normal to say the equivalent of “They started their sowing” in Mapudungun, whereas it is normal to drop the possessive pronoun when it is coreferent with the matrix subject in English and Lokaa. This might make one suspect that the gerund projection does not itself have a referential index in Mapudungun, and it can only bear a theta role if it is embedded in a DP that has a referential index (see section 5 for such cases in Lokaa). But this suspicion turns out to be unwarranted: Mapudungun does allow bare gerunds in object position as well, as shown by examples like (25a) and (25b) from Smeets’ corpus, and (25c) from Elisa Loncon.

(25) a. Fey kon-ke-fu-y nūtramka-n ñi fūcha-ke che.

Then start-HAB-IMP-3sS talk-GER 1.POSS old-DIST person

‘Then my elders used to start talking.’ (S 538 (24))

b. Amu-n kim-a-l chem dungu ñi nie-n. (S259)

go-IND/1sS learn-IRR-GER what news 3.POSS have-GER

‘I went to learn what news he has.’

c. Ayü-la-y (ñi) la-ya-l. (EL)

like-NEG-3sS 3.POSS die-IRR-GER

‘She does not want to die.’

Bare gerunds are also possible in subject position ((22b)) and as object of preposition ((24a)) in Mapudungun. I must admit that I don’t know why the forms in (19) are so much more common

than the forms in (25) in natural texts, but the difference seems to be of no deep syntactic consequence for the matters currently under study.

Mapudungun is also interesting because its gerunds contrast vividly with finite clauses in their ability to receive a theta role. Finite clauses can never function as the complement of a matrix verb in this language. This is illustrated by the ungrammaticality of (26).

- (26) \*Ayü-n        Maria amu-y.        (OK is: Ayü-(fi)-n    Maria ñi        amu-n.)  
       like-IND/1sS   Maria leave-IND/3sS        like-3O-1sS Maria 3.POSS leave-GER  
       ‘I like (it) that Maria left.’

Nor can finite clauses act as subjects or objects of P in Mapudungun; all argument clauses must be gerunds in this language (see, e.g., Smeets 1989: 238), making “nominalization” a very salient grammatical feature of the language.

In fact, this distributional difference is just what one should expect, given the RPC. Finite IPs are typically “verbal” in the sense that they license a specifier, the subject of the clause. The RPC then states that such IPs cannot have referential indices, and hence cannot receive thematic roles, in marked contrast with gerundive IPs. So in fact, one would expect the Mapudungun situation to be universal. Why then are finite clauses possible as arguments in English and Lokaa, often of the very same verbs that take gerunds?

- (27) a. I remember meeting Chris last fall.  
       I insist on eating the last piece of pie.  
       b. I remember (that) I met Chris last fall.  
       I insist (that) you eat the last piece of pie.

The answer, I claim, is that Mapudungun does not have complementizers comparable to English *that* or *for*. Finite IP indeed cannot have a referential index in any of these languages, but the CP it is usually embedded in can. An instructive comparison case is Quechua. Like

Mapudungun, Quechua is rich in nominal gerund constructions of various kinds, and most embedded clauses are nominalized. However, Lefebvre and Muysken (1988) (L&M) point out that finite clauses can be complements in Cuzco Quechua if and only if the overt complementizer *chay* appears, as shown in (28).

- (28) a. Xwan(-pa) hamu-na-n-ta yacha-ni. (Gerund as complement)  
 Juan-GEN come-GER-3.POSS-ACC know-1sS (L&M, p. 17)  
 ‘I know that Juan is to come.’
- b. \*Warmi hamu-sha-n-ta riku-ni. (No bare tensed IP as complement)  
 woman come-PRES-3S-ACC see-1sS  
 ‘I see that the woman is coming.’
- c. Warmi hamu-sha-n chay-ta, riku-ni. (Tensed CP as complement)  
 woman come-PRES-3S that-ACC see-1sS (L&M, p. 13)  
 ‘I see that the woman is coming.’

A gerund construction can be the complement of a verb like ‘know’ in Quechua, whereas a bare finite clause cannot, as shown in (28a) vs. (28b). This is directly analogous to the contrast in (26) in Mapudungun. But the finite clause can be a complement if the complementizer *chay* appears, as in (28c). This strongly suggests that the complementizer *chay* can introduce a referential index, as can the nominal Infl *-na*, whereas the finite Infl *-sha* cannot. Notice that this is perfectly compatible with the RPC: the finite IP has a specifier (presumably this is the location of *warmi* ‘woman’) so it cannot bear a referential index, but the CP headed by *chay* does not have a specifier, so it can have a referential index. Mapudungun happens not to have any lexical complementizer comparable to *chay*, as a kind of lexical gap, so it follows that gerunds are the only kind of sentential complement permitted in that language.<sup>8</sup>

This carries over to English in a straightforward way, if we say that the complementizer *that* (which is, after all, related to a demonstrative) introduces the referential index that makes CP able to bind the object theta-role in (27b). The obvious complication in English is the well-known fact that the complementizer *that* is often optional before a complement clause (although not before a sentential subject).<sup>9</sup> On this point, I simply assume that even when *that* is not present, a phonetically null complementizer that introduces the index still is. This is, of course, a traditional generative position, agreeing with Stowell (1981) and much related work.<sup>10</sup>

These ideas also carry over to Lokaa. (29a) shows a gerund functioning as the direct object of the verb ‘stop’.

(29) a. Ubi ke-paala òó-kooma.

Ubi GER-fly NEG/1AGR-stop

‘Ubi did not stop flying.’

b. Úbì kò-póó òó-kpèèyì.

Ubi 11-cup NEG/1AGR-sell

‘Ubi didn’t sell a cup.’

c. Aa-kooma \*(tè) a-kou yo-nanang.

NEG/2sS-stop SUBJ 2sS-go 13-work

‘You didn’t stop going to work.’ (Lit. You didn’t stop that you go to work.)

The fact that the gerund comes before the negative verb shows that it is nominal in nature, like a direct object (compare (29b)); in contrast, true clauses generally come after the negative verb in Lokaa as a result of extraposition (e.g., (29c); see Baker In Press for analysis). (29c) also illustrates that a clause containing a finite verb can only function as an object in Lokaa if it is dominated by a C-like head that is higher than the agreement-bearing Infl node that is realized as

a prefix on the verb—the subjunctive particle *te*, in this example. Finite sentential subjects also require this C-like particle, as expected:

- (30) \*(te) a-ka obol esau o-tum o-tawa.  
 SUBJ 2sS-give chief fish 1AGR-be.very 1AGR-be.difficult  
 ‘To give the chief fish is very difficult.’

Before going on, I should emphasize that my claim in this section is that (in contrast to finite Infls) the gerund heads *-ing*, *-el/-n* and *ke-* can be nominal in the sense of having a referential index, not that they must have one. In both English and in Mapudungun, gerunds are also possible as the heads of adjunct clauses that are adjoined to a finite matrix verb but not associated with any theta-role assigner. Examples are shown in (31).

- (31) a. Having solved the problem in 13 seconds, John left the room.  
 b. Küdaw dewma-el tripa-y-iñ. (Sm 262)  
 work finish-GER leave-IND-1pS  
 ‘When the work was done, we went away.’

