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NOUN INCORPORATION: A NEW THEORETICAl PERSPECTIVE

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Abstract

This dissertation deals with a morphosyntactic process called *Noun Incorporation*, whereby a nominal component is compounded with a verbal component to yield a complex verbal stem. Special attention is paid to three distinctions which have received little attention in theoretical literature: the *directionality* alternation (i.e. the pre- or postverbal position of the nominal element), the *adjacency* alternation (i.e. the fact that preverbal Incorporated Nouns can occupy different slots in the verbal template, differing in their distance from the verbal root), and the *free* vs. *bound* dichotomy (whereby the compounded elements may or may not stand in a suppletive relationship with their corresponding free forms). Following Kayne's (1994) Antisymmetry (but adopting a different cartography), the first alternation is derived from a distinction between incorporated XP nouns (preverbal) and X° nouns (postverbal): the linear order follows from the fact that the verbal root (which is argued to instantiate a complex XP) is blocked in its movement by an XP, but not by an X°. The other two distinctions are captured by a corollary of this hypothesis whereby the derivation is divided into three areas I call *Morphological Phases*: different configurations of the lowest one (corresponding to a root) determine the *free/bound* status of a component, whereas the higher ones (*v*P and the IP field) may give rise to two degrees of *nonadjacent* incorporation if the nominal component is an XP (i.e., if it is preverbal).

Riassunto

Questa tesi discute un processo morfosintattico detto incorporazione nominale, consistente nella fusione di un componente nominale e di un componente verbale e risultante nella formazione di un tema verbale complesso. Attenzione particolare viene dedicata a tre distinzioni poco osservate nella letteratura teorica: l'alternanza di *direzionalità* (cioè la posizione pre- o postverbale dell'elemento nominale), l'alternanza di adiacenza (cioè il fatto che i nomi incorporati preverbali occupino differenti posizioni nel complesso verbale, diverse nella distanza dalla radice verbale), e la dicotomia *libero/legato* (per cui gli elementi composti possono o no mostrare suppletivismo rispetto alle corrispondenti forme libere). Seguendo l'Antisimmetria di Kayne (1994), sebbene con una diversa cartografia, la prima alternanza è derivata da una distinzione tra nomi incorporati XP (preverbali) e X° (postverbali): l'ordine lineare deriva dal fatto che il movimento della radice verbale (che si ritiene consistere in XP complesso) viene bloccato da un XP, ma non da un X°. Le altre due distinzioni vengono colte grazie ad un corollario dell'ipotesi secondo cui la derivazione viene ad essere divisa in tre aree da me denominate *Fasi Morfologiche*: diverse configurazioni della fase più bassa (corrispondente ad una radice) determinano lo stato libero o legato di un componente, mentre quelle più alte (*v*P e il campo di IP) possono generare due gradi di incorporazione *non-adiacente* se il componente nominale è un XP (cioè se è preverbale).

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ABBREVIATIONS

1	first person	INTR	intransitive
2	second person	IPFV	imperfective aspect
3	third person	ITER	iterative aspect
A	agent (subject of transitive verbs or agentive intransitives in active/stative languages)	LNK	linker
		LOC	locative
		M	masculine
ABS	absolutive	MOM	momentaneous aspect
ACC	accusative	N	neuter
Agr	agreement	NEG	negative
ALL	allative	NMLZ	nominalizer
AN	animate	NOM	nominative
AOR	aorist	NPL	non-plural
AP	antipassive	NPST	non-past
APPL	applicative	NS	non-subject
Asp	aspect	O	object of transitive verbs
BEN	benefactive	OBJ	definite conjugation (Hungarian)
CAUS	causative	OBL	oblique
CIS	cislocative (Mohawk)	OC	out of control (Salish)
CL	classifier	Q	question marker
COLL	collective	QUAL	qualifier (Slave)
COM	comitative	QUOT	quotative
COMPL	completive aspect	P	possessor
CONT	continuous aspect	PASS	passive
D	indirect object of ditransitive verbs	PFV	perfective aspect
DECL	declarative mood	PL	plural
DET	determiner	POSS	possessive
DU	dual	PRES	present
DYN	dynamic aspect	PROG	progressive aspect
EMPH	emphatic	PST	past
ERG	ergative	PUNC	punctual aspect
EXCL	exclusive	R	reduplication
F	feminine	REFL	reflexive
FACT	factual mood (Mohawk)	REL	relative clause marker
FUT	future	S	sole argument of canonical intransitive verbs
GER	gerund		
HAB	habitual aspect	SG	singular
HUM	human	SREFL	semireflexive (Mohawk)
IN	inanimate	STAT	stative
INCH	inchoative aspect	SUB	subordinate mood
INCP	incomplete aspect	T	tense
IND	indicative mood	TMA	tense/mood/aspect
IMP	imperative	TEL	telic aspect
INF	infinitive	TR	transitive
INS	instrumental case	UNM	unmarked
INT	interrogative mood	VBLZ	verbalizer

Acknowledgements

When I started my graduate studies, my first intent was to produce a descriptive survey of one exotic language family: during the first months, my attention was focused on Chukotko-Kamchatkan (especially on the highly incorporating Chukotian languages), then it shifted to Wakashan languages and their affixal predication constructions. During the first phase, I had to face the hard task of deciphering Russian linguistic literature, and during the second one, I had to familiarize myself with grammatical structures radically different from anything I knew, often making my own morpheme glosses. Throughout this phase, Danilo Gheno's constant and patient help was crucial: he assisted me with his knowledge of Russian, listened to my observations about the exotic grammatical patterns I was struggling with and came up time and again with useful questions based on parallels with the Uralic languages. Several suggestions based on data from Bantu languages (together with constant support and encouragement) came from Alberto Mioni: many thanks are due to him, as well to Mark Campana, who assisted and proofread my first publication, and shared with me his experience with Algonquian.

Things changed when I found out that various circumstances of life would not allow me to go abroad and do the fieldwork I had desired so much to do: this fact, together with the intuition that different language families I was dealing with had each different theoretical implications, led me to the idea that the most interesting way to go (but the mist difficult as well) could be the combination of typology and linguistic theory. At this point, the crucial guidance came from Guglielmo Cinque, via both his writings and face-to-face meetings: time and again, he pointed his finger at some crucial facts that would otherwise have gone unnoticed, and, more importantly, he also noticed a few theoretical problems with some of my previous analyses of the facts here discussed, always with great patience and calm, which he transmitted to me as well.

I cannot underestimate the role played by my first linguistics teacher, Paola Benincà, who gave me so much good advice over the years and always took seriously my many book requests for keeping our library up-to-date; thanks also to Laura Vanelli and Paola Mura for their unwavering support.

0. A typological introduction

This dissertation deals with N(oun) I(ncorporation) constructions, a morphological phenomenon which has been (and still is) the topic of much debate in linguistics: this is because these constructions allow to express in one single verbal word concepts that would require a whole sentence in other languages. The implications of this fact for a general theory of the interface between morphology and syntax are of crucial importance, since these constructions prove that the boundaries between the two levels are not uniform in all languages, but rather vary in accordance with language-specific factors.

This said, it must be observed that not all the features cross-linguistically described for these constructions have received from theoretical literature the attention they deserve: while much debate has been devoted to the referential properties of I(ncorporated) N(oun)s, the differences between the incorporation of alienable and body-part Ns and the thematic relationship between the IN and the verbal host of the predicate, very little attention has been paid to the most genuinely morphological features of these constructions. It is precisely this gap that I will be trying to fill with this dissertation: in this introductory chapter, after a very brief description of the main features of NI, I will proceed to illustrating three features of NI constructions which are still waiting for an adequate theoretical account: first, these constructions may be formed by combining roots with the same form as would occur in free-standing constructions, or else show various degrees of suppletion; I call this the problem of *morphological integrity*.

Second, NI constructions display a *directionality alternation*, since the IN may either precede or follow its incorporating V host in linear order: thus, throughout this work I will distinguishing *preverbal* from *postverbal NI*.

The preverbal variant of NI also confronts with an additional alternation: if the IN precedes the V root, it may display different degrees of adjacency with respect to the latter. I will therefore distinguish *adjacent* from *nonadjacent NI*, and, as we will see,

there are reasons to suppose that an intermediate stage ought to be posited as well (I will term this *semiadjacent NI*).

From these data, it will be evident that a fresh new treatment of NI is required, if these alternations are given the due attention.

0.1. What is Noun Incorporation?

On the descriptive level, NI is a subcase of the more general phenomenon of *incorporation*. For the latter, Gerdts (1988:84) provides the following definition:

(1)   Incorporation is the compounding of a word (typically a verb or preposition) with another element (typically a noun, pronoun, or adverb). The compound serves the combined syntactic function of both elements.

This definition has two implications: on the one hand, incorporation is a combination process that involves *lexical categories*, and is therefore different from other affixation processes whereby *functional* morphemes are attached to words. On the other hand, the compound must serve the combined syntactic function of the compounded elements. When transported onto the theoretical level, both points are problematic. On the one hand, it is becoming more and more difficult to draw a line between functional and lexical categories (see e.g. Baker 2003), since the only clearly lexical categories are now considered Ns and Vs (the status of direct modification adjectives is not clear, cf. Cinque 2007). On the other hand, we have to be clear about what it means that a compound serves the 'combined syntactic function' of its components. A compound generally has a head and a modifier element, the most common case being that the head determines the category of the whole compound: thus, compounding two roots cannot certainly mean compounding two categories, since there can be only one resulting category for the compound. As we will see in the course of the dissertation, determining the status of INs will be a very complicated issue, where several cases must be distinguished. For these reasons, I propose a definition of incorporation that is based on purely morphological considerations, such as the following:

(2)   Incorporation is every form of morphosyntactic compounding of lexical roots which, in different constructions, may stand free as full grammatical words.

This definition has neither of the two complications explained above. However, it implies that, given the difficulty of ascertaining the lexical or functional status of a particular category (the only clearly lexical categories at present being Ns and Vs), the most clear cases of incorporation should be those involving Ns and Vs. This is precisely what NI is; here is what Gerdts has to say about it:

(3)   NI is the compounding of a noun stem and a verb (or adjective) to yield a complex form that serves as the predicate of a clause.

In this dissertation, I will only deal with NI as the compounding of a N and a V (leaving adjective incorporation aside). Given the present state of things about the problem of categorial identity, I think an in-depth analysis of NI will be an indispensable prolegomenon to any speculation about the incorporation of other categories.

To illustrate the phenomenon, let us consider the following examples from the Chukotko-Kamchatkan language Chukchi (Polinskaja & Nedjalkov 1987:240, glosses adapted):

(4)   a.   *ətləge*   *mətqəmət*   *kawkawək*   *kilinin*   [CHUKCHI]
            ətləg-e   ***mətqə.[R]***   *kawkaw-ək*   ***kili*-*nin***
            father-ERG   butter.ABS   bread-LOC   **spread.on**-3SG.S/3SG.O
            'Father spread butter on the bread.'

      b.   *ətləgən*   *kawkawək*   *mətqərkeleg?e*
            ətləg-ən   *kawkaw-ək*   ***mətqə-rkele*-*g?e***
            father-ABS   bread-LOC   **butter-spread.on**-3SG.S
            'Father spread butter on the bread.'

As can be seen, in (4a) the predicate *kilinin* bears transitive agreement and takes a free-standing object in the absolutive case (marked by the reduplication of the first syllable); the subject is marked as ergative. In (4b), on the other hand, the predicate is intransitive, and the subject is marked as absolutive. The object appears compounded with the V

stem, which appears in its full form *-rkele/-rkili* (whereas the free-standing variant shows deletion of the initial sonorant, which is not tolerated in onset position); it is not case-marked, since it lacks the reduplication seen in the (a) variant, nevertheless it clearly fulfils the role of the predicate's internal argument. In this language, the IN is placed immediately before the V root, and no other morpheme intervenes between the two. We will see that all of the properties just described for this NI constructions can vary from language to language or from construction to construction.

I have chosen to deal almost exclusively with data from languages in which the IN and the incorporating V are morphologically fully integrated. This has been done for two reasons: on the one hand, there is another phenomenon (to be found, e.g., in some Austronesian languages) which misleadingly resembles NI. Let us consider the following Niuean sentence pair (Seiter 1980, cited in Massam 2001:157):

(5)   a.   ***takafaga*** *tūmau nī* ***e*** *ia* ***e*** *tau* ***ika***   [NIUEAN]
             hunt   always EMPH **ERG** he **ABS PL** **fish**
             'He is always fishing.'

    b.   ***takafaga ika*** *tūmau nī* ***a*** *ia*
             hunt   **fish** always EMPH **ABS** he
             'He is always fishing.'

As can be noted, the first sentence exhibits the basic constituent order V-Adv-S-O (with V and object clearly separated), whereas its equivalent "incorporating" construction shows the order V-O-Adv-S (with full adjacency of the object to the V, as in a postverbal NI construction); moreover, in (5b) the case-marking preposition and the plural word disappear, and the subject is marked as absolutive (whereas, in the free-standing version, case-marking is ergative). Anyway, Massam cautions that this juxtaposition structure should not be considered a real case of NI, since the data show that whole DPs can be involved in this process:

(6)   *ne* ***kai*** [_{DP} ***sipi*** *mo e* ***ika*** ***mitaki***] *a* *sione*   [NIUEAN]
        PST **eat** [_{DP} **chip** with **ABS** **fish** **good**] ABS Sione
        'Sione ate good fish and chips.'

Here, the postverbal object is complex and even expanded by an adjectival modifier (which, as we will see, is never the case with postverbal NI). The mechanism at play in cases like these, according to Massam, is a process of VP-raising, since a whole VP appears to have moved out of its base position into the clause.

The second reason why I do not consider all juxtapositions of Ns to Vs to instantiate NI is that the semantic cohesion of a predicate need not result in morphological cohesion: it may also be implemented by specialized syntactic constructions. This is evident in Kapampangan, a Philippine language (Mithun 2008:2):

(7)   *ikua=la=ng*   *asan*   [KAPAMPANGAN]
       get.PST.INTR=3PL.ABS.S=**LNK**   **fish**
       'They got fish.'

The important fact here is the presence of the *=ng* linker, an element that always intervenes between members of a constituent and never between a predicate and its object, if the two form separate constituents, as can be seen below:

(8)   *migtaka=ya* [DP *i=ng*   *matua=ng babai*]   [KAPAMPANGAN]
       surprised=she [DP ABS.SG=**LNK** old=**LNK**   woman]
       'The old woman was surprised.'

What the linker shows is that members of a constituent are tightly bound semantically, but still different words (both phonologically and grammatically).

Other languages where NI is occasionally reported are agglutinative languages like Turkish and Hungarian, where the putative IN stands closer than any other word to the verb (whose root occupies the first morphological slot in the word). These two languages differ in the properties of their juxtaposed structures, but none of these qualifies as NI. Let us first consider some Hungarian examples (Hopper & Thompson 1980, cited in Mithun 1984:872):

(9)   a.   *Péter olvas-sa   az   újság-ot*   [HUNGARIAN]
             P.   **reads-OBJ**   the   **newspaper-ACC**
             'Péter is reading the newspaper.'

b.   *Péter* **olvas egy** *újság-ot*
     P.   **reads one newspaper-ACC**
     'Péter is reading a [specific] newspaper.'

c.   *Péter* **újság-ot** **olvas**
     P.   **newspaper-ACC** **reads**
     'Péter is reading a newspaper.'

In (9a), the definite conjugation marker implies the presence of a definite object. With an indefinite, specific object (b), the V is conjugated as indefinite. The juxtaposed structure (9c) shows that the object has moved to preverbal position, and the resulting interpretation is that of a nonspecific indefinite. This structure, however, does not qualify as NI because the case marker is still obligatory (*újság-olvas* would be totally ungrammatical): I consider it a purely syntactic juxtaposition structure triggered by the non-specificity of the object DP.

     In Turkish, on the other hand, indefinites can be expressed by juxtaposition, as in Hungarian, but with a different pattern (Karl Zimmer, p.c. cited in Mithun 1984:872-3):

(10) a.   *Ahmet* **pipo-su-nu** *her gün* **iç**-*iyor*   [TURKISH]
         A.   **pipe-3SG.P-ACC** every day **drink**-PROG
         'Ahmet smokes his pipe every day.'

      b.   *Ahmet her gün* **pipo iç**-*iyor*
         A.   every day **pipe drink**-PROG
         'Ahmet smokes his pipe every day.'

Here, the N and the V are tightly juxtaposed, and no accusative case appears on the N. However, this does not necessarily mean that the latter is incorporated: Turkish morphology makes extensive use of vowel harmony and linkers to avoid vowel clashes, but the N and the V in (10b) do not harmonize (as instead is the case with Chukotian languages, cf. Mithun 1984), and no linker appears between them (*pipo iç-iyor* does not become **pipo-(y)uç-uyor*). I take this as evidence that juxtaposition is not morphological in Turkish. Similar considerations apply to Korean, where case-marking on subjects and objects is optional in many cases: for all these languages, I will not talk about NI, but rather of *syntactic juxtaposition* of object (and subject, in some cases)

DPs. This distinction is especially relevant when we talk about the morphology-syntax interface: juxtaposition is a phenomenon that takes place above the word level (i.e. in clause syntax); NI takes place below the word level (in the morphology, whatever that is).

0.1.   Morphological integrity of INs and verbal hosts

NI constructions are not a unified phenomenon, either from the perspective of the interface between syntax and semantics or from the viewpoint of the morpho-phonological processes involved in them (like e.g. internal *sandhi* rules).

As to the morphosyntax-semantics interface level, we can observe that different types of constructions show totally different distributional behaviors: some INs may stand free in sentences that are semantically nearly equivalent to the NI constructions they appear in, whereas others only have a bound form; similar considerations distinguish true incorporating Vs from what I term affixal predicates, which can only be bound. Let us consider these distinctions in more detail.

0.2.1. True INs, nominal affixes and classifiers: a grammaticalization cline

Let us start with the morphophonological side of the issue and consider the morphology of INs first. A first criterion to distinguish various types of these may be sought in the degree of morphological assimilation they show; again, this is a double-sided coin, as it may be seen from both a semantic and a morphophonological viewpoint. For the sake of argument, let us put the semantic problems aside and think in pure morphophonological terms: our first consideration could be that, for both historical and phonological reasons (i.e., respectively, the time of borrowing and the adaptation process of foreign phonemes to the phonological system of the target language), loanwords are expected to be the least sensitive to assimilation processes. This prediction is borne out, as the following example of loan incorporation in Huauhtla Nahuatl (Merlan 1976:185) shows:

(11) a.   *kanke eltok   kočillo na? ni?neki*   [H. NAHUATL]
           where 3SG.S-is   knife   1SG 1SG.S-3O-want
           amanci
           now
           'Where is the knife? I need it now.'

     b.   *ya?   kikočillotete?ki panci*
           *ya?   ki-Ø-**kočillo-tete?ki** panci*
           3SG   3SG.S-3O-**knife-cut**   **bread**
           'He **cut the bread** with **the** knife.'

(12) a.   *ika   tla?ke kitete?ki   panci*   [H. NAHUATL]
           with   what   3SG.S-3O-cut bread
           'What did he cut the bread with?'

     b.   *ne?   pancitete?ki   ika   kočillo*
           *ne?   Ø-**panci-tete?ki**   ika   **kočillo***
           3SG[1] 3SG.S-**bread-cut**   with **knife**
           'He **cut the bread** with **a** knife.'

Notice how the Spanish loans *panci* and *kočillo* are incorporated without undergoing any morphological modification; it appears as though the INs are first of all fully legitimated syntactically, and then incorporated wholesale into the morphological structure of the predicate. Most noteworthy is, however, that the word for 'bread' (*panci*) retains a nominalizing affix even when incorporated. This is by no means a unique phenomenon, as a similar example may be quoted for Mohawk (Mithun 2008, transcription and glosses adapted):

(13)   *ruwati-**job-tsher**-awí-hne*   [MOHAWK]
       3F.SG.S/3M.PL.O-**job-NMLZ**-give-PST
       'They had given them jobs.'

The loan is here augmented by a morpheme whose main function is to derive Ns from Vs. These examples are particularly instructive, as they establish a link between the incorporation of *foreign nouns* and that of *derived nouns* (in that both are incorporated

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[1] Huauhtla Nahuatl appears to have two competing forms for the 3rd person pronoun (*ya?* and *ne?*, the latter derived from the distal deictic *ne* 'that'), a situation similar to the German alternation *er/sie/es* vs. *der/die/das*.

preserving their integrity). Incorporation of deverbal Ns retaining their nominalizing morphology is quite common in Northern Iroquoian languages, as can be deduced from the following Oneida example (Michelson & Doxtator 2002, quoted in Barrie 2006:132):

(14) *waʔutokwaʔtslóhaleʔ*   [ONEIDA]
     *waʔ-u-**atokw**-a-**ʔtsl**-**ohale**-ʔ*
     FACT-3F.SG.S-**take.out.of.water-Ø-NMLZ-wash**-PFV
     'She washed the spoon.'

In this case, the IN is a deverbal N whose meaning has become lexicalized (in these languages we even have lexicalized INs that are formally derived from incorporating RCs), but cases of abstract terms where the original meaning is more transparent are also available (e.g. from *atshanunya* 'happiness' we have *atshanunya-hsl* in incorporated and locative forms).

The most common case, however, is the incorporation of morphological roots without any kind of morphological expansions. If this is the case, two subcases must be distinguished. The first one is exemplified by the following minimal sentence pair from Southern Tiwa (Allen et al. 1984:294-5):[2]

(15) a.   ***seuan**-ide*   *ti-**mũ**-ban*   [S. TIWA]
          man-AN.SG   1SG.S/3AN.SG.O-**see**-PST
          'I saw the/a man.'

     b.   *ti-**seuan-mũ**-ban*
          1SG.S/3AN.SG.O-**man-see**-PST
          'I saw the/a man.'

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[2] My glosses for the Southern Tiwa examples call for an explanation, since they differ from the original ones provided by Allen et al. 1984. As the authors explain, Southern Tiwa Ns fall into one of three gender classes, one for animate Ns (i) and the others (ii, iii) for inanimates. Classes (ii) and (iii) are only distinguished on the basis of the (3rd person) agreement morphology cross-referencing the relevant Ns on the verb, with no apparent semantic reason for including a particular N in one class or the other. Interactions of class features with number (for Ns, singular and plural) would give rise to six possible combinations, which are reduced to three because of syncretism phenomena (A=singular of (i) and (ii); B=plural of (i) and singular of (iii); C=plural of (ii) and (iii)). The authors use the morphological labels A, B and C in their glosses of 3rd person forms. In a syntactic approach like the one developed in the present work, however, I found it preferable to give prominence to the *feature values* of the agreement markers, rather than their *paradigmatic syncretism*; therefore, I redid the glosses, indicating separately gender and number features. The animate vs. inanimate distinction only allows to distinguish two of the three classes, thus I have also indicated in parentheses the class (ii or iii) of inanimate Ns and agreement markers.

Here, the root "loses" its class suffix before being incorporated, but the root itself appears in its integrity. The other subcase is, on the contrary, where the incorporated root and its normal form are slightly different (*weak suppletion*), as in the following example from Sora, a Munda language of India (David Stampe, p.c. quoted in Baker 1996:32):

(16) a.   *bɔŋtɛl-ən-ədɔŋ*   *jom-t-ɛ-ji*   *pɔ*   [SORA]
            buffalo-/*ən*/[3]-ACC   eat-NPST-3S-PL.S   Q
            'Will they eat the buffalo?' or 'Do they eat buffalo?'

      b.   *jom-bɔŋ-t-ɛ-n-ji*   *pɔ*
            eat-buffalo-NPST-3S-INTR-PL.S   Q
            'Will they eat the buffalo?' or 'Do they eat buffalo?'

As can be seen, not only is the IN deprived of its functional morphology, but also part of the root is eroded (the -*tɛl* component falls off). At this point, it is only natural to suppose that things shouldn't stop at weak suppletion, as there are also instances of strongly suppletive forms in NI constructions, both in Ns and Vs (what I termed *lexical affixation* in Muro 2008). An example from Columbian Salish is reported below (Czaykowska-Higgins 1998:165-7):

(17) a.   *táx̣ʷəx̣ʷ wa ʔaʔásqʷsaʔs ʔací smʔámml*   [COLUMBIAN]
            táx̣ʷ-əx̣ʷ* *wa* *ʔa-ʔásqʷsaʔ-s*   *ʔací*   *s-mʔámm-l
            die-OC /*wa*/ DIM-**son-**3SG.F.P   DET   NMLZ-woman-POSS
            'The woman's little son died.'

      b.   *təx̣ʷəx̣ʷált   ʔací   smʔámm*
            təx̣ʷ-əx̣ʷ-ált* *ʔací*   *s-mʔámm
            die-OC-**child**   DET   NMLZ-woman
            'The woman's child died.'

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[3] The nature of this suffix is highly problematic. Starosta (1967:255-6) leaves the question open, as in a few cases the element seems to function only as a specificity marker (i.e. some kind of determiner), but elsewhere its function is more linked to case, as it accompanies the case markers of core arguments (i.e. it seems to mark some kind of underspecified case).

As can be noted, the lexical suffix functioning as IN in (17b) is totally different from the free-standing form with a nearly equivalent meaning. And this is where the semantic factors must come into play. Most instances of strong suppletion, in fact, involve a difference in meaning with respect to the free-standing forms that are their closest equivalents (cf. Mithun 1997). Morphologically, these processes involve different etymologies, and therefore Salish lexical affixation cannot be considered a degree of morphological integrity in NI constructions, but rather a different compounding process.[4]

At this point, if we try to organize the data gathered so far, we can build a grammaticalization hierarchy, which can be organized as follows:

(18)   *The Morphological Integrity Cline of INs*
        foreign Ns/derived Ns > full roots > weakly suppletive roots > lexical affixes

This means that foreign and derived Ns are most likely to be incorporated without any morphophonological erosion, and are always fully referential: the grammaticalization may start with indigenous roots, which can be suppletive; if the suppletion is strong, a different meaning has good chance of being involved, since the origins of strong suppletion are outside of the effects of morphophonological rules. The cline in (18) refers to INs that can be used referentially (as arguments); the grammaticalization cline may continue, and taking into account the insight about the grammaticalization of Salish lexical suffixes given by Gerdts & Hinkson (1994), we could represent it as follows (all degrees in (18) being resumed by 'IN' below):

(19)   *The Grammaticalization Cline of INs*
        IN > lightN/classifier > antipassive/applicative

A (preverbal) IN (fully legitimated by its categorial morphology) may be incorporated with its categorial morphemes or even with (previously incorporated) adjectival modifiers (as in Chukchi or Nahuatl: see further 3.3.1.1 and 4.1.2.2); INs which have lost their referentiality may still retain a quantificational value (acting as classifiers), or lose

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[4] I suggest that this phenomenon might be compared to the compounding of Greek and Latinate bound forms in Western languages like English and Italian, where *-logy* (or Italian *-logia*) can be heads of compounds, but cannot stand free).

every trace of lexical semantics and become voice markers (antipassives generally deriving from common Ns, and applicatives from body-part terms, which imply a part-whole relationship and thus may be used to restrict the scope of a patient-affecting predicate implying, e.g., location or contact).

0.2.2. Incorporating verbs vs. affixal predicates

A special case of NI is what I term *affixal predication* (a process typical of Eskimo-Aleut, Wakashan and Chimakuan, although present to a lesser degree in other families as well), i.e. a NI process making use of exclusively affixal Vs which are etymologically unrelated to their closest lexical equivalents, with few exceptions.[5] For example, let us consider the following Nuu-chah-nulth sentences (Wojdak 2005):

(20) a.   *maakuk^{w}itʔiš*   *čakup maḥt̓ii*   [NUU-CHAH-NULTH]
           maakuk-*mit-ʔiš*   *čakup* **maḥt̓ii**
           buy-PST-IND.3SG.S   man   **house**
           'A man bought a house.'

       b.   **maḥt̓amaakuk^{w}itʔiš*   *čakup*
           maḥt̓a-maakuk-*mit-ʔiš*   *čakup*
           house-buy-PST-IND.3SG.S   man
           'A man bought a house.'

       c.   *ʔuʔaamitʔiš*   *čakup maḥt̓ii*
           ʔu='aap-*mit-ʔiš*   *čakup* **maḥt̓ii**
           Ø=**buy**-PST-IND.3SG.S   man   **house**
           'A man bought a house.'

       d.   *maḥt̓aʔamitʔiš*   *čakup*
           maḥt̓a='aap-*mit-ʔiš*   *čakup*
           house=buy-PST-IND.3SG.S   man
           'A man bought a house.'[6]

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[5] In Muro (2008) I described suppletion phenomena in Salish and Wakashan NI-like processes each as the inverse of the other, in that strong suppletion in Salish lexical suffixes involves INs, whereas in Wakashan it involves the incorporating verbal hosts.

[6] Note that the IN *maḥt̓a-* shows a weakly suppletive variant of it equivalent free-standing form *maḥt̓ii*. This could imply that the weak suppletion stage of our grammaticalization cline is represented in this language as well, but since the difference is so slight, I will consider it simply a case of phonological adjustment due to (possibly lexically conditioned) word-internal *sandhi* rules.

A few things must be noted:

> First of all, the suppletive relation between the two expressions of the verb 'buy' in (a) and (d).
> Second, that Wakashan affixal predicates can be added to semantically empty bases (c).
> Third, true NI as described in the preceding paragraph is not possible in Nuu-chah-nulth, hence the agrammaticality of (b).
> Fourth, Wakashan INs are not stripped of any of their functional features (they sometimes even undergo morphological reduplication processes, triggered by some affixal Vs.

These features are also found in the Eskimo-Aleut language family, but in other respect the two families differ. For instance, the process generally called *modifier stranding*, whereby a modifier in a DP is left outside of the verbal complex in true incorporating languages (see ch. 3 for an extensive discussion of this), displays a special behavior in Wakashan. Unlike what we would expect from a language with NI constructions, it is not the N that incorporates, but the modifier, as can be seen in the following example (Stonham 2004: 230):

(21) *ʔayasiik   čiiḥati*   [NUU-CHAH-NULTH]
      ʔaya=siik   čiiḥati
      many=make arrow
      'He made a lot of arrows.'

This follows from a syntactic rule that requires lexical suffixes to be placed in S2 position (but note that not all categories can host the affixal predicates: quantifiers can, but demonstratives cannot, a restriction which remains unaccounted for with Wojdak's PF incorporation theory). Unlike what I claimed in Muro (2008:18), this *modifier incorporation* pattern is not a basic difference setting affixal predication languages (as a class) apart from other polysynthetic languages, since Eskimo languages (which also share the affixal predication technique) pattern with other incorporating languages in

leaving the modifier stranded, as can be seen in the following example from Sadock 1980:309):

(22)   *ataatsi*-*nik*   *qamute-qar*-*poq*   [W. GREENLANDIC]
       one-INS.PL[7]   **car-have**-IND.3SG.S
       'He has one car.'

As can be seen, the quantifier is case-marked, but does not serve as a host for the affixal V, which stays on its incorporated object. The answer for the special behavior of Wakashan must be sought in the clitic-second properties common to many Wakashan suffixes, including affixal predicates.[8] In other words, affixal predicates are morphologically *clitics* in Wakashan, but *affixes* in Eskimo; further evidence for this may come from semantic considerations regarding Eskimo verbal affixes, which have all transitive meanings, whereas with Baker's (1988) standard incorporation theory we should also expect to find unaccusative meanings (which are in fact to be found in Wakashan, even though they are not very common). These affixes thus appear to be more derivational than their Wakashan counterparts (and in fact they are considered verbalizing suffixes by Mithun 1984, Gerdts 1988 and also Fortescue 2008).

Nevertheless, abstracting away from the *clitic* vs. *affix* dichotomy, we can observe that:

➤ Eskimo affixal Vs are fully productive.
➤ They are generally etymologically unrelated to the full verbs with the closest meanings.

With only these two criteria in mind (which are the only two that are relevant to the problem of morphological integrity), I will distinguish *true incorporating* languages from

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[7] The plural class marker on the quantifier menaing 'one' may seem to create a few problems at first sight, but this has to do with the semantics-syntax interface properties of NI in general, which we will come to in ch. 3. The fact that the same case marker bears an instrumental feature falls under the same rubric. Recall that Wakashan INs also undergo morhological processes (reduplication), which are triggered by some affixal Vs.

[8] At least, this is one side of the coin, the other being the compatibility of this modifier incorporation construction with different functional categories.

languages with *affixal predication* like those of the Eskimo and Wakashan families. A deeper understanding of the various differences which the constructions display in the two language families may help us make further subdivisions within the affixal predication class.

0.3. The position of the IN with respect to its host

Another factor worth mentioning (which has received very little attention in the literature so far) is the position of the IN with respect to the V host: it can be noted that in some languages the IN precedes its host, whereas in others it appears as a suffix. Variation can be found even within a single family (as in Arawak), but perhaps never within a single language (the only possible case could be Algonquian, but this remains to be proven).

Language families with systematic affixal predication, i.e. Eskimo, Wakashan and Chimakuan also produce N-V combinations, the only prefixal predicates I know of being found in Salish (and even there they are very rare: Gerdts & Hukari (2008) report that Halkomelem has only four).

On the theoretical side, this alternation has interesting implications, since it is unexpected under a standard head-movement analysis. Indeed, syntactic accounts like Baker's (1988, 1996) only account for the preverbal cases, only giving a few hints about the existence of postverbal NI; Baker & al. (2004) explain the alternation in terms of the head parameter, but this creates problems for antysymmetric approaches.

But what are exactly the properties characterizing each of the two positional types? Let us survey them in turn.

0.3.1. Preverbal NI

This is by far the most common case, as observed. The IN is generally placed right to the left of its incorporating verbal host, with nothing intervening, as can be seen in (15) above, repeated here below as (23):

(23) a. *seuan-ide*   *ti-**mũ**-ban*   [S. TIWA]
          man-AN.SG   1SG.S/3AN.SG.O-**see**-PST
          'I saw the/a man.'

      c. *ti-**seuan-mũ**-ban*
          1SG.S/3AN.SG.O-**man-see**-PST
          'I saw the/a man.'

Note that the N is incorporated as a root, losing its class morphology under incorporation. Another common case is the presence of an element occupying an additional morphological slot in the verbal template between the IN and the verbal root. This element, in turn, may be:

➤ a nominalizing suffix creating deverbal Ns; or

➤ a simple linking vowel, whose only function is to avoid disallowed phonological clashes.

Mohawk displays both of these combinations: (24a) shows a nominalizer (Mithun 1984:868), whereas in (24b) a linker appears (Baker 1996:279):

(24) a. *wa-hi-**ʔsere-ht-an**ʌ**hsko***   [MOHAWK]
          FACT-3M.S/1SG.O-**car-NMLZ-steal**
          'He stole my car.'

      b. *waʔ-ke-**nakt-a-hninu**-ʔ*
          DEF-1SG.S/3N.O-**bed-LNK-buy**-PUNC
          'I bought a bed.'

The linker in (b) is nothing more than a dummy vowel, whose only function is an epenthetic one; in (a), instead, the *-ht* suffix has a functional nature, i.e. that of forming a deverbal N from the verbal root *-ʔsere* 'to drag'.[9] This process is fairly productive in Northern Iroquoian languages (cf. Barrie 2006).

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[9] The *-ht* suffix is homophonous with a morphological causative.

Those illustrated so far are the simplest cases of preverbal NI: more complex ones involve other functional elements occurring between the IN and the V; these will be dealt with in ch. 4, since they raise additional problems.

As said earlier, preverbal NI is by far the most common scenario cross-linguistically; according to Baker (1996:29), it follows from an ordering rule along the lines of Kayne's Antisymmetry (see ch. 1). As a result, Houser & Toosarvandani (2006:8) term the cross-linguistic predominancy of preverbal NI '*Baker's generalization*'. However, as the authors themselves observe, Baker et al. (2004) deny this earlier assumption, since they observed a quite different pattern in the Araucanian language Mapudungun (a.k.a. Mapuche), spoken in Argentina and Chile. We will be examining these data in the next paragraph.

0.3.2. Postverbal NI

As noted earlier, the term *Noun Incorporation* was originally devised to designate preverbal NI; about Salish lexical suffixes (which take a postverbal position), Sapir (1911) claimed that such a morphological process should not be considered a case of NI, since the suffix and its free-standing equivalent stand in a suppletive relation. Indeed, there are morphological and semantic differences which set postverbal NI apart from NI in preverbal position, and the former may have a more grammaticalized nature than the latter (i.e. it borders on functional suffixation). This is not always the case, however; let us consider the following Mapudungun example (Baker et al. 2004:139):

(25) *ñi*   *chao* **kintu-wak**a-le-y   [MAPUDUNGUN]
      1SG.P father **seek-cow**-PROG-IND-3SG.S
      'My father is looking for the cows.'

As can be easily noticed, this example displays a NI pattern with a linear order which is the opposite of those examined in the preceding paragraph; moreover, the IN is fully referential (it is a loanword from Spanish), and it receives a specific interpretation. Therefore, it has to be considered a case of true NI (*syntactic NI*, in Baker's terms).

On the theoretical side, this fact seems to go against Kayne's theory of Antysymmetry, and in fact, this is precisely the claim made by Baker et al. (2004). The authors are especially concerned with showing that all the syntactic diagnostics applied by Baker (1996) to classify N-V compounding constructions as syntactic NI apply to the Mapudungun phenomena as well (see next chapter for a more detailed discussion of this).