(Note that these examples crucially do not have a possessive determiner; I return to how such determiners make a phrase unambiguously nominal in section 5 below.) Gerunds are different in this respect from canonical noun phrases, which cannot (in most languages) appear as adjuncts to clauses when they do not get a theta role or bind some other element which does. Thus, (32a) is out in English, in contrast to both (32b) and (32c).

- (32) a. \*That mountain, the trees are very beautiful.  
 b. On that mountain, the trees are very beautiful.  
 c. That mountain, the trees on it are very beautiful.

In Baker 2003a, I accounted for patterns of facts like those in (32) by way of the Noun Licensing Condition, stated in (33), the second basic axiom of my theory of lexical categories.

(33) *The Noun Licensing Condition* (Baker 2003a)

The referential index borne by a phrase must be identical to an index of its sister (theta-role assignment) or to the index of a dependent element that it c-commands (chain-formation).

If this is correct, then the contrast between (31) and (32a) implies that the gerunds in English and Mapudungun do not need to have a referential index, even though they can have one.<sup>11</sup> This detail is of relevance to what follows only in that it gives a fuller picture of the range of possible Infl nodes (see Table One below). For the most part I concentrate on gerunds that do have referential indices, because they are the ones that are directly relevant to the RPC.

#### 4. Specifiers in Gerund Constructions (I): Agreement in Mapudungun

So far we have seen that gerunds in English, Mapudungun, and Lokaa may bear referential indices, enabling them to function as arguments in the same way that NPs do. We come, then, to the crucial issue for the theory of categories: when these gerunds bear referential indices, the RPC predicts that they should not have specifiers. Although crucial evidence is not easy to find in English, the language particular facts of Mapudungun and Lokaa provide two quite different confirmations of this. In this section I look at evidence from agreement in Mapudungun, turning to evidence from word order in Lokaa in the next section.

One cannot use simple word order tests to see if an NP is the specifier of a given category in Mapudungun, because Mapudungun is a polysynthetic language, with extensive pro-drop and dislocation of overt NPs. Subjects, for example, can appear on either side of the verb, as shown in (34) (see also Smeets 1989: 454-55, (Rivano Fischer, 1991: 168)).

(34) a. Iñchiñ ngilla-me-a-iñ kofke. (Loncon Antileo, 2005: 18-19)  
we buy-DIR-IRR-1pS bread

‘We will go to buy bread.’

b. Ngilla-me-a-iñ kofke iñchiñ.

buy-DIR-IRR-1pS bread we

‘We will go to buy bread.’

The order of objects is similarly free, with both OV and VO orders occurring. Mapudungun’s polysynthetic nature also guarantees that it will not have any Infls that are free particles, unattached to the verb, comparable to *will* in English. In such a language one will not be able to use word order to see if the subject is in Spec, IP, Spec, VP, or some other position.

There is, however, one salient difference in how subjects are treated in finite and gerundive clauses in Mapudungun that is relevant. Finite verbs always agree with their subject, whereas verbs inflected with *-n/-el* never do. This difference in agreement can be brought to bear on the matter of specifiers, because GerP can only acquire a subject as a result of movement (Ger, like other Infls, has no theta-role to assign to a directly merged specifier) and agreement between X and Y is a precondition for X moving to target a phrase headed by Y in current Minimalist Theory (Chomsky, 2000). Since then there is no substantive agreement between Ger<sup>0</sup> in Mapudungun and an NP, it follows that there can be no NP in Spec, GerP.

In point of fact, it is not so clear that Chomsky’s (2000) claim that agreement is a precondition for movement is entirely accurate for English and other Indo-European languages. These languages have certain constructions in which something other than the NP that Infl agrees with overtly has moved to Spec, IP, such as locative inversion (*On the table stand three trophies*). But Baker (2003c) and Carstens (2003) have pointed out that the relationship between agreement and movement is much closer in certain other languages, notably the Bantu languages. In these languages, the statement in (35) is valid without positing abstract, silent agreement that conflicts with the obvious morphologically realized agreement on the head.<sup>12</sup>

(35) Y moves to become the specifier of functional head X (X overt) only if X shows substantive agreement with Y.

So I tentatively take (35) to be a parameter, valid of some languages but not others. My task, then, is to show that (35) is valid for Mapudungun as well as for Bantu languages. Once this is established, the fact that finite Infls in Mapudungun agree with the subject is consistent with the fact that the subject (or a member of its chain) is in Spec, IP. In other words, finite Infls are verbal, according to Baker's (2003) definitions. In contrast, the fact that *-n/-el* does not agree with anything shows that it has no Spec. It is nonverbal, consistent with the RPC.

The most striking evidence that (35) holds in Mapudungun comes from constructions in which the thematic object fronts to the Spec, IP position over the thematic subject, which remains in Spec, VP/vP. When such fronting happens in Yiddish, the finite verb in Infl agrees with the postverbal subject, not with the object that moves to Spec, IP (Diesing (1990); see also Rögnvaldsson and Thráinsson (1990) on Icelandic):

(36) ...az vayn ken men makhn fun troybn oykh. (Yiddish, Diesing 1990: 44)  
that wine can one make from grapes also  
'(You should know)...that one can make wine from grapes also.'

The Germanic languages are quite different in this respect from the Bantu languages. Object fronting to Spec, IP is also found in many Bantu languages under special conditions that relate to matters of topic and contrastive focus (Baker, 2003c, Kimenyi, 1980, Kinyalolo, 1991, Ndayiragije, 1999). However, in Bantu languages, the verb necessarily agrees with the fronted object, not with the postverbal subject:



- (37) a. Abakali si-ba-li-seny-a olukwi (omo-mbasa). (Kinande)  
 women.2 NEG-2S-PRES-chop-FV wood.11 LOC.18-axe.9  
 ‘Women do not chop wood (with an axe).’ (Standard order)
- b. **Olukwi** si-lu-li-seny-a bakali (omo-mbasa).  
 wood.11 NEG-11S-PRES-chop-FV women.2 LOC.18-axe.9  
 ‘WOMEN do not chop wood (with an axe).’ (S-O reversal)

(37) is expected given that (35) holds in the Bantu languages, although not in the Germanic languages. And Mapudungun is like the Bantu languages in this respect. It also has an object “topicalization” process, in which the thematic object is promoted over the thematic subject for reasons having to do with relative topicality. This topicalization affects the unmarked word order in the clause, changing it from subject-initial SVO (or SOV) to “object-initial” OVS (or OSV) order (Rivano Fisher 1991: 168-69, Loncon 2005):

- (38) a. Ti wentru pe-fi-y ti domo.  
 the man see-3O-IND/3sS the woman  
 ‘The man sees the woman.’
- b. Ti domo pe-e-y-ew ti wentru.  
 the woman see-INV-3sS-DS the man  
 ‘The woman, the man sees (her).’

Baker 2003b shows that this “topicalization” has the properties of an A-movement that targets the Spec, IP position, so it is comparable to both Yiddish topicalization and Bantu reversal in this respect. But with respect to agreement, the construction is clearly like Bantu in that the finite Infl agrees with the topicalized object, not with the thematic subject. This can be seen by comparing the examples in (38) with those in (39). In (39a), without object topicalization, the pro-dropped 1<sup>st</sup> person thematic subject triggers agreement on Infl, realized as *-n*, which

contrasts with the 3<sup>rd</sup> person indicative suffix *-y* seen in (38a). In (39b), a *pro*-dropped 1<sup>st</sup> person thematic object has been topicalized, and this topicalized object triggers the same *-n* agreement as is seen in (39).

- (39) a. Pe-fi-*n*            ti    domo.  
           see-3O-IND/1sS the woman  
           ‘I see the woman.’
- b. Pe-e-*n*-ew        ti    domo.  
           see-INV-1sS-DS the woman  
           ‘Me, the woman saw.’

This supports my claim that (35) holds for Mapudungun as well as for Bantu.<sup>13</sup>

Another indication that (35) holds in Mapudungun comes from complex NPs. Smeets (1989) describes at least two kinds of complex NPs: the partitive/genitive NP exemplified in (40a), and the possessive NP exemplified in (40b).

- (40) a. tüfachi pilun kawellu    (Smeets 1989: 174)  
           this    ear    horse  
           ‘this ear of a horse’
- b. tüfachi kawellu ñi        pilun    (Smeets 1989: 171)  
           this    horse    3.POSS ear  
           ‘the ear of this horse’

The (40a) structure contains no relevant functional category; *kawellu* ‘horse’ is arguably the complement of *pilun* ‘ear’ and gets a theta-role directly from it.<sup>14</sup> There is also no agreement in this structure. In contrast, the (40b) structure has a possessive determiner, and *kawellu* ‘horse’ appears outside it, to its left. The difference in word order strongly suggests that *kawellu* (or the *pro* it binds<sup>15</sup>) has moved to Spec, DP in this case. Correlated with this, the (40b) structure has

agreement between the possessor and the functional head D that it is the specifier of; *ñi* in (40b) is the third person form of the possessive determiner, which contrasts with the second person singular form *mi*, the first person plural form *iñ*, and so on. The necessity of agreement in (40b) compared to its absence in (40a) is explained if (35) is part of Mapudungun grammar.<sup>16</sup>

Now the application of (35) to gerund constructions in Mapudungun is straightforward. If there were an NP in Spec, IP of a nominal gerund, it would trigger substantive agreement on the gerundive Infl, by (35).<sup>17</sup> But no verb+gerundive Infl combination in Mapudungun has substantive agreement with its understood subject; they are invariant forms. Therefore, there is no NP—not even a covert *pro* or PRO—in Spec, IP. Some of these gerunds do have referential indices, but they do not have specifiers, consistent with the RPC. The gerund head may be fully nominal in exactly the sense defined by my (2003) theory of lexical categories.

The contribution that the RPC makes to an understanding of gerunds can be stated in broader terms. An Infl-type category can be verbal in the sense of taking a specifier. In that case, the Infl will agree with its specifier, by (35). Mapudungun’s indicative Infl *-y* and conditional Infl *-l* are instances of this. Alternatively, an Infl-type head can be nominal in the sense of introducing a referential index. In that case, the IP it heads will be able to receive a theta role—indeed it will have to do so, by the NLC. This sort of IP will be useable as a subject, object, or object of a preposition, though not as a root clause or a bare adjunct clause. Mapudungun’s gerundive Infl *-n/-el* is an instance of this. Category theory also permits an Infl that has neither a specifier nor a referential index; this would count as an adjectival-like Infl. In Mapudungun, such an Infl would not agree with its subject and the clause it heads would be useable as an adjunct clause but not as an argument clause. That is the behavioral profile of the gerund illustrated in (31b), showing that the “adjectival Infl” is also realized as *-n/-el* in Mapudungun. (Similarly, *-ing* in English is either nominal or adjectival, although the two kinds

of Infl are morphologically distinct in some other languages.) The logically conceivable type of Infl that the RPC rules out is one that has both a specifier and a referential index. This fourth kind of Infl would show agreement with the subject and the clause it heads would have to function as the argument of a superordinate verb. There is no such item in Mapudungun. Despite its many superficially different kinds of nominalizations (see Smeets 1989: 238-292) and the strong grammatical pressure in favor of agreement created by the Polysynthesis Parameter, this combination of properties is never attested. There are no examples like (41), for example.

- (41) a. \*Fey-engün ayü-w-üy-ngün amu-el-ün/i ñi umawtu-a-l.  
that-they love-REFL-IND-3pS go-GER-1sS 1.POSS sleep-IRR-GER  
‘They were glad that I went to sleep.’ (Compare Smeets 1989: 262)
- b. \*Pi-y-mi küdaw-a-l-mi. (EL; contrast (19c))  
want-IND-2sS work-IRR-GER-2sS  
‘You wanted to work.’

A single clause can have a referential index and agreement with the subject, but the two properties must be attributed to different heads. The referential index can be on the Infl, and the agreement on a higher D-like head, as in gerunds with a possessive subject. Or Infl can have a specifier it agrees with while a referential index is born by a higher C-like head, as in finite CPs in English and Quechua. But no one head can have both properties. This typology of Infl-type elements is summarized in Table One; notice that it is exactly parallel to my (2003) typology of lexical categories, as expected given the RPC.

Table One

Categories	Introduces ref. index	No ref. index introduced
Has specifier (Agrees with subject)	***	Indictative -y (Map) Conditional -l (Map) Pres, Past, etc. (English)
No specifier (Doesn't agree with subject)	-el/-n/-t/-m (Map) -ing (Eng)	-el/-n/-t/-m (Map) -ing (Eng)

How robust is this result? Is the impossible Infl really ruled out by Universal Grammar, or could it just be an accidental gap in both English and Mapudungun? A full treatment of this question goes beyond what can be done in a single article, but a quick glance gives an idea of the issues that arise. Other languages certainly have examples that look superficially like the ones in (41), which I claim to be ruled out by deep principles. Peruvian Quechua is a case in point.

(42), for example, contains a nominalized form of the verb which functions as the complement of the matrix verb *yacha* 'know' and has agreement with the thematic subject *Xwan*.

(42) Xwan(-pa) hamu-na-n-ta yacha-ni. (L&M 17)

Juan-GEN come-GER-3.POSS-ACC know-1sS

'I know that Juan is to come.'

But this is not necessarily a counterexample to my theory. Recall that the agreement-bearing possessive determiner in Mapudungun is realized as a word distinct from the noun or gerund that heads its complement. This is not true in Peruvian Quechua. In Peruvian Quechua agreement with the possessor shows up as a suffix on the head noun, as shown in (43).

(43) Xwan-pa wasi-**n**, puklla-na-**y**

Juan-GEN house-3.POSS toy-1.POSS

‘Juan’s house’

‘my toy’

The agreement in (43) cannot be generated on the noun directly, because the possessor is not the specifier of the noun, according to the RPC. Rather, I have assumed that the possessor is theta-marked by a possessive determiner head through out. The same must be true in (43). I claim, then, that *-n/-y* here is not a mere agreement, but rather an agreeing form of the possessive determiner, which is a distinct head syntactically. The difference between Quechua and Mapudungun is that in Quechua the noun combines with the agreeing determiner to form a single word, just as the verb combines with the agreeing Infl to form a single word. (This can be accomplished by N to D movement, or an equivalent mechanism.) Now note that the agreement on the gerund in (42) is identical to the agreement on the noun in (43), whereas it is different from the agreement that normally appears on Infl (see (44a)).