From a strictly syntactic point of view and for this language, in fact, no objections can be raised to the analysis proposed by the authors. However, if we want to bring the question on a typological level, there are also important morphological differences which must be pointed out: idiosynchrasies such as epenthetic vowels or intervening nominalizers are never found with postverbal V-N compounding; rather, the opposite trend is observed: the suffixed nominal elements have a marked tendency toward being reduced, with a preference for the phonological shape -V(R)C, more rarely -CV(R)C. This is clearly the case of Salish lexical affixes (see e.g. Carlson 1990, Wiltschko 2009, Muro 2008); Algonquian medials and Wakashan locative suffixes also fit this description. Last but not least, postverbal INs cannot be modified in any way (unlike preverbal INs).

Typologically, postverbal NI constructions are not extremely rare exceptions: apart from the above mentioned language families, they are also found in Munda languages like Sora and Gorum (Anderson 2008), as well as other native American families like Mayan and Tsimshianic. In Amazonia, some Arawak languages like Piro and Guajiro display this phenomenon (see Dixon & Aikhenvald 1999), whereas other languages from the same family have the preverbal construction (others lacking NI altogether).

In ch. 2, I will show that this *directionality alternation* can play a pivotal role in the understanding of the syntactic nature of this process; I will propose an innovative explanation that captures the differences in terms of the X° vs. XP dichotomy (preverbal INs being XPs, and postverbal ones X°s).

0.4. Adjacency of the IN to its host

Having introduced the directionality alternation, I will now proceed to another factor which will play a crucial role in the theory to be developed in this thesis: the problem of adjacency. As a preliminary note, it will be useful to bear in mind that the alternation I am about to describe is actually a subcase of preverbal NI: it is totally incompatible with postverbal NI. This fact alone will have important theoretical implications.

0.4.1. Adjacent and nonadjacent NI

A problem which has not received much attention in the literature on NI so far is the position of INs in the verbal templates, in relation not only to the V host, but to functional morphology as well. Taking this factor into account yields at least two classes of languages: those where the IN is adjacent to its incorporating host, and those where the two are discontinuous, because they are separated by other functional morphemes. To exemplify the difference, let us consider the following couple of examples, taken from Chukchi (Polinskaja & Nedjalkov 1987:267) and Koyukon Athapaskan (Axelrod 1990:182) respectively:

(26) *loŋ=**kopra**-nt∂**wat**-a*   [CHUKCHI]
      NEG=**net**-**set**-GER
      'not setting a fishnet.'

(27) *yedok'ekk'ʉtlneeyo*   [KOYUKON]
      *ye-do-**k'ekk'ʉtl**-nee-Ø-**yo***
      3SG.O-through-**cold.air**-MOM.PFV-INTR-**go(SG.S).PFV**
      'Cold air rushed in (when the door opened).'

As can be seen, nothing intervenes between the IN and its host in the Chukchi example, whereas, in the Koyukon case, the incorporee is separated from the V root by an aspect morpheme (the momentaneous perfective *-nee*) and, possibly, a transitivity marker (which in any case is zero, the predicate being intransitive). Examples with non-third-person subjects show clearly that person markers also intervene between the IN and the

root. We will refer to the first of these cases as *adjacent NI*, and to the second as *nonadjacent NI*.

Of the two cases, adjacent NI is by far the most common scenario, the best documented case of nonadjacent NI being that of Athapaskan languages. The latter are not, however, the only language family displaying the phenomenon: analogous examples may be quoted for some Siouan languages, as in the following from Crow (Graczyk 2007:279):

(28) *ilúk-baa-kaali-k*   [CROW]
      meat-1A-**ask.for**-DECL
      'I asked for meat.'

As in Koyukon, the IN occurs outside of agreement in Crow as well. Thus, this language too shows genuine instances of nonadjacent NI.

But must the INs in languages with nonadjacent NI necessarily occur outside of agreement? In fact, things are a bit more complex: let us see why.

0.4.2. Semiadjacent NI

The Amazonian language Xamatauteri Yanomami displays a highly unusual set of facts in its NI constructions. To begin with, body-part Ns are incorporated preverbally in adjacent position, as can be seen below (Ramirez 1994:117):

(29) *hiterawë*   *yama=moheki=mɨ-i*   [X. YANOMAMI]
      Hiterawë   1PL.EXCL.S=**face**=**look.at**-DYN
      'We are looking at Hiterawë's face.'

Alienable Ns, on the other hand, receive a totally different treatment, as can be seen in the examples below (Ramirez 1994:184-5):

(30) a.   *ya*   *ihɨya-pɨ*   *pë=ma-rayo-ma*   [X. YANOMAMI]
            1SG.S   **fishing.hook**-POSS   3PL.O=**finish**-TEL-PST
            'I've run out of hooks.' (lit. 'My own hooks are finished')

b.   *hiterawë*   *ya*   **hepara-pɨ**   *pë=xĕ-re-ma*
         H.   1SG.S **brother-POSS** 3PL.O=**hit**-TEL-PST
         'I've hit Hiterawë's brothers.'

In (30a), the alienable possessed N is incorporated with a possessive suffix (*-pɨ*, which not incidentally is homophonous with the V root meaning 'to have'), whose function appears to be similar to that of the English adjective 'own'. Body-part terms, as seen in (29), do not take the *-pɨ* suffix, but for any possessed, alienable N, it is obligatory.[10] The N-*pɨ* complex comes between the subject clitic (which is obligatory) and the V, a position typical of INs; nevertheless, it is also followed by the plural object clitic =*pë*, a typologically unusual feature, since we do not expect INs to intervene between clitics. This plural marker can also fulfil the role of a 3rd person affected argument ("possessor", in Baker's terms), as in (31) below, where the two functions of =*pë* co-occur:

(31)   *ya*   *pë*   **hepara-pɨ**$_i$ *pë$_i$=xĕ-re-ma*   [X. YANOMAMI]
       1SG.S 3PL.P **brother-POSS** 3PL.O=**hit**-TEL-PST
       'I've hit their brothers.'

As can be noted, the IN in this example comes between a clitic cluster whose last member is coindexed with the IN; the latter is possessed by a plurality of individuals, who are affected by the action of the predicate; these are cross-referenced by the first occurrence of =*pë*. How can we account for these facts? In these cases, NI constructions interact directly with the positioning of clitics, and therefore, a theory of the latter would be required in order to give a full account of these facts; however, this cannot be done in the present work. I will return to some aspects of these constructions in ch. 2, when I discuss the interactions between NI and possession; for now, suffice to say that, on the descriptive level, in (30-31) we have to do with a case of nonadjacent NI which does not take place outside of agreement, but rather, so to say, splits it apart: I will refer to such situations as *semiadjacent NI*.

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[10] Note that kinship terms like *hepara* 'brother' are semantically inalienable, but they receive the alienable possession suffix anyway.

This is one case; a different case could be instantiated by complex Vs which take their own functional morphology (such as causatives or applicatives) before incorporating a N; for theoretical reasons (i.e. the different phase-levels of V roots and FPs), at least some of these will have to be considered instances of semiadjacent NI as well, even if the INs superficially appear in adjacent position. Causatives will be discussed in 4.3.1, whereas the interactions of NI with applicatives will be dealt with in 2.2.2.2.

0.5. What can linguistic theory learn from NI?

Now that the main descriptive points have been sketched, we are ready to tackle the theoretical issues that these facts will raise: before doing so, however, a survey of the most influential theoretical works on NI is in order. This will be done in the next chapter, where I will try to show that the core of the debate between the two main lines of inquiry on the topic (i.e. the *lexical* vs. the *syntactic* account) hinges on an assumption that appears to be an innocent one, but in fact is not: indeed, it still seems obvious to many researchers who deal with NI that recognizing the syntactic nature of the phenomenon should automatically qualify it as a movement process. I argue that this assumption is simply incorrect, and in the main body of the dissertation I will propose an alternative which, I hope, will shed new light both on the nature of complex word-formation processes and on the cartography of argument structures.

1. Some previous literature

The topic of NI constructions is a highly debated one in linguistic theory as well as typology; the beginnings of this debate can be traced back to the time of the exchange between Kroeber (1909) and Sapir (1911). The former may be considered as a forerunner of the syntactic approach to NI, in that he claimed that the nature of the process lay in "the combination into one word of the noun object and the verb functioning as the predicate of a sentence" (Kroeber 1909:569); according to the latter, on the other hand, this definition was too artificial, since it mixed a morphological concept ('word') with a purely syntactic one ('object'). Sapir (1911) may be thus taken as the first defense of the morphological nature of NI (which he equates with compounding). By the time Baker (1985b) first proposed his own syntactic account of NI in his doctoral dissertation, the topic had already been resumed by a heated debate between Mithun's (1984, 1986), who argued for a morphological approach, and Sadock (1980, 1986), who defended a syntactic approach (basing himself, however, on data from West Greenlandic, an affixal predication language, in my terms). The debate later continued with Di Sciullo & Williams' (1987) lexicalist account, to which Baker replied in his monumental 1988 monograph *Incorporation*; other lexicalist hypothesis were presented in Rosen (1989) and Spencer (1995). In 1996, Baker developed his most elaborate syntactic account (*The Polysynthesis Parameter*); another lexicalist proposal came with Mithun & Corbett (1999), and one last important syntactic approach was proposed in Baker et al. (2004). The limited space and time available to me for the completion of this work did not allow an exhaustive survey of all these works; as a representative sample, I will only deal with two lexical approaches, i.e. Mithun (1984) and Rosen (1989), whereas among the different syntactic approaches, I will discuss Baker (1988, 1996) and Baker et al. (2004). Section 3 briefly outlines Chung & Ladusaw's (2006) theory of *Restriction and Saturation*, a proposal set in the framework of formal semantics: this is done because semantic considerations will prove useful in chapter 3, where the relationship between NI construction and clause syntax will be

examined. The final section resumes the main lines of thought taken into consideration and introduces the question of whether syntax and morphology should be considered separate components of the language faculty or else different implementations of one single morphosyntactic derivation; this will set the scene for introducing one of the core claims of this work, i.e. that the lexicon, derivation and inflection can be thought of as incremental interfaces that could be defined in terms of clusters of structural projections (what I will term *morphological phases* in ch. 2).

1.1. Lexical approaches

This type of theories emphasize the morphological nature of NI constructions, noting that these phenomena, their apparent syntactic implications notwithstanding, bear strong analogies with other morphological processes.

1.1.1. A lexical-functional approach: Mithun 1984

In this very important paper, two claims are made which, in my opinion, should be distinguished: I will call them the *functional claim* and the *morphological claim*.

Let us begin with the functional side of the issue. Mithun points out that NI constructions are not a unified phenomenon, since they can arise because of one of four distinct functions, which identifies four types of NI; these can be arranged in an implicational hierarchy, the more marked ones implicating the less marked ones.

Type I NI can be considered a kind of lexical compounding, since it can be used for naming activities that can be habitual, non-patient-affecting, have an unspecified mass N as their object or denote an action which is "part of a greater group effort" (890). In the author's opinion, these constructions can only be intransitive (although we will see in the next chapter that this particular generalization can be problematic for the languages with valence-neutral NI).

Type II NI differs from Type I in that it has a direct effect on the argument structure of the predicate, giving rise to transitive Vs. The data in Mithun's sample can be divided in two groups (although she does not explicitly mention this distinction):

those involving body-part INs and NI constructions interacting with applicative formation processes. In my opinion, the first category should be conceived flexibly enough to include the Yucatec examples (47-50),[1] since these involve the (postverbal) incorporation of a N ('bush') co-occurring in the clause with a PP location argument whose head is 'cornfield': the bush and the cornfield could be thought as standing in a part-whole relationship, a bit like body-part Ns and their possessors. The second category shows examples of benefactive constructions, which are known to be independently implemented by morphological applicative formation independently of NI. As we will see in ch. 3, a covert applicative function might be involved in body-part NI as well.[2] A slight problem arises with this type of NI, too, when Mithun states that Type II should necessarily imply Type I NI: Littell (2005) showed that many Amazonian languages, as well as some Mesoamerican languages like those of the Totonacan family, actually display body-part NI without any trace of Type I NI. The problem needs further investigation.

Type III NI is typical of polysynthetic languages (which are understood as languages displaying multiple agreement): it instantiates a use of NI construction which applies on the discourse level. Its function is to background a constituent whose informational status is that of *known* (or *given*) *information*. In this use, NI parallels Romance resumptive clitics (a good example are the brief Huauhtla Nahuatl conversations to be found in Merlan (1976) and reported in the introduction as (11) and (12)). Affixal predication constructions may also assume this function.

Finally, Type IV NI is typical of valence-neutral NI (as Rosen 1989 observes). It consists of a NI construction where the incorporee is a generic N which is doubled in the clause by a more specific external DP. In most languages, the external N cannot be an exact double of the IN; but some languages allow it to fully replicate the incorporee.

So much for the functional claim, which by himself is not the most relevant for the purposes of this work; the other (more important) aspect of this paper is, as said, the

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[1] These examples will be extensively discussed in 2.3.3.3.
[2] This claim may also be supported by a fact quoted by Littell (2005) about the Totonacan locative construction, a NI construction where a body-part N is incorporated in an intransitive, stative V root to indicate precisely in what position the subject (i.e. the locatum) is located with respect to the object (i.e. the location) of the resulting predicate (which is transitive even though the base V is an intransitive stative). For reasons of space, locative constructions cannot be discussed in the present work.

morphological claim, whereby NI is not the result of a syntactic process (even in the most syntactically active of the above-mentioned functions, i.e. Types III and IV), but rather a definitely morphological one, used for deriving lexical items. The best pieces of evidence provided by Mithun are in my opinion those reported on pp. 875-7 (in a section devoted to the development of NI) and consist of three diagnostics for testing whether the formal properties of NI constructions are more typical of syntactic operations or morphological processes; they involve the following phenomena:

➢ *vowel harmony* (Chukchi, Koryak): if an IN belongs to a vowel class and the V host to another, the latter commonly changes the vowel class of the incorporee (e.g. Koryak *ulqət* 'crossbeam' yields *olqə-təlé-jkən* crossbeam-walk.along-IPFV 's/he is walking along the crossbeam').

➢ *epenthetic vowels* (Mohawk, Oneida): if an IN ends in a consonant and the V host begins with a consonant, an epenthetic *-a* is inserted (as in (1b) below).

➢ *suppletion* (weak in Sora, Ngandi, Cayuga; strong in lexical affixation phenomena like Salish lexical suffixes or Wakashan affixal predicates): an IN or a V host may take different forms when free-standing and when incorporated.

These criteria are useful because they are typically morphological; if one of them applies, the NI construction qualifies as a lexical base. In this aspect, Mithun's paper fully achieves its goal, since the incorporating languages in which one or the other of these criteria are active are numerous, and therefore the morphological nature of NI constructions is undeniable. Once this is ascertained, it still remains to be seen what morphology actually is, especially with respect to syntax.

1.1.2. Rosen 1989

This work is conceived as a reply to Sadock's (1980) and Baker's (1988) claims that NI is a syntactic process. Like Mithun, Rosen argues that NI is a word-formation process, and her goal is to distinguish different types of these constructions; unlike Mithun, however, she bases her approach on purely morphosyntactic facts, specifying that

Mithun's Types I to III should correspond to her Compound NI, whereas her Classifier NI is reported to correspond to Mithun's Type IV NI (p.296).[3]

The main distinguishing property of Compound NI is the antipassive character of the construction, which creates intransitive V stems (which is also what Mithun reports for her Type I NI). The following two examples from the Chukotko-Kamchatkan language Chukchi ((4) in the introduction, repeated here below as (1)) and the Northern Iroquoian language Onondaga (2, from Woodbury 1975:10) can be used to illustrate the constrast:

(1)   a.   *ətləge*   *mətqəmət*   *kawkawək*   *kilinin*   [CHUKCHI]
           ətləg-e   **mətqə.[R]**   *kawkaw-ək*   **kili**-*nin*
           father-ERG   butter.ABS   bread-LOC   **spread.on**-3SG.S/3SG.O
           'Father spread butter on the bread.'

      b.   *ətləgən*   *kawkawək*   *mətqərkeleg?e*
           ətləg-ən   *kawkaw-ək*   **mətqə-rkele**-*g?e*
           father-ABS   bread-LOC   **butter-spread.on**-3SG.S
           'Father spread butter on the bread.'

(2)   a.   *wa?hahninú?*   *ne?*   *oyέ?kwa?*   [ONONDAGA]
           *wa?-**ha-hninu**-?*   *ne?*   *o-**yε?kw-a?***
           FACT-**3M.SG.S/3N.SG.O**-**buy**-PUNC   DET   N.SG-**tobacco**-NMLZ
           'He bought the tobacco.'

      b.   *wa?hayε?kwahní:nu?*
           *wa?-ha-**yε?kw**-a-**hninu**-?*
           FACT-**3M.SG.S/3N.SG.O**-**tobacco**-LNK-**buy**-PUNC
           'He bought tobacco.'

In (1b), the incorporating complex has a different agreement affix with respect to the simple V in (1a), the difference being that (a) only shows subject agreement. In (2b), on the other hand, the agreement morphemes show the same feature content as the non-

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[3] This might be problematic in a few respects, since Mithun's Type IV exclusively refers to the classifying function of NI in some languages, and not to the whole complex of properties of NI of those languages. On the other hand, Rosen's Compound NI does not account for the properties of Mithun's Type II NI, as we shall see: for these reasons, I think no correspondence should be established between Mithun's classification and Rosen's, since the former uses a functional approach, whereas the latter bases her observations on formal grounds.

incorporating equivalent (2a). This is the main property distinguishing the two types of NI observed by Rosen: for the antipassive type (the Chukchi type) she uses the term *Compounding NI*, whereas the Onondaga type is termed *Classifier NI*. The reason behind the term 'compounding' is easily explained, since NI in languages of this type creates intransitive compound Vs. The term 'Classifier NI' is instead due to the classifying properties of the constructions, which can be seen in the following Mohawk example (from Mithun 1984:864):

(3)   *shakoti-**ya?t-í:sak**-s*   [_{DP} **ne ron-úkwe]**   [MOHAWK]
       3M.NPL.S/3O-**body**_i-seek-HAB   [_{DP} **DET M.PL-person**_i]
       'They were looking for the men.'

Here, the IN is a generic N indicating any animate entity; it is coindexed with an external DP which is more specific in reference, as observed by Mithun (1984) for her Type IV NI. Constructions like these only appear in Classifier NI languages, whereas languages displaying Compound NI do not display this phenomenon at all. As said in the preceding section, in some languages the N root of the external DP may fully double the incorporated N root (this is the case of some Australian languages, whereas in Mohawk this construction is very marginal. The third property distinguishing Classifier NI languages from those with Compound NI is modifier stranding, illustrated below with a demontrative (from Baker 1996:308):

(4)   *thíkʌ ʌ-ye-**nakt**-a-**núhwe?**-ne?*   [MOHAWK]
       that   FUT-3F.SG.S/3N.O-**bed**-LNK-**like**-PUNC
       'She will like this bed.'

In this case, an apparent modifier of an external DP appears without the DP. Rosen's explanation for cases like these is that the demonstrative actually modifies a pro coindexed with the IN (whereas Baker assumes it to modify a trace left behind by the syntactic head-movement of N to V). The classifying function and the transitivity alternation, on the other hand, had already been explained in lexical terms by Di Sciullo & Williams (1987:63-9), who claimed that the IN in Rosen's Classifier NI constructions

could simply be considered a *qualifier*, i.e. a modifier with no thematic status and no influence on argument structure: this explanation is endorsed by Rosen with no significant alterations. The main features of the two types of NI are summarized in Tab. 1 below:

Classifier NI	Compound NI
Valence-neutral effect	Antipassive effect
Modifier stranding	No stranding
CNI[4] or syntactic doubling	No CNI or doubling

Tab.1: Classifier and Compound Noun Incorporation

Admittedly, Rosen's theory has two kinds of problems: on the one hand, there is one Classifier NI language (Southern Tiwa) which, paradoxically, displays no CNI construction or doubling at all (although it does have modifier straning and valence-neutral NI). On the other hand, West Greenlandic has an antipassive NI pattern (actually, an affixal predication pattern) with no CNI or doubling; however, it can strand adjectival modifiers (but, crucially, these only take the instrumental case). Rosen does not provide any satisfactory explanation for these problems, since she chooses to consider both these languages as Classifier NI languages with some unidentifiable special properties. Actually, the stranding facts of Greenlandic Eskimo do not witness to a Classifier NI character for affixal predication (since the stranded element is an oblique); as to Southern Tiwa, Rosen hypothesizes that the INs in this language could be too rich in features to be doubled by an external N. However, there is no evidence that INs in Southern Tiwa may be richer than those of other Classifier NI languages like Mohawk, Caddo, or Rembarnga. Conscious of these problems, I do not take CNI to instantiate a general property of valence-neutral NI languages, but rather some kind of tendency.

In sum, the theory I will propose is indebted to Rosen's approach for her explanation of modifier stranding, since it will be seen in ch. 3 that I will need a pro in the structure (and not a trace, unlike Baker). This, however, does not imply that my

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[4] I use the abbreviation 'CNI' to indicate classifier NI in Mithun's (and my) sense, i.e. the purely descriptive fact that NI constructions in some languages may classify a free-standing theme DP. When I write 'Classifier NI', instead, I intend Rosen's generalization, which I only partly endorse in this work.

approach should be a lexical one: on the contrary, it will be seen that what I propose has all the features of a syntactic account. The lexical derivation will be interpreted as a specific site in the derivation (inside the L-phase); I claim that there are several other structural projections involved in NI constructions, and that all have their distinctive properties. What is more important, the lexical derivation is not responsible for the distinctions observed by Rosen: these will follow from the interaction between higher projections. All in all, the lexicalist hypothesis that NI is lexical in the sense that syntax is not involved in it proves to be illusory: a syntactic account is inevitable. But this need not be one in terms of head-movement, quite the opposite: this is the core of what I will show in the next chapter.

1.2. Syntactic approaches

Syntactic approaches to NI within the GB framework have so far only been equated with Baker's (1985b, 1988, 1996) device of head-to-head movement; when talking about NI, assuming a syntactic approach still automatically means assuming a movement approach. In this section, I argue that the syntactic nature of NI should be separated from the notion of movement: the two may interact, but one is not a consequence of the other.

1.2.1. Baker 1988

This book is a revised edition of the author's (1985b) doctoral dissertation; its scope is wider than the field of NI constructions, since it is conceived as a theory of *grammatical function changing processes*, i.e. all those processes that, in one way or the other, may alter the argument structure of a predicate. These include, apart from NI, *verb incorporation* (as in morphological auxiliary or causative constructions), *preposition incorporation* (i.e. applicative formation) and *passive incorporation* (i.e. passivization); here I will only deal with part of the chapter on NI, leaving aside the discussion on antipassive constructions, which are beyond the scope of this dissertation.[5]

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[5] Antipassive morphology is always totally grammaticalized (sometimes even null), and thus is better dealt with by assuming a dedicated FP in the derivation. Postulating an analogy only on the basis of similar valence-changing effects is, in my opinion, inconsistent even with Baker's own arguments, since

The phenomenon of NI is introduced on p. 20 with two examples from Postal (1962); these are probably not the best choice (since they involve a rather complex construction), but they are useful, since they show very well the inadequacy of a head-movement approach to NI. They are as follows (transcription and glosses adapted):

(5)   a.   ***ka-rakʌ***   *[_{DP} ne   sawatis **rao-nuhs**-a?]*   [MOHAWK]
              3N.SG.S-be.white   [_{DP} DET J.   **3M.SG.P-house**-NMLZ]
              'John's house is white.'

        b.   ***rao-nuhs***-*a*-***rakʌ***   *[_{DP} ne   sawatis]*
              3N.SG.S/3M.SG.O-house-LNK-**be.white**   [_{DP} DET J.]
              'John's house is white.'

In (5a), the neuter N for house (*ka-nuhs-a?*, a neuter N) takes masculine singular possessive agreement, in accordance with the masculine gender of the possessor N *sawatis* 'John'; in (5b), on the contrary, the same agreement marker registers the possessor as the object of the predicate. The structure given by Baker for this alternation is as follows:

(6)
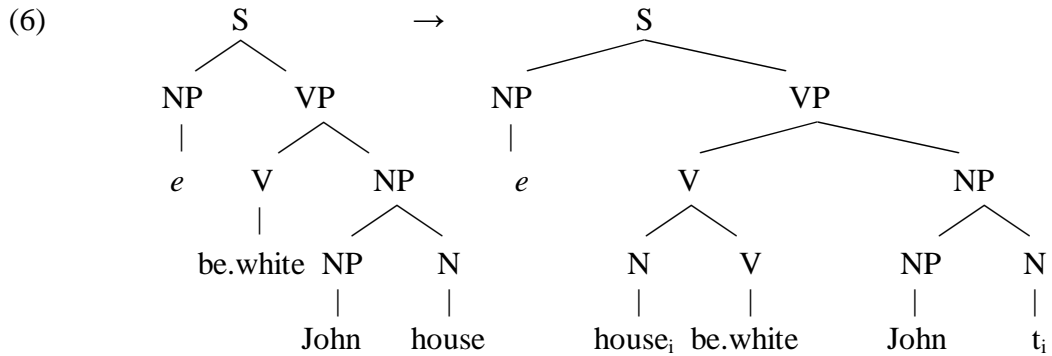
With this account, the incorporating version (5b) is derived from an underlying structure as in (5a) by head-movement of the N head 'house' to the V head 'be.white'; the possessor 'John' is supposed to have been left stranded. The fact that agreement

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he claims throughout the book that INs differ from compound modifiers because of their higher referentiality. Antipassive morphemes are even less referential than lexical modifiers of compounds; thus, the analogy simply cannot hold.

requalifies the possessor as an argument of the V is termed by Baker "possessor raising": unlike other modifiers, possessors are referential arguments, and as such need to be case-licensed in order to pass the Case Filter. In (5a), the Case Filter is satisfied by the agreement marker on the head N, which has the effect of assigning Case to the possessor. In (5b), however, things are different, since the N is incorporated; in this case, only a trace remains in the NP, which cannot assign Case in the same way as an overt argument. The only way out is for the verbal complex to agree with the possessor. This, in turn, is only possible if the V governs the possessor NP, since government is a condition on Case Assignment. Apart from these facts concerning movement and case, the author also provides additional evidence from Binding Theory to show that government is involved; the result is that, in Baker's terms, Case Theory, Movement Theory and Binding Theory converge in indicating that a V can govern the possessor of its object if and only if the latter is an IN. This is a particular case of what he terms the *Government Transparency Corollary*, which says that a V with an IN governs an XP which the N governed before incorporation. NI is thus supposed to make the remnants of the object NP transparent to government from the V. This is how the V can agree with the possessor of an IN and allow it to "pro-drop"; the possessor thus comes to have certain object properties as an automatic side-effect of NI, not because of an independent Grammatical Function Changing rule of "possessor raising". In Baker's theory, then, the possessor is not θ-marked by the V, a fact that makes NI similar to Exceptional Case Marking structures. An interesting restriction on "possessor stranding" is that it can take place under one of two conditions:

➢ if the incorporating V is a transfer of possession V.
➢ if the IN is a body-part N.

If these conditions are not met, the only possibility for a NI construction to license a possessor is a benefactive applicative construction. What Baker does not recognize is that these restrictions are in contrast with his assumption that possessors are not θ-marked by the V: the common feature shared by transfer of possession Vs and body-part Ns is, in fact, that they imply a patient-affecting character for the predicate. Saying that

the possessor is not θ-marked by the V is to say that affectedness is a purely semantic effect which does not interact with syntactic principles: we will see, however, that affectedness plays a key role in the interactions between NI and agreement (which pairs up with what Mithun 1984 suggested about psychological V, which fails to trigger NI because they are not patient-affecting). It is therefore perfectly reasonable to suppose that affectedness should result from thematic structure in some way: anyway, the analogy between affectedness and θ-marking is not noted by Baker (1988), nor is it observed, as far as I know, in his later works, even when the NI-agreement interactions are spelled out in detail (as in Baker et al. 2004). We could also take the problem from the side of agreement, since Baker's account of "possessor raising" entails that agreement should, in some cases, be able to register features which are not those of arguments, a prediction which is not borne out by the actual data from natural language. My critique should imply that stranded elements should always be somehow θ-marked; with this view, genitive stranding (whether reanalyzed, as Baker claims for the data in (5), or overt) should thus be ruled out in principle: we will precisely see that this prediction is borne out, since even the few cases reported in the literature (Sadock 1980 for West Greenlandic, see further 4.1.2.1) are actually lexicalized structures with no productive syntactic counterpart.

Apart from the inadequacy of the accoutn given for the stranded of (semantic) possessors, there are more general shortcomings in Baker's approach: the very theory of movement adopted in his 1988 book rests on the incorrect assumption that NI is always preverbal, an assumption which is recognized as wrong by the author himself in later writings (Baker et al. 2004). Even the assumption that NI should be considered an alternative to case-marking must be taken with some caution: case is a very high functional process, thus it is unlikely that it could be assigned in a position as low as the VP. INs are not marked for case, of course: but this might be a derived property, not an inherent one. This is precisely what my theory predicts: I will show that INs do not take case not because they are incorporated, but rather because their status of INs means that they have failed to excorporate from the v-phase into the higher I-phase, where they could have received case-marking.

In this work, I agree with Baker's assumption that (most types of) NI should be interpreted as a syntactic process which is different from simple lexical compounding (see e.g. the stranding facts discussed in ch. 3). However, I think both the implications of an analysis like (6) cannot be correct: on the one hand, we will see that head-movement is actually not useful for deriving the data in my sample; on the other hand, I will show that all elements of argument structure (including stranded modifier) are θ-marked in some way. Examples like (6) can be easily derived by assuming that the stranded DP originates in a dedicated thematic projection (what I will call AffectP), which is then registered by agreement.

1.2.2. Baker 1996

Unlike Baker 1988, this book has a more typological cut, since the author is here concerned with a very far-reaching question, i.e. the existence of *macroparameters*, i.e. clusters of parameters necessarily occurring together in the grammar of a language and determining its overall typological character. What Baker explores in this book is the *Polysynthesis Parameter*, which is stated as a Morphological Visibility Condition (Baker 1996:17):

(7)   *The Morphological Visibility Condition* (MVC)
        A phrase X is visible for θ-role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via:
        (i) an agreement relationship, or
        (ii) a movement relationship
                Yes: Mohawk, Nahuatl, Mayali, ...
                No: English, French, Chichewa, ...

What this means is that some languages must cross-reference by means of agreement morphology all the arguments of a predicate, unless one of these arguments (i.e the theme argument) is incorporated in the V. Languages satisfying this condition are what he terms polysynthetic languages; all other languages are non-polysynthetic.[6]

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[6] As observed earlier, this definition yields a much more restricted class of languages than the traditional term 'polysynthetic' does..

It can be understood that NI plays a key role in this theory, since it is an essential part of a more general parameter that regulates the licensing of arguments. In this work, I cannot deal with the problem of the polysynthesis parameter, since this would imply not only a theory of NI, but also a complete theory of agreement. However, there is one problem with this approach, which lies in the fact that all NI should have an antipassive-like effect, since conceiving a "movement" relationship as an alternative to agreement should yield intransitive Vs. But then, the data from languages with valence-neutral NI are no longer accounted for (Baker recognizes this difficulty on pp. 326-9).

Moreover, apart from the correlations between different parameters co-occurring in polysynthetic languages (which could be very useful for a more general theory of polysynthesis), this book does not contribute any real progress in the understanding of NI, since, although the theory of Baker 1988 is revised and updated, the critique I have exposed in the preceding paragraph about the author's earlier work applies to this work as well. The mistaken generalization about the supposed universality of the preverbal order for NI is made even more systematic by an ordering rule along the lines of Kayne (1994), which is stated on p. 29:

(8)   If X and Y are X° categories and X is adjoined to Y in the syntax, then X precedes Y in linear order.

We will see in the next paragraph, however, that the author changed his views in light of new data.

1.2.3. Baker, Aranovich & Golluscio (2004)

In this article, some very interesting new data are presented that illustrate NI in Mapudungun (a.k.a. Mapuche), an Araucanian language spoken in Argentina and Chile; this language shows a very productive pattern of postverbal NI, as can be seen below (p. 139):

(9)　a.　*ñi*　*chao*　**kintu**-*le-y*　　　　　　　　　　[MAPUDUNGUN]
　　　　　1SG.P　father　**seek**-PROG-IND-3SG.S
　　　　　ta.chi pu　　*waka*
　　　　　DET　　COLL　**cow**
　　　　　'My father is looking for the cows.'

　　b.　*ñi*　*chao*　**kintu**-**waka**-*le-y*
　　　　　1SG.P　father　**seek**-**cow**-PROG-IND-3SG.S
　　　　　'My father is looking for the cows.'

This type of NI is syntactic, and not lexical, as we will see. However, Mapundungun NI differs from that of other incorporating languages in three important ways:

➢ verbal agreement does not cross-reference the IN;

➢ the only unaccusative verbs that allow subject incorporation are weather predicates, unless a possessor is stranded;

➢ only possessors (and no other modifier) may undergo stranding.

This means that NI appears to be parameterized in terms of its interaction with verbal agreement, the possibility of incorporating unaccusative subjects, and the extent to which modifier stranding is allowed. The first factor is not new in the literature (see a.o. Baker 1996, Rosen 1989, C.Rosen 1990), but the latter two receive an innovative treatment, since past approaches had only mentioned incorporation of unaccusative subjects and modifier stranding as unitary phenomena, without making any finer-grained distinctions. The paper's core claim is that the above mentioned parameters are not independent of each other, but rather are interrelated in a way that becomes clearer if we take the Mapudungun data into account. Building on Mithun's (1984) typology, the authors adopt the distinction of NI phenomena into four types, but they only deal with those that are used productively for discourse purposes, i.e. Type III and Type IV. Let us remind the reader of the essential lines of Mithun's typology:

TYPE	CHARACTERISTIC PROPERTIES	SAMPLE LANGUAGES
I 'lexical compounding'	IN is generic, non-referential; N+V is a conventional, institutionalized activity	Oceanic, Mayan, Lahu, Nisgha, Comanche, certain Australian languages
II 'manipulation of case'	IN loses argument status; another NP takes on the grammatical function it vacates	Tupinamba, Yucatec, Mayan, Blackfoot
III 'manipulation of discourse'	NI is used productively for discourse purposes, e.g. to background known information	Nahuatl, Koryak/Chukchi
IV 'classificatory NI'	An IN can be supplemented by more specific NP material external to the complex verb	Caddo, Gunwingyguan languages, Mohawk

Table 2. Mithun's (1984) typology

The various types are implicational, i.e. every language that has one type must also have all the lower types. Mapudungun has Type III incorporation in that NI construction are used productively, combining a wide variety of nouns and verbs. Let us briefly review its most salient properties:

> Mapudungun has multiple agreement, but the 3rd person object marker is often optional, and cannot coexist with an IN; as far as animacy is concerned, there are no $1^{st}/2^{nd}$ person object agreement markers (a situation similar to the one found in Southern Tiwa), a gap that is salvaged by the use of passive.

> definite nominal argument having the status of old information can be backgrounded via NI.

> NI constructions can be coreferent with free-standing NPs in other clauses.

> modifier stranding is severely restricted, as it can only occur with possessed NPs leaving their possessor stranded; this fact also interacts with agreement in that possessors are registered as subjects (possessor raising, as in Southern Tiwa and Nuu-chah-nulth).

All this is evidence that NI in Mapudungun is active in discourse; it does not display the typical features of Type IV, however, and thus we may consider it an instance of Type III NI.

These facts are then compared to Rosen's (1989) lexical account of NI, which reduces all difference among incorporating languages to a difference in argument structure, i.e. to whether themes are saturated (Type III) or modified (Type IV) by the IN. Recall that, in her account, this difference in argument structure should be accompanied by parallel differences in modifier stranding and syntactic noun doubling (see above), but there are exceptions like Southern Tiwa, which has no noun doubling even though it has modifier stranding and verbal agreement is independent of NI. On the other hand, a syntactic approach like that of Baker (1996) has no way of accounting for the restrictions on modifier stranding in the languages where this phenomenon does not take place. Another unsolved problem is why NI into unaccusatives is not equally available in all incorporating languages. How can all of these problems be accounted for?

The answer provided by the authors is to say that Vs in polysynthetic languages actually do not agree (or fail to agree) with their INs, but rather with the features contained in the unpronounced copy which the movement of the IN leaves behind, and in particular with what Chomsky (1995) calls φ-features (person, number, gender). Feature deletion may affect unpronounced copies in different measures in different languages, as shown below:
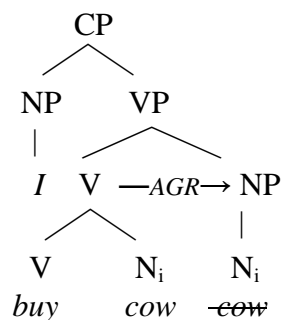
(10)
```
              CP
            /    \
         NP       VP
         |       /   \
         I     V —AGR→ NP
              /  \      |
             V    Nᵢ    Nᵢ
            buy  cow   c̶o̶w̶
```
               [SG, FEM, 3]: Southern Tiwa, Mayali
               [SG, F̶E̶M̶, 3] = [SG, NT, 3]: Mohawk
               [S̶G̶, F̶E̶M̶, 3̶] = [Ø]: Mapudungun, Nahuatl, Chukchi, Ainu

To spell out the details, in languages like Southern Tiwa and Mayali, deletion of the lower copy of an IN does not affect its φ-features; therefore, Inflection (AgrOP) may check its features against those of the trace, thus enabling the verb to agree with the IN just as if it had not been incorporated at all. In this way, unaccusative subjects can be

incorporated (since AgrSP can agree with the trace's features) and all types of modifiers can be stranded (as they too are able to agree in φ-features). A similar situation applies to Mohawk, with the only difference that, in this language, φ-features are not deleted, but reduced to their default, unmarked values [SG, NT, 3], and these are precisely the values which agreement morphemes show in NI constructions for direct objects and unaccusative subjects. Mohawk and the above mentioned languages may be subsumed under Mithun's label of Type IV languages.