(44) a. Hamu-rqa-*ni*

come-PAST-1sS

‘I came’

b. Hamu-sqa-y-ta                      yacha-ni.

come-GER-1.POSS-ACC know-3S

‘He knows I have come.’

So if N-to-D movement happens in (43), then it is reasonable to say that it happens also in (42) and (44b)—technically, the V would move to Ger, and then the Ger head would move to D (note that this is perfectly compatible with Li’s Generalization stated in (13)). Given that movement to D is independently motivated in Quechua, there is no problem for the RPC in (42): the referential index comes from Infl, and the specifier is licensed by the distinct head D, just as in Mapudungun. The only difference is that in Quechua this is disguised by the affixal nature of D.<sup>18</sup> These considerations probably extend also Turkish and other similar languages.

Mapudungun thus has two special properties that make it the perfect language for seeing the truth of the RPC when it comes to gerunds. First, it has no complementizers that can make finite Infs look like they have referential indices when in themselves they do not. Second, its determiners do not fuse with the gerunds to make them look like they have specifiers when in truth they do not. These fortuitous properties of its functional categories allow it to show up clearly that no Infl can have a specifier and a referential index simultaneously. But what is manifestly true in Mapudungun seems also to be true in other languages, once the contributions of determiners and complementizers are taken into account.

### 5. Specifiers in Gerund Constructions (II): Word Order in Lokaa

Next let us turn to Lokaa, whose gerunds illustrate the truth of the RPC in a very different way. Lokaa is less dependent on agreement than Mapudungun is, but word order is fixed in interesting ways. In this language, then, the crucial evidence comes from properties of word order.

Above I showed that gerunds in Lokaa could be subjects (as well as objects), but the examples that I used crucially involved only a single intransitive verb. As in English and Mapudungun, gerundive verb forms in Lokaa can be used with direct objects, accusative case pronouns, double object constructions, and adverbs. But there is a very interesting complication: all of these elements come *before* the gerundive verb, whereas in finite affirmative clauses they come after the verb (as expected, given that Lokaa is generally a head-initial language). This surprising word order could already be seen in examples (3c) and (4), which are repeated here.

(45) a. Úbì ó-kòòmà òbóól è-sàu kè-kai

Ubi 1AGR-stop chief.1 7-fish GER-give

‘Ubi stopped giving fish to the chief.’

b. Yo-nanangepalepal ke-koi... (o-da bong wa a-yeni.)

13-work quickly GER-go 1AGR-be thing REL 2sS-have

‘Going to work quickly’ (is the thing that you have (do).)

The same verb-final order is also found in negative clauses in Lokaa, in which a finite verb that bears negative morphology comes after all objects and VP-internal particles as well as (optionally) PPs and adverbs (see (29b) for an example). In Baker In press I give detailed arguments that this word order is the result of first raising the verb to the gerund or negation head, and then raising the rest of the VP into the specifier of that head, following Nkmeji’s (1995) analysis of similar word orders in Nweh. This analysis is sketched briefly in (46).

- (46) a. ...[<sub>GerP</sub> ke- [<sub>VP</sub> give chief fish quickly ]] → (verb movement)  
b. ...[<sub>GerP</sub> ke+give [<sub>VP</sub> <t> chief fish quickly ]] → (VP movement)  
c. ...[<sub>GerP</sub> [<sub>VP</sub> <t> chief fish quickly] ke+give t ]

This is a reasonably natural way of reconciling the apparent head finality of these particular constructions in Lokaa with the overall head-initial nature of the language, consistent with the fact that this marked order is triggered by special inflectional categories that show up as prefixes bound to the verb itself. This analysis also captures the important fact that the order of VP-internal elements other than the verb is the same in gerund and negative clauses as it is in affirmative finite clauses. For example, the indirect object comes before the direct object in (45a), and the direct object comes before the adverb in (45b), which are the usual orders found in this language. The remnant VP-movement analysis sketched in (46) captures this by moving the entire VP as a unit, minus only the verb itself. I take this analysis for granted without extensive further discussion for purposes of this paper; see Baker In press for detailed discussion.

The crucial point of this for current purposes is that this analysis of OV order in gerunds combines with the RPC to make a clear prediction: bare gerunds based on transitive verbs should not have referential indices in Lokaa. As a result, they should not be allowed to appear in



subject position.<sup>19</sup> This prediction is correct (with a proviso to be made below), as shown by the following contrast between (47a) and (47b-d):

- (47) a. Ke-paala ke-tum ke-tawa. (=21)  
 GER-fly 5AGR-be.very 5AGR-be.difficult  
 ‘Flying is very difficult.’
- b. \*è-sàu kè-jî ke-yooyi.  
 7-fish GER-eat 5AGR-be.good  
 ‘Eating fish is good.’
- c. \*Obol e-sau ke-kay ke-tum ke-tawa.  
 1.Chief 7-fish GER-give 5AGR-be.very 5AGR-be.difficult  
 ‘Giving the chief fish is very difficult.’
- d. \*Lì-póó ká kèèí ke-yooyi ke-tum ke-dal-ò  
 11-cups on table GER-put 5AGR-be.very 5AGR-good-you  
 ‘Putting cups on the table is very good for you.’

This striking contrast provides strong support for the RPC.

Lokaa contrasts minimally with Bantu languages like Kinande in this respect. The languages are (distantly) related, and they have similar basic word orders, noun class systems, and agreement properties. In both languages, the gerund form of a verb is created by putting a noun class marker on the verb root. So (47a) is closely parallel to (48) from Kinande:

- (48) Eri-genda ri-kalire. (Kinande)  
 GER-go 5AGR-be.difficult  
 ‘Going is difficult.’

The minimal difference is that in Kinande and other Bantu languages, the remnant VP does not move to Spec, GerP. As a result, the V-O typical of finite clauses is also found in gerunds in the Bantu languages, in contrast to the special O-V order found in Lokaa gerunds:

- (49) Tu-ná-sond-ire eri-gula amatunda. (Kinande)  
 1pS-want-ASP GER-buy fruits  
 ‘We want to buy fruits.’

Correlated with this word order difference is the fact that transitive gerunds can function as agreed-with subjects just as well as intransitive ones in Bantu languages:

- (50) Eri-gula amatunda ri-kálire. (Kinande)  
 GER-buy fruits 5AGR-be.difficult  
 ‘Buying fruits is difficult.’

The RPC provides a direct explanation of this crosslinguistic difference.

The badness of the bare transitive gerunds used as subjects in (47b-d) also contrasts with gerunds that are embedded inside a possessive DP. These can be used as subjects in Lokaa:

- (51) a. è-sàu ke-dei ke-wu ke-tum ke-tawa.  
 7-fish GER-buy 5AGR-your 5AGR-be.very 5AGR-be.difficult  
 ‘Your buying fish is very difficult.’
- b. Obol e-sau ke-kay ke-wu ke-tum ke-tawa.  
 1.chief 7-fish GER-give 5AGR-your 5AGR-be.very 5AGR-be.difficult  
 ‘Your giving the chief fish is very difficult.’
- c. ?Lì-póó ká kèèti ke-yooyi ke-wu ke-tum ke-tawa  
 11-cups on table GER-put 5AGR-your 5AGR-be.very 5AGR-be.difficult  
 ‘Your putting cups on the table is very difficult.’

These facts are perfectly consistent with my analysis of gerunds. Here, we can say that the referential index of the clause as a whole is introduced by the DP projection, not by the gerund phrase itself. The gerund phrase thus does not violate the RPC.

The examples in (51) do, however, raise questions about the RPC and determiners. If the gerund phrases in these examples do not violate the RPC, then the possessive determiner phrase apparently must: it presumably has a specifier (the null possessor ‘you’) and by hypothesis it introduces a referential index. If the primary theoretical goal of this work is to promote the RPC as a principle of category theory, this seems like the intellectual equivalent of winning the gerunds battle at the expense of conceding the overall war. Nevertheless, there is independent reason to believe that even possessive DP structures obey a slightly modified version of the RPC. The topic of determiners, specifiers, and referentiality is obviously too large to do justice to here, but I give a quick sketch of where I believe the answer to lie, hoping to return to the topic in more depth on a future occasion.

The key observation is that there is lots of evidence in the literature that the referential and quantification properties of a possessive construction are inherited from the possessor, not from the possessed noun which ought to be the semantic and morphological head of the construction. For example, a DP with a definite possessor is definite, and a DP with an indefinite possessor is indefinite, as shown by *there*-insertion contexts (Barker, 2000):

- (52) a. There is a man in the garden.  
b. \*There is the man in the garden.  
c. There is a man’s dog in the garden.  
d. \*There is the man’s dog in the garden.

Similarly, a DP with a negative polarity-licensing specifier itself licenses negative polarity items:

(53) No man's dog has ever let him down. (Barker, 2000)

(Compare: \*Some people's dogs have ever let them down.)

No man has ever let me down.

\*Some men have ever let me down.

To these observations of Chris Barker's, I add the well-known fact that a DP with a *+wh* possessor itself counts as *+wh*, and hence undergoes movement to Spec, CP:

(54) Which man's picture did you see at the post office?

(Compare: Which man did you see at the post office?)

These facts do not follow simply from the fact that the possessor is often a kind of argument of the head noun. Nouns can take internal arguments too, but they do not inherit (in)definiteness, negative polarity, or *+wh* status from such arguments, as shown by the examples in (55).

(55) a. There is a picture of the man on the wall. (indefinite DP with definite argument)

b. \*There is the picture of a man on the wall. (definite DP with indefinite argument)

c. \*A picture of no dog ever appears in the paper. (Non-neg DP with neg argument)

d. ?\*A picture of which man did you see at the post office?

(DP with *+wh* argument not *+wh*)

Thus there is a very special relationship between the referential properties of a possessor and the referential properties of the DP as a whole which does not hold for other dependents of the DP. I take these observations as supporting a statement like (56a), and representations like (56b).

(56) a. The possessive determiner creates a novel referential index for DP that is a function of the referential index of its specifier.

b.  $[_{DPi=f(k)} \text{John}_k [ \text{'s } [_{NP_n} \text{dog } ] ]$

Note that the index of the NP complement of D is not inherited by the DP as a whole in this case (whereas it is with simple determiners like *the*, according to Baker 2003: sec. 3.3  $[_{DPi} \text{the } [_{NPi}$

dog])). Rather, the content of this NP makes an indirect contribution to the meaning of the DP as a whole. The possessive D uses the content of NP to define a function from the reference of the possessor to the reference of the whole. For example, in (56b) ‘s is a function from John onto the maximal set of dogs that are in a contextually defined relationship to John (e.g., the possession relation).<sup>20</sup> This sort of view can easily explain why the quantificational properties of the possessor are inherited by the possessive DP as a whole. The same reasoning then carries over to possessors in gerunds: in *John’s solving the problem* the gerund phrase *solving the problem* (with or without a referential index) is used by the determiner ‘s to create a function from John to the unique state of affairs of solving a problem that holds of John. The syntactic representation would be:

(57)  $[_{DPi=f(k)} \text{John}_k [ \text{'s } [_{GerP} \text{ solving the problem } ] ]$

Now suppose that we recast the RPC as follows:

(58) *The Reference-Predication Constraint (revised):*

A syntactic object cannot both have a referential index and merge with a specifier.

This restatement leaves the structures considered by Baker (2003) unchanged; it just clarifies where the “locus of violation” is. For example, in a representation like  $[_{NPi} \text{John } [_{N'i} \text{picture of Paris}]]$ , it is technically the N' that violates the RPC, not the NP as a whole. So the revised RPC still rules out a lexical category that is nominal in having a referential index but verbal in having a specifier, as intended. But in the representation (56b), the possessive D and the D' it heads do not bear a referential index of their own; they merely denote functions that create an index when given an appropriate argument. So the D' is allowed to have a specifier, given its special meaning. If this is correct, then there is no RPC violation in examples like (51) from Lokaa, either at the GerP level or at the DP level. Although a fully elaborated treatment of the semantics of possessive determiners remains to be given, this is a sketch of my plan to win both

the current battle and the ultimate war for the RPC, plus some evidence in favor of some such view.

It is worth noting that the possessive determiner is the only overt determiner that can make a transitive gerund into a valid argument in Lokaa. A demonstrative, for example, cannot:

- (59) \*Yo-nanang ke-koi s-ima ke-tum ke-tawa  
 13-work GER-go 5AGR-this 5AGR-be.very 5AGR-be.difficult

‘This going to work is very difficult.’

This confirms that determiners do not have intrinsic referential indices of their own; rather they operate over the referential indices of their dependents. They either pass on the referential index of their complement (the usual case, for articles), or they construct a referential index from that of their specifier (possessive determiners). The demonstrative in (59) does not have a specifier, and its complement GerP cannot have a referential index by the RPC. Thus, the DP as a whole cannot have a referential index, and (59) is ruled out.

There is one final peculiarity of Lokaa gerunds that is still to be explained. Simple transitive gerunds are allowed as subjects if the main verb agrees with the fronted object of the gerund, rather than with the gerund itself:

- (60) a. è-sàu kè-jíi e-yooyi.  
 7-fish GER-eat 7AGR-be.good  
 ‘Eating fish is good.’
- b. Yo-nanangke-koi yo-tum yo-dal-o. (\*ke-tum ke-dal-o)  
 13-work GER-go 13AGR-be.very 13AGR-be.good-you  
 ‘Going to work is very good for you.’

This is surprising, because the object of the gerund is not the head of the gerund phrase in any obvious semantic sense. Furthermore, this option is rather limited; it is available only if a single

NP is fronted in the gerund. Bare (looking) gerunds that include a double object construction are bad as subjects even if the main verb agrees with one of the objects:

- (61) \*e-bla ke-kau ke-kai ke-da/e-da bong wa oyiiyi.  
 7-dog 5-bone GER-give 5-be/7-be thing of good  
 ‘Giving the dog a bone is a good thing.’