The picture changes totally if we consider languages like Mapudungun, Nahuatl, Chukchi or Ainu. In these languages, the φ-features of INs are completely deleted under incorporation; therefore, incorporation of unaccusative subjects would leave the verb with nothing to agree with, except for two cases, namely that of weather predicates, where a null expletive subject appears to be present in any case, and that of possessed subjects, where possessors bear φ-features that the verb may agree with, thus allowing incorporation and giving rise to the phenomenon that has been called possessor raising. Similar considerations can be done for modifiers: possessors are the only type of modifiers that do not have to agree in φ-features with the possessed NP, so they are the only type available for incorporation. These features are typical of Mithun's Type III languages.

A few open questions: do all Type III languages have possessor raising? Mapudungun certainly does, but, as far as I know, it has never been reported for Chukchi or Ainu, and it appears to be restricted to body-part incorporation in Nahuatl. On the other hand, we should expect Type IV languages to not display this phenomenon, since AgrSP should check its φ-features against the closest feature bundle, and that appears to be the trace if its φ-features are not deleted under incorporation; although this prediction is borne out by most languages, possessor raising is reported for Southern Tiwa, and this fact alone calls for an explanation (which in Baker's opinion may be sought in the language's unusual triple agreement system). About Southern Tiwa, we should also observe that it differs from other Type IV languages in another important way, i.e. it does not allow noun doubling, as had already been pointed out by Rosen (1989). According to the authors, noun doubling is a different matter than those involved in the present discussion: it has to do with a more general property of NPs in polysynthetic

languages, which cannot be overtly expressed if they are not dislocated. Some languages allow them to be cross-referenced by verbal agreement only; other languages also allow coreference with the trace of an IN, and this is where Mohawk and Southern Tiwa differ. Building on Baker (1996:312), this parameter is formalized as the *Adjunct Licensing Condition*:

(11)   An argument-type phrase XP [i.e. an NP] generated in an adjoined position is licensed only if it forms a chain with a pronominal <or the trace of a head movement> in an argument position.

In conclusion, this paper succeeds in reformulating in a syntactic framework many of Rosen's (1989) insights, as well as two important chapters of Mithun's (1984) typology. Some questions regarding the distinction between alienable vs. inalienable possession are shown to be relevant to the topic, but are left to future research.

However, one factor to which I give so much importance is considered totally irrelevant, i.e. the preverbal vs. postverbal position of the IN: the authors point out that, in Mapudungun, NI is invariably postverbal, but do not even attempt at giving an explanation for this. A cursory remark in a footnote simply says that Baker (1996) was wrong in assuming head movement to always adjoin the moved noun to the left of the verbal host, an idea inspired by Kayne (1994). In this work, I will show that this directionality alternation is crucial, and moreover, it must be explained without head-movement (but keeping Antisymmetry).

1.3. Formal semantics and NI: Chung & Ladusaw 2004

The problem of indefinites has always been a highly debated matter in linguistic theory, since these expressions show different interpretational properties: the two most invoked distinctions are *specific* vs. *nonspecific* (e.g. Enç 1991) and *referential* vs. *quantificational* (e.g. Fodor & Sag 1982). Drawing on data from indefinite determiners in Maori DPs and object NI in Chamorro (actually VP-raising), the authors propose that, in both cases, the relevant difference is not an interpretational one, but rather a difference in *modes of composition*, i.e. two different ways of realizing an argument: *Restrict* is an

operation which establishes a coreference between a θ-position and an overt argument without saturating it, whereas total saturation is performed by *Specify*, a distinct semantic operation involving the application of a choice function. The effects of the two operations differ in many respects (e.g. scopal properties, the ability to serve as pivots in existential constructions, etc.). Some languages show this difference in NI constructions, other in their determiner systems. The Austronesian language Maori instantiates an example of the latter case:

(12)   a.   *ka   hopu-kia   e   rewi [DP **he** poaka]*   [MAORI]
           T   catch-PASS   by   Rewi [DP **a** pig]
           'Rewi caught a pig.'

      b.   *ka   hopu-kia   e   rewi [DP **tētahi** poaka]*
           T   catch-PASS   by   Rewi [DP **a**   pig]
           'Rewi caught a pig.'

After showing that the relevant contrast is neither *specific* vs. *nonspecific* nor *referential* vs. *quantificational*, the authors explain that the determiner *he* is introduced via the non-saturating operation *Restrict*, whereas *tētahi* is introduced via *Specify*. The two operations are formalized as follows (p.48):

(13)   a.   *Restrict*
           $\lambda y \lambda x \lambda e$ [be-caught$'$(y)(x)(e)]   r
                     <e, <e,t>>   <e>

                  $\lambda x \lambda e$ [be-caught$'$(r)(x)(e)]   pig$'$
                       <e,t>   <e,t>

                     $\lambda x \lambda e$ [be-caught$'$(r)(x)(e) $\wedge$ pig$'$(x)]
                              <e,t>

b. *Specify*

λyλxλe [be-caught′(y)(x)(e)]   r
          <e, <e,t>>   <e>

λxλe [be-caught′(r)(x)(e)]   pig′
        <e,t>   <e,t>
                                                  |
                                              f(pig′)
                                               <e>

λe [be-caught′(r)(**f**(pig′))(e)]
          <t>
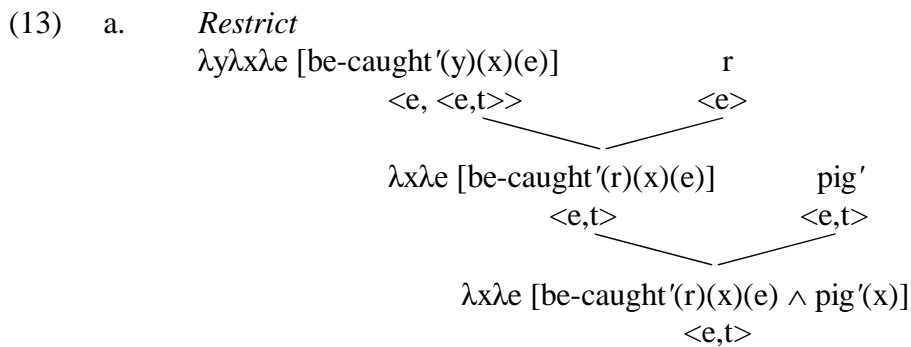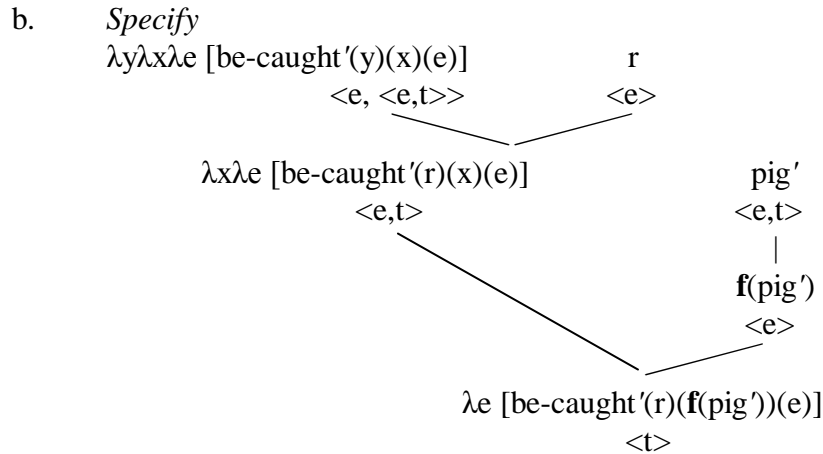
What we can observe is that the argument structure of the predicate is not affected by *Restrict* (since only the agent <r> is fully identified with the variable (y), whereas the internal argument position (x) is still filled by a variable at the end of the derivation); this operation appears to be just some sort of semantic compounding of root meanings, with no effect on argument structure. *Specify*, on the other hand, changes both agent and patient, leaving only the event argument (e) intact.

About NI constructions, on the other hand, the authors report CNI for the Austronesian language Chamorro (p.109):

(14)   *si   carmen gäi-[ga']*   *[DP i   ga'lagu]*   [CHAMORRO]
        UNM   C.   Agr.have-pet [DP DET dog]
        'Carmen has the dog as pet.'

This is reported to be a case of CNI because the suffixed N is resumed by an external, more specific DP in the clause; the sentence is given the following structure (p.110):

(15)   λyλxGen_e [have′(y)(x)(e)]   pet′
            <e, <e,t>>   <e,t>

    λyλxGen_e [have′(y)(x)(e) ∧ pet′(y)]   d
                <e, <e,t>>   <e>

        λx Gen_e [have′(d)(x)(e) ∧ pet′(d)]
                    <e,t>
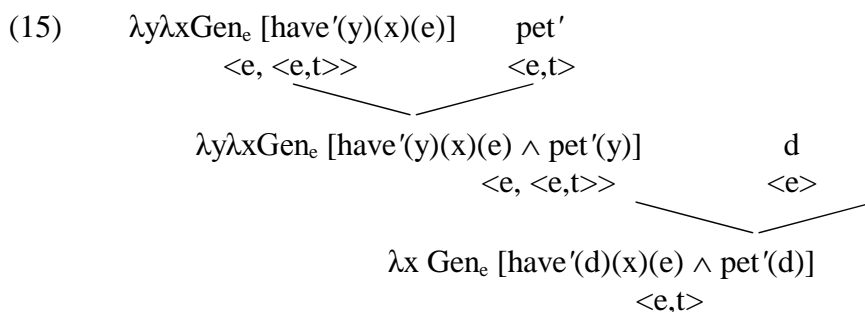
Again, the first operation is an instance of *Restrict*, which leaves the internal argument as a variable, the coindexation with <pet′> notwithstanding; then, *Specify* saturates the argument by identifying it with the <d> individual. What must be observed is that *Restrict* must always apply before *Specify*, since the opposite order would leave no argument to be saturated.

This, at least, is the semantic side of the story: as the authors observe, the syntactic side must be totally different. Baker (1996), for instance, in treating CNI considers the syntactic double appearing outside of the verbal complex to be some sort of adjunct, and not the real object of the V, as we would expect if the semantic and syntactic accounts should coincide. This paradox is confirmed by Chamorro "NI", which yields an intransitive verb even with *Restrict*.[7]

What this means is that there can be no one-to-one correspondence between the syntactic aspects of NI and the semantic factors highlighted by Chung & Ladusaw: it would be tempting to assume two dedicated FPs which should function as landing sites for Restriction and Saturation respectively, since this would help in explaining phenomena like CNI, stranding, or the transitivity alternation in preverbal NI (see 2.3.3.). In fact, this is not exactly how it works, as we will see in the next chapter (and also in ch. 3).

Anyway, the fact that the semantics and the syntax do interact, but do not always work together will be useful for understanding in what measure each level really affects the phenomena I am dealing with; this will allow me to refine my predictions regarding the complex patterns I have only just mentioned, and in this sense, Chung & Ladusaw's theory will prove useful.

1.3. Working plan

The goal of this dissertation is twofold: on the one hand, I propose to take into serious consideration the three important facts illustrated in the introduction: the *directionality*

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[7] Morphologically speaking, it is very strange that a language with postverbal NI (which always has an antipassive effect) should allow CNI; if paired up with other facts about Chamorro "object incorporation" (such as the occurrence of complex Ns, a situation similat to what Massam 2001 described for her "false NI"), this could be considered all the more reason to assume that the process under consideration is in fact a case of VP-raising, rather than NI.

alternation, the *adjacency* alternation and the *free* vs. *bound* dichotomy both in Ns and Vs involved in NI constructions. On the other hand, I will try to give an account that does not lose any of the above illustrated insights about NI constructions. In doing this, I will consider the implication of Antisymmetry for the facts under consideration, and I will try to build a cartography of all projections involved (directly and indirectly) in NI constructions and their interactions with the other subsystems of the clause.

About the problem of the controversy between lexicalist and syntactic approaches, I hope the solutions I propose will shed new light on the matter: along the lines of current syntactic theory, I will assume that morphology has an important syntactic component in it; therefore, some of the arguments lexicalist approaches raised against syntactic accounts of NI (e.g. the differences between NI and constituent movement phenomena like topicalizations or focalizations, cf. Mithun & Corbett 1999) will be reformulated so that a syntactic account can capture them. I will try to achieve this by means of the concept of *Morphological Phases*. On the other hand, my account, albeit syntactic, will also have to do justice to the lexicalist observations that NI is a robustly morphological process: I will do so by combining the cartographic aspect of my proposal with the number of morphological phases involved, assuming that the lower a Morphological Phase is, the stronger the morphological cohesion will be between elements embedded in it.

2. A new theoretical perspective

The facts highlighted in the introduction have shown that some important variables in NI constructions have not yet received adequate treatment in the main theoretical approaches, i.e.:

➢ the *free* vs. *bound* dichotomy involving both INs (which can be full N roots or lexical suffixes) and Vs (which subdivide into roots and affixal predicates).

➢ the *degree of adjacency* in preverbal NI, whereby an IN may be placed in a position adjacent, semiadjacent or nonadjacent to the V root.

➢ the *directionality alternation*, which distinguishes *preverbal* from *postverbal NI*.

In this chapter, my core claim will be that these three variable types are all different manifestations of the interaction between two grammatical factors, i.e. the *X° vs. XP dichotomy* and *morphological phases*. The latter concept is innovative, in that it starts from the assumption that morphology is a particular manifestation of syntax that is characterized by the activation of a few fixed incremental clusters of structural projections (which I term *morphological phases*) that determine the degree of synthesis of a language; this will be a direct function of the number of phases activated. Here, I will consider mainly verbal morphology.

The key to understanding the *free* vs. *bound* dichotomy is recognizing the fact that verbal and nominal stems turn out to be XPs from the very first derivational stages. This is because of a fundamental cartographic property of the syntactic derivation, which always has lexical structure embedded in functional structure, and never the opposite. Lexical structure must therefore always be a complement of some functional head, hence it must always be an XP, a fact that I argue to be implemented by the *Merge* operation, which automatically interprets a complement as an XP. Combining this with morphological phases, I assume that the cartography of the lowest phase (which derives lexical stems) starts from a lexeme, which may or may not be merged as the complement

of a root component providing its morphological status of free-standing root. The first case gives a *bound* lexeme, the second one a *free* root. The fact that some free roots may give rise to true NI constructions will be explained in terms of *categorial validation*, whose negative feature value will trigger NI (departing from earlier assumptions that try to explain NI as a function of the low specificity of the IN).

The *degree of adjacency* of preverbal INs will be explained by combining the concept of morphological phases with the intuition that preverbal INs may move as XPs to higher projections; if the IN is *adjacent*, it must have stayed in its base position (adjunct INs will be shown to provide evidence for phase boundaries distinguishing adjacent INs). If it is *semiadjacent* or *nonadjacent*, it must have moved to one of two higher projections, which identify two higher phases; the prediction that XP-movement is involved is borne out by the fact that degrees of adjacency only apply to preverbal INs.

The most important argument, however, will be the *directionality alternation*: I will show that *preverbal theme NI* differs from *postverbal NI* only in that the IN is structurally an XP in the first case, and an X° in the second. This is a major break from current assumptions about NI as head-movement: I will show that NI constructions, far from providing evidence for head-movement, actually show that Antisymmetry and head-movement can be in conflict. This conflict can only be solved by XP-movement (of the V root, never of the IN, thus showing that N movement is not involved at all in NI). Specific sections provide further evidence (from the interactions of NI with multiple agreement and from the incorporability of unaccusative subjects) for the XP status of INs; complications involving inalienable Ns and postverbal NI will also be discussed. The final section summarizes the evidence, paying special attention to the cartography of the structural projections involved in NI constructions.

From these facts we gain an understanding of syntactic derivation as a phenomenon whose main defining property is *incrementality*, and where XP-movement plays a pivotal role.

2.1. The incremental nature of syntactic derivation

By the time Chomsky (1986) proposed extending the X-bar schema to the functional structure of verbal complexes by postulating a split between IP and VP, the foundations had been laid for the development of the study of functional structure; an important preliminary condition to this had certainly been Baker's discovery of the so-called *Mirror Principle* (Baker 1985a). As Cinque & Rizzi (2008) observe, this breakthrough in the understanding of verbal structure did not come alone, as it was paralleled by analogous proposals regarding nominal structure (most importantly Abney's (1987) DP hypothesis). What these proposals have in common is that in each and every one of them, lexical categories are embedded in functional structure, and not *vice versa*: this fact set the base for a cross-linguistic study of the relationships between the two category types, a study that soon revealed its great complexity, leading on the one hand to the Minimalist Program (Chomsky 1995), and on the other hand to the Cartographic Project (started with Cinque 1999). This complexity, however, has shown itself predominantly in functional structure, not (at least for now) in the inner core of lexical categories: this fact alone, together with the observation that lexical categories are always embedded in functional structure, suggests that the syntactic derivation should be thought of as a *totally incremental* phenomenon, i.e. each and every feature (be it referentiality, definitess, or anything else) is assigned incrementally in the course of the derivation, going from a maximally low value in the low part of the structure to a maximally high value in its highest components. We could even state it as a principle of Universal Grammar:

(1)   *The Total Incrementality Principle (TIP)*
        Never have functional structure as a complement to lexical structure.[1]

Things are clearly so in the case of the DP theory, where the highest feature (the D-feature) is assigned at the top of the nominal derivation. When we look at how the V's argument structure is currently explained, however, we can note that, at least in the case

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[1] As we will see in the following discussion, specifiers are not affected by this principle, since it is precisely in Spec positions that I assume arguments to be generated.

of the relationship between a V and its arguments, the TIP has only partially been implemented in Antisymmetry-based approaches ever since Kayne's (1994) first proposal, since, considering a V and its object, the underlying V – NP order of the first P&P analyses of English has simply been turned into the V – DP order. I will argue that this assumption is not an innocent one, and is actually inconsistent with the general incremental character of the derivation, which I have stated as the TIP; the problem with this theory is that it shows functional structure embedded inside of lexical structure (the N's FPs are taken to be generated below the V head, a lexical item).[2] Solving this problem entails answering two questions: as far as Vs are concerned, we may wonder what the generation site of the direct object could be; as to Ns, we are confronted with the possibility that the derivation of arguments may be started in a structural position and completed in another (higher) one. Let us explore the two issues in turn.

2.1.1. The incremental nature of the verbal derivation

In this work, I will take the very strong position that NI is not simply an instance of a VP where the DP shell of the internal argument has not been projected (as is still claimed by many, e.g. Baker et al. 2004).[3] First of all, I claim that the V – DP underlying structure is actually not a property of human language, the impression of its existence coming from the fact that the V and its DP argument may surface in this order in some languages after the derivation has been completed. This idea is actually quite similar to the one proposed by Hale & Keyser (2002:2) for argument structure:

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[2] One might object that the DP may be embedded under the lexical root because the DP shell is a phase edge. However, the two (syntactic) phases recognized by Chomsky (1999), i.e. *v* and C, still respect the TIP. This suggests that the latter and phase theory should not interact in a mutually exclusive manner; rather, we should revisit the derivation of the DP.

[3] Others (like Koopman 1993) proposed that a DP shell might actually be projected; in this case, NI would be the result not of one movement process, but no less than two: XP-movement of the NP to [Spec, DP] followed by head-movement of N to V. However, as we will see, Koopman & Szabolcsi (2000) do not allow extraction from a specifier.

(2)

```
                    V
          ┌─────────┴─────────┐
         DP                    V
         ╱╲              ┌─────┴─────┐
        ╱──╲             V           R
      the pot                        │
                                   break
```
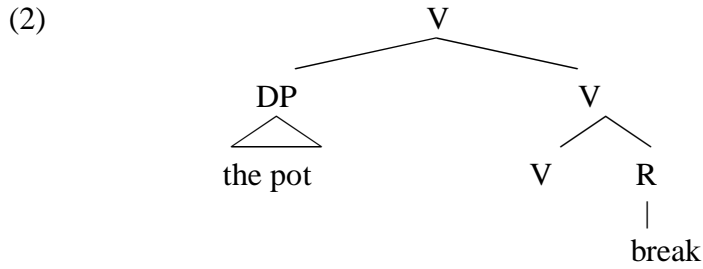
In the authors' account, the verb *break* consists of a verbal host (V) and a root (R), which is the complement of V. This proposal may be translated into a cartographic approach by saying that every instance of *Merge* in (2) actually gives rise to a (lexical) projection; if we take into account some current approaches within Distributed Morphology claiming that lexical compounding is a syntactic process (e.g. Harley 2008 for English N-N compounds; see below for evidence from verbal compounding, i.e. adjunct NI), we can gain further support for this.[4] I will do so in the next section, departing from Hale & Keyser only from a terminological viewpoint, since I use the term *lexeme* for their *root* (Lex instead of R), and *root* for their *verbal host* (√ instead of V, the latter being the abbreviation of the more generic term *verb*).[5]

But how can this fit in the cartography of verbal structure? Building on ideas independently argued for by Damonte (2004) and Schweikert (2005) about indirect arguments (see below section 2.4), I will propose that internal arguments too are generated in dedicated positions of a *thematic field*: theme INs can thus be interpreted not so much as *incorporated* Ns, but rather as *non-excorporated* Ns, since NI turns out to be the result of the fact that the argument stays in its base position instead of moving out to be assigned further functional features.

Now let us focus on the incrementality aspect of the nominal derivation and its implications for NI.

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[4] The idea that some syntactic notions (like 'head') could play a role in morphology can be traced back at least to DiSciullo & Williams (1987).

[5] A part of Hale & Keyser's apparatus, i.e. the transitivity alternation, is not developed here, since my evidence points toward a higher nature of transitivity; this does not totally exclude the possibility of inherent transitivity, but the problem needs independent study, which cannot be pursued here.

2.1.2. The incremental nature of the nominal derivation

If we take NI structures into account, the above observations imply a total reversal of the standard assumptions that INs are the results of movement: INs are, speaking from a morphological viewpoint, most often less derivationally elaborate than DPs; it would thus simply be unnatural to suppose that they could be extracted from a full DP generated as a V complement, thereby losing some of the features they are supposed to have acquired. This is perfectly in line with what Sportiche (2005:43) states for scope reconstruction effects, i.e.:

(3) a. Arguments of predicates are NPs (not DPs).
     b. DPs are not underlying constituents, they are derived constituents.

These statements can straightforwardly be applied to NI structures, though with some refinements: when I introduce morphological phases in the next section, we will give an account of the fact that preverbal INs can vary in size (I will claim that their sizes are determined according to which phase they modify); anyway, they can never be full, syntactically active DPs. On the other hand, postverbal INs can only be heads, and this shows in the fact that they can never be modified. Their differences notwithstanding, both cases conform to (3).[6]

This said, let us now proceed to the three factors that call for an account in terms of morphological phases, i.e. the problem of lexical integrity, the argument vs. adjunct dichotomy, and the adjacency alternation in preverbal NI.

2.2. Morphological phases in the derivation of verbal bases

The concept of morphological phase, though moulded on Chomsky's (1999) idea of a derivation proceeding stepwise by combining together a few clusters of XPs, should not be equated to the concept of syntactic phase (i.e. a syntactic phrase whose complement

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[6] An apparent problem for Sportiche's generalizations seems to be represented by the fact that some INs are interpreted as highly specific, often being translated as full (definite) DPs. However, on the one

can be checked for convergence): it will be seen that the phases postulated by Chomsky (*v* and C) do not fully coincide with my morphological phases (L, *v* and I), which are only based on morphological considerations concerning wordhood.

Second, the concept of XP I use is different from the usual concept of a syntactic object derived from merging a head with a complement, and then the whole complex with a specifier. Quite simply, in my proposal, an XP is anything lying on the right-hand side of a Merge configuration, since, in my proposal, Merge cannot work with two heads, forcing the projection of one as a complement (even when there is nothing else but a head). As will be seen, the reason why I stipulate this is not a preconceived intent of ruling out head-movement, but rather the need of matching syntax with the lexicon in the L-phase.

2.2.1. Morphological integrity and morphological phases

As I pointed out in the introduction, the degree of morphological integrity of INs has never been taken into serious consideration in syntactic treatments of NI; however, the *free* vs. *bound* dichotomy is an important factor in NI constructions, since it is one parameter where languages differ. Let us consider, for instance, ex. (15) from the introduction, repeated here below as (4):

(4)   a.   ***seuan**-ide*   *ti-**mũ**-ban*   [S. TIWA]
            man-AN.SG   1SG.S/3AN.SG.O-**see**-PST
            'I saw the/a man.'

        d.   *ti-**seuan**-**mũ**-ban*
            1SG.S/3AN.SG.O-**man**-**see**-PST
            'I saw the/a man.'

As can be seen, in (4b) a whole N root has been incorporated into the V, and its form is the same as in the free-standing variant (4a). Columbian Salish and the Wakashan language Nuu-chah-nulth, on the other hand, instantiate the bound manifestation of Ns

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hand, an overt D element never appears, even in such cases; on the other hand, since the specificity in question is purely interpretational, it can always be reconstructed on a higher level.

and Vs respectively, as can be seen in (17) and (20) from the introduction, repeated here below as (5) and (6):

(5) a. *táx̣ʷəx̣ʷ wa ʔaʔásqʷsaʔs ʔací smʔámml*   [COLUMBIAN]
         táx̣ʷ-əx̣ʷ wa ʔa-ʔásqʷsaʔ-s   ʔací   s-mʔámm-l
         die-OC /*wa*/ DIM-**son-**3SG.F.P   DET   NMLZ-woman-POSS
         'The woman's little son died.'

     b. *təx̣ʷəx̣ʷált   ʔací   smʔámm*
         təx̣ʷ-əx̣ʷ-ált ʔací   s-mʔámm
         die-OC-**child** DET   NMLZ-woman
         'The woman's child died.'

(6) a. *maakukʷitʔiš   čakup maḥt̓ii*   [NUU-CHAH-NULTH]
         maakuk-mit-ʔiš   čakup maḥt̓ii
         buy-PST-IND.3SG.S   man   **house**
         'A man bought a house.'

     b. *maḥt̓aʔamitʔiš   čakup*
         maḥt̓a='aap-mit-ʔiš   čakup
         house=buy-PST-IND.3SG.S   man
         'A man bought a house.'

The nominal affix in (5b) cannot appear as a free-standing word; hence the need to replace it with a more specific N. On the other hand, in (6b), it is the verbal affix that cannot be used as an independent root: its analytical paraphrase makes use of a different form. As pointed out in chapter 1, Wiltschko (2009) claims that Salish lexical suffixes are √*roots*, i.e. acategorial lexemes that have not yet undergone categorial specification (and have not received referentiality, which she assumes to be assigned by an abstract argument in the Spec of *n*P, a functional projection that validates the categorial identity of a lexical item, licensing its syntactic use by making it free-standing); on the other hand, Wojdak (2005) assumes Wakashan affixal predicates to be V heads that are lexically specified as affixes. These two explanations start from very different assumptions; however, if we start from the assumption that the verbal derivation and the nominal one should be isomorphic, these two accounts could be combined. In a way, I endorse Wojdak's assumption that the *free* vs. *bound* dichotomy is registered in the lexicon, only

I assume that this lexical dichotomy is actually the result of a compounding process, which is carried out by the syntactic operation *Merge*. This process is lexical only in the sense that it takes place in a "pre-syntactic" stage of the derivation, which I call the *Lexical Phase* (henceforth *L-phase*). This stage is to be understood as a *Morphological Phase*, a concept which could be defined as follows:

(7)   A *Morphological Phase* is a segment of the syntactic derivation that languages may use as an incremental morphological boundary in order to define wordhood for a particular category.

The phase I am talking about is the lowest possible one, and derives lexical items by means of compositional and derivational processes. Of course, there are other morphological phases, and this pairs up with the fact that there are analytic and synthetic languages; the difference between them may be that they activate different numbers of Morphological Phases in an implicational fashion, higher ones implicating lower ones. In this sense, morphological phases are *incremental boundaries.*

About lexical suffixes and affixal predicates, I propose that they are both structurally deficient in some way, i.e. both lack one component, which is responsible for the free-standing status of the root. I call this the $\sqrt{}°$ (root) component, which I claim is compounded in a lexical projection I call $\sqrt{}$P.[7] This projection is not to be equated with a category-checking projection, however (which will be the edge of the phase, as we shall see): categorial validation is a derivational process, whereas $\sqrt{}$P is conceived as the compositional side of the process, and is only responsible for the *free* vs. *bound* dichotomy. In short, Wojdak's claim may be maintained only in the sense that the compounding process yielding free-standing roots takes place in the L-phase (in $\sqrt{}$P), not in the sense that free and bound Vs are two types of heads with different morphological behaviors; on the other hand, Wiltschko comes closer to my point, since in her account, a functional process (category-checking, higher than $\sqrt{}$P) is involved below which lexical items are still roots, but I argue that this process is distinct from the affixal or free-

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[7] I call all the structural projections of the lowest phase *lexical projections* (and not *functional*) in order to avoid a conflict with the widely accepted generalization that functional structure can only be projected after argument structure. In other words, the processes of the lowest phase are *compounding* processes (except for CatP, see below), and therefore I also talk about *components* rather than *features*.

standing status of the root itself. This does not show in English or in polysynthetic languages, but evidence can be seen in Italian if we consider the two affixal predicates -*(i)fer-are* and -*(i)fic-are* (the latter corresponds to English -*ify*). In English (Harley 2008), these are considered verbalizers (i.e. *v*P heads), but this does not carry over to Italian, where the verbalizer is the -*a* theme vowel. I consider these *affixal predicates*, rather than *verbalizers*: the crucial point to note is that the theme vowel (the true verbalizer) does not turn the affixal predicate into a free-standing root; this calls for a finer-grained distinction than Wiltschko's, which is what I attempt in the present section.

Returning to our examples, in the Tiwa case, a nominal √P is combined with a verbal √P; on the other hand, Columbian has a verbal √P merged with a N whose √P has not been projected. About Wakashan affixal predicates, we can say that it is the V which does not have a projected √P (since the IN *maḥta*- shows a weakly suppletive variant of its equivalent free-standing form *maḥt̓ii*, I cannot decide whether this is a case of lack of a √P or just one of phonologically motivated allomorphy).[8] An element lacking the √° component is not in itself a root, but rather has good chance of surfacing as an affix (mainly a suffix).[9] An element which has been compounded with a √°, on the other hand, doubtless qualifies as a root.

Moreover, unlike Wiltschko, I assume that roots do not necessarily have to be acategorial, since the validating process may consist in *confirming* or *changing*, rather than *assigning* a categorial feature. It is reasonable to suppose that at least a partial categorial identity is already contained in a lexeme. At the present stage, we cannot know more about the real identity of the feature assigned in √P: it certainly has to do with referentiality, but it is not the sole responsible for it (since lexical suffixes, for

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[8] Johns (2005) assumes Eskimo and Wakashan affixal predicates to be instantiations of *v*° heads without a lower root part. This analysis takes exactly the opposite stand of what I assume: as Wiltschko (2009) notes, however, there would be no difference in structural size between *light Vs* and normal Vs, if all are *v*Ps; moreover, a *v*P head should host a verbalizer, and, as I said above, Italian shows affixal predication constructions where the verbalizer and the affixal predicate are clearly distinct.

[9] I say that they have *good chance* of being affixal and not that they *must* be so, since I leave open the question of whether this analysis may carry over to European languages like German or Italian, which have full verbal root lexemes that can only be used as bound, e.g. Italian *espellere* vs. **pellere*, or German *vergessen* vs. **gessen*. These would be Lex°s without a √ component; the matter needs further investigation.

instance, can be interpreted as referential).[10] Under this view, √P and categorial validation could be interpreted as two incremental degrees of referentiality.[11]

At this point, another phenomenon must be taken into account, i.e. adjunct NI: in 2.2.2 below, I will propose (following ideas already expressed by Baker 1996) that this parallels N-N compounding and takes place in a lexical projection taking scope over a √P (and implying it): I call it *Modifier Phrase* (ModP), since it is to be conceived as a site dedicated to semantic (pre-thematic) compounding.

But what is there below √Ps? I argue that lexemes (both Ns and Vs) remaining below the root projection are still XPs, or better, they are heads which must project when they are merged with the √° component; this is because the latter itself is a head, and as such requires an XP complement. In turn, √° must project when it is merged as the complement of the higher ModP. The fact that a head must project in order to become a complement requires some defense, since the issue conceals the more profound and complex issue of the origin of Antisymmetry itself. If we accepts Antisymmetry, we are led into wondering why it should be that some syntactic objects must be in a relation of asymmetric c-command with others, and symmetric c-command is totally ruled out; or at least, it is partially ruled out, because, as Barrie (2006) notes, there is one case where symmetric c-command is generally tolerated within Antisymmetry-based theoretical literature, i.e. the complex heads produced by head-movement. These clearly c-command each other symmetrically, but this problem has almost never been felt as a priority. Yet, in recent literature, head-movement analyses have increasingly been losing ground to analyses in terms of XP-movement, and thus the question is worth investigating. In his analysis of (preverbal) NI, Barrie (2006), building on ideas by Moro (2000), proposes a way out of this problem by assuming that the derivation starts from the merger of a V head with a N complement; this, however, would create an instance of symmetric c-command, which is assumed to be resolved by moving the complement head so that it projects as a specifier of the V head. Thus, an XP is created, which can then move as an XP. Though appealing, this solution has several problems: first, it still preserves the

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[10] There are also other inherent features that are relevant to NI, but cannot be dealt with here: for Vs, these include control, as can be seen from the out-of-control morpheme in (4a), as well as the so-called *Aktionsart*; for Ns, these include features like alienability or the *mass* vs. *count* distinction.
[11] A third degree of referentiality will be introduced in 2.3.3 as ClassP, and full referentiality, of course, is a function of the DP shell.

assumption that NI is caused by syntactic movement (which, paradoxically, is the movement of a head, notwithstanding the fact that it should serve precisely to eliminate head-movement); second, it permits a head as a specifier, a possibility which is generally not allowed in the literature; third, it turns the V and the IN into one single XP, when our aim is to show that NI can perform various functions, and therefore it needs several projection at all levels, including the verbal root itself. Indeed, if applied to the compounding process between a √ and a lexical item (Lex°), as seen in (8a), this technique shows the same problems as Barrie's version of the N - V compounding (8b):

(8)   a.   ModP   b.   VP
            Mod°   LexP   N°   VP
                    √°   LexP   V° $t_{N°}$
                        Lex° $t_{√°}$
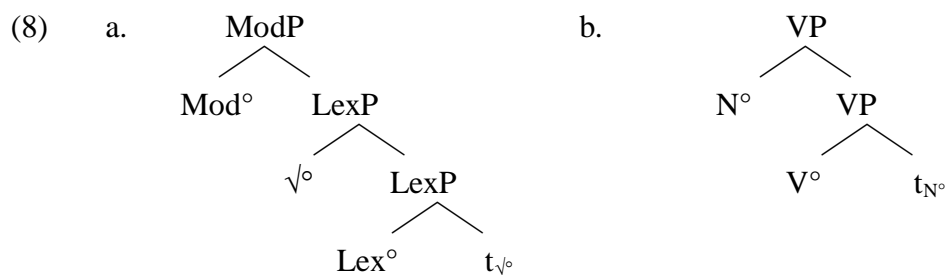
For these reasons, I will not assume that Antisymmetry is derived from the need to resolve symmetric c-command. At this point, there are two alternatives: we could either assume abstract specifiers for both LexP and √P (for which there is absolutely no evidence), or else assume that Antisymmetry is a fundamental property of syntax, already contained in the *Merge* operation. Along these lines, a Lex° is in itself a head, but it is forced to project an XP (even though an empty one without a complement or a specifier) when it merges with the √° head.[12] The same goes for the √° head when it merges with the higher ModP. I assume the phase to be closed by the category-checking projection: I call it CatP. This is the 'edge' of the phase, to resume Chomsky's (2000) terminology: it performs the same function as Distributed Morphology's categorizing phrases (*n*P, *a*P, *v*P).[13] Recall that I assume that the morphological integrity of a root is instantiated by the

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[12] This supports Kayne's version of X-bar theory, whereby all specifiers are adjuncts, and the first instance of Merge already creates an XP; indeed, this is the view I have adopted. Moreover, it suggests that the concept of XP should itself be rethought, since an XP comes to be anything that is merged with a head, irrespectively of whether other constituents (complements or specifiers of the complement head) are present.

[13] In my data, these include derivational processes (like denominal Vs and deverbal Ns), as well as categorial morphology of Ns (like Nahuatl *pan-ci* 'bread'). As I said, CatP might instantiate part of the

presence of a √° component, whereas category-checking takes place in CatP; this distinction is necessary if we want to give an account of why NI takes place and in what form. I will illustrate this in some detail, considering the case of verbal roots: I assume the Cat° head to specify one feature, which has to do with the semantic completeness of the lexeme/root; I call this the *full-specification* feature, and will represent it as [+/-full]. Let us see now how this combines with the presence vs. absence of the √° component. With 2 variables, we should get 4 possible combinations: first of all, a √P with [+full] categorial specification doesn't need anything else, and can qualify as a free-standing root (9a); second, [+full] categorial specification cannot be assigned to a LexP without a √° component (9b, which would yield a free-standing affixal predicate, a contradiction in terms); third, a [-full] categorial specification feature can be assigned to a √P (9c), and I argue that this is the case of true NI; finally, a LexP without a √° component will fit perfectly with a [-full] categorial feature, yielding an element with verbal nature, which however cannot build a predicate on its own with the equipment provided by the L-phase:

(9)   a.   *Free-standing V*   b. *
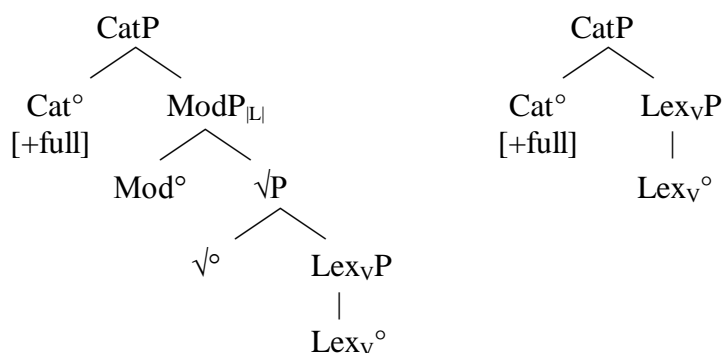
---

c.   *Incorporating V*   d.   *Affixal Predicate*

CatP

Cat° [-full]   ModP₍L₎

Mod°   √P

√°   Lex_VP

Lex_V°

CatP

Cat° [-full]   Lex_VP

Lex_V°
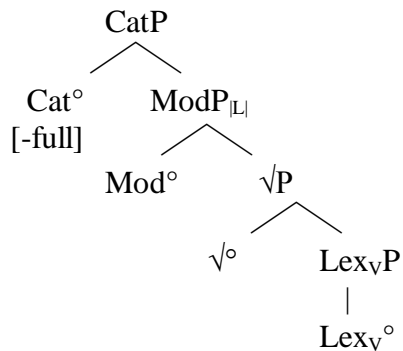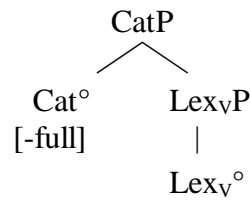
Incorporating Vs and affixal predicates will have to proceed to the next phase in order to achieve structural completeness. However, while (9a) always gives universally grammatical configurations, and (9b) universally ungrammatical ones, (9c-d) may be parameterized, since there are languages which do not allow true NI, and probably the same applies to affixal predication.

The important thing to note here is that, unlike previous accounts of NI, in my proposal the triggering factor for NI is not the lack of definiteness in the IN, but rather a negative feature value for a functional process in the V. This will fit with the fact that the only movement involved in NI will prove to be V-movement (and not N-movement, as previously thought).

2.2.2. The *argument* vs. *adjunct* dichotomy and the lower phases

I will now explore in greater detail the internal structure of the morphological phases that play some role in NI constructions. I argue that there are three such phases: first of all, *adjacent NI* can happen inside of the L-phase or within the closest higher phase (which I call the *Thematic Phase*, or *v-phase*, coinciding with the thematic field, with *v*P as its edge); moreover, preverbal NI may also modify the *v*-phase or the highest one (the *Agreement Phase*, or *I-phase*, whose edge is the highest projection of the IP, whatever that be). The latter cases will instantiate what I call *semiadjacent* and *nonadjacent NI*, as defined in the introduction. For clarity, I will provide right away a preliminary hierarchy, which will be refined as the discussion proceeds (morphological phases are indicated as

|I|, |v| and |L|, Th(eme)P being one of the possible generation sites of thematic patients, and Appl(icative)P any generation site for an indirect argument):

(10)   *The Noun Incorporation Hierarchy of Verbal Structure (first approximation)*
ModP$_{|I|}$ (*nonadjacent NI*) > |I| ... ModP$_{|v|}$ (*semiadjacent NI*) > |v| vP >
ApplP (*adjacent NI*) > ThP (*adjacent NI*) > |L| CatP$_V$ > ModP$_{|L|}$ > √P > Lex$_V$P

The most important argument for this issue is the *argument* vs. *adjunct* dichotomy. It has been observed by many researchers (e.g. Mithun 1984) that NI is not restricted to themes; rather, it may involve a wide array of elements entertaining various semantic relations with the incorporating V; Evans (1995:75) gives the following list for Mayali: *instrument*, *location*, *destination* (or *goal*), *source*, *manner*. Comitative and benefactive arguments may be incorporated together with special applicative morphology. An interesting question is whether these different roles can be organized in a hierarchy along the lines of the one proposed by Damonte (2004:90) for the thematic field (corresponding to my *v*-phase):

(11)   *The Universal Hierarchy of Thematic Functional Projections*
... > BenefactiveP > Malefactive/Goal/Source/ReasonP >
Instrumental/Manner/LocativeP > ... >
Assistive/Comitative/AssociativeP > ...

According to this hierarchy, NI of *instrument*, *manner* and *location* arguments should be less marked than that of *goals* and *sources*. On a preliminary investigation, this seems to be borne out, since the former is statistically more common; thus, we could organize the data in an implicational form like the following:

(12)   *The Role Hierarchy of Pre-thematic Adjunct INs*
Goal, Source > Instrument, Manner, Location

However, it remains unexplained why comitative adjunct INs (which are low in Damonte's hierarchy) are so rare: Launey (2003:121) quotes one example from Nahuatl, which is the only case without applicative morphology I have in my corpus, and its

interpretation is not completely clear. Moreover, Damonte was able to organize his data into a hierarchy of functional projections on the basis of applicative morphology actually occurring in the languages of his sample: in my data, however, no clear examples of double adjunct NI occur, and therefore I cannot turn this two-step hierarchy into a hierarchy of structural projections. But let us see why we have to distinguish pre-thematic (or "lexical", to resume Baker's term) adjunct IN from its thematic counterpart (occurring in the higher v-phase), always keeping in mind the hierarchy in (10), especially the segment $ApplP > ThP > |L|\ CatP_V > ModP_{|L|} > \sqrt{P} > Lex_VP$, where $ApplP$ and $ModP_{|L|}$ are the two projections involved in the alternation.

2.2.2.1. Bare INs as adjuncts

The following Chukchi examples (Spencer 1991:457-8) illustrate the incorporation of bare Ns with oblique roles (these examples have all an analytical equivalent with the N in the instrumental case):

(13) a.   *ənnə-**tke**-rkən*   [CHUKCHI]
                fish-**smell**-3SG.S
                'It smells of fish.'

      b.   *muu-**lqət**-gʔet*
                caravan-**leave**-3PL.S
                'They left as a caravan.'

      c.   *mə-**pilg**-**ejŋe**-gʔek*
                IMP-**throat**-**cry**-1SG.S
                'Let me cry out from my throat.'

(13a,b) are doubtless manner adjuncts; (13c), instead, could be interpreted either as manner or source (though the former seems more plausible). The incorporation of true instrumentals, on the other hand, is worthy of special attention, since there is at least one example in the literature that indicates a high discourse salience for INs of this kind, a fact that would be totally unexpected if adjunct NI took place in the lexicon (as Baker

1996 claims). Let us consider the following short conversation in Huauhtla Nahuatl (Merlan 1976:185):

(14)   a.   *kanke eltok   kočillo na? ni?neki*   [H. NAHUATL]
            where 3SG.S-is knife   I   1SG.S-3O-want
            amanci
            now
            'Where is the knife? I need it now.'

        b.   *ya? kikočillotete?ki panci*
            *ya?   ki-Ø-**kočillo**-**tete?ki** panci*
            he   3SG.S-3O-**knife**-**cut**   bread
            'He cut the bread with the knife.'

In these examples, the V stem *-tete?ki* 'cut' selects for the incorporation of a N naming the instrument by which the action takes place. Baker (1996) assumes that examples like these are instances of lexical NI (as opposed to syntactic NI). It appears from the above examples, however, that the difference in discourse salience between the free-standing N and the IN is of the same kind as that between DP arguments and theme INs in languages with Type III NI (i.e. *new information* that becomes *given* or *known*). This sensitivity of morphology to the interface with pragmatics strongly reminds the facts exposed in Belletti (2004) about the so-called *low periphery*, and we could even be tempted to analyse (14b) as a case of NI taking place inside of the low periphery (after all, it still appear inside of agreement, i.e. below the high IP area). However, there is a problem with this hypothesis. The facts analysed by Belletti as involving the low periphery all involve *words*, not *morphemes*; moreover, the fact that, in my analysis, the highest morphological phase coincides with IP (CP never being a morphological phase) also suggests that verb-internal morphology is not involved in the high periphery either. Now, since the differences between high and low periphery are mainly based on the position of words (no functional difference), I expect that, if the high periphery is not involved in V-internal morphology, neither should the low periphery have anything to do with it.[14] The

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[14] An analysis of (14b) in terms of the low periphery could perhaps become possible if we considered the agreement markers to actually instantiate clitics, in which case the word boundaries of the verbal complex would have to be redefined. This is not the standard assumption for Nahuatl, and will not be pursued here. It must be said, however, that this hypothesis is by no means unreasonable, given the

high discourse salience of the IN in (14b) is probably due to a higher-level reconstruction effect. As to the word-formation process deriving it, I assume that it takes place in a morphological phase whose task is to derive lexical items (the L- phase). Preverbal adjunct INs like (14b) should be generated in ModP$_{|L|}$. The high transparency of this example seems to suggest that the components of roots are visible to the syntax, even though impenetrable to it, a fact that reminds Chomsky's (2000) *Phase Impenetrability Condition*.

But why should bare adjunct INs be a part of the L-phase? Couldn't they be generated in higher thematic projections, where the PPs with the semantically analogous θ-roles are projected? I think the answer is negative, and there is one strong piece of evidence supporting this assumption: double NI robustly shows that the adjunct IN comes closer to the V than the theme IN. This topic will be further developed in chapter 4; for now, the following Chukchi examples will suffice (Kurebito 1998:107-8):

(15) a. *t-ə-**kuk-iml-ə-nilu**-gʔek*   [CHUKCHI]
    1SG.S-LNK-**pot**-**water**-**wash**-1SG.S
    'I washed out the pot with water.'

   b. *kuke-ŋə   t-**iml-ə-nilu**-gʔen*
    pot-ABS.SG   1SG.S-**water**-**wash**-3SG.O
    'I washed out the pot with water.'

   c. **t-ə-**kuke-nilu**-gʔek*   *miml-e*
    1SG.S-LNK-**pot**-**wash**-1SG.S   **water**-INS
    'I washed out the pot with water.'

This example shows double NI of a direct object and an instrumental adjunct (15a); but the direct object can only be incorporated if the adjunct has (b,c), and the order of the incorporees in (15a) violates all assumptions about a thematic hierarchy. The only possible explanation is that the two INs belong to two different phases (the instrumental in the ModP of the L-phase and the object in the *v*-phase).

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almost total lack of internal *sandhi* between the components of the NI construction. The matter is worthy of further investigation, which cannot be carried out here anyway.

It could be thought, though, that the adjunct appears closer to the V because it is introduced by a null applicative that would advance it to the status of an applied object:[15] in this case, the adjunct IN could occupy the position of [Spec, InstrP], and the theme IN would be in a [Spec, ModP] outside of the *v*-phase. However, there are several problems with this explanation: first, I have never found any cases of double NI where one IN is introduced by applicative morphology; second, there is no evidence that the argument structure of the Vs in (14) or (15) is increased in the way an applicative would do; third, the only applicatives that do trigger NI of the applied object are prefixal and overt, and neither Nahuatl, nor Chukchi, nor any other language with adjunct NI seems to have this kind of applicative morphology. For these reasons, I think that the INs in (14) and (15) are not applied objects, and therefore, the only possible explanation is to suppose that they are generated in [Spec, ModP] of the L-phase.

But incorporated applied objects do exist, anyway: let us briefly survey a few cases.

2.2.2.2. Adjunct NI with applicative morphology

As I said, applicative formation may interact with NI; in this section, my aim is to show what shape this interaction may assume with respect to the hierarchy in (10). I will show that there are two parameters that can give rise to variation, i.e. on the one hand whether the NI process targets the *underlying object* or the *applied object*, and on the other hand whether NI is *adjacent* or *semiadjacent*.

To illustrate the various stages of the interaction, let us consider the following Ainu examples (Shibatani 1990:68):

(16) a. *nea cep **pone tura** a-kuykuy*   [AINU]
          that fish **bone with** 1SG.S-bite
          'I bit that fish with its bones.'

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[15] This idea was suggested to me by Federico Ghegin (p.c.).

b. *nea cep **pone** a-**ko**-kuykuy*
that fish **bone** 1SG.S-**APPL**-bite
'I bit that fish with its bones.'

c. *nea cep a-**pone-ko**-kuykuy*
that fish 1SG.S-**bone**-**APPL**-bite
'I bit that fish with its bones.'

As can be seen in (a), a comitative adjunct can occur as an independent PP in the clause (licensed by the comitative postposition *tura*); in the (b) example, instead, applicative formation has taken place, and the comitative argument has been promoted to the status of an applied object, thus giving rise to a double-object construction (the V has incorporated an applicative morpheme which simultaneously serves the functions of dative, goal and comitative). Finally, in (c), the *applied object* (and not the underlying object) appears incorporated in the complex V, leaving the underlying direct object stranded. These data suggest that, with applicative formations, the applied object becomes structurally closer to the complex V than the underlying internal argument. As to the second dichotomy introduced above, we can say that (16c) instantiates *semiadjacent NI*, since the IN comes outside of the applicative prefix. Even more revealing data in this sense come from the Gunwinyguan language Mayali (Evans 1995:81):

(17) a. *ngan-**bo-yi-na**-ng*   [MAYALI]
3.S/1.O-**liquid**-**COM**-**see**-PST.PFV
'He saw me with the drink.'

b. *aban-**bo-yi-warlkga**-ng*   *yerre*
1.S/3PL.O-**liquid**-**COM**-**hide**-PST.PFV   behind
'I hid the drink with the people behind.'

In (17a), the applied object appears incorporated, whereas in (17b) NI targets the underlying internal argument; both cases are semiadjacent, but they alternate as to what appears incorporated. Not all applicative morphology behaves in the same way, however, since benefactive applicatives occur outside of the IN:

(18)   *abanmani-**marne-ganj-ginje**-ng*   [MAYALI]
       1.S/3DU.O-**BEN**-**meat**-**cook**-PST.PFV
       'I cooked meat for the two of them.'

In this case, the IN is the underlying direct object, but the incorporation is adjacent notwithstanding the presence of the benefactive applicative prefix.

So much for *preverbal* adjunct INs; the only attested cases of *postverbal* adjunct INs show incorporation of an element in thematic position, as can be seen in the following Sora example (Anderson & Harrison 2008:356):

(19)   *ɲen   aj-**ja:-dar-si:**-am*   [SORA]
       I   NEG-**receive**-**cooked.rice**-**hand**-2.O
       'I won't receive rice from your hand.'

In this case, the body-part term 'hand' fulfills the role of a source, and it is clearly generated in the position where we would expect applicative formation to take place.

To sum up, we have seen that NI may interact in various ways with applicative formation:

  ➢ An incorporating N-V complex may take on applicative morphology (*adjacent NI*);
  ➢ A verbal root extended by an applicative morpheme may incorporate its applied object or its underlying direct object (*semiadjacent NI*);
  ➢ Heads of thematic projections may be incorporated as Ns in postverbal position.

What we haven't seen in our data, instead, is an adjacent N-V complex occurring with an applicative construction where the IN is the applied object. This gap is surely not accidental, since, in such a configuration, the applied object would have to occur below its projecting applicative head. This means that we should refine our initial statement about the dual source of variation in these constructions (i.e. incorporation of the *underlying object* vs. that of the *applied object* and the *adjacent* or *semiadjacent*

position of the IN), since the two parameters appear to be implicational, in the sense that the *θ*-role alternation presupposes semiadjacent NI. We can thus say that, in NI constructions occurring together with applicative formations, NI can be *adjacent* or *semiadjacent*. If it is semiadjacent, then the IN may instantiate the *underlying object* or the *applied object*.

Another interesting fact we could observe about these constructions is that the applicative affixes incorporating applied objects are all prefixal (Mohawk has a suffixal benefactive applicative, but it can only interact with NI of the direct object, as in (42) below). This follows from the fact that an indirect argument (generated in any ApplP) will have to occupy the Spec of its projection, thereby blocking the movement of the V, which could move to the Spec of the ApplP in question if that were vacant. This is captured only if we assume that V roots are XPs (head-movement would derive the unattested cases).

But what do these data tell us about the cartography of morphological phases? Apart from the universally accepted generalization that direct objects are merged in a position lower than that where applied objects are generated, a theme IN may occur in two distinct positions in the lower phases: in its base-generation site in the *v*-phase (what I will term ThP_{DO}), as well as in the Spec of a ModP that modifies the *v*-phase as a whole. In the former case (the standard case or the one seen in (18) with the benefactive applicative), the IN will surface inside of the applicative morpheme (in adjacent position), with the following structure:

(20) $|v|$ ... [$_{BenP}$ ... [$_{BenP}$ *marne-*]] ... [$_{ThP}$ <u>IN</u> [$_{ThP}$ Ø]] ... $|L|$

In the Mayali case (17b), where the theme IN surface outside of the comitative applicative prefix, the derivation will look as follows:

(21)   a.   [$_{ModP|v/}$ Ø]]$|v|$ … [$_{ComP}$ ... [$_{ComP}$ *yi-*]] ... [$_{ThP}$ <u>IN</u> [$_{ThP}$ Ø]] ... $|L|$
       b.   [$_{ModP|v/}$ <u>IN</u>$_i$ [$_{ModP|v/}$ Ø]]$|v|$ … [$_{ComP}$ ... [$_{ComP}$ *yi-*]] ... [$_{ThP}$ t$_i$ [$_{ThP}$ Ø]] ... $|L|$

This structure only accounts for (17b), where the IN is the underlying object; (16a), as well as the Ainu example (16c) ─where the IN is the applied object─ will have to be

explained by assuming that the IN is generated in [Spec, ComP] and then moves to [Spec, ModP$_{|v|}$]).

These analyses all assume that the IN should move as an XP; this prediction seems to be borne out, since these alternation only concern preverbal INs, which I argue to be XPs in structure. In the Sora case (19), INs are heads, and indeed they don't move, since they surface to the right of the moved XPs.[16]

I will now introduce some aspects of the highest phase (which takes scope over the whole IP field) and its interactions with NI.

2.2.3. Adjacency and the I-phase

As noted in the introduction, preverbal NI has a special feature that distinguishes it from postverbal NI: it can vary in its distance from the incorporating verbal host. So far, we have seen *adjacent preverbal INs* generated inside of the innermost morphological phase (adjuncts in [Spec, ModP] of the L-phase), others in their base-generation site (themes in [Spec, ThP] of the *v*-phase); yet others (themes or applied objects) modifying the *v*-phase as a whole (in a projection I term ModP immediately above the edge of the phase, *v*P): these are *semiadjacent INs*.

But there is even a fourth possibility, since, as I pointed out in the introduction, some language families like Athapaskan and Siouan display a preverbal NI pattern in which the IN is located outside of verbal agreement: I call these *nonadjacent INs*. This can be seen in the following example from the Alaskan Athapaskan language Koyukon (Axelrod 1990:185):

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[16] The Sora example (19) can be derived by my theory of NI in the following three steps:

(1)   a. $|v|$ ... [$_{SourceP}$ Ø [$_{SourceP}$ *-si:*]] ... [$_{ThP}$ Ø [$_{ThP}$ <u>IN</u>]]|L|[$_{CatP}$ Cat° [$_{\sqrt{P}}$ *-ja:*]]

         b. $|v|$ ... [$_{SourceP}$ Ø [$_{SourceP}$ *-si:*]] ... [$_{ThP}$ *-ja:*$_{i}$ [$_{ThP}$ <u>IN</u>]]|L|[$_{CatP}$ Cat° t$_{i}$]

         c. $|v|$ ... [$_{SourceP}$ [$_{ThP}$ *-ja:*$_{i}$ [$_{ThP}$ <u>IN</u>]]|L|[$_{CatP}$ Cat° t$_{i}$]$_{j}$ [$_{SourceP}$ *-si:*]] ... t$_{j}$

In (a), the source IN, the direct object IN and the V root all appear in their base-generation site; in (b), the √P of the V has moved to [Spec, ThP] (we will see that this is the device I will propose to account for postverbal NI); in (c), the whole V-IN complex has moved to [Spec, SourceP], leaving the source IN stranded to its right.

(22)   *kk'osots'eeyhyeełtaayh*   [KOYUKON]
       kk'o -**sots'eeyh** -*ye* -*ee* -*ł* -**taayh**
       around-**happiness**   -3SG.O-TMA -CAUS -**lie(NPL.AN.S)**
       'S/he is very happy', lit. 'happiness carries him/her around.'

As can be noted, the IN (an abstract N fulfilling the unusual role of transitive subject) comes between an adverbial directional prefix and object agreement, which happens to be the outermost agreement position in Athapaskan (in the Siouan language Crow, on the other hand, it seems to occupy the same slot as the IN, with which it never co-occurs). I analyse this by assuming that another ModP is projected outside of the IP field, thereby avoiding the difficult question of deciding which FP is highest in the Agreement field (a widely accepted version is that this is AgrSP: this would fit nicely with some polysynthetic languages, but not with Athapaskan or Siouan languages). A possible analysis for (22) would thus be the following:

(23)   a.   [$_{ModP[I]}$ Ø]|I| ... |*v*|[$_{vP}$ *sots'eeyh*- [$_{vP}$ Ø]] ... |L|
       b.   [$_{ModP[I]}$ *sots'eeyh*$_i$ [$_{ModP[I]}$ Ø]]|I| ... |*v*|[$_{vP}$ t$_i$ [$_{vP}$ Ø]] ... |L|

As can be seen, the subject is generated in its canonical site, *v*P, and then moves to [Spec, ModP$_{[I]}$]. It comes as no surprise that a transitive subject IN should appear in this position: the properties of what can stay in ModP$_{[I]}$ are parameterisable, but a common feature is that this projection may host the structurally highest (and often most specific) of all INs.[17] In chapter 4, I will show that INs in ModP$_{[I]}$ can even take possessive markers in the Athapaskan language Slave, whereas in Crow, cases of incorporation of whole relative clauses are reported: this specificity has to do with Sportiche's idea that the higher functional structure of NPs is assigned in the higher functional field of the

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[17] Apart from Athapaskan, the ability to incorporate transitive subjects is found, again, only in Sora (Ramamurti 1931, quoted in Anderson & Harrison 2008:356):

(1)   *ɲam-kid-t-am*
       seize-tiger-NPST-2O
       'Tiger will seize you.'

Here, the subject IN seems to appear as a head in its thematic position (*v*P), not in the ModP of the I-phase; in the absence of more data, I have no explanation for this exception.

clause, but the precise details are yet to be worked out. I will return to these facts in chapter 4.

As we have seen in this section, XP-movement is necessary for the theory of morphological phases, since it is needed to account for semiadjacent and nonadjacent NI. Now, having discussed all the main cartographic positions that INs can take, we will see how the combination of XP-movement and the theory of morphological phases allows to capture the most problematic issue concerning canonical (theme) NI, i.e. the directianlity alternation. To understand this, we must be precise in our assumptions regarding the theory of movement.

2.3. Head vs. XP status of INs: the evidence

One of the most debated questions in contemporary syntactic theory is doubtless whether head-movement and XP-movement can co-exist in the derivation, or better still, whether head-movement exists at all. In their analysis of inversion phenomena in Hungarian, Koopman & Szabolcsi (2000:31) state the following:

(24)   *XP-movement*
        The V(erbal)M(odifier)s (i.e. verbal prefixes, AM) and verbs that move are XPs; they land in designated specifier positions. The illusion that heads are moving is due to the fact that nonhead material, if there is any, is removed from the XP.

In other words, according to the authors, XP-movement is all that is needed to explain complex verb formations. This approach allows to explain marked orders as a result of the movement of complex constituents; moreover, it allows long-distance movements (whereas heads are supposed to obey the Head Movement Constraint postulated by Travis 1984), and the theory is more restrictive as to what can move and what must remain *in situ* (a complement XP can only move when its complement has moved or together with the latter, and it cannot move if its landing site is already filled by a specifier; specifiers can freely move to higher positions, but extraction from a specifier is banned). To decide whether these facts are all advantages is not the goal of my work;

what I claim is that this kind of theory will allow me to match the data on NI with the observations on morphological phases made so far.

A debated point is whether a complement XP may or may not move to the Spec of its own projection: Koopman & Szabolcsi explicitly allow this, but this is controversial. Judging from my experience with analysing the data in this work, I think there are reasons to suppose that a constraint could be active in the low portion of the L-phase (the relevant evidence being the directionality of prethematic adjunct NI, which is always preverbal, i.e. a √P cannot move to its ModP), but at the phase edge (CatP), my data seem to show that √Ps move to [Spec, CatP] in order to pick up their categorial morphology (this seems to be the case of Romance theme vowels in Vs or Mohawk nominalized INs, cf. 4.1.1.2), unless a null ModP is left stranded by the XP-movement of √P (this would be a pure stipulation, since I have no data to support this claim). As a working hypothesis, I will suppose that a complement XP cannot move to the Spec of its own projection, unless this projection is the edge of a morphological phase.

An interesting fact is that XP-movement could allow us to postulate a radical distinction between prefixation and suffixation, if prefixes are understood as specifiers filling the sites that would otherwise host XPs which could move there from lower positions; suffixes turn out to be the heads left behind by XP-movement.[18] This assumption allows us to give an account of the difference in phonological cohesion between a morphological base and its suffixes on the one hand, and between the base and its prefixes on the other hand: it is well known (see a.o. Hyman (in press) for a very clear study of this problem, exemplified with data from Bantu morphology) that a root is phonologically much more tightly bound with its suffixes than its prefixes. We could thus replace the traditional dichotomy setting roots apart from affixes with a new one that allows us to distinguish roots and prefixes on the one side, and suffixes on the other.

Moreover, I find Koopman & Szabolcsi's theory to be a good implementation of my TIP exposed in (1) in that a complement XP can only move when its complement has moved. This will fit nicely with my cartography of the verbal derivation, since it implies

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[18] A theoretical consequence of remnant movement is the requirement of a more relaxed notion of c-com-mand, since the cyclical iteration of XP-movement results in making it impossible for a moved element to properly c-command its trace.

that FPs cannot move if the V has not moved: this will be borne out precisely by my theory of NI.

As far as head-movement is concerned, we will see that my data can all be accounted for without resorting to this device; therefore, head-movement will play no role in this work. In fact, the authors assume that head-movement is possible if only one head is phonologically overt; I can neither prove nor disprove this claim. Heads play a different role in my theory: they do not move, rather they are left behind by XP-movement and will most likely surface as suffixes. Of course, I claim that this assumption holds only as far as NI constructions are involved: I do not make the totally radical claim that head-movement should not exist at all, since I have not yet explored all the possible functional processes in the wider structure of the clause. Others can do this better than I.

Another interesting issue is posed by Koopman & Szabolcsi's *Generalized Doubly Filled Comp Filter*, whereby a projection may not have, at the end of the derivation, both its head and its Spec filled. I certainly agree that no projection may have both a base-generated head and a base-generated Spec both remaining in their base position: this is not a universally accepted generalization, and therefore it requires some defense. The problematic case in my corpus could be the interactions between NI and applicative formations discussed above in 2.2.2.2, where an applicative head is projected and the applied object is incorporated (yielding the surface order AppliedO-APPLICATIVE-V); however, as said earlier, there is no need to suppose that the applied object should be in its base position, since it can XP-move into [Spec, ModP$_{[v]}$], one of the possible positions for INs. However, this does not mean that one projection may not generate both a head and a specifier: it may do so, but if that is the case, the Spec will have to move out.

In the following sections, what I will do is I will try to motivate my claim that preverbal INs are all XPs, whereas postverbal ones are all heads, unless postverbal NI is produced by VP-raising (for which diagnostics are available, but which is strictly speaking not a case of NI and will not be dealt with in this work). Let us now take a closer look at the data.

2.3.1. Directionality of NI

Having introduced the concepts of Morphological Phase and XP-movement, I will now proceed to showing, in the light of the data, how these theoretical devices can help us in understanding the directionality parameter of NI constructions, i.e. why certain languages have preverbal and others postverbal NI. As a reminder of the contrast, let us consider the following sentence pairs from Mohawk and Mapudungun (Baker et al. 2004:139):

(25) a.   *wa?-k-**hninu**-?*   [MOHAWK]
             FACT-1SG.S/3N.O-**buy**-PUNC
             *ne   ka-**nakt**-a*
             DET   N.SG-**bed**-NMLZ
             'I bought the/a bed.'

      b.   *wa?-ke-**nakt**-a-**hninu**-?*
             FACT-1SG.S/3N.O-**bed**-LNK-**buy**-PUNC
             'I bought the/a bed.'

(26) a.   *ñi   chao **kintu**-le-y*   [MAPUDUNGUN]
             1SG.P father **seek**-PROG-IND-3SG.S
             *ta.chi pu   **waka***
             DET   COLL **cow**
             'My father is looking for the cows.'

      b.   *ñi   chao **kintu**-**waka**-le-y*
             1SG.P father **seek**-**cow**-PROG-IND-3SG.S
             'My father is looking for the cows.'

As can be seen in (25b), the N root appears incorporated in the verbal complex, augmented by a linking vowel whose function is very likely to preserve the integrity of the root;[19] in (26b), on the contrary, the IN (a loan from Spanish) appears after the V root.[20] Baker et al. (2004) show that the two NI patterns are similar as a far as the main

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[19] It must be said that the vowel in question is identical with the nominalizer appearing in the free-standing form; the issue is not directly relevant for my present purpose, the relevant fact being the contrast between morphophonological integrity and erosion of the N root.

[20] In this case, the incorporated root preserves its integrity; however, in the introduction I showed how postverbal INs are often reduced forms of their corresponding free-standing equivalents.

diagnostics used by Baker (1988, 1996) are concerned, since in both languages, the process is fully productive, it can be used to background known information and, consequently, the IN can function as a resumptive element in anaphora (Type III NI in Mithun's typology). So, both patterns can be adequately described as NI. But this fact is problematic for the linearization rule proposed by Baker (1996:29) along the lines of Kayne's Antisymmetry:

(27)   If X and Y are X° categories and X is adjoined to Y in the syntax, then X precedes Y in linear order.

This rule only predicts preverbal NI; but this is not the case in Mapudungun, which has postverbal NI: therefore, Baker et al. (2004) assume that (27) is wrong (which entails that Antisymmetry too should be wrong). This is done in order to save the assumption that NI is head-movement, and that the X° head moves from a complement position to the V° head. However, I don't start with these assumptions: in particular, I don't share with Baker the assumption that all INs are heads. As I have said in the introduction (and as I argue extensively in chapter 4), preverbal and postverbal NI show very different morphological properties: preverbally incorporated Ns, cross-linguistically, can undergo reduplication, take plural markers, adjectival modifiers (both to their left and their right sides) and, in the case of nonadjacent NI, even possessive morphology; in any case, they never undergo any kind of morphophonological erosion, quite the opposite (as seen in 25b). The picture is very different with postverbally incorporated Ns, which never take any kind of modification and more often than not undergo phonological simplification (mainly from a CV(R)C to a V(R)C syllabic structure). Baker et al. (2004) do not attribute any importance to these facts:[21] they simply correct their assumption to make it consistent with the new data by assuming that head-movement can freely adjoin a head to the left or to the right of another head. The relevant fact here, though, is that the directionality alternation does not necessarily have to falsify Antisymmetry, nor does it necessarily have to falsify head-movement; what is falsified is the *compatibility* of Antisymmetry and head-movement, at least as far as NI constructions are concerned. The fact is that explaining this alternation obliges us to make a choice between head-

movement and Antisymmetry:[22] Baker et al. (2004) chose head-movement, and thus Antisymmetry cannot be maintained in their account.

In this work, I take the opposite stand: I do not challenge Antisymmetry, quite the opposite, I think it will turn in useful to my purposes (in particular, it allows to motivate my assumption that all modifiers are merged above their heads).[23] Moreover, I do not claim that INs cannot be heads: I propose that the $X°$ vs. XP dichotomy is precisely what determines the pre- vs. postverbal position of INs. Preverbal NI is, in my terms, the result of the presence of an XP (the IN) in the Spec of a dedicated thematic projection (ThP) located immediately above the edge of the L-phase (CatP). Remember that I assume NI to be triggered by a [-full] feature assigned by CatP: the root has structurally achieved integrity, but its syntactic validation feature has a negative value; therefore, it has to move into the next phase and complete its categorial specification with the higher functional processes of the *v*-phase; its first chance is compounding with its theme argument, i.e. NI.[24] Now, the V root should move to [Spec, CatP] if this were overt like a Romance theme vowel: this is consistent with the idea that, with CatP, the foundations for full categorial specification are laid. But this specification, so to say, fails, because the V is unable to project a CatP with a full, overt head. Unlike higher functional heads (like what I will call AffectP, see further 2.3.3.1), and probably also unlike nominal CatPs, which assign overt nominalizers to INs, for some reason (at present unknown), this Cat° head cannot even obviate this problem by attracting its complement into its specifier, as would be allowed by our working hypothesis about complement-to-specifier

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[21] In fact, Baker (in press) explicitly rejects an XP-movement account for NI.

[22] Two more arguments might be raised to save Baker's (1988, 1996) account of NI within Antisymmetry and in terms of head-movement, both easily falsifiable. On the one hand, we could claim that there could be two structural positions for direct objects, one as a complement to V (for preverbal NI), the other with VP as its complement (for postverbal NI); however, since the head-movement account is based on government, this solution would save head-movement at the expense of government, which would be pointless; moreover, we should expect a thematic difference between the two positions, a prediction which is not supported by the facts shown by Baker et al. (2004). On the other hand, we could claim that postverbal NI is simply a case of VP-raising: however, Baker (in press) shows that postverbal NI and VP-raising are distinct phenomena, thereby falsifying this argument.

[23] In this sense, maybe a bit paradoxically, if we consider Kayne's (1994) assumption that VO is the most basic projection order for a V and its internal argument, a side effect of my proposal is that this assumption too should be reversed, as the most basic order turns out to be OV.

[24] An alternative explanation for the requirement of obviating the [-full] categorial feature via XP-movement of the V root is that part of the missing functional load of the Cat° head may be located on the Th° head, although at present it remains impossible to conjecture what this could be. If this should

movement at morphological phase edges stated above. Therefore, CatP must be left behind, and the V should move to [Spec, ThP]; but this position is already filled by the IN, and thus movement fails (28a), since the IN blocks the V's movement. Preverbal NI results from the fact that the whole IN-V complex is forced to move together (28b):[25]

(28) *Preverbal NI*
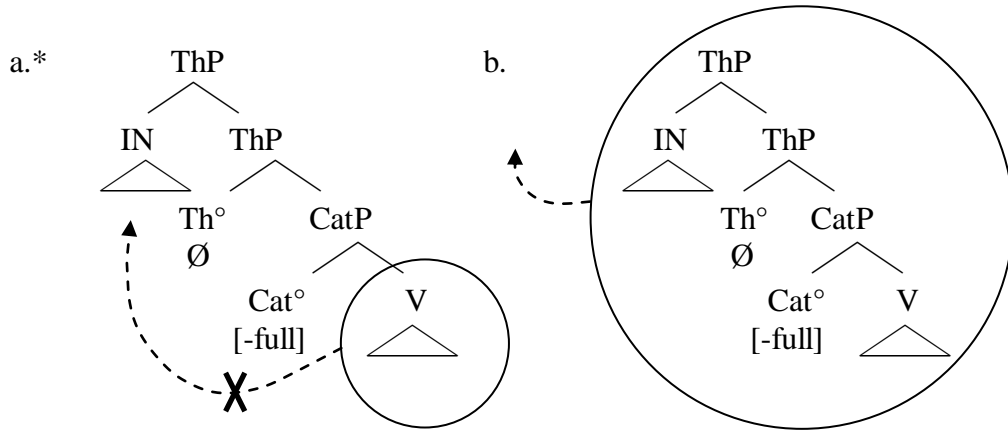
On the contrary, postverbal NI is the result of the presence of a nominal element occupying the head position of the same ThP: given the same conditions as above, in this case nothing blocks the movement of the V to [Spec, ThP]. The IN is then left to the right of V, as seen in (29) below:

(29) *Postverbal NI*

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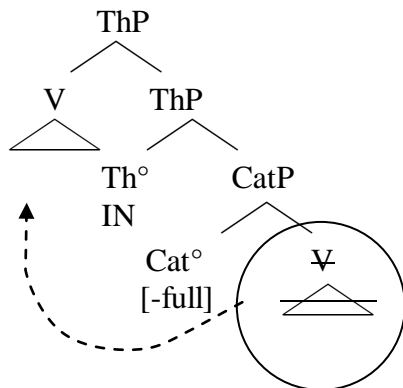
be the case, CatP should move along with the lower part of V, and we would have to revise our assumption regarding complement-to-specifier XP-movement.

[25] I use the notation V for the verbal root even in the structures, since this can vary in size (√P, ModP or CatP). Anyway, the V element is always to be understood as an XP, and never as a head.

With this theoretical device, I don't challenge either Antisymmetry or the idea that INs can be heads: what I oppose to is the idea that NI is the result of head-movement. In fact, I don't need head-movement at all to account for my data: nonetheless, my account is syntactic, and what it does is it equates NI with the kind of movement that verbal roots undergo in order to acquire their functional morphology (in this respect, *roll-up* movement and head-movement make the same predictions as to the linearization of affixes).

As I said, I view NI as a grammatical process, not (or at least not always) a combination process between lexical categories; in line with the Cartographic Approach, this grammatical process must take place in a structural projection. We will see that there are several projections involved in this process, the lowest being that where theme INs appear: one of the core claims of this dissertation is that this projection is actually the generation site of direct objects; we will also see that a different ThP must be postulated for unaccusative subjects, since their properties with respect to NI differ from those of transitive objects. Adjunct NI, as we have seen, will have to get its own projection (a prethematic, non-functional ModP), which will be the lowest of all.