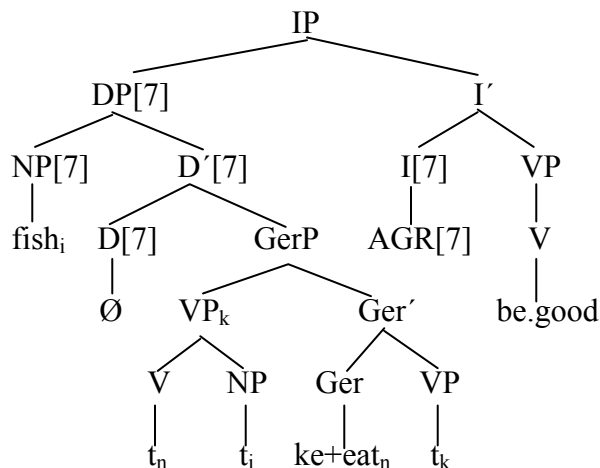
It is also marginal-to-bad for the main verb to agree with the fronted object if a PP complement is preposed along with the object:

- (62) ??Li-póó ká kèètí li-tum li-dal-o.  
 11-cups on table GER-put 11AGR-be.very 11AGR-good-you  
 ‘Putting cups on the table is very good for you.’

This curious pattern of facts can be made sense of if one assumes that there is a D-like node that selects the gerund in these examples, as in the examples in (51), but here the D head is covert. This determiner has no intrinsic phi-features of its own, but it has uninterpretable phi-features that are valued by entering into an Agree relationship with the highest NP in its domain. The gerund phrase as a whole does not qualify because the verb is transitive, so the specifier of the gerund phrase is occupied by the remnant VP and the GerP cannot be nominal. The object of the gerund is thus the highest nominal. Its features value the features of the covert D, and from there they become the phi-features of the DP as a whole. Furthermore, let us assume that this covert D has an EPP feature, which requires that the NP it agrees with move to Spec, DP. Finally, the covert D has roughly the same semantic properties as the possessive determiner: it denotes a function from the referential index of its specifier (the raised object) to a novel referential index—the unique state of affairs with the descriptive content of the gerund that involves the referent of the attracted NP. As a result, the DP as a whole has a referential index,

constructed out of the index of its specifier, even though its gerund complement does not. The DP then can function as the subject. The full structure of an example like (60a) then is (63).

(63)



Why is a similar derivation impossible when there is a subcategorized phrase other than the primary object in the fronted VP? I claim that the reason is that the covert D fails to attract an NP to its specifier whenever there is overt material other than that NP in the fronted VP. I take this to be a species of left-branch/subject condition violation: one cannot extract a proper subpart of a specifier in a wide range of contexts. That is why an example like (62) cannot have the derivation in (64), parallel to the grammatical (63).

- (64) [GerP Ger [VP put cups<sub>i</sub> on table ]] → verb raising  
 [GerP Ger+put [VP t cups<sub>i</sub> on table ]] → remnant VP movement  
 [GerP [VP t cups<sub>i</sub> on table ] Ger+put t ] → Merger of covert D  
 [DP Ø [GerP [VP t cups<sub>i</sub> on table ] Ger+put t ] → Attraction of closest NP  
 \*[DP cups<sub>i</sub> Ø [GerP [VP t t<sub>i</sub> on table ] Ger+put t ] Violates Left Branch condition

On the other hand, if the null D does not agree with an NP, then it will not acquire phi-features, and it has no referential index from which to construct an index for the DP as a whole. Thus,



the null D cannot head a phrase that can be used as a subject when combined with this kind of a gerund. This derivation succeeds only if the VP contains one NP and nothing more.

“Expanded gerund” DPs like the one shown in (63) can also function as the complement of a determiner in *Lokaa*—either a demonstrative or a possessive. The result is a phrase that is usable as a subject in which both the overt determiner and the matrix verb appear to agree with the object of the gerund. Since this DP has a referential index, it is qualified to be the complement of determiners that semantically require such an index, such as the demonstrative (contrast (65a) with (59) above).

- (65) a. Yo-nanang kekoi bi-maa yo-tum yo-tawa.  
 13-Work GER-go 13-this 13AGR-be.very 13AGR-be.difficult  
 This going to work is very difficult.
- b. Yo-nanang kekoi yo-wu yo-tum yo-tawa.  
 13-work GER-go 13-your 13AGR-be.very 13AGR-be.difficult  
 Your going to work is very difficult.

Overall, then, we see that *Lokaa* has two determiner-like heads that can make a gerund that cannot have a referential index on its own, because of the RPC, into a phrase that does have a referential index. What these two determiners have in common that distinguishes them from simple determiners (like demonstratives) is that they both have specifiers: the possessive determiner has a specifier as the result of base generation, and the null determiner has a specifier as a result of movement. Although these look like counterexamples to the RPC, they can be reconciled with it once we understand the special role that transitive determiners have in mapping the index of their specifier onto a novel index of the whole. Thus, having a possessor is not only compatible with being an index-introducing determiner; it is required. When neither of

these determiners is present, one sees that a gerund phrase can be used as a subject if and only if VP has not moved into its specifier, in accordance with the RPC.

## **6. Conclusion**

In this paper, I have argued that gerunds are not single lexical items that are simultaneously nouns and verbs, and hence they are not counterexamples to the Reference-Predication Constraint of Baker (2003). Rather, gerunds are the fusion of two syntactic nodes, one a true verb, and the other a “nominal Infl”. Moreover, the Reference-Predication Constraint elucidates more clearly than before what it is to be a “nominal Infl”: it is to have a referential index but no specifier. Crucial evidence that gerunds that have referential indices cannot also have specifiers comes from a salient gap in the range of Infs found in Mapudungun, and from the complex interaction between word order, agreement, and the ability to be a subject in Lokaa. Along the way, I have also discussed the important role that complementizers play in allowing finite clauses to function as arguments, and the role that possessive determiners play in nominalizing gerunds that are not intrinsically nominal. Taken together, these results show that the theory of categories summarized in (1) and (2), which was originally proposed only for lexical categories such as noun, verb, and adjective, also gives insight into the nature of certain functional categories, including Infl, complementizer, and determiner.

## NOTES:

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\*The Mapudungun data reported in this article comes from a variety of sources, including published grammars and texts, interviews with several Mapudungun speakers conducted in Junin de los Andes, Argentina in October 2000, and consultant work conducted via e-mail with Fresia Mellico and Elisa Loncon Antileo. I particularly thank Elisa Loncon of the Universidad Autónoma Metropolitana in Mexico City, for not only generously answering my many questions, but also reading over this paper and making corrections. I also thank Roberto Aranovich, Lucia Golluscio, and Pascual Masullo for their collaboration and inspiration, getting me started working on Mapudungun and helping me along the way.

The Lokaa research reported in this article grew out of a field methods class that I taught at Rutgers University in collaboration with Akin Akinlabi in Spring 2003, and is based on the judgments of Ijaja Eno, and especially Alex Iwara. In addition to these people, I also thank Larry Hyman for alerting me to the special interest of Cross River languages, and Jeff Good for stimulating correspondence comparing the Lokaa facts with their material on Leggbo.

Finally, I thank audiences at Rutgers University, New York University, Harvard University, and the Penn Linguistics Colloquium for their comments and input into previous presentations of this work.