But first of all, let us consider some evidence coming from the interactions of NI with polypersonal agreement on Vs which will help us understand the different sizes INs may come in (in the absence of overt morphology on the IN); this is essentially a reinterpretation in my framework of a few facts which Baker et al. (2003) have explained in terms of head-movement.

2.3.2. Morphological evidence for the XP status of INs

In the preceding section, I proposed a theory of movement that allows to capture the dichotomy between pre- and postverbal NI by reducing it to the distinction between XPs and X°s, since the presence of an overt X° or an overt XP in a structural projection yields opposite linearization effects when a lower lexical XP "tries to move" into it. This entails that all preverbal INs be XPs, and at this point, it becomes important to defend this claim in more detail. There are two kinds of evidence that should be evaluated:

- direct morphological evidence, i.e. the internal structure of INs with overt morphology such as reduplications, nominalizers, adjectival or other modifiers: this topic deserves a chapter of its own, and will be dealt with in chapter 4.
- indirect morphological evidence that comes from the interaction of two separate subsystems, i.e. NI and agreement: we will see that these two subsystems also correspond to two distinct morphological phases, and this will be the topic of the next sections.[26]

Considering the interactions between NI and agreement will allow us to draw a finer cartography of the lowest (lexical, thematic and functional) projections in the structure of INs: in this sense, the following section is a necessary preliminary to the cartography of the higher functional structure of INs to be developed in the next chapter.

2.3.3. NI and agreement: a new look at the evidence

Among the different correlations proposed by Rosen (1989) and Baker et al. (2004), as seen in the previous chapter, not all are equally confirmed by our typological investigation: in this section, I will only consider the two which seem to fall out from deep structural factors, i.e. the transitivity alternation and the restrictions on the incorporation of unaccusative subjects, as exposed in Baker et al. (2004:173ff.).

As far as the transitivity alternation is concerned, let us compare the different effects of NI in Southern Tiwa (Allen et al. 1984:294-5) and Chukchee (Polinskaja & Nedjalkov 1987:240):[27]

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[26] A detailed theory of agreement in polysynthetic languages will not be developed here: I will only deal with the matter as far as it allows us to unravel a few patterns of NI.

[27] About the other correlations proposed by Rosen (1989) and Baker et al. (2004), it should be said that modifier stranding and syntactic doubling are best considered two different parameters, and it remains questionable that they should be related to each other. Since we will see that the relevant distinction is the presence of morphological gender in a language, it should be said that some kind of modifier stranding is allowed in Chukchi, and both phenomena are allowed in Hopi; crucially, neither of these languages has morphological gender anywhere in their morphology. Another question is the availability of adjunct NI (without applicative morphology): even here, it may be tempting to correlate this phenomenon with Rosen's Compound NI, but the evidence is not conclusive (Mayali has adjunct NI, but it also has morphological gender and its theme NI is valence-neutral).

(30) a. *seuan-ide* *ti-mũ-ban*   [S. TIWA]
          man-AN.SG **1SG.S/3AN.SG.O**-**see**-PST
          'I saw the/a man.'

      b. *ti-seuan-mũ-ban*
          1SG.S/3AN.SG.O-**man**-**see**-PST
          'I saw the/a man.'

(31) a. *ətləge*   *mətqəmət*   *kawkawək*   *kilinin*   [CHUKCHI]
          ətləg-e   *mətqə.[R]*   *kawkaw-ək* *kili-nin*
          father-ERG   butter.ABS   bread-LOC   **spread.on**-3SG.S/3SG.O
          'Father spread butter on the bread.'

      b. *ətləgən*   *kawkawək*   *mətqərkeleg?e*
          ətləg-ən   *kawkaw-ək*   *mətqə-rkele-g?e*
          father-ABS   bread-LOC   **butter**-**spread.on**-3SG.S
          'Father spread butter on the bread.'

The difference that leaps to the eye is that the agreement marker on the Chukchi incorporating predicate (31b) is intransitive, whereas the Tiwa word-sentence (30b) bears an agreement marker that still retains the features of the object including gender, even though this is an IN. This difference actually singles out two classes of languages, and the property in question is pervasive in the whole NI system of each language.[28] An interesting correlation discovered by Baker et al. (2003) is that this transitivity distinction (applying to transitive Vs) is related to another distinction applying to unaccusative Vs: with these Vs, in languages of the Chukchi type, subjects can only incorporate in the presence of an overt affected DP argument (32, from Polinskaja & Nedjalkov 1987:259), or with weather predicates (33, from Spencer 1995:451):

(32) a. *ətləg-in*   *ətl?a*   *w?i-g?i*   [CHUKCHI]
          father-**POSS** mother.**ABS** **die**-3SG.S
          'Father's mother died (on him).'

      b. *ətləg-ən*   *ətl?a-w?e-g?e*
          father-**ABS** **mother**-**die**-3SG.S
          'Father's mother died (on him).'

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[28] Unless the IN is an unalienable body-part N, cf. below 2.3.3.3.

(33) a. *ŋej-ǝk ʔǝlʔǝl tǝlgǝ-gʔi*   [CHUKCHI]
         hill-LOC **snow.ABS** **thaw**-3SG.S
         'The snow thawed on the hill.'

      b. *ŋej-ǝk ʔǝlǝ-lgǝ-gʔi*
         hill-LOC **snow-thaw**-3SG.S
         'The snow thawed on the hill.'[29]

As can be noted, (32b) shows the incorporation of an unaccusative subject whose possessor (actually, as we will see, the affectee of the predicate) remains stranded. In the absence of an affected DP argument, such a type of NI should not be possible in Chukchi; and indeed, this prediction seems to be borne out in our data (even the few examples of subject NI given in Dunn (1999:229-30) for Telqep Chukchi seem to fall within this category). Things are different in Southern Tiwa, where unaccusative subjects do not need to be accompanied by an overt DP to be incorporated (Allen et al. 1990:327):

(34) *u-**kahun-wan**-ban*   [S. TIWA]
       3.IN(c).PL.S-**box-come**-PST
       'The boxes came.'

This does not imply that incorporation of unaccusative subjects should be totally unrestricted in languages of the Southern Tiwa type: Allen et al. (1986) make it very clear that an animacy hierarchy is active in cases like these, and this pairs up with the fact that the language has a productive morphological gender system, as we shall see. The same hierarchy establishes that weather Ns (the prototypical inanimates) *must* be incorporated, as can be seen below (Allen et al. 1984:300):

(35) a. *we-**fan-lur**-mi*   [S. TIWA]
         3.IN(c).S.NEG-**snow-fall(PL.S)**-PRES.NEG
         'It is not snowing.'

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[29] These examples are explained by Baker et al. (2004) by assuming that weather predicates are universally unaccusative: this is questionable, since their behavior is ambiguous in some languages (e.g. Italian, where they take the *avere* auxiliary, like unergatives); in this example, I will simply assume that the incorporating versions of these stems are formed in the L-phase, and thus cannot excorporate.

b.   *__fan__   __we-lur-mi__

    snow   3.IN(c).S.NEG-**fall(PL.S)**-PRES.NEG

    'It is not snowing.'[30]

The problem of the animacy hierarchy, however, does not directly concern us here, since (at least for now) the relevant fact is the *presence* vs. *absence* of low gender features on INs, and not their relative ranking. The two language types briefly surveyed here (both of the true incorporating type, with adjacent, preverbal NI) thus show different priorities in licensing NI of unaccusative subjects, and they show different effects as far as the transitivity alternation is involved. How can we capture both these facts with a single account? Baker et al. (2004) succeed in doing so by postulating a difference in the φ-feature content of the trace of the IN; however, I do not think that NI is the product of movement, and therefore I do not think that a trace is involved at all. I propose a theory where preverbal NI instantiates the presence of an XP (the IN) blocking the movement of the V to a ThP where its internal argument is generated; in this case, what I am interested in is to show that the differences above exposed differences can be revealing as far as the sizes of these preverbal XPs are involved. Let us consider each of the two cases in turn.

2.3.3.1. Direct Objects: Valence-neutral vs. antipassive NI

In this case (the Southern Tiwa case), NI creates a transitive complex V; this is strange, if we consider the common assumption that NI primarily denotes unitary predicates. But we also know that there are different types of NI, and that these types may differ in the referentiality of the IN. Thus, on the one hand, we must ask ourselves what the nature of referentiality is, how it is determined, and how many factors conspire to define it. I have argued that a first degree of referentiality is assigned by a projection called √P which is responsible for the free-standing vs. bound status of a lexical element. But in the cases we have just considered, this is not relevant, since the INs we have seen can all stand free in other constructions: hence, they all project a √P. This said, we must remember what
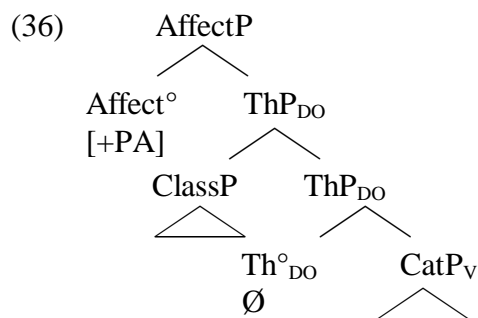
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[30] In this case, instead, the impossibility to excorporate may follow from the fact that a ClassP is in fact projected on the IN, but its abstract head bears a [-animate] feature which is incompatible with affectedness-checking, since an inanimate cannot be affected in any semantically plausible sense.

Baker et al. (2004) observe, i.e. that languages with valence-neutral NI (such as Southern Tiwa) also have a morphologically productive gender system, which is active both in the DP and in the verbal agreement system. This is not the case in Chukchi or in any other of the languages not displaying this kind of NI (like Nahuatl, Ainu, Eskimoan languages or Mapudungun). As I said, this is indirect morphological evidence, since it does not come from overt morphology on the IN: these are always incorporated bare in the cases we have seen. I argue, however, that the INs appearing in valence-neutral NI constructions do indeed project some FPs where their lowest gender features are assigned. These features should not be confused with the high φ-features that are assigned at the DP level, and this is the reason why I term them *low class features*. For some reason, these features cannot be overt: I argue that this has to do with morphological phases. In the cases we are now considering, I argue that NI takes place immediately outside of the Lexical Phase (inside of which adjunct NI takes place), but inside of the Thematic Phase: this phase appears to place a requirement for low class features to be covert, a requirement which is not active in higher morphological phases, as we will see. Therefore, I will assume that these features are represented by what Hale & Keyser (2000) term *p*-signatures, which I define as features with *incomplete phonological content* (and therefore silent).

This is one side of the coin. But there is an even more interesting one, which has to do with the nature of transitivity: is this an inherent property of Vs, or is it assigned in a specific site in the derivation? If the former case were the right one, we would expect transitivity to be blocked or non-blocked by NI, or better, we would expect it to be *saturated* or remain *unsaturated* by NI. This would amount to a direct syntactic translation of Chung & Ladusaw's (2006) theory of Restriction and Saturation: we could say that the antipassive effect of Chukchi NI is due to its saturating character, whereas the Southern Tiwa examples could be due to an inherent restricting character of NI in this language, so that NI does not saturate the V's internal argument. This hypothesis is appealing, but it has two problems: first of all, Chung & Ladusaw themselves show that the correspondence between syntax and semantics is not one-to-one in the cases they consider (semantic restriction doesn't have to result in syntactic transitivity of the V under VP-raising (which they call Object Incorporation), and in fact that is not the case

with the language they consider, i.e. Chamorro). Second (and even worse), this hypothesis leads to predictions regarding the referentiality of INs that are not borne out by the data: we would expect "saturating" INs to be more referential than their "restricting" counterparts; this prediction, however, does not fit in with the fact that "restricting" INs can be interpreted as coreferential with specific stranded modifiers such as demonstratives and relative clauses, as we will see in the next chapter. Therefore, the hypothesis of a direct mapping between syntax and semantics is not appropriate in this case (although the semantic distinction pointed out by Chung & Ladusaw will indeed turn in useful for our purposes when we consider Classifier NI in the next chapter).

The alternative is therefore to assume that transitivity is assigned at some point in the derivation, or better, it is *checked* in a dedicated site: I will term it Affectedness Phrase (AffectP), since I argue that it has to do with affectedness. Preverbal object INs are visible to this projection, whose abstract head identifies them *in situ* and assigns transitivity to the predicate according to the referentiality of the INs, which in turn is measured against the low class features on the IN: if the latter is a ClassP, it is checked as a full-fledged object, and therefore the predicate may qualify as patient-affecting (represented by the [+/-PA] feature in (36)) with a direct object (and therefore transitive):

(36) AffectP

```
(36)        AffectP
            /     \
      Affect°    ThP_DO
      [+PA]      /    \
           ClassP    ThP_DO
            /\       /    \
        Th°_DO    CatP_V
          Ø        /\
```

If, on the other hand, the preverbal IN in [Spec, ThP_DO] is a CatP_N, the AffectP does not check it as a full-fledged, totally referential direct object: it only qualifies as semi-referential, since its referentiality is only a function of an L-phase. The V cannot thus be checked as patient-affecting, nor as transitive, since the abstract head of AffectP is projected with a negative feature value, as can be seen in (37):

(37)

```
            AffectP
           /\
     Affect°  ThP_DO
      [-PA]    /\
          CatP_N  ThP_DO
           /\      /\
         Th°_DO  CatP_V
           Ø      /\
```
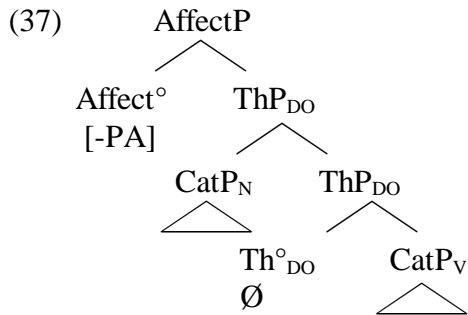
With this device, we can capture the transitivity alternation in terms of an assigned feature, one which is determined by the presence or absence of one FP (ClassP) in the internal (covert) structure of the IN. What we expect is for the two types of INs to differ in referentiality, and, as we will see with the data on modifier stranding (see next chapter), this prediction will be borne out, since the INs found with valence-neutral NI can take more specific modifiers than those found with antipassive NI. Let us now proceed to examine the case of unaccusative subjects, and see how they differ.

2.3.3.2. Unaccusative subjects

Here, we are facing additional problems, since it will become necessary to take a finer-grained look at the internal structure of the *v*-phase. Unlike what is commonly believed, i.e. that unaccusative subjects are thematically patients and therefore are generated in the same position as direct objects, our data show clearly that this kind of intransitive subjects differ in their behavior from direct objects. The difference here is not one of transitivity, since the V is intransitive anyway, but one of incorporability: in languages of the Chukchi type (and apart from weather predicates, cf. fn. 20), the subject can only be incorporated if an overt affected DP argument is present elsewhere in the clause:[31] I argue that this difference falls out from the very same structural difference seen with direct objects, but two additional stipulations must be made: first, that unaccusative subjects are generated in a different (higher) projection than direct objects (although this projection may be a ThP just like the one where DOs are generated, since my aim is not

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[31] In languages of the Tiwa type, instead, other restrictions (such as animacy hierarchies) are active, although this does not necessarily provide a good test for distinguishing between direct objects and unaccusative subjects (as is the case in Chukchi).

to criticize their thematic status of patients, but only to say that they are patients of a different type); second, that AffectP entertains a relation with ThP$_{UnaccS}$ that is different from the one it entertains with ThP$_{DO}$. In particular, nontelic unaccusative Vs are typically patient-affecting, and their subject is typically affected.[32] Now, in the Chukchi example (32b) the affected DP argument (the "possessor", as it is called in Baker et al. 2003) appears in the unmarked case (the absolutive). Therefore, it cannot be generated in a position much higher than ThP$_{UnaccS}$, since the lowest position in the thematic field (GoalP, in Damonte's terms) assigns a different case in Chukchi (i.e. the allative case). But it cannot be generated in [Spec, ThP$_{UnaccS}$] either, since the IN is preverbal and must be generated there. The most reasonable solution is therefore to assume that it is generated in [Spec, AffectP]. Now, the relevant factor is the presence of low class features on the IN. In the Tiwa case, they are present: therefore, they can agree with an abstract (or overt) affected N argument in [Spec, AffectP].[33] In the Chukchi case, instead, low class features are not projected on the IN: therefore, the latter cannot check its affectedness *in situ* and is forced to move to [Spec, AffectP] in order to do this. But this is only possible if no affected N argument is generated there; moreover, it seems that [Spec, AffectP] behaves like some sort of launching pad, in the sense that every element that lands there is forced to excorporate. Hence the impossibility of unaccusative subjects to remain incorporated on their own: they must move to check their affectedness, and once they do so, they must excorporate to check other features (like e.g. case), and become DPs. If, on the other hand, an affected N argument is present, this will check its affectedness and excorporate, whereas the IN will remain unchecked for affectedness and remain incorporated.

But why can't the affectedness feature be checked *in situ* with unaccusative subjects, whereas it can with direct objects? We could say that the Agree operation that is active in this process works on the basis of a hierarchy, where only one thematic feature (objecthood) is taken into account (probably because it is closest to the V); this thematic feature overranks a nominal one (class), as in (38):

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[32] Paola Benincà (p.c.) suggested to me that telic unaccusatives too could be considered patient-affecting, their affected argument being the goal of the motion event. If this is true, some locative prefixes could be analysed as heads of AffectP. The topic needs further study.

[33] Recall that the affected argument cannot yet be a DP, since it is still in the *v*-phase.

(38)   *Agree ranking for AffectP*
       Objecthood > Class

In this way, the argument generated in ThP$_{DO}$ proves to be the most visible to Agree, since it has the highest-ranked feature (Objecthood); if an argument is generated higher than ThP$_{DO}$ (i.e. in ThP$_{UnaccS}$), the visibility provided by Objecthood is not available, and therefore Agree will use the lower-ranked feature to check the IN's affectedness *in situ*. For this condition to apply, however, a ClassP must be projected on the N; if this is not the case, affectedness-checking cannot take place *in situ*, and the unaccusative subject argument is forced to move to [Spec, AffectP]. Here's an illustration of the different cases:

(39)   a.   *Tiwa Unaccusative Subject NI*
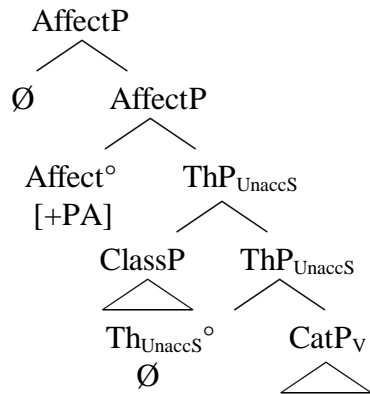
         b.   *Chukchi Unaccusative Subject NI (affectee projected)*
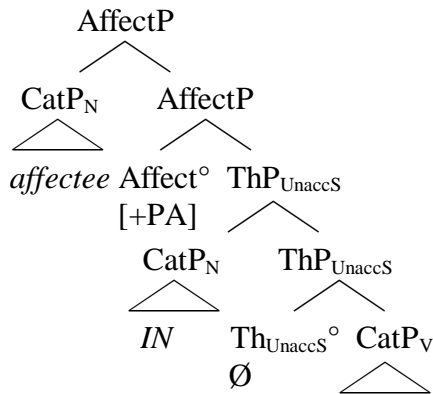
c. *Chukchi Unaccusative Subject Excorporation (affectee not projected)*
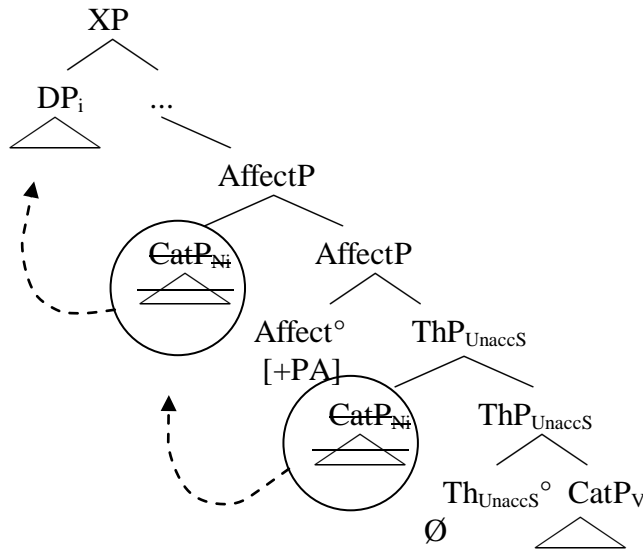
As can be seen, no movement of the subject takes place in (a) and (b), whereas in (c) the subject must move (at least) twice. The [+PA] feature in the Chukchi examples (b) and (c) is thus assigned via Spec-head agreement, otherwise it would have to be negative and the derivation could not converge.

The facts surveyed in the last two sections are, as I said, indirect evidence that INs may come in different structural sizes: when the affected argument was distinct from the object argument, the devised tests were applicable because the relationship between the two arguments was transparent, i.e. because the INs were not grammatically inalienable.[34] But this is not always the case, and when the INs are different, things are different, too.

2.3.3.3. Inalienable INs and affectedness

My account of the transitivity alternation entails that the described phenomenon be totally pervasive in the morphology of a language: but there are some apparent complications involving inalienable Ns (mainly body-parts). It is no secret that body-part

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[34] With unaccusative subjects, things are more complicated: in the Chukchi example (32), for instance, a kinship term appears as the IN: this kind of Ns are, of course, semantically *inalienable*, but, grammatically, their behavior is ambiguous. In the great majority of cases, they behave as *alienable* Ns (see next section), and this is precisely for reasons of affectedness.

Ns assume a special behavior under NI, as they give rise to special interactions with object agreement on the V; it will be necessary to provide a concise description of their properties, in order to see what kind of implications they may have for the theory I am developing in the present work. To start with, let us consider the transitivity alternation: if a language has double agreement and valence-neutral NI like Mohawk (as reported by Baker et al. 2004), object agreement in NI constructions targets the IN (although, in Mohawk, this is reduced to the default values of neuter gender and singular number), as in the following example (Baker 1996:316):

(40)　a.　*sak* ***shako-núhwe?-s***　　　　　[*DP ne* ***o-wir-á?a***]　　　[MOHAWK]
　　　　　S.　**3M.SG.S/3F.SG.O-like**-HAB [DP DET　N.SG-**baby-**NMLZ]
　　　　　'Sak likes babies.'

　　　b.　*sak*　　***ra-wir-a-núhwe?-s***
　　　　　S.　　　**3M.SG.S/3N.O-baby**-LNK-**like**-HAB
　　　　　'Sak likes babies.'

However, when a body-part N is incorporated, agreement does not target the IN, but its semantic possessor (Baker 1999:294):

(41)　***wa?-khe-hsin-óhare-?***　　　　　　　　　　[MOHAWK]
　　　　FACT-**1SG.S/3F.SG.O-leg-wash**-PUNC
　　　　'I washed her leg.'

This process is known in the literature as "possessor raising" or "possessor ascension", although I will argue that neither of these is the most felicitous term, as we will see. In Mohawk object NI, this pattern is restricted to body-part Ns, whereas alienable ones can only "raise" a possessor by means of a benefactive applicative construction (Baker 1999:293):

(42)　***wa-hi-?sere-ht-óhare-?s***-*e?*　　　　　　　[MOHAWK]
　　　　FACT-**1SG.S/3M.SG.O-car**-NMLZ-**wash**-BEN-PUNC
　　　　'I washed his car/ I washed the car for him.'

The construction without the benefactive suffix is ungrammatical. Unaccusative Vs, on the other hand, show no similar restriction, in that alienable as well as inalienable INs may be targeted by subject agreement. It must be observed that this alternation between inalienable Ns failing to trigger object agreement and alienable Ns behaving as benefactive applied objects is a rather peculiar property of Mohawk, but this is not the only way in which languages distinguish beween alienable and inalienable INs: another case is that of the Amazonian language Xamatauteri Yanomami. First of all, let us consider how this language treats inalienable INs (Ramirez 1994:117):

(43) *hiterawë*   *yama*   ***moheki̵=mi̵-i̵***   [X. YANOMAMI]
    Hiterawë   1SG.EXCL.S **face=look.at**-DYN
    'We are looking at Hiterawë's face.'

In this example, the IN appears below a subject clitic, but nothing intervenes between the IN and the V: this is a classical case of adjacent NI. Alienable INs, on the other hand, receive a totally different treatment, as can be seen in the following examples (Ramirez 1994:184-5):

(44) a.   *ya*   ***ihi̵ya-pi̵***   ***pë=ma***-*rayo-ma*   [X. YANOMAMI]
        1SG.S **fishing.hook**-POSS   **3PL.O=finish**-TEL-PST
        'I've run out of hooks.' (lit. 'My hooks are finished')

    c.   *hiterawë*   *ya*   ***hepara-pi̵***   ***pë=xë***-*re-ma*
        I.   1SG.S **brother**-POSS **3PL.O=hit**-TEL-PST
        'I've hit Hiterawë's brothers.'

The object Ns in these examples appear with a possessive suffix homophonous with the V root meaning 'have' (probably itself an incorporating functional V heading a RRC) and take position higher than body-part Ns: it can be noted that an object clitic agreeing with the IN intervenes between the latter and the V. The phonology of this language is very simple, thus we cannot appeal to internal *sandhi* phenomena to understand whether these cases are actually NI or just juxtaposition. But the subject clitic appears higher than the object N, and moreover, it is obligatory, thus it is very likely to suppose that these constructions could instantiate *semiadjacent NI* (i.e. movement to ModP$_{|v|}$, the object clitic appearing in a lower FP). A detailed discussion of this complex construction is not

possible here, mainly because of the paucity of our data; suffice to note that the object N in (44b) is a kinship term, a semantically inalienable N, which, however, is here treated as alienable. We will see other instances where these terms are ambiguous: this is because an event affecting a human theme argument may be thought of as affecting his/her relatives as well, or it may be not so, since the argument and the relative are different individuals. Languages choose, and even within a single language, different constructions may make different choices. With body-part Ns, on the other hand, there is no choice, since the body part and the argument identify one and the same individual.

So far, we have only seen languages that treat inalienable and alienable Ns differently: but this distinction is not equally active in all languages: Chukchi, for instance, also has double agreement, but does not display such an alternation, in that all affected arguments (whether possessors of body parts or objects) may agree as direct objects (Spencer 1995:449-50):

(45)   a.   *ʔaacek … etənw-a   lewtə-rʔejim-nin*   [CHUKCHI]
           youth.ABS master-ERG **head-drill-3SG.S/3SG.O**
           'The master drilled the youth's head.' (lit. "head-drilled" the youth.')

    b.   *ənan   pojgə-mcatko-nen   remkəlʔ-ən*
           they.ERG   **spear-break-3SG.S/3SG.O   guest-ABS**
           'They broke the guest's spear.' ('They "spear-broke" the guest.')

As can be seen, the affected arguments introduced by the absolutive case differ in that the one in (a) is the semantic possessor of a body-part IN, whereas the one in (b) is the semantic possessor of an object. But agreement is always transitive, unlike what we saw in (31b), where NI had an antipassive effect: therefore, the Mohawk alternation does not carry over to Chukchi:[35] languages may choose how to deal with alienable INs either in the same way as they deal with inalienable ones or in a different manner. In Southern Tiwa, triple agreement triggers both the IN and the affectee; while I have found no clear examples of body-part INs, alienable Ns are registered by the agreement prefix together

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[35] The fact that Chukchi differs from Mohawk in that it has no morphological gender (as shown in the previous section) is not relevant here, since we will see that, in the cases under discussion in this section, the whole affectedness-checking process is played inside of AffectP.

with their affected possessor, the latter taking dative agreement (Allen & Frantz 1978, quoted in C. Rosen 1990:689):

(46)   ***kow-kahun-thã*-*ban***   [S. TIWA]
        1SG.A/3PL.IN(c).O/2SG.D-box-find-PST
        'I found your boxes.' (lit. 'I found you the boxes.')

What I think these data are telling us is that the distinction that is active here is not exclusively a function of alienability, but rather a competition between *alienability* and *affectedness*: the Mohawk alternation between affectee as possessor of a body-part N vs. benefactive applied object as possessor of an alienable N instantiates a case in which alienability "gets the better" of affectedness, triggering the choice of an applicative construction for the marked case, i.e. alienable Ns; the Yanomami alternation also instantiates such a case, in that alienability triggers semiadjacent NI in a RRC structure. In Southern Tiwa and Chukchi, on the other hand, it is affectedness that takes over, and therefore alienable and inalienable Ns are treated alike. The structure for the latter case might be the following:

(47)   *Affectedness-prominent NI (Tiwa, Chukchi)*
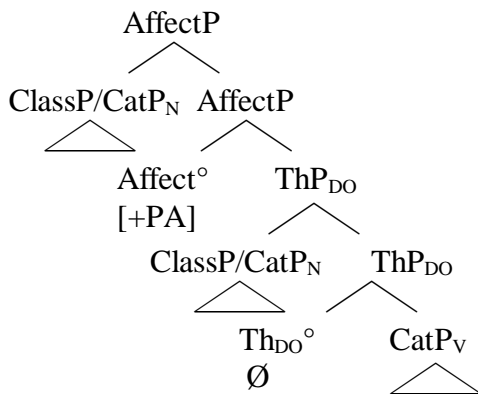
Here, the Spec of AffectP is projected in any case, and the predicate qualifies as patient-affecting thanks to the affectee. But this is the whole story only if the language is not sensitive to the alienability of the IN; when this factor comes into play, we may have to

do with a [-part] feature on the IN (specifying that it is not a body part), which is incompatible with the position of ThP_DO (for unknown reasons):

(48)   *Alienability-prominent NI (Mohawk, Yanomami)*

```
  *        AffectP
           ╱╲
ClassP/CatP_N  AffectP
    ╱──╲      ╱╲
    Affect°   ThP_DO
    [+PA]    ╱──╲
    (ClassP)       ThP_DO
    (  ╱╲  )      ╱──╲
       CatP_N   Th_DO°   CatP_V
       ╱──╲     Ø        ╱─╲
     Cat°   N
     Ø     ╱─╲
           [-part]
```
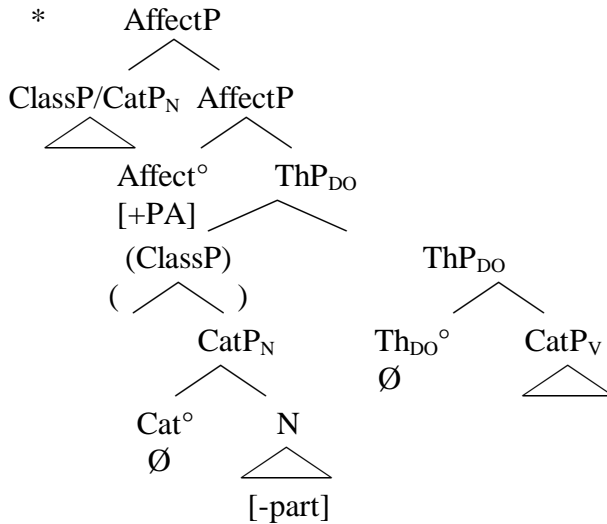
Yanomami will obviate the agrammaticality of (48) via XP-movement of its CatP-sized IN into a higher projection, where NI into the functional V 'have' will take place, thereby turning the banned NI construction into a case of *verb incorporation*; in Mohawk, the solution will be to activate a BenP head that will trigger XP-movement of the whole ThP complex to [Spec, ModP$_{|v|}$].

We can thus see that body-part Ns activate very peculiar syntactic facts, bringing on stage factors that are normally not active in ordinary NI constructions. For these reason, they do not constitute a real counterexample to my claims about the transitivity alternation.

2.3.3.4. Postverbal NI: antipassive vs. applicative

So far, only preverbal NI has been discussed: as I said earlier, postverbal NI has a partly different nature, since it may instantiate heads of ThPs (as well as ApplPs). However, the different nature of postverbal NI manifests itself in another sense: this kind of NI very often creates intransitive verbal stems, whereas preverbal NI can vary according to the

complex factors described above. This can be seen in Mapudungun as well as in Salish and Sora, but things are not always simple: here too, some data could be used as counterexamples to my theory, since I argue that postverbal INs are heads (i.e. Lex°s), and as such, they cannot have a projected ClassP. Hence, they should never display the transitivity alternation. When postverbal NI takes place, the ideal case would be to have an intransitive V with no overt valence-changing morphology. But consider the following Yucatec Mayan examples (Bricker 1978:15, glosses AM):

(49) a.   *t-in-č'ak-Ø-ah*   *čeʔ ičil* in-kòol   [Y. MAYAN]
           COMP-1SG.A-**chop**-3SG.O-PFV **tree in**   1SG.P-cornfield
           'I chopped a tree in my cornfield.' (past tense)

     b.   *č'ak-čeʔ-n-ah-en*   *ičil*   in-kòol
           chop-tree-AP-PFV-1SG.S   **in**   1SG.P-cornfield
           'I chopped wood/trees in my cornfield.'

As can be seen in (49a), the verbal root 'chop' is underlyingly transitive, but when NI takes place (b), the derived V is intransitive; here, NI seems not to do the job alone, since the derived stem is augmented by an antipassive morpheme. So much for the past paradigm; in the nonpast paradigm, the reverse happens, as can be seen in the following sentence pair (Bricker 1978:15, glosses AM):

(50) a.   *k-in-č'ak-Ø-ik*   *čeʔ*   [Y. MAYAN]
           INCP-1SG.A-**chop**-3SG.O-IPFV.TR **tree**
           ičil in-kòol
           in 1SG.P-cornfield
           'I chop a tree in my cornfield.' (present tense)

     b.   *k-in-č'ak-čeʔ-Ø*   *ičil* in-kòol
           INCP-1SG.A-**chop-tree**-IPFV.INTR **in**   1SG.P-cornfield
           'I chop wood/trees in my cornfield.' ('I "chop-tree" in my cornfield.')

Here, it is the non-incorporating version that takes transitive morphology, whereas the incorporating version becomes intransitive without the aid of overt elements. To provide an explanation for this, we must start with the assumption that the antipassive morpheme in (49b) is there for reasons that do not interfere with NI, since otherwise we could say

that NI is inherently transitive in (49b) (thus needing an antipassive morpheme to be detransitivised), but inherently intransitive in (50b), an undesirable conclusion. IN fact, there is evidence that this is not so: if we examine the examples carefully, we can note that the antipassive morpheme in (49b) is adjacent to a perfective aspect morpheme (the same applies to the transitiviser in (50a), which is a portmanteau form with an imperfective aspectual value). This said, these morphemes are there for reasons of aspect, and therefore do not interact with NI; the truly revealing case is therefore (50b), where no overt antipassive morphology appears, and where the derived V is crucially intransitive. An explanation for this could be that, since postverbal INs are heads, they can only be Lex° heads, without a CatP projection and, crucially, without the ClassP that is necessary to check the transitivity of the predicate. Thus the predicate will result as intransitive. But this is not all, since (50b) also has a transitive paraphrase (Bricker 1978:15, glosses AM):

(51) *k-in-**č'ak-čeʔ-t**-ik*   *in-kòol*   [Y. MAYAN]
      INCP-1SG.A-**chop-tree-TR**-IPFV   1SG.P-cornfield
      'I chop wood/trees in my cornfield.' ('I "chop-tree" my cornfield.')

As can be noted, the *-t* suffix promotes the location argument to the status of an applied object, thus creating a case in all respects similar to the ones we discussed about the interactions between NI and applicative formations. Mithun (1984) calls this Type II NI. Now, since in (51) the cornfield is the only affectee in the sentence, I argue that the *-t* suffix could instantiate precisely a case of an overt applicative head of AffectP, giving the following structure:

(52)   *Applicative postverbal NI*

```
                    AffectP
                   /\
          CatP_N  AffectP
           /\      /\
            Affect°   ThP_DO
              -t       /\
                   V    ThP_DO
                  /\     /\
                 ↑  Th_DO°  CatP_V
                    če?      /\
                        Cat°    V̶
```
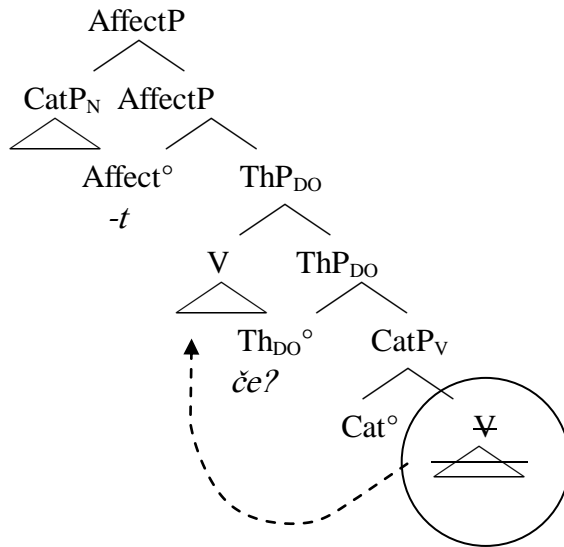
Similar considerations could apply to Wiltschko's (2009) claim (opposing to Gerdts 2003) that NI in Halkomelem Salish does not alter the transitivity of the V: in her crucial examples, a transitivizer occurs, so it may be the case that transitivity is reassigned in her examples as well.

2.4. The cartography of the VP domain: a summary of the evidence

The reader may have noticed that, in this chapter, the label VP has never been used: actually, what is traditionally considered the VP (i.e. the V head plus its DP complement and a specifier that was considered to project the agent argument in earlier theories and now is generally regarded as the generation site of the indirect object) has been split into various components. To begin with, I have argued that the V root is not a head, but an XP in its own right, consisting of a Lexeme Phrase (LexP) where its basic semantic features are projected, plus a Root Phrase ($\sqrt{P}$), responsible for assigning morphological integrity, which is considered as the ability to function as a root independently of the presence of other modifying morphology (like verbal prefixes for bound roots or INs for affixal predicates). A Modifier Phrase (ModP) merged above $\sqrt{P}$ may add a compounded element to the root (also a pre-thematically merged adjunct IN), and above this, a Category Phrase (CatP) is merged, which constitutes the edge of the lowest

morphological phase (the L-phase) and checks the semantic completeness of the predicate: if this is [-full], NI takes place. The cartography of this phase thus looks as follows:

(53)   *The Lexical Phase Hierarchy*
        |L| CatP > ModP$_{|L|}$ > √P > LexP

Above the L-phase, the thematic field begins. In this domain, two works have tried to work out a cartography of thematic functional projections, i.e. functional projections dedicated to specific θ-roles: Schweikert (2005) analyses the relative order of German circumstantial PPs, and Damonte (2004) does the same for applicative morphemes in languages of the genetically unrelated families Bantu and Quechuan. The results they arrive at are astonishingly similar; I will quote Damonte's final version of the hierarchy, since it is applicative morphology that my data interact with (Damonte 2004:90):

(54)   *Universal Hierarchy of Thematic Functional Projections*
        DesiderativeP > AndativeP > ReciprocalP > SimulativeP > BenefactiveP >
        Malefactive/Goal/Source/ReasonP > Instrumental/Manner/LocativeP >
        DirectionalP > RogativeP > PermissiveP > CausativeP >
        Assistive/Comitative/AssociativeP > Agentiviser/ParticipativeP > ReflexiveP >
        VoiceP > SeparativeP

On the one hand, we have seen that there are cases of INs that could interact with some of these functional projections (or even instantiate their heads, in Sora), the relevant ones being Ben(efactive)P > Goal/SourceP > Instr(umental)/Man(ner)/Loc(ation)P> Com(itative)P; on the other hand, it is natural to suppose that, if NI is often (at least in its most widely known manifestation, i.e. theme incorporation) a function of thematic structure, it will be generated in some site.

And here comes the strongest claim of this work: I make the assumption that, since incrementality and cyclicity of the derivation are two important requirements of cartographic theory, it would be at odds with this assumption to assume that the direct object argument is generated as a DP complement to the VP, thus having a potentially full structural completeness just to lose it immediately under incorporation. Thus, following Sportiche (2005) and taking Damonte's and Schweikert's insights one step

forward, I assume that the theme argument is generated in a thematic projection that is located in the lowest structural position, below the oblique arguments (which I will term ApplPs, or Applicative Field), and immediately above the edge of the V's L-phase (as already seen in (10) above). This, in a way, amounts to turning our theoretical universe upside down, since the assumption would be that it is not polysynthetic languages that have NI: it is all other languages that are systematic in excorporating arguments. But this assumption is nevertheless consistent with our theoretical premises, and it would complete the earlier works on the cartography of the VP by bringing the verbal derivation into line with the derivation of the DP. This, combined with Sportiche's generalization (reported in (3) above), seems to prospect a theory in which verbal complexes can be thought as derived by merging heads with complements, whereas DP arguments are generated in specifier positions and completed in higher specifier positions. This is actually what I have done with my theory of *Morphological Phases*, which assumes words to be built step by step in incremental blocks, analytic languages differing from more synthetic ones in the number of activated phases.

Moreover, differences in the behavior of transitive objects (which trigger a *transitivity alternation* on the verbal complex) and unaccusative subjects (which displaying what we could term the *unaccusative subject incorporability alternation*) seem to point to a different generation site for these two types of theme arguments, thus I assume that the latter are merged in a higher ThP (ThP$_{UnaccS}$), located immediately above ThP$_{DO}$.

Apparently, there may be other low thematic projections that do not appear in Damonte's hierarchy: of special importance for NI are a type of arguments which are distinguished by others in the clause for the fact of being affected by the action described by the predicate. I assume these to be generated in a thematic projection called Affectedness Phrase (AffectP), which should be located immediately above ThP$_{UnaccS}$, since arguments generated there can take dative case (like goals) in some languages, or else the unmarked objective (absolute) case in other ergative languages like Chukchi. On the other hand, considering these data, it is difficult to decide whether a DativeP (DatP) will be needed for indirect objects, or else dative and affectedness are one and the

same thing. This said, the hierarchy of thematic projections continues all the way up to the edge of the next phase (*v*P, the generation site of thematic agents):

(54) *The Thematic Phase Hierarchy*
$|v|$ vP > ... > BenP > Goal/SourceP > Instr/Man/LocP > ... ComP > ... > DatP? > AffectP > ThP$_{\text{UnaccS}}$ > ThP$_{\text{DO}}$ > $|$L$|$

I assume the L-phase to apply to lexical categories in general, and not only to Vs: INs, for their part, will also have an L-phase perfectly analogous to that of Vs. Salish lexical suffixes will be LexPs (though appearing as heads of ThPs) like their Wakashan verbal counterparts (affixal predicates). In chapter 4, we will see that CatP has a morphologically overt expression in the case of the nominalizers of deverbal INs; on the other hand, when projected as INs, Lex°s will not take on an XP structure, since I argue that the XP status of LexPs is assigned by the merger of a complement: therefore, LexPs cannot be Specs of any thematic projection (or better, of any projection at all), but will be inserted as heads. This derives the directionality parameter of NI: preverbal INs will be XPs merged as Specs of their projections, and postverbal ones as heads, thus yielding the attested order when the V XP-moves to take on its functional morphology. On the other hand, Lex° may still have several inherent feature values, some of which are syntactically relevant: for instance, I assume common alienable Ns to have a [-part] feature qualifying them as not involved in a part/whole relationship; this feature is responsible for some parameterised restrictions on the incorporation of such Ns (what I called *affectedness-prominent* vs. *alienability-prominent NI*).

This also derives the last important distinction that concerns preverbal NI: the adjacency alternation, distinguishing adjacent NI (whereby an IN comes immediately to the left or the right of the V), semiadjacent NI (in case something intervenes between the IN and the V, like an applicative prefix), and finally nonadjacent NI (when the IN comes outside of agreement). I argue this to follow from the movement properties of preverbally INs, which, being XPs, may move as such from lower to higher specifier positions: in particular, I assume that both the *v*-phase and the higher I-phase have a ModP that may host preverbal INs moved from lower positions. The complete

cartography for structural projections involved in NI constructions will thus look as follows:

(55)   *The Noun Incorporation Hierarchy of Verbal Structure*
         ModP$_{|I|}$ > |I| ... > ModP$_{|v|}$ > |v| vP > ... > BenP > Goal/SourceP >
         Instr/Man/LocP > ... ComP > ... (DatP? >) AffectP > ThP$_{UnaccS}$ > ThP$_{DO}$ > |L|
         CatP$_V$ > ModP$_{|L|}$ > √P$_V$ > LexP$_V$

In the next two chapters, I will be trying this theory with two important phenomena regarding NI constructions, i.e. the contrast *incorporation* vs. *stranding* (chapter 3) and complex NI patterns (chapter 4).

3. Incorporation and stranding

In the previous chapter I tried to develop a theoretical model aimed at accounting for the core of NI constructions (i.e. the N-V complex) and its properties; it may be now wondered how an incorporating verbal complex can fit in the wider context of the clause. A detailed answer to this question would require a whole book on the clause syntax of polysynthetic languages, but the first question we can ask ourselves is whether there are any verb-external elements referring to (or modifying) an IN. The answer is positive, since there are different types of stranded elements, and this is what I will deal with in this chapter. First of all, I will have to say more about the relation between NI phenomena and agreement, since some theoreticians argue that the status of overt DP arguments in polysynthetic languages is determined by agreement (Jelinek 1984) or that full DPs and stranded elements have a different status (Baker 1996), which should result in agreement differences. In section 3.1, I argue that agreement is determined in the high functional field of the clause, and thus is a real functional process (at least, in the cases considered here); furthermore, full DPs and stranded elements (in languages with *valence-neutral NI*, which is a by-product of AffectP) do not have a different status, but instantiate different configurations of the same components (what I call *themehood* and *affectedness*), which are assigned lower than agreement, and therefore a theory of stranding does not presuppose a complete theory of agreement. The main body of the chapter is thought of as a survey of two types of stranding, i.e. on the one hand *Classifier NI* (CNI) and *doubling* (which share the common feature of showing a free-standing nominal element occurring with a canonical NI construction in a clause) and on the other *modifier stranding* (i.e. the occurrence of a free-standing modifier targeting an IN). It will be seen that Chung & Ladusaw's (2006) theory of Restriction and Saturation proves useful in recognizing the semantic side of the phenomenon, if we think of stranded modifiers as elements specifying an IN that must always be more generic. On the syntactic side, on the other hand, I will propose (building on the theory developed in the previous chapter) that stranded modifiers provide a distinct syntactic manifestation of

what I called *affected arguments* (as seen with possessors in 2.3.3.3), with the only difference that, in this case, the additional argument and the IN are coreferential. CNI and doubling, moreover, seem to indicate that some kind of applicative formation must be triggered by AffectP. In short, I argue that INs and stranded elements instantiate separate manifestations of *themehood* and a higher category, which is surely *affectedness* in languages with valence-neutral NI, and probably a higher applicative in the few examples from languages with antipassive NI.

Apart from this, we will see that different classes of modifiers show different behaviors in NI constructions cross-linguistically, in that adjectives and quantifiers may be stranded in some languages and recursively incorporated in the IN in others, whereas demonstratives may appear stranded in some languages and force the excorporation of the object N in others. I will show that stranding is the preferred strategy in languages with valence-neutral NI, whereas antipassive NI tends to avoid it; I argue that this state of things is due to the higher syntactic transparency of INs in valence-neutral NI constructions, as we already saw in the preceding chapter. The last two paragraphs illustrate the behaviors of R(elative) C(lause)s and stranded affectees ("possessors") with respect to the other categories of stranded modifiers.

3.1. Some notes on agreement in polysynthetic languages

The question of the nature of multiple agreement is a matter of controversy in current syntactic theory. On the one side we have Jelinek's (1984) *Pronominal Argument Hypothesis*, which maintains that the agreement morphemes to be found in polysynthetic languages (including Athapaskan languages, which are not considered polysynthetic by Baker 1996) are in fact the V's real arguments (i.e. multiple agreement is some sort of *pronoun incorporation*); all overt DPs occurring in the clause turn out to be adjuncts.

On the other side we have Baker's (1996) *Polysynthesis Parameter*, according to which the agreement morphemes on the V are indeed agreement, the actual arguments being phonologically null, but verb-external. The differences between these two approaches become relevant when it comes to modifier stranding, since Baker holds the stranded modifier to be part of the original NP; this amounts to saying that a stranded

modifier is the only part of the original argument NP that surfaces in its base position at the end of the derivation. We will see that this view (if extended to the languages in my sample) is not supported by the morphological facts, and therefore, at least in this respect, a Jelinek-style approach would be preferable, although, for the languages in Baker's sample, the evidence is not conclusive (since they lack the crucial evidence, i.e. case marking).

For these languages, on the other hand, we have Di Sciullo & Williams' (1987) proposal that INs are nothing more than *verb qualifiers*, which qualify an argument without saturating it, thereby leaving the V's argument structure totally unaltered.[1] Under this view, all NI would be what I term *adjunct NI* (and thus should take place within the L-phase).

In the preceding chapter, I developed a quite different view about NI: I cannot take sides about the nature of agreement, but I claim that the interactions between the latter and NI crucially depend on the value of one feature on an abstract head (Affect°) which qualifies the predicate for its patient-affecting properties. If this feature is positive, transitive agreement will arise; if it is negative, the verbal complex will take on intransitive agreement. The value of the feature in question in turn depends on the size of the XP instantiating the theme argument: the positive feature value is assigned by the presence of a ClassP above the CatP of the IN, and if and only if this XP is projected. This account is totally syntactic: it is not a compromise between lexical and syntactic approaches, but rather allows for a totally incremental account of the syntactic derivation.

What this implies for modifier stranding is that Baker's theory and Jelinek's can be both true to some degree. In my view, the stranded modifiers are in one way parts of direct objects (as Baker claims), and in another way adjuncts (Jelinek's idea): they are objects because they instantiate a feature which is a component of internal arguments, yet at the same time they are adjuncts, since that feature is not the main component of

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[1] This could be considered a forerunner of Chung & Ladusaw's (2006) theory of Restriction and Saturation, if not for the fact that the latter conceive their theory as applying on a purely semantic level, whereas DiSciullo & Williams assume a syntactic outcome (i.e. what I call valence-neutral NI), which is (mistakenly) thought to apply universally.

argumenthood. This suggests that the role of theme arguments is in fact a composite one, consisting of two parts: *themehood* and *affectedness*.

Unlike both Baker and Jelinek, in my approach the way I conceive stranding is independent of the way I conceive agreement, since the stranded elements (at least in valence-neutral NI) turn out to be a particular manifestation of something (affectedness) which usually pairs up with the themehood of an argument, and if it does not (as in the "possessor stranding" constructions), it is instantiated by an additional argument which is *disjoint* in reference from the underlying object. The cases I will discuss in this chapter instantiate a third case, namely affectedness instantiated by an additional argument *coreferent* with the underlying object.

3.2. Classifier NI: restriction and saturation

I will now proceed to examine two phenomena that may occur in polysynthetic languages displaying valence-neutral NI: we will see that giving an account of their properties implies recognizing the different behaviors of syntax and semantics, along the lines of Chung & Ladusaw (2006). When the proper interface between the two components is established, both   phenomena fall out from the same principle, a parametrically determined constraint deciding at what degree of semantic specification the doubling must stop (since some languages allow CNI but not full doubling). Let us see each of the two cases in turn.

3.2.1. INs as classifiers

In some languages displaying true NI (not in affixal predication languages), an external, fully inflected DP may double a more generic IN, as can be seen in the following Mohawk example (from Mithun 1984:864):

(1)   *shakoti-**ya?t**-í:sak-s*   *[DP **ne   ron-úkwe**]*   [MOHAWK]
        3M.NPL.S/3O-**body**$_i$-seek-HAB   [DP **DET M.PL-person**$_i$]
        'They were looking for the men.'

The phenomenon is not fully productive: it is obligatory with the IN *yaʔt* 'body', which acts like some sort of "dummy" IN.[2] On the other hand, Baker (1996:334, n.25) reports that the NI construction "clothing-buy", unlike (1), cannot licence an external NP "pants"; the restrictions at play in this are language-specific (sometimes even idiosynchratic), and can be sometimes due to morphological restrictions (internal *sandhi*), sometimes to lexically conditioned idiosynchrasies of particular constructions. Among the restrictions shown by this kind of constructions, however, the most universal is that the IN cannot be more specific in reference than the external N: thus, in Mohawk, while it is perfectly correct to say "I fish-bought the bullhead", the inverted construction (*"I bullhead-bought the fish") is totally out. This contrast is important, since it reminds us of Chung & Ladusaw's theory that, on the semantic level, Restriction must always precede Saturation, and can never follow it. This suggests a radical difference between syntax and semantics: it appears that, when a generic N is incorporated, from a semantic viewpoint it may either *restrict* or *specify* the internal argument of the predicate. If the latter becomes *specified* by the IN, semantic saturation comes to coincide with syntactic saturation, and the derivation is complete at both levels. If the generic N only *restricts* the predicate's internal argument, however, this becomes a problem for the syntax, because, at the syntactic level, the IN saturates the V's internal argument the first time around. The second object must therefore qualify syntactically as an adjunct of some sort. This is consistent with the fact that the classifying function of the IN is in some cases a metaphorical one, as in the following Caddo example (Mithun 1984:865):

(2) *kassiʔ háh-ʔičʼá-sswíʔ-saʔ*   [CADDO]
     beadᵢ PROG-**eye**ᵢ-string-PROG
     'She is stringing beads.'

Here, the bead is compared to an eye because of its round shape, the classification being one of semantic analogy.

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[2] Baker (1996:335, n.30) notes that this IN is the only one that actually functions as a classifier in Northern Iroquoian languages. Its crucial properties are that it is obligatory with many Vs when their object is animate, and that it has no effect on agreement (unlike other INs, which may trigger full or default agreement on the V. cf. Baker 1996, ch.6 and Baker et al. 2004:152-7).

I therefore assume the IN to instantiate the true theme argument, whereas the external N may be generated in a higher thematic projection, taking a higher θ-role; the DPs are anyway not overtly marked as adjuncts, which suggests that AffectP has good chance of being the right candidate:

(3) $|v|$ ... [$_{\text{AffectP}}$ *kassi?*$_i$ [$_{\text{AffectP}}$ Affect°]] ... [$_{\text{ThP}}$ *?ič'á*$_i$ [$_{\text{ThP}}$ Ø]]|L|[$_{\text{CatP}}$ Ø][$_{\sqrt{\text{P}}}$ *sswí?*]

The external object will then have to excorporate from [Spec, AffectP] and move up to the IP field to be licensed as a DP. At this point, an observation is in order: Chung & Ladusaw state that Restriction and Saturation apply on a purely semantic level, the predicate being fully saturated by NI. Semantically, the two objects are coreferent, but does this mean that themehood should also be "passed on" to the external object? I argue that this is not the case, since that would amount to saying that *semantic* restriction should also imply *syntactic* restriction, which would be against the evidence provided by Chung & Ladusaw. Rather, I assume the abstract Affect° head in (3) to instantiate a kind of covert applicative head licensing the extra object: thus, the external object receives its themehood from somewhere else, not from the saturating ThP projection.

In what languages is CNI found? On a first survey, this phenomenon seems to be linked to the cluster of facts we have described in the previous chapter as *valence-neutral NI*: this is the case of Mohawk, Caddo and some Australian languages like Rembarnga. It is not found in many languages with *antipassive NI* like Nahuatl or Chukchi; however, this complementary distribution is not total, since CNI is *not* found in Southern Tiwa, which has multiple agreement,[3] and it is found in the Uto-Aztecan language Hopi (which does not have verbal agreement at all, but has ways of tracking the number of subjects and objects via root suppletion).[4] Some languages with postverbal NI like Salish or Algonquian also display the phenomenon to various degrees. Chung & Ladusaw report that Chamorro VP-raising (which has an antipassive effect) is also

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[3] It may be that this language has a special behavior because its multiple agreement is *triple* (cross-referencing subject, object and dative), unlike what we find in the other languages, where it is *double* (marking only subject and object). However, there is no obvious reason why these two morphological properties should be linked.

[4] Similar considerations could apply to the West Coast isolate Haida, which can only incorporate classifiers, and actually requires them with many active Vs.

associated with a classifying function. At the present state of things, we cannot draw any typological generalization from this picture, despite the fact that Rosen (1989) explicitly lists CNI among the properties of valence-neutral NI (actually, she uses this phenomenon as the defining property of the valence-neutral class). Although a tendency of CNI of occurring with valence-neutral NI surely exists, a better understanding of verbal agreement will be needed to ascertain how general the correlation actually is.

3.2.2. Syntactic doubling

A subset of the languages displaying CNI allow the external DP to be a full double of the IN; this is normally not the case in Native American languages, but a Mohawk example is given by Baker (1996:316-8) and reported here as (4b):

(4)   a.   *sak **shako**-núhwe?-s*   [MOHAWK]
                  S.   **3M.SG.S/3F.SG.O**-like-HAB
                  *[DP ne   o-**wir**-á?a]*
                  [DP DET   NT-**baby**-NMLZ]
                  'Sak likes babies.'

     b.   *ra-**wir**-a-núhwe?-s*
                  3M.SG.S-**baby**ᵢ-LNK-like-HAB
                  *[DP thíkʌ (o-**wir**-á?a)]*
                  [DP that   (NT-**baby**ᵢ-NMLZ)]
                  'He likes that baby.'

The author uses these examples in order to defend his claim that NI constructions have a unique syntax, which normal transitive Vs do not show. As can be seen, the verbal complex in (4b) does not have object agreement (or at least not overtly); this means that the V does not agree with the IN, a property that Baker (1996) considers to fall out from his head-movement analysis, since the Polysynthesis Parameter provides that NI (i.e. head movement) should take place at the expence of multiple agreement. This, in turn, means that the IN saturates the V's internal argument, and therefore the external modifier cannot be an adjunct, but rather a remnant of the object DP from which the IN has been extracted (the double being some sort of undeleted lower copy of the IN). One

problem is that Baker et al. (2004) restated the issue of the transitivity of Mohawk NI as an alternation between *full* vs. *default* agreement: this means that the difference between (4a) and (4b) could lie not so much in the presence vs. absence of object agreement, but rather in the fact that, in (4b), object agreement is set to its default value of neuter gender and singular number (a value that happens to have null exponence in Mohawk). This interpretation might seem a bit pushed at first sight, but it becomes more plausible in the case of unaccusative subjects as in (5) below, where there is no multiple exponence that complicates the matter (Baker 1996:317):

(5) a. *t-aʔ-e-yáʔt-ʌʔ-neʔ*   *[DP ne*   [MOHAWK]
         CIS-FACT-**3F.SG.S**-**body**-fall-PUNC   [DP DET

         o-wir-áʔa]
         NT-**baby**-NMLZ]
         'The baby fell.'

     b. *t-aʔ-ka-wír-ʌʔ-neʔ*
         CIS-FACT-**3N.SG.S**-**baby**-fall-PUNC
         'The baby fell.'

In (5a), the female gender of the baby is signalled by the *e-* prefix; under NI, however, that prefix is obligatorily changed into the neuter *ka-* prefix, which the authors take to be default agreement. In the previous chapter, we have seen that there are important structural differences between direct objects and unaccusative subjects: therefore, a fact that is demonstrated for the latter does not automatically carry over to the former. However, Baker et al. (2003) have also pointed out that a key property of valence-neutral NI is the presence of morphological gender, and this is present in Mohawk; therefore, if the data reported by the authors (and re-elaborated by me in the previous chapter) have been correctly understood, there is no reason to reject the assumption that default zero agreement is active in Mohawk object NI. But this implies that there should be no difference between the structure in (4b) and any other construction with overt DPs occurring with a NI construction: the complex V is transitive, overt DPs are taken by Baker to be adjuncts, and thus the external DP in (4b) may also be considered an adjunct

in these terms (or an affectee, in my terms).[5] It would be even more so if it were to be equated with modifier stranding,[6] which, as we will see in the next section, has little chance of being considered as the remnant of an original DP object, at least in the clearest cases.

Doubling NI constructions are more common in Australian languages, where another interesting phenomenon shows: let us consider the following examples from Rembarnga (McKay 1975, quoted in Rosen 1989:303):

(6)   a.   *[DP **kaṯaʔ**]*   *par-**kaṯaʔ**-ta-Ø-ŋiɲ*   [REMBARNGA]
            [DP **paperbark**.ABS]   3PL.S/3SG.O-**paperbark**-stand-CAUS-PST.CONT
            'They would spread paperbark on the ground.'

    b.   *[DP **kamunuŋkuʔ**]*   *ka-yi-**ŋuwaʔ**-maɲ*
            [DP **white.ochre**.ABS]   3SG.S-COM-**white.ochre**-go.PST
            'Some white ochre arrived (i.e. was bought by someone).'

As can be seen, in (6a) the doubling N is perfectly identical with the IN; in (6b), however, the two stand in a suppletive relation. Since the IN in the latter case is not reported to be a classifier, this can be taken as a *bona fide* instance of a lexicalized construction, where the incorporated version may preserve an older form of the N (since this is embedded in a larger morphological stem), a process attested elsewhere, e.g. in Tanaina (Tenenbaum 1978:162), where the unincorporated version of the N meaning 'water' (*vinłi*) has taken a form which is totally different from the common Athapaskan term (which appears in the incorporated form *tu-*). Or else (but I think less probably), it may be the remnant of an obsolete general N formerly used as a classifier, which may have later become restricted to designate only white ochre. Anyway, lexicalised or not, in both constructions the doubling Ns appear in the absolutive case, the case used for direct

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[5] Unless the transitivity of the V is considered to follow from a lexical derivation, as stated in Baker (1996:319ff); in my approach, however, there is no principled difference between *lexical* and *syntactic* derivations, at least as far as object NI is concerned; rather, I adopt a distinction between *syntactically active* and *lexicalized* constructions. This does not necessarily entail different transitivity properties, since there may be different degrees of lexicalization of a compounded item like an incorporating V stem.

[6] Actually, Rice (1989:661-2) shows that, in Slave, NI cannot occur with a stranded modifier, but it can have doubling; crucially, the external N can never appear as an argument, but must be licensed by a

objects: this may indicate that syntactic doubling instantiates affectedness, and that the latter is treated as part of the functional load of direct objects. Again, it must be noted that this is generally the case of languages with valence-neutral NI, whereas those with antipassive NI show a different behavior, in that they treat stranded elements as obliques (see further 3.3.1 for clear data about adjectives and quantifiers). To be more precise, I take the doubling N in languages with valence-neutral NI to be generated in [Spec, AffectP], with an abstract Affect° head licensing it, as in (3) above. In languages with antipassive NI, on the contrary, the abstract Affect° head bears a negative feature, as I said in the previous chapter: thus, any stranded element in these languages must be introduced as an oblique, higher than AffectP (such as Instr/Man/LocP in my hierarchy). Possible exceptions to this may be the Chukchi example (21a), where a stranded numeral occurs, as well as the stranding of semantic possessors.

3.3. Modifier stranding and NI

In this section, I will consider the phenomenon known as *modifier stranding*, i.e. the occurrence in a clause of a NI construction with a modifying element semantically referring to the IN. There are several types of these elements, and they will be discussed in turn: adjectives, numerals and quantifiers, RCs and demonstratives. Possessor affectees ("possessor stranding") deserve a separate treatment, since they are the only type of modifiers that do not semantically refer to the IN.

3.3.1. Strandable and incorporable modifiers

The first three of the above mentioned categories (i.e. adjectives, quantity expressions and RCs) may alternate in their morphosyntactic behavior, typologically speaking, in that they may either remain stranded or appear recursively incorporated in the IN; I will begin by dealing precisely with these, showing that the alternation between incorporation and

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postposition, clearly showing its role of adjunct. Furthermore, NI in Slave is of the antipassive type, thus showing an exception to the tendency of doubling to occur with valence-neutral NI.

stranding is mainly found with antipassive NI, whereas valence-neutral NI shows a preference for simple stranding.

3.3.1.1. Stranding and incorporation of adjectives

The first category of strandable and incorporable modifiers is represented by elements with adjectival meanings. This poses a nontrivial problem, i.e. understanding what the nature of adjectives is (see Dixon & Aikhenvald 2004, Baker 2003 or Cinque 2007 for a survey of the problem): in some languages (like Mohawk or Korean), these manifest themselves mainly as stative verbs, whereas in others (like Turkish or many Australian languages) they mainly show nominal nature; still other languages (like Nahuatl) are ambiguous on this point. In any case, each and every language has at least a very small number of purely modifying adjectives, but the differences are very relevant to our purposes, because they lead to different expectations: if the adjectival element is stranded, it can only be a purely modifying element (i.e. not categorized), whereas, if it is neutralized as a N or a V, it will take the morphology of a relative clause. On the other hand, if the adjective is part of a recursive incorporation construction, the expected surface order will be A-N-V if the adjective is purely modificational or nominal in nature, since in these cases it will be the modifier of the IN; on the other hand, if the adjective is verbal in nature, the resulting combination will be N-A-V. To illustrate the different cases, let us begin with purely modificational adjectives and give a Mohawk example (Baker 1996:308):

(7) ***aséhtsi***   *ʌ-ye-**nakt**-a-núhweʔ-neʔ*   [MOHAWK]
      new   FUT-3F.SG.S/3N.O-**bed**-LNK-like-PUNC
      'She will like the new bed.'

In this example, a simple adjective (actually a derived form with the intensive suffix *-tsi*, which however is not relevant to our argument) modifies an IN; in Baker's terms, the stranded adjective instantiates the remnant of an argumental NP whose head has moved to become the IN. I propose a different explanation: the adjective is, in fact, the modifier

of a null affectee coindexed with the IN and generated in [Spec, AffectP]. I argue that this null element is a pro:[7]

(8) |v| ... [$_{AffectP}$ *aséhtsi* pro$_i$ [$_{AffectP}$ Affect°]] ... [$_{ThP}$ *nakt$_i$* [$_{ThP}$ Ø]] |L| [$_V$*núhwe?*]

At this point, [Spec, AffectP] is free to move out into the I-phase to achieve the status of a DP.

In sum, the expectations of my analysis are that in these modifier stranding cases, objecthood and affectedness should manifest themselves separately, although the argument is one and the same. This prediction seems to be borne out by languages with valence-neutral NI, as I said. But what about antipassive NI? Examples like (9) from West Greenlandic illustrate the case (Lynge 1978:113, quoted in Sadock 1986:23):

(9)   *luutiviup assut qusanartumik qaanniorpaa*   [W. GREENLANDIC]
       luutivik-p assut **qusanartoq-mik   qajaq-lior**-*paa*
       L.-ERG   very   **beautiful-INS.SG kayak-make.for**-IND.3SG.S/3SG.O
       'Luutivik made him a very beautiful kayak.'

Here, the adjectival modifier agrees in number with the IN, but not in case, which is instrumental on the adjective even if this is coreferential with the incorporated direct object. This instrumental case marking is unlikely to instantiate affectedness, since it always occurs with intransitive predicates (or detransitivised ones such as overt antipasssive constructions); moreover, the role of affectee is already taken by the benefactive object introduced by the affixal predicate *-lior* ('make for'). For these reasons, I take the pro modified by the adjective to be generated in [Spec, Instr/Man/LocP], thus yielding a structure partially different from (8):

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[7] I have thought about the possibility of it being a trace: this could be interesting for the doubling cases, which could be explained as an instance of *Move* without *Delete*. However, this would imply that the higher copy of the moved element should be deleted, contrary to current assumptions about the *Delete* operation, which deletes lower copies: one could speculate that the presence of an intervening morphological phase boundary (i.e., |v|) could reverse the standard effect, but, there being no crucial evidence available, I find the explanation in terms of a pro much more economical.

(10) $|v|$ ... [$_{InstrP}$ *qusanartoq* pro$_i$ [$_{InstrP}$ Ø]][$_{AffectP}$ pro [$_{AffectP}$ Ø]] ... [$_{ThP}$ *qajaq*$_i$ [$_{ThP}$ Ø]] $|L|$ [$_V$ *-lior*]

The pro in [Spec, AffectP] thus instantiates the benefactee.

So much for the stranding facts. But adjectives in polysynthetic languages confront us with a different phenomenon as well: not only can adjectival modifiers be left stranded, they can also appear incorporated into the IN, as can be seen in the following Chukchi example (Skorik 1961:103, quoted in Spencer 1995:480):

(11)   *tə-**tor**-**taŋ**-**pəlwəntə**-**pojgə**-**pela**-rkən*   [CHUKCHI]
1SG.S-**new**-**good**-**metal**-**spear**-**leave**-IPFV
'I am leaving a good, new, metal spear.'

Here, the adjectival roots *-tor* 'new' and *-taŋ* 'good' are incorporated in the compound root *pəlwəntə-pojgə* 'metal-spear'; the whole morphological cluster forms a complex IN (the adjectival heads being heads or specifiers of the head N's ModP$_{|L|}$). But Chukchi is not the only language adopting such a strategy: a similar alternation may be found in Nahuatl. The following data from Orizaba (12a, from Tuggy 1991) and Huauhtla (12b, Merlan 1976:188, fn. 41) illustrate the phenomenon:

(12)   a.   ***opōch-īxtololo-tataka***   [O. NAHUATL]
left-eye-scratch
'scratch one's left eye'

     b.   ***ā-kʷalli-oni***   [H. NAHUATL]
water-good-drink
'drink good water'

As can be noted, in (12a) the elements of the NI construction appear in the order A-N-V, whereas in (12b) the reverse order (N-A-V) is found. Furthermore, the adjectival head in (12b) shows derivational morphology (*kʷalli* appears to be derived by means of a suffix *-(t)li*, which appears to be related to the *-tl* nominalizer found on Ns); the modifier in (12a) shows no such derivation. This difference could be due to the difference in

meaning between the two adjective types (since 'good' is a gradable quality, and 'left' is not), which, in structural terms, seems to suggest that the prenominal adjective could be a pure modifier, and the postnominal one a structurally richer element. This impression might be misleading, as the discussion in 4.1.2.2 will show.

One may wonder, at this point, if the opposite case is found, namely one in which the adjective is neutralized as a V, the IN being its subject: indeed, one such example is reported for Mohawk (Mithun 1984:880):

(13)   *w-at-yaʔt-awi-ʔtsher-aseʔ-stsi-ʔtsher-owá:ne*   [MOHAWK]
       FACT-**SREFL-body-in.tube-NMLZ-be.new-INTENSIVE-NMLZ**-be.large
       'The brand new dress is big.'

In this case, the N *atyaʔtawi* 'dress' (itself a nominalized RC) is incorporated by means of a nominalizer into the adjectival predicate *asehtsi* 'new', which we have already met in (7) as a purely modificational adjective. The whole complex is then recursively nominalized (again, by means of the same suffix) and appears incorporated in the main predicate (again, an adjectival predicate).

But why do languages differ so much in the treatment of adjectival modifiers in NI constructions? An interesting fact I could mention at this point is that the two languages with A-N-V incorporation (Chukchi and Nahuatl) are also languages with antipassive NI and prethematic adjunct NI. The exact nature of this correlation requires further study, but it seems to have to do with the fact that, since INs are structurally smaller in these languages (they lack the low ClassP, as said in the previous chapter), they are free to proceed with further morphological compounding. The correlation may thus provide independent evidence for the theory of the interactions between NI and agreement outlined in the preceding chapter, since, on the other hand, languages with valence-neutral NI seem to be facilitated in stranding elements, due to the higher syntactic transparency of their INs, which derives from the projection of a low ClassP.

3.3.1.2. Stranding and incorporation of quantity expressions

Another category that shows the alternation between incorporation and stranding is the category of quantity expressions, thereby including numerals and quantifiers. Let us begin by considering numeral adjectives. West Greenlandic (as seen in the introduction) exemplifies the pattern found in Eskimo languages (Sadock 1980:309):

(14) *ataatsi-nik*   *qamute-qar*-*poq*   [W. GREENLANDIC]
      one-**INS.PL**   **car**-**have**-IND.3SG.S
      'He has one car.'

Note that the stranded numeral does not agree in number (it bears the default number, which in this case is plural, despite the meaning 'one', since plurality gives the construction a quantificational value); this is a typologically common situation, since numerals are themselves a lexical manifestation of number, so they do not have to functionally agree for this feature. In Eskimo, numerals do not, in general, incorporate, but other more generic quantifiers like 'many' have an affixal manifestation, as in the example below (Sadock 1986:26):

(15) *kunngip*   *panippassuaqarpoq*   [W. GREENLANDIC]
      [N kunngi-p   *panik]-passuaq-qar*-*poq*
      [N **king**-**ERG**   **daughter**]-**many**-**have**-IND.3SG.S
      'There are many king's daughters (i.e. princesses).'

In this case, the quantifier appears as a suffix to the IN, a property shared by other Eskimo adjectives; this tendency of generic quantifiers of being more incorporable than numerals is found in other languages as well. Consider, for instance, the following examples from Hopi (Gronemeyer 1996:9-10, my glosses):[8]

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[8] In these examples, I have chosen to replace Gronemeyer's orthography with the one used by Jeanne (1978), since the latter better illustrates the phonological structure of the language.

(16) a.   *nɨʔ lööq-mɨ-y*   *hoʔap-ta*   [HOPI]
          I   **two-PL-NS**[9]   **burden.basket-make**
          'I made two burden baskets.'

      b.   *nɨʔ pɨʔ totokmi*   *naalöq kanèl-qöya*
          I   this dance.day **four**   **sheep-kill(SG.S/PL.O)**
          'This year I butchered four sheep for the dance day.'

      c.   *möʔwi-t*   *engem naʔyat ep* *aʔni kanèl-qö-qya*
          bride-NS   work party   at   **a.lot sheep-PL.S-kill(PL.O)**
          'At the bride's wedding party they butchered a lot of sheep.'

In (16a), the numeral 'two' is inflected for number and case, but in (16b) the number 'four' is bare; the quantifier 'a lot' in (16c) is also bare. This pattern is highly instructive, since it tells us that lower numbers are somehow grammatically more salient than higher numbers: this can also be seen from other areas of the grammar of the language like nominal declension, which distinguishes a dual number, as can be seen in the paradigms below (Jeanne 1978:73, glosses adapted):

(17) a.   *miʔ maana* **paki**   [HOPI]
          this girl   **enter**
          'The girl entered.'

      b.   *mima maana-t* **paki**
          those girl-**DU**   **enter**
          'Those two girls entered.'

      c.   *mima* **mamant** *yiŋʷa*
          those   **girl.PL**   **enter(PL.S)**
          'Those girls entered.'

The fact that 'two' is grammatically more salient than 'four' or 'a lot' should be tested against the parallel generalization about INs, which are generally taken to represent arguments with low discourse salience. The interaction between these two factors should yield that generic quantifiers should be the easiest to incorporate. This prediction is borne

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[9] Gronemeyer glosses this as 'accusative'; however, the declension paradigm of this language (see e.g. Jeanne 1978) shows clearly that this case is some sort of oblique, which can form the basis for the derivation of other indirect cases. Therefore, I thought it better to replace the label 'accusative' with 'nonsubject'.

out in an interesting way, as can be seen from the example below (Gronemeyer 1996:9, glosses adapted):

(18) *haki-mi-y*   *haki-hep*-t-inim-ŋ^wi   [HOPI]
      someone-PL-NS   **who-look.for**-/T/-CIRCUMGRESSIVE-HAB
      '... I would go around looking for certain people.'