<sup>1</sup> In transcribing Mapudungun examples, I have been guided by the ‘Mapuche Unified Alphabet’, developed by Robert Croese, Adalberto Salas, and Gastón Sepúlveda, and adopted by the Linguistic Society of Chile. However, the transcription practices of my different sources vary in certain minor ways, and I have not attempted to make them fully consistent. The abbreviations used in my glosses include: COND, conditional; DIR, directional; DIST, distributive; DS, dative subject; GER, gerund (i.e. flexional nominalizer); HAB, habitual; IMP,

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impeditive; IND, indicative; INST, instrumental; INV, inverse voice; IRR, irrealis; LOC, locative; NEG, negation; NOM, nominative; PL, plural; POSS, possessor; PROG, progressive; PRT, particle; PTCPL, participle; REFL, reflexive; STAT, stative; VBLR, verbalizer. Glosses for agreement markers include: 3O, 3<sup>rd</sup> person object agreement; 1sS, 1<sup>st</sup> person singular subject agreement; 3sS, 3<sup>rd</sup> singular subject agreement; 3dS, 3<sup>rd</sup> dual subject agreement; 2sS, 2<sup>nd</sup> singular subject.

The Lokaa examples are presented in the practical orthography recommended by Alex Iwara. Most symbols have approximately the value one would expect; e and o are –ATR mid vowels, a stands for schwa, the digraph ng is a velar nasal, and the digraph kp represents a coarticulated stop. Lokaa has a Bantu-like system of noun classes; these are glossed with numbers taken from Iwara 1982 (human names are always class 1). Abbreviations used in the glosses include: XAGR, agreement (on a verb) with noun class X; DEM, demonstrative; GER, gerund; NEG, negative; REL, relator (genitive or relative particle); SUBJ, subjunctive particle.

<sup>2</sup> The gerund affix in Mapudungun has several allomorphs, the most common of which are *-n* and *-el*. Although previous researchers have treated these as separate categories, I believe that they are realizations of the same syntactic head. The main factor that conditions which one is used is the morpheme that immediately precedes the gerund head: *-el* appears after *-a* (irrealis), *-fi* (object agreement), *-fu* (impeditive), and a few others; *-n* is the elsewhere case. (Other allomorphs are *-t* after the inverse marker *-e*, and *-m* after the habitual marker *-ye* and a couple of less common morphemes.)

<sup>3</sup> I believe this basic point carries over to Lokaa too, but it is harder to illustrate in a straightforward way, because there are no morphologically simple words in Lokaa. Most nouns have a gender-number prefix, and most verbs have an agreement prefix. Sometimes it is difficult to tell if these are being used in a derivational, category-changing way or in an inflectional way.

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<sup>4</sup> I consider these assumptions implausible because, even though adjectives might be unmarked in some syntactic sense (see Baker 2003a: Ch 4), this kind of markedness does not translate into lexicalization frequency. It is not the case that adjectival roots are more common than noun and verb roots, with nouns and verbs being derived from adjectives as needed. If anything, the reverse is true: some languages have many nouns and verbs but only 5-10 adjectival roots.

<sup>5</sup> See Bresnan 1997 for some additional arguments against Malouf's analysis, which extend to Hudson's as well.

<sup>6</sup> More specifically, I assume that Ger lowers onto V, or the equivalent in terms of feature checking or PF merger, in English and Mapudungun. This accounts for the fact that Adverb-Gerund order is normal in both languages, like the Adverb-Verb order found in those languages' main clauses and unlike the Verb-Adverb order found in French, which has clear V-to-Infl movement (Pollock 1989). Examples like (3a) and (5) are typical in this respect. In contrast, I assume that V moves to Ger in Lokaa. Lokaa does not have the right kind of adverbs to reveal this movement, but V-raising makes possible an analysis of the verb-final order found in Lokaa gerunds in terms of remnant VP movement (see Baker In press and section 5 below). The exact mechanisms that join Ger and the verb are not crucial to what follows, however.

<sup>7</sup> I use Infl rather than Tense for the central functional head in the clause (the one that is involved in licensing subjects) for two reasons. First, Tense was introduced by Pollock as a separate head distinct from Agr. I assume that Agr is not an inflectional head at all, but rather an annotation on some other head in the structure (cf. Chomsky 1995: ch. 4, Baker 1996). Thus, it seems reasonable to revert to the older terminology. Second, and more importantly, the head in question expresses mood (indicative versus conditional versus imperative) in Mapudungun, but not tense per se. The language does not have true tense marking, but rather a realis/irrealis distinction plus various aspectual morphemes (Loncon 2005). Similarly, Lokaa has an aspectual

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distinction (perfective vs. imperfective) and mood, but no pure tense distinction (Iwara 1982).

Thus, calling the head “Tense” would be a misnomer for these two languages.

<sup>8</sup> The fact that Mapudungun has no finite CP, and all embedded clauses must be nominal gerunds, coheres with two other differences between Mapudungun and English, which I mention in passing. The first is that Mapudungun is a mood/aspect-oriented language, not a true tense language. Instead of a future tense, it has irrealis mood; instead of past tense, it has the so-called impeditive morpheme; instead of present tense, it has progressive, stative, and habitual aspects, and so on. This means that very little of the information about the timing of an event or its actuality is expressed in the Infl node in Mapudungun. In finite clauses, this node expresses only the difference between indicative vs. conditional and imperative. The upshot of this is that replacing a finite Infl with the nominal version does not lead to a loss of tense/mood distinctions in Mapudungun, the way it does in English. So gerunds in Mapudungun have a “finite” feel to them that English gerunds lack, and they are semantically compatible with the full range of matrix predicates.

The second difference between the languages is that gerunds can express indirect questions in Mapudungun but not in English; (xx) is an example, vs. English *\*I remembered what (Mary’s) turning off*. On this point, I simply assume that a null interrogative C can select DP in Mapudungun but C only selects IP in English. (This syntactic difference also shows up in the fact that gerunds can function as relative clauses in Mapudungun, but not in English.) As a result of these two differences, Mapudungun can express the same range of complement clauses as English can, even though all complement clauses must all be gerunds in Mapudungun.

<sup>9</sup>In English (but not in some other languages), finite clauses are bad as objects of P even if the complementizer *that* appears (*\*I am surprised by that Mary solved the problem first*), although similar sentences are often OK with the P omitted entirely (*I am surprised that Mary solved the*

*problem first*). These facts do not follow from my claims about referential indices. I must assume that they are due to independent factors, about which I have no proposal to make.

<sup>10</sup> True infinitival clauses are an intermediate case, found in English, but not in Mapudungun or Lokaa. It could be that they too have a null complementizer, like the tensed clause. Or it could be that PRO remains in Spec, VP, and *to* heads a projection with an index, making it the same as a gerunds in this respect. Either assumption will account for at least the first order properties.

IPs in complement position—but not in specifier position—could also be licensed not by theta-role assignment, but by undergoing complex predicate formation with the matrix verb.

This is plausible for IPs/VPs that are involved in restructuring phenomena (Baker 2003a: 150).

Embedded questions like *Mary remembers what she bought in Mexico* are potential problems for the RPC, because the null +wh complementizer must introduce a referential index for the embedded clause, and yet it has a specifier. The easiest solution would be to adopt a split CP structure along the lines of Rizzi 1997, where the *wh*-phrase is in the specifier of one C-type node (e.g., Focus phrase) and the referential index is born by another C-type node (e.g. Force phrase). Another possibility is to analyze interrogative C along the same lines as possessive D in section 5. This is an important issue for further research.