In this example, we can see the doubling of an incorporated *wh-* word which, in the free-standing occurrence, takes a quantificational meaning, even agreeing in number and case. Again, it seems likely that we are dealing with separate manifestations of objecthood and affectedness, the difference being that objecthood *per se* is compatibile with a quantificational or nonspecific realization, whereas affectedness, *per se*, implies specificity.[10] This follows from Sportiche's generalization that arguments cannot be DPs, if we think that affectedness is a higher projection; moreover, I have observed in the previous chapter that AffectP acts like some sort of "launching pad" for any XP that lands there, forcing it to excorporate. The above example too seems to point in that direction.

The preceding discussion does not mean that numerals cannot be incorporated, since some language families like Wakashan productively use the incorporation of practically all adjectival quantifiers. Below I provide examples for *ʔaya* 'many' (Stonham 2004: 230) and the numeral *ʔaƛpu* 'seven' (Stonham 2005:356, glosses AM):

(19) a. *ʔayasiik*   *ċiiḥati*   [NUU-CHAH-NULTH]
          ʔaya=siik   *ċiiḥati*
          many=make   **arrow**
          'He made a lot of arrows.'

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[10] A problem for this analysis could be represented by the fact that Hopi has no personal agreement. This, however, does not necessarily mean that its NI should be antipassive NI, since the language has ways of tracking the number of subject and object via root suppletion. This could be interpreted as a valence-neutral property.

b. *ʔaƛpuqumɬkʷaɬšiƛ*   *taanaa*
    ʔaƛpu-qimɬ-kʷaɬ-šiƛ   *taanaa*
    seven-CL-be.missing-MOM   **dollar**
    'He spent seven dollars.'

This pattern is typical of Wakashan lexical affixation in that the affixal predicate must come in second position in its syntactic phrase, the unusual fact being that the head of the constituent is left stranded, giving rise to a pattern I call *modifier incorporation* (as opposed to modifier stranding).[11] What we normally find is exemplified below for Mohawk (Baker 1996:149):

(20) ***akwéku***   *waʔ-ka-**naʔts**-a-**hútsi**-ʔ-neʔ.*   [MOHAWK]
      all   FACT-3N.SG.S-**pot**-Ø-**be.black**-INCH-PUNC
      'All of the pot(s) turned black.'

Here, we can clearly see a canonical case of modifier stranding. The Wakashan case is very debated among different theories (e.g. Stonham 2004, Wojdak 2005, see introduction): in my approach, since on the one hand I argue quantifiers to be assigned in a high position in the clause, and on the other hand I consider NI to take place in the low part of the derivation, the conclusion is simply that modifier incorporation has nothing to do with NI. The Wakashan case probably instantiates an unusual movement of an affixal predicate (i.e., in my terms, a verbal LexP) all the way up to the IP field, where it stops immediately below the generation site of the modifier. The head of ThP remains stranded in the lower phase, whence it will autonomously move out. The wordhood of the complex V is then a purely phonological matter, since it falls out from the V's structural configuration of a non-root LexP. The movement properties, however, are apparently not dictated by phonology, as Wojdak's (2005) theory of PF incorporation claims; rather, they follow from syntactic principles, as the descriptive facts tell us that quantifiers can be incorporated, but demonstratives (which are higher in the structure) cannot.[12]

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[11] It should be reminded that this requirement, however, is not general, since highly specific items (like e.g. demonstratives) cannot incorporate into affixal predicates.

[12] On the relative position of quantifiers in the DP see e.g. Beghelli and Stowell (1997).

In concluding, I would like to quote an interesting alternation from Chukchi, where numerals can be either stranded (21a, from Polinski 1993, quoted in Spencer 1995:451, fn. 7) or incorporated along with their head (21b, from Skorik 1961:102):

(21) a. *ətləgə-n*   **ŋireq** **qaa-gəntak**-*wʔe*   [CHUKCHI]
          father-ABS   **two**   **deer-stray**-3SG.S
          'Father lost two reindeer.'

      b. *tə-***ŋəron-qora-kən**-*ʔo*-*rkən*
          1SG.S-**three-stag-catch**-IPFV
          'I'll catch three reindeer.'

Structurally, (21a) may be explained as a modifier imposing a positive feature value on the abstract head of AffectP, notwithstanding the antipassive character of Chukchi NI. Functionally, it is difficult to conjecture about the exact nature of the difference between the two constructions, but one consideration is on order at this point: so far, we have only talked about the relative difference in specificity between numerals and more generic quantifiers, but we have not yet discussed the possibility that numerals themselves might have more or less specific interpretation. The distinction that immediately comes to mind is then *precise* vs. *approximate,* whereby (21a) could be interpreted as 'Father lost *exactly* two reindeer' and (21b) as 'I'll catch *more or less* three reindeer.' This may seem just speculative, but I can think of no better explanation.

3.3.2. Stranding of demonstratives

Demonstratives are the only unincorporable class of strandable modifiers (RCs deserve a special discussion, which will follow). In this, they share part of their nature with determiners (which are otherwise known to be derived from demonstratives in many languages), with the one difference that the latter cannot occur with a NI construction at all. Actually, demonstrative stranding is itself very rare: I can only quote three languages in the literature where the phenomenon shows up, i.e. Mohawk and Southern Tiwa (among native North American languages) and the Australian language Rembarnga. A Mohawk example is reported below (Baker 1996:308):

(22)   *thíkʌ* *ʌ-ye-**nakt**-a-**núhweʔ**-neʔ*   [MOHAWK]
        that   FUT-3F.SG.S/3N.O-**bed**-LNK-**like**-PUNC
        'She will like this bed.'

In this case, the demonstrative is stranded bare, without adding any kind of morphology to it; what is more, Baker points out that NI in cases like this one is optional, i.e. the non-incorporated version would also be fine as an alternative to (22); the same does not apply to Southern Tiwa, however, as can be seen from the example below (Allen et al. 1984:297):

(23)   a.   *yedi*   *bi-**musa**-**tuwi**-ban*   [S. TIWA]
             those 1SG.S/3AN.PL.O-**cat**-**buy**-PST
             'I bought those cats.'

        b.   **yedi*   *musa-n*   *bi-**tuwi**-ban*
             those **cat-AN.PL**   1SG.S/3AN.PL.O-**buy**-PST
             'I bought those cats.'

In this language, the constituent 'those cats' cannot stand free unless it receives a focus interpretation, in which case it would also receive a strong stress. This is different from what we have seen in Mohawk, where NI is completely optional; however, this restriction qualifies only nonhuman Ns, whereas the equivalent of 'I saw those men' can be translated freely with or without NI. This is due to the well-described (but so far not yet fully explained) Southern Tiwa Animacy Hierarchy (cf. Sadock 1986, C. Rosen 1990), which is a manifestation of the very articulated gender system of the language and therefore is also linked to its valence-neutral NI system. The hierarchy is reported as follows by Sadock (1985: 569):

- ➢ Inanimate DOs are obligatorily incorporated
- ➢ Human, animate, singular DOs in clauses with first- or second-person subjects are optionally incorporated
- ➢ Human, animate, singular DOs are obligatorily incorporated when the subject of their clause is third person

➢ Human, plural DOs are obligatorily incorporated *if unmodified* and optionally incorporated if modified

➢ Nonhuman, animate, singular DOs are obligatorily incorporated *if unmodified by a demonstrative or numeral*, and optionally incorporated otherwise

➢ Nonhuman, animate, plural Ns are obligatorily incorporated *(23 above)*

➢ Animate subjects may not be incorporated

➢ Inanimate subjects must be incorporated

➢ Proper names may not be incorporated

From this hierarchy (as well as that in C. Rosen 1990), we can see that the restrictions are functions of the combined action of five feature types, each with its own subhierarchy:

➢ specificity (*modified > unmodified*)

➢ person hierarchies (*1/2 > 3*)

➢ number (*singular > plural*)

➢ θ-role (*agent > dative > patient*)

➢ animacy (*human > nonhuman animate > inanimate*)

The lower a N is in these hierarchies, the greater its chance of appearing incorporated will be. The hierarchy cannot be accounted for in this work, but we can say that the specificity of demonstratives clearly emerges in the case of *plural human Ns* and *singular animate, nonhuman Ns*, where the presence of a modifier (explicitly stated as a demonstrative or numeral in the latter case) renders NI optional. Plurality implies a loss of specificity, which seems to be the reason why excorporation in unavailable in (23).

Actually, all three languages for which demonstrative stranding is attested have this type of NI, and each one of them has one feature differentiating it from the others. In Rembarnga, the demonstrative is also marked for gender, as can be seen below (McKay 1975:291, quoted in Rosen 1989:300):

(24) *yar-**kaṛi-peṭeʔ**-miɲ*   ***nənta**-Ø-**ma***   [REMBARNGA]
1PL.A/2SG.O-**wounded-carry**-PST.PUNC **that**-**NOM-IN**
'We carried that wounded man.'

The demonstrative appears to bear nominative case (i.e. absolute), although this may be questioned, since it reportedly has zero expression.

These differences notwithstanding, the correlation is striking, since it helps us in making an important distinction. Both Rosen (1989) and Baker et al. (2003) assume modifier stranding as one of the diagnostics for CNI; however, they do not make fine-grained distinctions between different types of modifiers. As we have seen, the presence of adjectival and quantifying modifiers in clauses with NI constructions are not always a good test for distinguishing the type of process involved, since their phenomenology is not as clear-cut as we would expect; the only clear candidate for establishing a testing ground for valence-neutral NI is the stranding of a demonstrative, and in fact, most of the examples quoted by Rosen 1989 for modifier stranding actually involve this type of stranding. We will therefore correct the current assumption that CNI implies modifier stranding by stating the more precise correlation that valence-neutral NI (since this is in fact what Rosen and Baker et al. are looking for) allows *demonstrative stranding* (as well as a well-developed gender system, of course). Theoretically, this correlation is not easy to explain, since it would require an in-depth analysis of demonstratives, which cannot be carried out in the present work. However, it certainly has to do, again, with the more complete structural configuration of INs in these languages, which are categorially fully specified roots with at least an additional ClassP projected; this facilitates the reconstruction of referentiality for these INs in the higher functional domain where demonstratives are projected.

Let us now proceed to outlining two very peculiar phenomena involving stranding and incorporation, each one of which deserves special treatment.

3.3.3. Stranding of relative clauses

In the case of RCs, an important distinction should be made between *headed* and *headless* RCs. For the latter, incorporation is attested in the Wakashan language Nuu-

chah-nulth, a phenomenon that is part of the more general pattern of *wh-* incorporation in this language (see chapter 4); the latter is a subtype of *modifer incorporation* as discussed in the previous section (see Davidson 2002 for a more exhaustive description of the facts). This pattern may be exemplified by the following sentence in the Barkley Sound dialect (Kammler & Vajkonny 2005:82, glosses AM):

(25)   *hayimḥimaḥ qʷisuupitin*   [NUU-CHAH-NULTH]
       hayimḥi-maḥ   [RC qʷi-suup-mit-ʔin]
       ignore-IND.1SG.S [RC **what**-**kill**-PST-1PL.S]
       'I don't know what we killed.'

In Nuu-chah-nulth, then, as in more familiar European languages, headless relatives are expressed by *wh-* pronouns, which can appear incorporated in affixal predicates, as in (25).

Headed RCs, instead, cannot appear incorporated (except perhaps in the unique Crow example discussed in 4.4), and must be left stranded. This, then, is the difference that motivates the separate treatment of RCs with respect to other types of modifiers: it is not a difference in terms of language-particular choices between incorporation and stranding, but rather one between different types of constructions, which entail different syntactic effects. For a more complete coverage of the interactions between headed RCs and NI, the reader is referred to Muro & Modena (to appear); in the present work, I will limit myself to pointing out two facts of special relevance for the purpose of this work. First, let us consider the most common case: normally, in languages with valence-neutral NI, an IN can be modified by an external RC; this can be seen in Mohawk (26, from Baker 1996:308) and Southern Tiwa (27, from Allen et al. 1984:297):

(26)   *ʌ-ye-**nakt**-a-**núhweʔ**-neʔ*   *[RC **ne***   [MOHAWK]
       FUT-3F.SG.S-**bed**-LNK-**like**-PUNC   [RC **DET**
       *thetʌre   waʔ-k-**hnínu**-ʔ]*
       yesterday FACT-1SG.S-**buy**-PUNC]
       'She will like the bed I bought yesterday.'

(27)   *te-**pan**-tuw̱i-ban*   [S. TIWA]
       1SG.S/3IN(ii).SG.O-**bread**-**buy**-PST
       [*RC* *ku-**kha**-ba-ʔi]*
       [RC 2SG.S/3IN(ii).SG.O-**bake**-PST-SUB]
       'I bought the bread you baked.'

In the Mohawk case, the NI construction is separated from the external RC by a modifying adverb, whereas in the Tiwa sentence, nothing intervenes between the two; moreover, the RC in (27) shows a subordinating suffix which has no counterpart in (26), if not for the fact that the predicate is understood as inherently nominalised, since it is introduced by the determiner-like element *ne*. The second thing we have to note regards precisely the relation between main and dependent clause: it is not a must that the NI construction should occur in the main clause, as the following example pair from Southern Tiwa shows (Allen et al. 1984:308):

(28)   a.   [*RC* *bi-**k'uru**i-**tha**-ba-ʔi*]i   [S. TIWA]
            [*RC* 1AN.SG.S/3IN(b).SG.O-**dipper**-**find**-PST-**SUB**]
            *i-**k'euwe**-m*
            3IN(b).SG.S-**be.old**-PRES
            'The dipper I found is old.'

       b.   *i-**k'uru**i-**k'euwe**-m*
            3IN(b).SG.S-**dipper**-**be.old**-PRES
            [*RC* *bi-**tha**-ba-ʔi*]i
            [*RC* 1IN(b).SG.S-**find**-PST-**SUB**]
            'The dipper is old that I found.'

In both cases, the IN is the subject of the matrix clause and the object of the RC; in (28a), however, the relative head is incorporated in the RC, instantiating what is known as an *internally-headed RC*; in (28b) we can see the externally-headed version, where the IN appears in the matrix verbal complex, as in (b). Alternations like the one in question are explained by Allen et al. as the incorporation of the head N into "whatever comes first in the sentence." After all, the IN is both a (stative) subject and an object, thus the alternation does not come totally unexpected; the two structures, however, must have different derivations, since the sentence in (a) is a nominalized predicate which is

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reinterpreted as coreferent with one of its components, i.e the IN. This paradox does not apply to the (b) case, where the IN and the RC are coreferent, but distinct. Again, this high referentiality of the IN which allows for the reconstruction of its meaning even when it is embedded in a RC must fall out from the structural richness of INs in languages with valence-neutral NI.

In theoretical terms, we can still claim that examples like (26), (27) and (28b) instantiate separate manifestations for objecthood and affectedness (the latter being represented by the RC), but (28a) is surely derived from a different process: I argue that this process is the nominalization of the dependent clause, a nominalization which may be carried out by the *-ʔi* subordinator. The important thing is that this nominalization process is not independent of the predicate's constituents; rather, it is firmly anchored to the coreference between the final derived argument and the IN. For this to succeed, however, it is necessary that the IN be fully referential as a root (which, in structural terms, means that it must be at least as large a phrase as a CatP): this is guaranteed by the valence-neutral character of NI in the Southern Tiwa language, or better, it may constitute an additional piece of evidence for supporting the view that valence-neutral NI must entail a larger structure for INs.

To conclude, I hope this discussion has shown that RC stranding and related processes play an important role in understanding NI, not only because it increases our sample of stranding phenomena that make us think about the nature of objecthood and affectedness, but also because it adds new data that could support the view of the transitivity alternation illustrated in the preceding chapter. Moreover, the Wakashan case is instructive because it tells us that the peculiar modifier incorporation pattern shown by these languages also applies to *wh-* pronouns, at least as long as these introduce a headless RC.

3.3.4. Semantic possessors

The phenomenon I will discuss now is a very notorious one, since it is widely known in the literature under the name of *possessor stranding*; however, in my approach I will not use this term, since I argue it is misleading if taken too literally. I claim that the

possession effect is in fact only a semantically-induced side effect, and not a structural property: if the stranded elements in these constructions were syntactically legitimated possessors, we could say that this phenomenon instantiates some kind of genitive stranding (where the genitival modifier is reanalysed as a theme). I argue that this is not the case, but this requires some defense, since this position is precisely what Baker (1988, 1996, Baker et al. 2003) maintains. First of all, then, let us look at some data; the following sentence pair from Oneida is highly instructive (Michelson 1991:756):

(29)   a.   *wa?-**k-nuhs**-a-**hni:nú**-:*   [ONEIDA]
            FACT-**1SG.S/3N.SG.O**-house-LNK-**buy.from**-PUNC
            John   lao-núhsa?
            J.   **3M.SG.P-house**
            'I bought John's house.'
       b.   *wa?-**hi-nuhs**-a-**hni:nú**-:*   *John*
            FACT-**1SG.S/3M.SG.O**-house-LNK-**buy.from**-PUNC   J.
            'I bought John's house.'

In the first example, the IN triggers default object agreement,[13] and 'John's house' is rendered by a possessive construction, with the head N doubling the IN; in (b), on the other hand, we have no doubling, and object agreement is not triggered by the IN, but by the stranded semantic possessor. As can be seen from the glosses (buy.from) Michelson rightfully objects to Baker's (1988, 1996, and its reiteration in Baker et al. 2003) that these constructions are instances of *possessor stranding* with *possessor raising* on verbal agreement. Baker's explanation would imply that the stranded modifier should be a requalified genitival modifier, promoted to the status of theme argument by virtue of the structural adjacency to the verbal complex it is supposed to have acquired once its head N has been incorporated via head-movement.

I argue, however, that stranding of genitival modifiers simply does not exist in any polysynthetic language (the only apparent cases, like the one from West Greenladic reported in 4.1.2.1, actually involve lexicalised DPs and become ungrammatical if the

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[13] Actually, Michelson simply glosses the *k-* prefix as '*1SG.AGENT*', without any reference to object agreement; however, if the Mohawk data introduced at the beginning of this chapter (4-5) have been correctly understood, the default vs. full agreement alternation I illustrated must carry over to the closest related Oneida as well.

possessor is a referential N); Baker et al. (2004) claim to provide evidence from Mapudungun that the equivalent "possessor stranding" constructions found in that language do not contain either of the two applicative affixes that are so productive in the language, and that could add an applied object (a source or a benefactive) to the predicate.

However, their claim rests on the assumption that conceiving a stranded possessor as an argument should automatically qualify it as an applied argument (i.e. the object of an applicative construction); this assumption rests on the fact that this is so in *"possessor-raising"* constructions in Mohawk, as seen in 2.3.3.3, ex (42), repeated here below as (30) for clarity:

(30)   *wa-**hi**-ʔsere-**ht**-óhare-ʔs-eʔ*   [MOHAWK]
       FACT-**1SG.S/3M.SG.O**-**car**-NMLZ-**wash**-BEN-PUNC
       'I washed his car/ I washed the car for him.'

As I pointed out in the last chapter, alienable Ns in Mohawk can only "raise" a possessor by means of a benefactive applicative construction; this peculiarity of Mohawk is considered by the authors a universal property. What the authors fail to recognize is the difference I pointed out in 2.3.3.3, i.e. the distinction between *alienability-prominent* and *affectedness-prominent* NI: Mohawk NI is of the first type, but Mapudungun NI may probably be an instance of the second type. This would explain away the difference between the presence of applicative morphology in Mohawk and its absence in Mapudungun, since applicative formation is one way of avoiding the ungrammaticality of "possessor raising" in NI constructions involving an alienable IN, an ungrammaticality that only shows up in languages in which NI is *alienability-prominent*. If NI in a language is *affectedness-prominent*, however, there is no need for affected arguments to be introduced by applicative formation; hence, the arguments raised by Baker et al. against Michelson's claim that "possessor stranding" is actually the projection of an affected argument simply do not hold. Since I think Michelson was on the right track, and what is more, since I have been trying throughout this chapter to uphold the claim that stranding constructions instantiate separate manifestations of objecthood (or subjecthood in the case of unaccusative Vs) for INs and affectedness for stranded

arguments (at least in valence-neutral NI), I argue that the so-called "stranded possessors" are not syntactically licensed possessors (i.e. genitival modifiers), but rather arguments in their own right, introduced by the thematic projection AffectP. An affected stranded argument need not be a source or a benefactee, since the interactions between affectedness and higher thematic projections in NI constructions arise from another contrast, i.e. the distinction between alienable and inalienable possession of INs.

Structurally, possessor affectees differ from other affectees such as doubles in CNI constructions or stranded modifiers in that they are not coreferent with the IN. In this respect, we expect them to be fairly independent of the referential properties of the latter, and indeed they are to be found even in languages with antipassive NI (which often do not allow stranded affectees to be coreferential with the IN). The prediction is borne out if we consider the Chukchi example (45b) from the previous chapter, repeated here below:

(31) *ənan*   ***pojgə-mcatko-nen***   ***remkəlʔ-ən***   [CHUKCHI]
      they.ERG **spear-break-3SG.S/3SG.O**   **guest-ABS**
      'They broke the guest's spear.' ('They "spear-broke" the guest.')

In this case, the affected argument is *remkəlʔən* 'guest', with absolutive case, here instantiating affectedness; this is the only productive pattern of affectee stranding in the language, which, as seen, display nothing more than traces of stranding of modifiers like numerals (21a). This is expected, since it follows from the low syntactic transparency of INs in languages with antipassive NI.

3.4. Summary of findings

In this chapter, my aim was to inquire about the nature of stranding phenomena. To clarify the scope of the inquiry, in section 3.1 I started out with the difficult question of whether an adequate understanding of stranding phenomena can be achieved even in the absence of a complete theory of agreement: given my account of the interactions between NI and agreement (proposed in 2.3.3), where I illustrated the interactions

between objecthood and affectedness, I gave the question a positive answer, assuming stranding constructions to arise from separate manifestations of the two features.

In sections 3.2 I illustrated CNI and doubling, which instantiate the occurrence of an external DP with a NI construction; in this case, Chung & Ladusaw's (2006) theory of Restriction and Saturation turns in useful, since it explains why INs sometimes act as classifiers with respect to their external DP, and sometimes they are fully replicated by it: on the semantic level, restriction must always precede saturation. On the syntactic level, however, things are different: the projection of a ThP implies full syntactic saturation the first time around: there can be no syntactic restriction. If semantic saturation requires further specification of an IN, a more specific external argument can be introduced by AffectP in languages with valence-neutral NI, and by a higher thematic head (presumably Instr/Man/LocP) in languages with antipassive NI; the heads of these projections can act as covert applicatives. If the affectee is a N coreferent with the IN, CNI or doubling may take place (an option only available to valence-neutral NI); if, on the other hand, the affectee is a modifier (section 3.3), I take it to modify a pro (this too coreferent with the IN), which in turn can be generated in AffectP or higher according to the valence-neutral or antipassive character of NI in the language under consideration. Common stranded modifiers are adjectives and quantifiers: one case of an absolutive stranded numeral (21a) is found even in the antipassive NI language Chukchi. The fact that this modifier does not bear the instrumental case thus provides an exception to our generalization that stranded modifiers in languages with antipassive NI must be generated in a thematic projection higher than AffectP. Demonstrative and headed RCs as stranded modifiers are instead exclusively found with valence-neutral NI.

Antipassive NI languages, on their part, prefer another pattern, i.e. recursive incorporation of modifiers into the IN. We have seen this pattern with adjectives (in Chukchi) and quantifiers (Greenlandic). An interesting correlation (which however remains to be explained) is that between antipassive NI (excluding affixal predication), prethematic adjunct NI and A-N-V order in NI structures: the genetically unrelated languages Chukchi and Nahuatl qualify for this correlation.

If the external affectee is not coreferent with the IN, it can only be a semantic possessor, and this can be considered a universal generalization.

To sum up, modifier stranding appears to be a pattern typical of valence-neutral NI: this is due to the higher syntactic transparency of INs in the languages displaying this incorporation type, since the projection of a ClassP increases the referentiality of the IN; only a few exceptions stand in the way of turning this into a generalization. INs in antipassive NI languages are syntactically less transparent, and therefore more likely to continue their derivation via further compounding.

4. Complex NI structures

In 2.3.2, where I discussed the X° vs. XP status of INs, I mentioned that a difference should be made between direct and indirect morphological evidence. A good part of chapter 2 was devoted to discussing indirect evidence, i.e. the types of evidence that could be deduced from the observation of the V's movement properties, as well as from the interactions between NI and object agreement. I will now proceed to taking into account what I called *direct morphological evidence*: given the theoretical premises set forth in chapter 2, i.e. that NI is not triggered by special properties of the IN, but rather by an incomplete categorial checking of the V root, I would expect NI constructions to display different kinds of morphological complexity in INs, but not in incorporating Vs.

Second, since I argue that preverbal NI instantiates the projection of an XP in the Spec of a thematic projection, whereas postverbal NI follows from the projection of a head in the same position (plus V movement), I would expect only preverbal INs to display this complex patterns. We will see that both of these predictions are borne out, and that these facts can be interpreted as additional evidence for my claim that preverbal INs are XPs (and therefore, V roots must also be XPs).

Several different types of complex preverbal NI constructions will be surveyed: some of them involve complex INs with elaborate structure (4.1), others INs with inflectional markers, still others show functional roots like *wh-* words or quantifiers taking the place of INs, and there are even a few cases of reiteration of NI.

4.1. Preverbal incorporation of complex nominal elements

INs are not always bare, quite the opposite. At least seven subcases of complex structures must be distinguished, as we shall see. Recursive NI (i.e. the incorporation of a direct object and a causee in a causative constrction) will be discussed in 4.4.1, and it is not to be confused with multiple NI (i.e. the incorporation of two Ns by one and the same V), which will be discussed separately in 4.4.2.

4.1.1. Derivationally complex Ns

The first type of complex Ns I will take into account is the class of derived Ns, in which either of two derivational processes (reduplication or suffixation) yields a complex (albeit not further modifiable) N.

4.1.1.1. Reduplicated Ns

In some languages, INs may undergo reduplication. The reason is not always clear, and is probably language-specific. In the following example from Kitanemuks, a now extinct Uto-Aztecan language displaying true NI, there is at least one attested example of a reduplicated IN (although the process is also documented for other languages of the family, e.g. Nahuatl); in this case, reduplication clearly has a distributive interpretation (Anderton 1988:156):

(1)   a.   *ʔa-kɨm*   *ʔa-ho-y*   [KITANEMUKS]
                3SG.S-**make**   NMLZ-**hole**-OBL
                'He digs a hole.'

        b.   *ʔa-ho-kɨm*
                3SG.S-**hole**-**make**
                'He digs a hole.'

        c.   *mɨ-ho-ho-kɨm-it*
                2SG.S-**hole**-**hole**-**make**-INT
                'Are you making holes?'

Here, what distinguishes the reduplicated construction (1c) from the simple one (1b) is that the latter refers to an indefinite number of holes, thus conveying the idea of a generic activity. A different situation is found in the Wakashan language Nuu-chah-nulth, where some affixal predicates trigger obligatory reduplication, as can be seen in the example below (Ahousaht dialect, from Wojdak 2004:1):

(2)   *ḥiḥiyity̓aksiš ʔaał*   [NUU-CHAH-NULTH]
        ḥiyi-ity̓ak[+R]-siš-ʔaał
        snake-**fear**-IND.1SG.S-always
        'I'm always afraid of snakes.'

This example differs from the preceding one for two reasons: first, the language in question is an affixal predication language, and this means that there can be no non-incorporating equivalent of (2) with the predicate *-ity̓ak*, since this is exclusively affixal. Second, this suffix obligatorily triggers reduplication on INs; in this case, the semantics of the predicate is very well compatible with a *kind* interpretation of the IN, since being afraid of something as a class is somehow different from being afraid of a specific individual. This does not automatically carry over to each and every instance of the phenomenon, however (see Wojdak 2005:29-31, where affixal predicates like *-sapi* 'depend on' or *-q* 'travel with' are included in the reduplicating class), and the matter needs further study. Anyway, this does not change the fact that, in both cases, a morphological process is involved. From a syntactic viewpoint, the phenomenon may be interpreted as the movement of a nominal ClassP to a Distr(ibutivity)P projection, which must be a very low one (immediately above the lowest ClassP, which in these languages is not activated, since they show no morphological gender).

The data in (1) and (2) also pose a deeper problem, i.e. that of the nature of morphological processes like reduplication: is the reduplicating syllable the head of the DistrP, or is this process generated in a morphological component? In this dissertation, I limit myself to the description and theoretical explanation of some syntactic properties of NI constructions, and these properties define an interface between syntax and morphophonological processes (an interface which I describe in terms of *morphological phases*): whether the latter take place at the interface between phonology and syntax (as claimed by Distributed Morphology) or in a specific morphological component (the view defended in Aronoff 1994) must for the time being remain an open question.

4.1.1.2. Nominalized Ns

The importance of nominalizing morphology cannot be underestimated, since it plays a key role in deciding about the X° vs. XP status of INs. There are two types of nominalizations, namely the derivation of deverbal Ns and that of Ns that already have nominal meaning (but also show some morphological idiosyncrasies, as in the case of loans). The former case may be illustrated with examples from Northern Iroquoian languages; in Mohawk, for instance, the IN sometimes does not appear bare, but takes a suffix which is incorporated along with it, as can be seen in the following example (Mithun 1984:868, glosses adapted):

(3)   *wa-hi-ʔsere-ht-anʌhsko*   [MOHAWK]
       FACT-3M.SG.S/1SG.O-**car**-**NMLZ**-steal
       'He stole my car.'

The *-ht* suffix is homophonous with a verbal causative (which is not strange, since many deverbal Ns can be interpreted as *nomina agentis*, and this is certainly one case). Moreover, the free-standing form of the N is *kà:sere*, with no suffix (derived from the root *-ʔsere* 'drag'), and the nominalizer only appears in the incorporated form (although the closely related Oneida language does have a free-standing form *kà:sle-ht*). This fact is unusual, but consistent with the assumption that INs in Northern Iroquoian may have internal structure.

The other important case, as I mentioned at the beginning of this section, is categorial assignment in loanwords. As we have seen in the introduction, Huauhtla Nahuatl has *panci* as the word for 'bread' (which comes from Spanish *pan* plus an indigenous nominalizer), and Mohawk incorporates the English word *job* as *job-tsher-*; this is a productive phenomenon, and it testifies to a high degree of transparency inside the constituents of an IN. It shows us that an IN, far from being an atomic head, can be a complex structure; in chapter 2, I have identified this complex structure as an XP structure dominated by a CatP, which applies to Ns as well as to Vs. As far as V roots are concerned, I have adduced the three different structural configurations (free-

standing, incorporating, affixal) as evidence for the existence of a projection that is specialized in checking features linked to categorial identity; for Ns, we have just seen that there is overt evidence. But how can the N root adjoin to its categorial morpheme? In 2.3, I assumed that a complement XP cannot move to the Spec of its own projection, unless this projection is the edge of a morphological phase; this is precisely one of the cases I had in mind (the other being that of Romance theme vowels), since CatP is the edge of |L|. Thus, I assume that √P (with or without a ModP) XP-moves into [Spec, CatP].

4.1.2. Compositionally complex Ns

Another subcase of complex INs is the incorporation of compounds (or equivalent constructions), as well as of Ns compounded with adjectival elements. Let us see them in turn.

4.1.2.1. N-N compounds and lexicalized DPs

Not all polysynthetic languages have N-N compounds; this is strange, since NI and compounding display similar morphological properties.[1] The most interesting case is that of Chukchi, which does have productive compounding of nominal roots (with the modifier preceding its head, as predicted by my account in term of the XP nature of roots) and, as noted by Dunn (1999:167-8), nominal compounding in this language also has the function of backgrounding the modifier N. But what is most interesting is that Chukchi shows a typologically rare pattern of (preverbal) compound incorporation: let us consider some data (Kurebito 1998:104):

(4)   a.   *gəm-**nan** uwikuk-in kenre-t*   *t-ell-ə-net*   [CHUKCHI]
              I.**ERG**   **pot-POSS**   scorching-**ABS.PL** 1SG.S-**take**-LNK-**3PL.O**
              'I removed scorching from the pot.'

---

[1] As a preliminary observation, it could be interesting to note that the languages in my sample which do have N-N compounding are the two which also have prethematic adjunct NI (as well as the A-N-V order and theme NI of the antipassive type), i.e. Nahuatl and Chukchi, as noted in ch. 3. This can hardly be a coincidence, since I assume prethematic adjunct NI to be the equivalent of N-N compounding.

b. *gəm-**nan** uwikuk   t-ə-**kenre-ll-ə-g?en**
   I.**ERG**   pot   1SG.S-LNK-**scorching-take**-LNK-**3SG.O**
   'I removed scorching from the pot.' (=I "scorching-took" the pot.)

c. ***gəm-nan** t-uwikuke-ll-ə-net   kenre-t*
   I.**ERG**   1SG.S-**pot-take**-LNK-**3PL.O**   **scorching-ABS.PL**
   'I removed scorching from the pot.'

d. *gəm   t-uwikuke-kenre-ll-ə-g?ek*
   I.**ABS** 1SG.S-**pot-scorching-take**-LNK-**1SG.S**
   'I removed scorching from the pot.' (=I "pot-scorching-took".)

In (4a), we can see a free-standing N with a possessive suffix, which is the Chukchi equivalent of a genitival modifier; this is not a real compound (although the language does have free-standing compounds in other constructions). In (b) we can see that the head of the genitival DP can be incorporated: the 'pot' is coreferenced on the V by an object-agreement suffix, and performs the role of a stranded affectee; it is definitely not to be understood as a thematic source argument, since it cannot be incorporated if the underlying object (which would fall within its scope and should be incorporated first) stands free (c). Finally, (4d) shows that the DP can be compounded and incorporated as a compound: this shows that compounding in Chukchi is syntactically very active, just like NI constructions.[2] Contructions like (4b) remind us of body-part NI, in that the two elements involved in some way stand in a part-whole relationship (the scorching is a part of the pot). This kind of interaction between compounds and NI constructions is found elsewhere, e.g. in the Amazonian language Xamatauteri Yanomami, where nominal compounds also exist, but when their head is a body-part, it must be incorporated (Ramirez, p.c. quoted in Dixon & Aikhenvald 1999:347):

(5) a. ***xama** ya=**he**=**wa**-ma*   [X. YANOMAMI]
         tapir 1SG.S=**head**=**eat**-PST
         'I ate tapir's head.'

---

[2] An alternative analysis could be to consider this case an instance of multiple NI of a direct object and an affected argument; however, affectees usually do not incorporate, and therefore I think an explanation in terms of compounding is preferable. The ambiguity in this case is due to the fact that the dependent element of the compound and its head stand in a part-whole relation.

b.   *_xama=he_   _ya=wa-ma_
      tapir=head   1SG.S=**eat**-PST
      'I ate tapir's head.'

In (5a), the tapir is an affected argument; the agrammaticality of (b), on the other hand, tells us that the requirement of incorporating body-parts (which are the only Ns that are incorporated bare) preempts that of compounding the nominal elements. This is interesting, since 'tapir's head' is a kind of food, and we will see that other languages (like those of the Eskimo family) make different choices. Returning to the interactions between compounding and NI, the most complicated facts are, in my opinion, the alternations found in the juxtaposition structures of Nadëb, a Makú language of Amazonia (Weir 1991:331-2, glosses adapted):

(6)   a.   _**a**_   _**hoonh**_   _**tób**_   _**nooh**_ _kad_ _**ga-juu**_ _**dúk**_   [NADËB]
        2SG.P grandmother house mouth uncle **?-close**   **be.suspended**
        'Uncle closed the door of your grandmother's house.'

    b.   _**a**_   _**hoonh**_   _**tób**_   _kad_ _**nooh=ga-juu**_ _**dúk**_
        2SG.P grandmother house uncle **mouth=?-close** **be.suspended**
        'Uncle mouth-closed your grandmother's house.'

    c.   _**a**_   _**hoonh**_   _kad_ _**tób=nooh=ga-juu**_   _**dúk**_
        2SG.P grandmother uncle **house=mouth=?-close** **be.suspended**
        'Uncle house-mouth-closed your grandmother.'

    b.   _**õm**_ _kad_ _**hoonh=tób=nooh=ga-juu**_   _**dúk**_
        2SG.O uncle **grandmother=house=mouth=?-close be.suspended**
        'Uncle grandmother-house-mouth-closed you.'

This language is unusual in displaying an unmarked OSV word order, which is interesting because the subject intervenes between the direct object and the V, thus providing an ideal testing ground for understanding when NI (actually juxtaposition) takes place. This said, (6a) shows the basic construction, with a possessor (_hoonh_ 'grandmother') modifying a head N _tób_ 'house'; the whole complex, in turn, modifies the body-part N _nooh_ 'mouth', which, juxtaposed to _tób_ 'house', is used as a compound to

express the concept 'door' (i.e. the mouth of the house). The kinship term (*hoonh* 'grandmother'), as expected, has a possessor, which is indicated by the particle *a* 'your'; the morphology of this particle is just as important as the position of the subject, since the pronominal argument is the only element in the sentence which is overtly sensitive to affectedness: here, it clearly indicates a possessor. In (6b), an unusual interplay between affectedness and objecthood takes place: the juxtaposed nominal compound 'house-mouth' is broken up, since the requirement of incorporating the body-part N manifests itself here as in Chukchi (4b) and Yanomami (5a);[3] 'mouth' seems to move to the right of the subject, becoming juxtaposed to the V, leaving a stranded affectee, 'your grandmother's house'. In (6c), the nominal compound is recreated inside of the juxtaposition construction by incorporating the modifier 'house'; the stranded affectee is now 'your grandmother'; this was also the case with Chukchi. The most extreme construction is, however, (6d): Weir cautions that this variant is somewhat constructed and not in common use, being more likely to appear in a subordinate context than in a main sentence; nevertheless, it is grammatical. The construction is derived by splitting apart the possessor of the object ('grandmother') and its possessor ('your'), resulting in the juxtaposition of a complex N ('mouth of the house of grandmother') to the V complex; the stranded pronominal element must now take on the affectedness, and it does by becoming an object pronoun.