<sup>11</sup> Finite clauses can also function as adjuncts in Mapudungun; this is the one syntactic environment in which both finite clauses and gerunds are possible. (i) is an example with the conditional morpheme *-l* (note the agreement with the subject), which is used only in subordinate clauses; (ii) is an example with the normal indicative morpheme *-y*.

(i) Iñché pe-rume-l-i plata, ruka ngilla-fem-a-fu-n.  
 I see-SUD-COND-1sS money house buy-IMM-IRR-IMP-1sS  
 ‘If I suddenly saw money, I would immediately buy a house.’ (S230)

(ii) Pe-y-iñ küdaw, fey fente-künu-ke-fu-y-iñ yñ treka-n. (S270)

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See-IND-1pS work, then stop-HAB-IMP-IND-1pS 1p.POSS walk-GER

‘Every time we found work, we stopped (our) walking.’

Indeed, Smeets (1989: 270) points out that (ii) is equally grammatical if the finite verb *pe-y-iñ* is replaced with the gerund form *pe-ye-m* (see-HAB-GER – the gerund morpheme is realized as the allomorph *-m* after the habitual aspect *-ye*). This overlap in distribution is expected if finite clauses never have a referential index and gerunds need not have one.

If gerund clauses in English and Mapudungun can exist without a referential index, the question arises why they cannot be used as unembedded root utterances. The NLC explains why finite IPs can be root utterances but true NPs and *that* clauses cannot (see Baker 2003a), as shown in (ia-c). This analysis extends immediately to explain the ungrammaticality of gerunds that unambiguously have referential indices, such as (id).

- (i) a. Mary solved the problem quickly.
- b. \*Mary’s quick solution to the problem.
- c. \*That Mary solved the problem quickly.
- d. \*Mary’s solving the problem quickly.
- e. \*Having solved the problem quickly.

But (ie) cannot also be ruled out by the NLC, given that (31a) is not; nevertheless it is bad, as are comparable examples in Mapudungun. It must be ruled out by some other principle. One likely possibility is the theory of control: the unembedded gerund in (ie) has no conceivable controller for its anaphoric PRO subject, which could constitute a violation of control/binding theory.

<sup>12</sup> (35) can probably be strengthened to a biconditional in Bantu languages and Mapudungun: Y is Spec, XP if and only if Y shows substantive agreement with X. (35) is the half of the biconditional that is relevant to this paper, however.



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<sup>13</sup> I do not claim that the Yiddish, Kinande, and Mapudungun “topicalization” processes are identical in all respects. For example, there is evidence that object to Spec, IP movement is an A-bar movement in Yiddish but an A movement in Kinande and Mapudungun. There is also an ‘inverse’ voice marker *-e-* in the Mapudungun examples, whereas there is no special voice marker in the Kinande example (see Baker 2003b for an analysis of this voice marker). The crucial similarity is that movement targets Spec, IP in all three cases, and this is what is essential for the agreement parameter in (35), which doesn’t distinguish between A and A-bar movement.

<sup>14</sup> Alternatively, ‘ear’ and ‘horse’ could form a kind of N-N compound, as Loncon (2005) claims.

<sup>15</sup> The word order *ñi* – ear – horse is also possible in Mapudungun (Smeets 1989: 171). That is an unsurprising effect of polysynthesis: the true Spec, DP can be *pro*, with an overt NP adjoined either to the left or the right edge of DP. The analysis of free word order in nominals is just like the analysis of free word order in clauses in these respects (see Baker 1996:119).

<sup>16</sup> Locative inversion structures like *On the table stands a trophy* could be another potential source of evidence for (35) in Mapudungun; one would expect to see the verb agree with the moved locative (as in Bantu), not with the unmoved thematic subject (as in English). But in fact, Mapudungun has no locative inversion construction. Since word order is relatively free, PP-V-S order is possible, as in (i), but the PP is not in Spec, IP and has no subject properties.

- (i)        Fey ti    ruka-mew   müle-y        ti    ülcha.  
          that det   house-LOC   live-IND/3sS   det woman  
          ‘In that house lives a young woman.’

This can, however, be used in an indirect argument that (35) holds in Mapudungun. How do Mapudungun-learning children know that Mapudungun does not have bona fide locative inversion, despite the fact that they hear sentences like (i)? A possible answer is that they infer it

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from their knowledge of (35) plus the fact that Mapudungun is a polysynthetic language in the sense of Baker (1996). If there were true locative inversion, then Infl would agree with the PP in Spec, IP in Mapudungun, as in Bantu, by (35). This would use up the agreement capacity of Infl, rendering it incapable of agreeing with the thematic subject ‘young woman’. The unaccusative verb *müle* ‘exist, live’ also cannot agree with ‘young woman’, because such verbs have no case and agreement features. The thematic subject thus could not correspond to any agreement on the verb—a violation of the Polysynthesis Parameter, which says that all arguments of the verb must be expressed by a morpheme on the verb. (35) thus contributes to an explanation of why locative inversion does not exist in Mapudungun, a fact that would otherwise be hard to learn directly.

<sup>17</sup> I assume that PRO bears the same phi-features of person and number as any other NP (either intrinsically, or by agreement with its controller), and hence it should be capable in principle of triggering the same range of agreement markers on the nonfinite verb. This assumption is supported by the fact that PRO triggers the same agreement morphemes as other NPs do on subjunctive verbs in Hebrew and Balkan languages (see Landau 2004, among others).

<sup>18</sup> These facts from Cuzco Quechua can also be compared with Imbabura Quechua as described by Cole (1985). Nouns do not agree with possessors in Imbabura Quechua, and this correlates with the fact that gerunds also do not agree with their subjects in this variety, although finite verbs do. So the inverse relationship between argumenthood and the taking of specifiers shows up in a more transparent way in this variety of Quechua, as in Mapudungun.

<sup>19</sup> Having a referential index is also required in order to be a true direct object. But that is a less-good way to test the prediction of the RPC, because phrases without referential indices can be licensed as complements apart from theta-role assignment by undergoing complex predicate

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formation (i.e. “restructuring”); see Baker (2003a: 150) for discussion. For example, a transitive verb in gerund form can be the complement of a verb like *koma* ‘stop’ in Lokaa:

- (i)            Ubi    o-koma            e-sau   ke-jii  
                 Ubi    1AGR-stop    7-fish   GER-eat  
                 ‘Ubi stopped eating fish.’

Evidence that complex predicate formation/restructuring can be at work in such examples comes from the negative version, in which only the object of the gerund comes before the negative verb, not the gerund phrase as a whole:

- (ii)          Ubi    e-sau   oo-koma            ke-jii  
                 Ubi    7-fish   NEG/1AGR-stop   GER-eat  
                 ‘Ubi did not stop eating fish.’

This shows that ‘stop-eating’ can function as a complex verb, with ‘fish’ as its object. (My consultants also accept the word order *Ubi e-sau ke-jii oo-koma* ‘Ubi fish GER-eat NEG-stop’, where the gerund as a whole is treated as an NP object. See (63) below for an explanation.)

<sup>20</sup>The well-known uniqueness/maximality of the possessive construction can arise because the criterion of identity of the common noun helps define the function. *John’s dog* refers to a dog not by direct inheritance of the index of *dog*, but by a semantic theorem because of how the meaning of *dog* plays into the definition of the function from John to the denotation of the possessive DP as a whole.

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