In short, we can say that all the cases of interaction between N-N compounding and NI observed so far involve nominal items standing in a part-whole relationship. In such cases, the modificational structure is commonly not maintained under NI, since the *part* term tends to incorporate as a *locus of affection*, whereas the *whole* term takes the role of a stranded affectee. In the Nadëb examples, the relative sizes of affectees and juxtaposed Ns in the different examples should not be interpreted as the results of movement processes; more simply, it is a matter of what is generated in AffectP and what in ThP. Thus, while (6a) takes a full DP object (which is checked for both objecthood and affectedness), in (6b-d) the two factors receive separate instantiations,

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[3] This requirement appears to be strong in this language as well, since the author gives (6b) as the most common variant.

with AffectP taking its maximum size in (6b)('your grandmother's house') and its minimum size in (6d) ('you'), the reverse holding for ThP.

A more marked option is to incorporate the whole compound, but, on a preliminary survey, this option appears not to be available in all languages. If the two items do not stand in a part-whole relation, we would not expect these complexities to arise. The data in this respect are scarce, but at least one Chukchi example can be provided that shows precisely such a compound, with even two additional adjectival modifiers (Skorik 1961:103, quoted in Spencer 1995:480):

(7) *tə-**tor-taŋ-pəlwəntə-pojgə-pela**-rkən*   [CHUKCHI]
1SG.S-**new-good-metal-spear-leave**-PRES
'I am leaving a good, new, metal spear.'

The modifier of the compound (*pəlwəntə* 'metal') is not a part of the head; rather, it specifies the material out of which the head's referent is made.

A totally different case is that of lexicalised DPs. In Eskimo languages (where NI takes the form of affixal predication), an argument with a genitival construction must result in a free-standing DP; but there are exceptions to this rule. In fact, names of typical foods can appear incorporated as whole phrases (like 'reindeer meat' below), unless the meat intended is that of a specific animal, which makes affixal predication impossible. The relevant examples are as follows (adapted from Sadock 1981:309):

(8) a. *tuttu-p*   *neq-aa-nik*   *neri*-vunga   [W. GREENLANDIC]
        reindeer-ERG meat-3SG.P-INS   **eat**-IND.1SG.S
        'I ate reindeer meat.'

     b. *tuttu-p*   *neqi-tor*-punga.
        reindeer-ERG   meat-eat-IND.1SG.S
        'I ate reindeer meat.'

Sadock interprets these data as genitive stranding (the ending of the genitive case is the same as that of the ergative in all Eskimo languages). This is still different from Baker's (1988) theory of possessor stranding, which entails that the modifier should appear as a

direct argument by virtue of structural adjacency and government; at face value, this could be compatible with a head-movement approach (the N head moving to the affixal predicate, leaving the genitive stranded). However, it should be pointed out that constructions like these are by no means productive in Greenlandic or any other Eskimo language; this means that they are most probably lexicalised, which in turn means that the genitival relation is no longer transparent as such, but rather indicates something else. Woodbury (2002) analyses equivalent constructions in the Cup'ik dialect of Central Alaskan Yup'ik as DP incorporation, a solution that fully accounts for the asymmetries between these constructions and other (true) genitives; however, one may argue that, if the DP is lexicalised, its internal structure could be no longer transparent and the whole phrase might be incorporated as a head. Now, if in order to get rid of the first complication (the genitive-stranding hypothesis) I had to use the fact that the genitive relation is somehow (partially) deactivated, in order to get rid of this complication, paradoxically, I would have to show that Greenlandic can independently incorporate XPs; in section 4.1.4, I will show that the incorporation of directional PPs provide such an example. Therefore, I conclude that DP incorporation is possible in Greenlandic and that it explains the irregularities of some nominal expressions in this language. The fact that these expressions are lexicalized does not mean that their internal structure is totally annihilated; rather, it has to be made compatible with an incomplete categorial specification on the V. This does not mean an incomplete categorial specification on the IN, and much less that the whole complex is a head. It simply means that the genitival relation has taken on a different, more grammaticalized function, i.e. that of a modifier specifying the "matter" of the possessed N, rather than its possession, which makes this example analogous to the Chukchi example (10). This exempts the IN from the obligation of specific reference, which would be incompatible with affixal predication.

In sum, we have seen that N-N compounding and NI may interact under two conditions: when the two Ns stand in a part-whole relation, the part may incorporate more easily than the whole (giving rise to simple NI with the whole as a stranded affectee); when the two Ns stand in a simple modification relation, the modifier may be incorporated with its head if and only if it does not denote a possessor. This is consistent with the fact (pointed out in the previous chapter) that genitive stranding is actually

impossible (since the genitival relation is not licensed by a structural projection of verbal structure, but rather by one in the DP, hence the impossibility of a genitival modifier to excorporate alone). The only apparent case of genitive stranding can be explained as the incorporation of lexicalized DPs, where the genitival modifier has a special function (a naming function, since it is used to derive names of foods).

4.1.2.2. Adjectivally modified Ns

The different manifestations of adjectival modification are surely one of the most complex areas of morphosyntax on a universal level. Part of this is due to the ambiguity of adjectives as a lexical category, since there are languages where these are a well-defined and fully productive class, and others where they are almost all neutralized as Ns (as in some Australian and African languages), Vs (as in many Amerindian languages), or both (as in Nahuatl). Sometimes, the way adjectival modification interacts with NI can be traced back to DP-internal interactions between adjectival modifiers and their head N. This is the case of Chukchi, where, on the one hand, we have the incorporation of adjectival modifiers into the N stem they modify; this incorporation becomes obligatory if the DP is in the comitative case (Skorik 1961:103, quoted in Spencer 1995:480):

(9)   a.   *ga-tor-taŋ-kətepa-nalgə-ma*   [CHUKCHI]
             COM-**new-good-ram-skin**-COM
             'with a new, good ram's skin'

    b.   *ga-taŋ-tor-kətepa-nalgə-ma*
             COM-**good-new-ram-skin**-COM
             'with a good, new ram's skin'

    c.   *ga-kətepa-tor-taŋ-nalgə-ma*
             COM-**ram-good-new-skin**-COM
             'with a ram's, good, new skin'

Note that only the root of the adjective is incorporated: the above reported forms could not stand alone as adjectives in a sentence if their case is not the comitative (in order to

do so, they should be marked with the *nə*-X-*qin* circumfix). A problem is how to derive the inherent order of adjectival heads and the surface order from it, especially as far as the highly anomalous form in (c) is concerned, where the modifier of a N-N compound is separated from its head by the two adjectival roots; this problem, however, does not directly concern us here.

What does concern us is that, on the other hand, incorporation of a N with multiple adjectival modifiers into a V is also possible, as we have already seen in ex. (7), repeated below as (10):

(10) *tə-**tor-taŋ-pəlwəntə-pojgə-pela**-rkən*   [CHUKCHI]
      1SG.S-**new-good-metal-spear-leave**-PRES
      'I am leaving a good, new, metal spear.'

In this case, the IN has previously incorporated several adjectival modifiers (which are really incorporated in the N root, as they do not display their normal functional morphology, i.e. the above mentioned *nə*-X-*qin* circumfix), the outer ones taking scope over the inner ones; the innermost modifier (*pəlwəntə* 'metal') is the modifying element of a nominal compound. From the translation, it appears that the whole IN is understood as a specific indefinite, an unusual case for a NI construction, and the syntactic transparency of the IN appears not to be at odds with its morphological complexity: it is very likely that this has to do with the antipassive character of Chukchi NI, since, as I pointed out in section 3.3.1.1, languages with A-N-V incorporation (i.e. Chukchi and Nahuatl, among those in our sample) also have antipassive NI and prethematic adjunct NI. In these languages, INs are structurally rather small (they lack the low ClassP, as said in chapter 2), and thus they are free to proceed with further morphological compounding in order to gain referentiality; still, they are XPs. Their transparency is thus a result of the combined action of their XP status and the compounding process, rather than the projection of higher FPs (like CatP or ClassP, as was the case with valence-neutral NI).

Anyway, before considering the theoretical implications of the above data, we should recall what I pointed out in the preceding chapter, i.e. that Chukchi and Nahuatl show recursive incorporation of adjectival modifiers into N and N into V. However,

Nahuatl differs from Chukchi not only in that it has no DP-internal adjective incorporation, but also in that the order of the elements involved in complex NI constructions with adjectivally modified Ns can be both A-N-V and N-A-V. The data exemplified for Orizaba and Huauhtla in chapter 3, ex. (11) are repeated here below as (11):[4]

(11)　a.　***opōch-īxtololo-tataka***　　　　　　　　[O. NAHUATL]
　　　　　left-eye-scratch
　　　　　'scratch one's left eye'

　　　b.　***ā-k^walli-oni***　　　　　　　　　　　[H. NAHUATL]
　　　　　**water-good-drink**
　　　　　'drink good water'

In chapter 3, I noted that the adjectival head in the (b) example shows derivational morphology (k^wal-li appears to be derived by means of the -(t)li nominalizer); the modifier in (11a), on the other hand, shows no such derivation. Moreover, I noticed a difference in meaning between the two adjective types ('good' being a gradable quality, and 'left' a polarity-like one), which, in structural terms, should mean that the prenominal adjective is a pure modifier and the postnominal one a derived element. Thinking in these terms, the adjective in (11b) should be analysed as an XP, since it takes its own functional morphology; in (11a), on the opposite, the adjective is a root and the N a complex form (the -lolo suffix seems to be some sort of evaluative morpheme). With only two languages displaying this phenomenon, it is difficult to draw generalizations, but the only observation that can be made is that the N-A-V order is attested in one language, and even there it is not the only available option, whereas the A-N-V can be found in both languages, and in Chukchi it is the only available option. It is therefore very reasonable to suppose that the A-N-V order should be the less marked option (an assumption which is corroborated by the fact that, with this order, each modifier comes to precede its head, i.e. all elements are in their base position, in my terms). An XP-

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[4] These alternations appear to be local variations: David Tuggy (p.c.) reports that the orders vary from town to town. An important thing to note is that this directionality alternation is also found in free-standing DPs, which is probably the historical origin of the phenomenon under consideration.

movement account along the lines of what I proposed to derive the directionality alternation of simple NI constructions should straightforwardly capture this alternation as well: thus, in a structure like (11a), the adjectival element *opōch* would be base-generated in prenominal position: I suppose it is incorporated because of a [-full] category feature on its head N, which appears from the lack of the nominalizer *-tl* on the latter. On the other hand, the adjectival element itself lacks a categorial morpheme: I thus assume it is not a full adjective, but only a √P. (11b), on the other hand, can be derived in the same way as postverbal NI. This case is different from ordinary postnominal adjectives: in Cinque's (2007) theory, the postnominal order is derived via XP-movement of the N to an AgrP whose position is between two different FPs. In this case, however, I cannot say that the projection involved is an AgrP, since the N does not agree with anything (at least, not overtly); I therefore assume that the N XP-moves to [Spec, FP]. Here too, the N lacks the nominalizer *-tl*, and hence a [-full] category feature on the N is involved; these structures can be seen below:
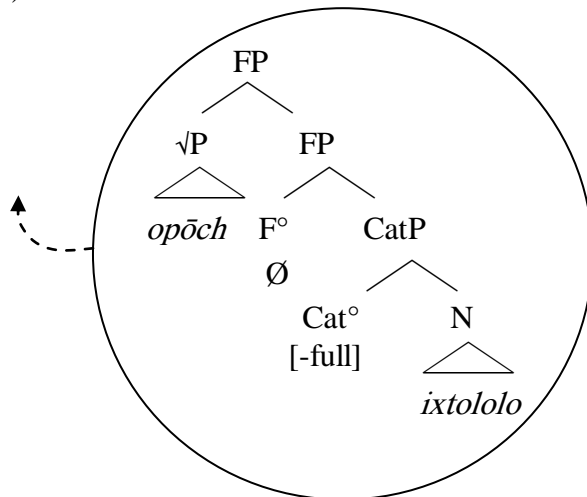
(12)   a. *A-N IN*   b. *N-A IN*
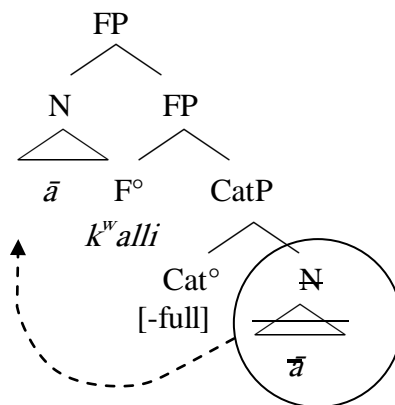
A problem for (12b) is that the adjective does not show the morphology of a head, since it is categorized (by the *-li* suffix in $k^w al$-*li*), a prediction which is not borne out by my account; however, this could be due to purely morphological factors, since the Mapudungun example (26b) in ch. 2 showed similar problems (the IN there being the

Spanish loan *-waka*, which at face value appears to be at least as large as a √P). These structures are to be understood as base-generated in [Spec, ThP$_{DO}$], since they are INs.

As I said at the beginning of this section, in many Native American languages adjectives are neutralized as Vs; Mohawk is a good example, as can be seen in (13) below (Mithun 1984:868):

(13)   *r-ukwe?t-í:yo*   [MOHAWK]
         3SG.M.S-**person-be.nice**
         'He is a nice person.'

If the adjective were a modifier, it should be generated in prenominal position; but, if it is a V, it is the N that should appear as its modifier, which is the case exemplified in (13). But what if the IN were itself part of an adjectival modification predicate? In this case, we would expect recursive NI: indeed, one such example is reported for Mohawk (Mithun 1984:880):

(14)   *w-at-ya?t-awi-?tsher-ase?-stsi-?tsher-owá:ne*   [MOHAWK]
         DEF-**SREFL-body-in.tube-NMLZ-be.new-INTENSIVE-NMLZ-be.large**
         'The brand new dress is big.'

In this case, the N *atyà:tawi* 'dress' (itself a nominalised RC) appears incorporated by means of a nominalizer in the adjectival predicate *asehtsi* 'new', which we have already met in the last chapter as a purely modificational adjective. The whole complex is then recursively nominalized (again, by means of the same nominalizing suffix) and appears incorporated in the main predicate (again, an adjectival predicate). This could be formalized in a structure like (15):

(15)

```
                                    ThP
                         ┌───────────┴───────────┐
                       CatP_N                     ThP
                  ┌──────┴──────┐            ┌─────┴─────┐
                ThP           CatP_N        Th°        CatP_V
           ┌─────┴─────┐    ┌───┴───┐        Ø       ┌────┴────┐
         CatP_N       ThP  Cat°   t_ThP            Cat°         V
       ┌───┴───┐   ┌───┴───┐ -ʔtsher             [-full]       △
     √P_N     CatP_N Th°   V                               -owá:ne
      △    ┌───┴───┐  Ø    △
  atyaʔtawi Cat°  t_√PN  -asehtsi
           -ʔtsher
```
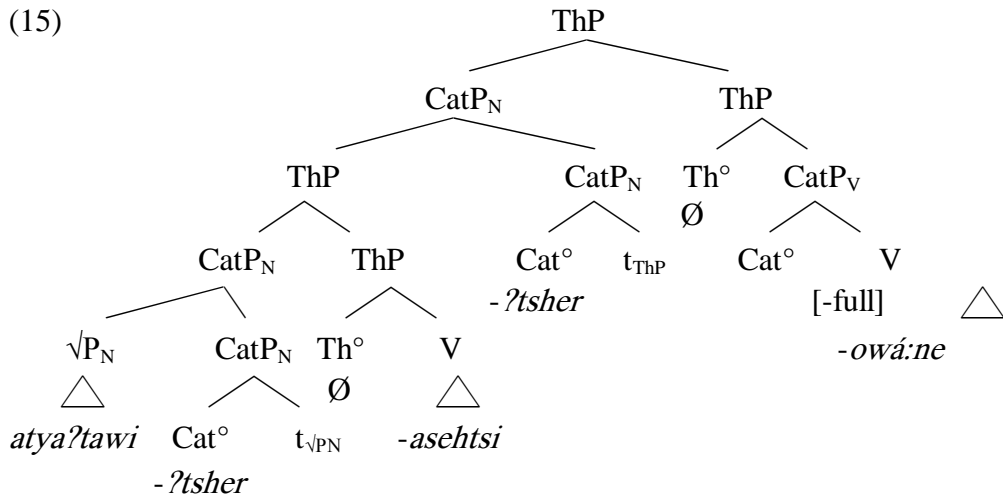
In this structure, ThP (the subject generation site of the main adjectival predicate, i.e. *owá:ne* 'be big') contains a nominalized NI construction reinterpreted as a N by a CatP_N projection; inside of the embedded NI construction, the same phenomenon takes place, since another CatP_N must nominalize the RC *atyaʔtawi* 'one's body is in a tube', which is reinterpreted as a nominal √P.

In sum, in this section we have seen that adjectival modification may interact with NI constructions in an interesting way, in that the adjective can qualify as either the head or the modifier of the adjectival predication construction, according to whether its syntactic status is that of a stative predicate or that of a pure modifier respectively. If it is a pure modifier, moreover, it can be an X° or an XP: this may give rise to a directionality alternation, as seen in Nahuatl.

4.1.3. Ns modified by possessive morphology

In this section, I will provide examples of complex INs containing highly specific morphological elements which are commonly thought to instantiate XPs, i.e. possessive markers. There are two types of these markers: those indicating personal deixis, and those that simply represent possession, without reference to a person. The Athapaskan language Slave (in at least three of its dialects) is, as far as I know, the only documented

language that shows both of these phenomena;[5] in this language, INs may agree in person with their possessors, as can be seen from the following examples (from Rice 1989:659-60, glosses AM and Keren Rice):

(16) a. *tháįchu*   [SLAVEY]
        thá-*y-ne*-**chu**
        mouth-QUAL-2SG.S-**handle(DEFAULT.O)**
        'You (SG) put it in your mouth.'

     b. *nedháįchu*
        ne-thá-*y-ne*-**chu**
        2SG.P-mouth-QUAL-2SG.S-**handle(DEFAULT.O)**
        'You (SG) put it in your mouth.'

     c. *ʔedháįchu*
        ʔe-thá-*y-ne*-**chu**
        POSS-mouth-QUAL-2SG.S-**handle(DEFAULT.O)**
        'You (SG) put it in your mouth.'

(17) a. *keshįdehshá*   [BEARLAKE]
        keshį-*de-h*-**shá**
        shoelace-QUAL-1SG.S-**tie**
        'I tied my shoes.'

     b. *sekeshįdehshá*
        se-keshį-*de-h*-**shá**
        1SG.P-shoelace-QUAL-1SG.S-**tie**
        'I tied my shoes.'

(18) a. *keeshįdeyįge*   [HARE]
        keeshį-*de-yį*-**ge**
        shoelace-QUAL-Asp-**untie**
        'S/he untied his/her boots.'

     b. *dekeeshįdeyįge*
        de-keeshį-*de-yį*-**ge**
        3SG.P-shoelace-QUAL-Asp-**untie**
        'S/he untied his/her boots.'

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[5] Actually, Colarusso (1992:84) describes a phenomenon similar to the Slave deictic indices on INs, where morphemes similar to INs appear in applicative structures in Kabardian. In my opinion, this phenomenon is different from NI and deserves separate treatment.

(19)   a.   *k'ohéenéhchu*   [SLAVEY]
              k'oh-*ée-n-é-h*-**chu**
              neck-??-CL-Asp-TR-**be.located(CLOTHLIKE.S)**
              'S/he wears a scarf/tie.'

       b.   *dek'ohéenéhchu*
              de-k'oh-*ée-n-é-h*-**chu**
              3SG.P-neck-??-CL-Asp-TR-**be.located(CLOTHLIKE.S)**
              'S/he wears a scarf/tie.'

In all of these examples, the (a) variants show a bare IN, but in those under (b), a possessive marker occurs which is the same as that which would appear in a free-standing DP. Moreover, (16c) shows a third possibility, namely the occurrence of a possessive marker unspecified for person. This suggests an even more complex structure for these markers, an observation that appears to be supported by the morphological facts, since the unspecified possessor marker has the form *ʔe-*, and all the fully specified person markers in the above given examples contain the vowel *-e* (1SG *se-*, 2SG *ne-*, 3SG *de-*). The specific markers could thus be decomposed into a sequence of [Agreement+Possessive], a situation entirely paralleling the one described by Colarusso (1992:67) for Kabardian.

      In looking for an account of these facts, we must keep in mind that NI in Athapaskan languages is preverbal and nonadjacent, a fact we have explained in chapter two in terms of morphological phases: nonadjacent INs can adjoin to fully inflected Vs thanks to their XP nature, which allows them to move up as XPs into a projection that modifies the highest morphological phase, the I-phase. Now, the fact that this kind of specific modification can only occur with nonadjacent NI pairs up with what Sportiche (2005) observed about the base-generation of arguments, i.e. that arguments cannot be generated as DPs, but rather as NPs, their high functional load being assigned in the higher functional field. This prediction is borne out by many facts concerning NI, as we have seen in chapter two: this is yet another instance. We could therefore assume that, in the cases of possessed INs in Slave, the Ns XP-move up into the IP field to pick up their possessive markers; if the latter are specified for person, a personal index will also be activated. Finally, the whole complex will then move past the I-phase into [Spec,

ModP$_{[I]}$], which I assume to be the landing site for nonadjacent INs. The derivation can be formalized as follows (heads of FPs omitted):

(20) [$_{ModP[I]}$ IN]|I| ... [$_{AgrP}$ ~~IN~~][$_{PossP}$ ~~IN~~] ... |v| ... [$_{XP}$ ~~IN~~]|L|

Note that I have indicated the generation site of the IN as a generic XP: this is because the INs in (16) and (19) differ in θ-role from those in (17) and (18), the former being locations and the latter direct objects. Moreover, we have seen that Athapaskan languages may incorporate transitive subjects as well (cf. (22) in ch. 2): therefore, I use the label XP in (20) to represent any thematic projection of the v-phase that may generate an IN.

4.1.4. Ns within PPs

It is rare for PPs to be incorporated as such: the most common cases of INs with θ-roles different from those of core arguments are prethematic adjuncts and applied objects, as seen in 2.2.2. This is a generalization that can be made about true NI languages.

However, some examples of incorporated PPs (all involving postpositions) are reported in the literature; the only unambiguous case is documented by Sadock (1980:315) for West Greenlandic (crucially, an affixal predication language):

(21) *[$_{PP}$ palasi-p   illu-a-nu]-kar-poq*   [W. GREENLANDIC]
      [$_{PP}$ **priest-ERG   house-3SG.P-ALL**]-**go**-IND.3SG.S
      'He went to the priest's house.'

Here, the whole goal PP 'to the priest's house' is incorporated (retaining its postposition).[6] This structure appears to be quite productive in the language, and the genitival modifier (marked by the ergative case) is specific in reference; the pattern in question thus provides the independent evidence for XP incorporation whose need I anticipated above, when I discussed the incorporation of lexicalized DPs.

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[6] Whether the allative suffix should be considered a case marker or a postposition is hard to tell on purely morphological grounds; however, the very fact that the whole phrase undergoes incorporation points to the second possibility, since case morphology is normally lost under NI.

There seems to be another subcase of PP incorporation, namely that of the postpositions occurring at the beginning of Athapaskan verb templates. Axelrod (1990:181) reports the following examples for Koyukon:

(22) *nelaan ʔenohughułgheʔoł*   [Koyukon]
      [PP **nelaan ʔe**]-no-**hughuł**-ghe-Ø-**ʔoł**
      [PP **meat with**]-ITER-**raft**-TMA-TR-**bring(COMPACT.O)**
      'S/he is bringing home a raft loaded with meat.'

In this case, the object of the postposition appears stranded to the left of the verbal complex. Note that the construction already has an IN (*hughuł* 'raft'), which is not adjacent to the V root (as is normal in Athapaskan languages); moreover, the putatively incorporated PP is itself not adjacent to the IN, as it is separated from it by an aspect morpheme. This indicates that the postposition has a proclitic character (note that it is monosyllabic), but it is no proof that it is actually incorporated in the V. When the object of the postposition is pronominal, it occupies the very first slot in the template, as can be seen in the following example (Axelrod 1990:182):

(23) *yedokʼekkʼutlneeyo*   [Koyukon]
      *ye-do-**kʼekkʼutl**-nee-Ø-**yo***
      3SG.O-through-**cold.air**-MOM-INTR-**PFV.go(SG.S)**
      'Cold air rushed in (when the door opened).'

Again, the orthographic wordhood of this construction is allowed because the postposition is monosyllabic: when this is not the case, the construction is realized as two independent words.[7] One such example is the following (Axelrod 1990:183):

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[7] This alternation in the morphosyntax of postpositions reminds of the behavior of Romance pronouns, which can also be free-standing or clitics, with different phonological and syntactic properties (see e.g. Cardinaletti & Starke 1999). The Athapaskan data in this respect are not detailed enough for us to understand how far the analogy may extend, thus I cannot pursue the question any further.

(24)   *bokko netlaatl'ooɫk'ets'edenletsoɫ*   [KOYUKON]
       [PP b-okko]
       [PP **3SGO-in.search.of**]
       ne-tlaa-tl'ooɫ-k'e-ts'e-de-ne-Ø-le-tsoɫ
       there.and.back-head-rope-something-HUM.S-?-?-TMA-STAT-
       move(FLEXIBLE.IN.S)
       'We go around with a rope tied to our necks in search of it.'

We will return to this sentence when discussing double NI. Anyway, all evidence considered, there are no good reasons to include this kind of morphology within the category of PP incorporation: the interface involved in these cases is most probably the lower one between morphosyntax and phonology, rather than the deeper one between morphology, syntax and the lexicon, which is the topic of the present work. I will therefore reserve the term *PP incorporation* for the West Greenlandic case, where the construction shows in its clearest terms.

4.2. Incorporation of *wh-* roots

Another case of incorporation of complex modifiers concerns *wh-* words, which are commonly considered to instantiate XPs. These elements show up in two main varieties, i.e. as adjectival variables restricted by the IN and as real theme arguments. The latter category, in turn, includes two subclasses, namely the incorporation of *wh-* roots into overt affixal predicates and the use of such roots as interrogative V roots. First, we will see these two categories in turn, leaving the adjectival case for last.

4.2.1. In affixal predication constructions

Let us start with the interactions between *wh-* words and affixal predication, which can be exemplified by the following sentences from the Barkley Sound dialect of the Southern Wakashan language Nuu-chah-nulth (Kammler & Vajkonny 2005, glosses AM):

(25) a. *waastaqšiƛḥak* [NUU-CHAH-NULTH]
　　　　　waˑs-taqšiƛ-ḥak
　　　　　where-come.from-INT.2SG.S
　　　　　'Where are you from?'

　　　b. *waasciẏuk̓aƛḥak*
　　　　　waˑs-ci(ˑ)ẏuk-'aƛ-ḥak
　　　　　where-go.to-CONTEMPORANEOUS-INT.2SG.S
　　　　　'Where are you going?'

These examples show the incorporation of a locative *wh-* word as a source (25a) and as a goal (25b). Other examples of incorporated *wh-* roots in Nuu-chah-nulth (Tseshaht dialect, Stonham 2005) include the words for 'who' (*ʔača*), 'what' (*ʔaqi(n)*, which also means 'why') and 'how' (*ʔaqis*, which also translates 'why' in some cases). None of these examples poses any problem, since the ability to incorporate *wh-* roots follows from the need of affixal predicate to attach to a host, which entails that *wh-* roots can be as good as anything else (although demontratives, as said earlier, curiously do not take part in this pattern). Moreover, in Nuu-chah-nulth, more specific *wh-* words of the 'which' type can also appear incorporated. This can be seen in the example below (Stonham 2005:323, glosses AM):

(26) *waayaqpimitḥ*　　　　　　　　*ƛawaa*　　　town [NUU-CHAH-NULTH]
　　　waˑyaq-pi(ˑ)-mit-ḥ　　　　　*ƛawaˑ*　　　town
　　　which-on.the.back-PST-INT.3SG.S　near　　town
　　　'Which was the closest town?'

In this construction, the *wh-* word is the first argument of a copular construction (whose exponent is zero, but tense, modality and person are overt). Again, it functions as the host of the predicate, whose second argument remains below the copula (pretty much like the situation we find in more familiar European languages, only that here the copula triggers a recursive affixation process.

　　　Thus, we can conclude by saying that the incorporation of *wh-* words in affixal predication languages is a result of the internal structure of affixal predicates, if we conceive the latter as I illustrated in chapter 2.

4.2.2. In true NI constructions

It is well known (see Baker 1996) that *wh-* words do not generally incorporate in languages with true NI constructions. The only case where this kind of incorporation is attested involves the use of *wh-* roots as interrogative V roots. These roots can have one of two meanings, i.e. 'what' and 'how'; in Chukchi, 'what' appears as a V root meaning 'do what?' (Skorik 1968:258, glosses AM):

(27) a. *ine-n-**req**-ew-ə-lʔ-ən*   [CHUKCHI]
          AP-CAUS-**what**-VBLZ-LNK-PARTICIPLE-ABS.SG
          'What is s/he doing?'

       b. ***req**-ə-**tku**-lʔ-ən*
           what-LNK-**AP**-PARTICIPLE-ABS.SG
           'What was s/he doing?'

In the (a) example, the incorporated *wh-* root is transformed into a V by the *-ew* suffix, a verbalizer deriving Vs from adjectives. The antipassive and causative prefixes, on the other hand, may play a role in this process, too, since an antipassive suffix is the only overt derivational morpheme in (27b). As far as I could ascertain, 'what' is indeed the only *wh-* word that can interact with NI constructions in Chukchi.

But there is another *wh-* word that can take part in NI, i.e. 'how'. This can be observed in the following example from the Algonquian language Cheyenne (Leman et al. 2006:275, glosses AM):

(28) *nétónėšéve*   [CHEYENNE]
      *né-**tónėšé**-ve*
      2SG.S-**how**-**be**
      'What did you do?'

The last component is very likely the copula *-ve*; note that the incoporee stands in preverbal position (as all adverbs in Cheyenne do, as far as I know) and is adjacent to the copula (which in any case is a so-called *final*, i.e. an affixal predicate). The other case of

incorporation of 'how' is that of Athapaskan languages, where this word can fill the slot dedicated to INs (in nonadjacent position). The following example from Koyukon (Moore 1992:30, glosses AM) illustrates this:

(29)   *dont'aanh*   [KOYUKON]
        do-ne-d-'aanh
        how-2SG.S-MIDDLE-**act**
        'What are you doing?'

As can be seen, in this example (as in the preceding one) 'how' fulfils the function of 'what'. Since this words only appears in copular constructions and nonadjacent NI, it may be thought that it should be generated in a position considerably higher than 'what'. This is consistent with the assumption that manner adverbs are generated in a higher position than arguments.

4.2.3. As adjectival variables restricted by the IN

So far, I have only discussed cases of incorporation of *wh-* words as pronouns or adverbs; but there are cases in which *wh-* adjectival modifiers can interact with NI construction as well. One example comes from Chukchi, where the root meaning 'what' can be incorporated along with a N root acting as its restrictor; in this case, 'what' receives a *kind* interpretation (Skorik 1961:103, glosses AM):

(30)   *t-ə-rʔa-gətg-ə-lqət-ə-rkən*   [CHUKCHI]
        1SG.S-**what**-**lake**-LNK-**go**-LNK-IPFV
        'To what kind of lake am I going?'

Again, note that the whole complex IN falls under the scope of subject agreement. With only one attested example, it is impossible to draw generalizations: a few observations must be made, however. First of all, whatever the correct derivation for this example might be, it certainly instantiates the incorporation of XPs (a *wh*-word and a goal specifier). Second, this construction instantiates the most specific adjectival modifier found in Chukchi NI constructions (as well as in those of any other true incorporating

language, as far as I know); in this respect, it may be interesting to observe that NI "stays one step back" of DP-internal adjective incorporation, where I have even found one case of incorporation of a demonstrative adjective (Skorik 1948:115 gives **ŋoten-elgə-qoraŋə** as equivalent of **ŋot-qen n-ilgə-qin qoraŋə** 'this white reindeer'). Again, this may have to do with Sportiche's generalization, since NI forces arguments to remain inside of the *v*-phase in Chukchi: therefore, we expect higher elements like demonstratives (whether they are incorporated in their head N or not) to be projected only when the argument XP has excorporated to become a full DP. This prediction is borne out by our data: the borderline between specificity inside and outside of the *v*-phase thus seems to run somewhere between the adjectival *wh-* word 'what (kind of)' and the demonstrative 'this'.

In closing the section on *wh-* roots, an important generalization emerges from the data I have provided, i.e. that these elements always incorporate in *preverbal* position, no matter if they instantiate arguments or functional items: this is consistent with their XP nature and, crucially, with my theory of incorporation as XP-movement, which assumes that preverbal INs (but also, more generally, any preverbal item) involve the presence of XPs blocking the V's (XP-)movement.

4.3. Reiteration of NI

So far, we have only seen cases of morphologically complex, but single, INs. But this is not the only possible type of complex NI structure. There are cases in which two INs are involved, and this may happen in either of two situations, i.e. in causative constructions or when a V has a theme argument and an oblique argument. I will refer to the first of these two cases as *recursive NI*, and to the second as *multiple NI*. Let us examine each of the two patterns in turn.

4.3.1. Recursive incorporation of theme and caused subject

A case of recursive NI (not to be confused with multiple NI, which is the incorporation of two Ns with different θ-roles into the same V root) is the Southern Tiwa example
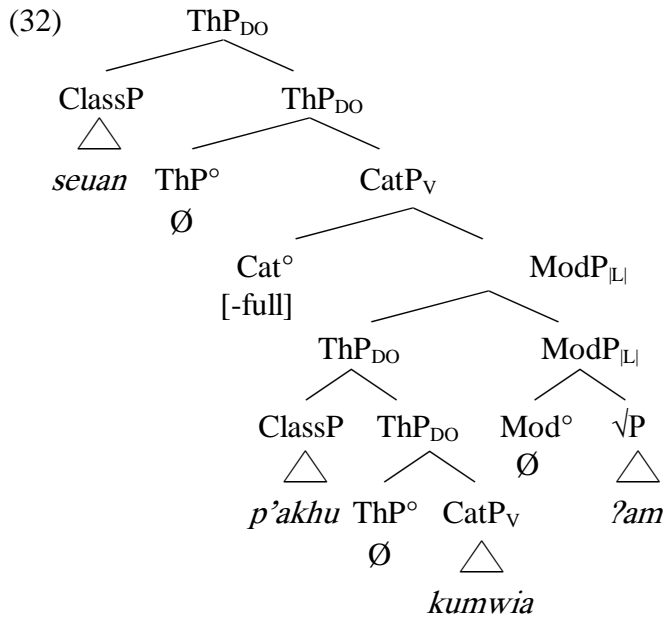
below, where both the object of the V and that of the causative are incorporated (Allen et al. 1984:306):

(31)　*ti-seuan-p'akhu-kumwia-ʔam-ban*　　　　　　*wisi*　　　[S. Tiwa]
　　　1SG.S/3AN.SG.O-man-bread-sell-make-PST　　two
　　　[RC *te-khaba-ʔi*]
　　　[RC **1SG.S/3IN(c).PL.O**[8]**-bake**-SUB]
　　　"I made the man sell the two breads I baked."

In this example, the causative is not simply a suffix, but rather an independent V root meaning 'do' or 'make'; it could be used as a free-standing root in a different construction. This is crucial, because it means that what we are dealing with here is a case of *verb incorporation* (cf. Baker 1988), a particular case in which the incorporated V is not a simple V, but a NI construction in itself (*p'akhu-kumwia* 'bread-sell'). The outermost IN is the caused subject, and this is incorporated as the internal argument of 'make' (or better, of 'bread-sell-make'); in theoretical terms, this could mean that this kind of causative construction is not a real functional causative (i.e. the head of a CausP inside of the *v*-phase), but rather a full V root taking a ModP|L| (with the NI construction in its Spec) and a ThP (hosting the caused subject), as below:

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[8] Allen et al. gloss the *te-* prefix as intransitive agreement; however, the form of the suffix is the same as it would be if the IN were cross-referenced on the RC. I choose this explanation, since Southern Tiwa is reported by the authors as having obligatory multiple agreement.

(32)

```
                    ThP_DO
              ┌───────┴────────┐
          ClassP            ThP_DO
            △          ┌──────┴──────┐
         seuan       ThP°          CatP_V
                      Ø        ┌─────┴─────┐
                             Cat°        ModP_{|L|}
                            [-full]   ┌────┴────┐
                                  ThP_DO      ModP_{|L|}
                               ┌────┴────┐  ┌────┴────┐
                            ClassP   ThP_DO Mod°    √P
                              △     ┌──┴──┐  Ø       △
                           p'akhu ThP° CatP_V      ʔam
                                   Ø    △
                                      kumwia
```

Evidence for this analysis could come from the fact that the incorporation of a causee is normally not possible in languages with a morphological (suffixal) causative (like Mohawk: cf. Baker 1996). For the construction in (31), two alternative accounts could be proposed if we assumed that the causative V really is the head of a CausP: either the construction is derived by head-movement of the V head to the Caus° head (in the style of Damonte 2004), and then the causee is incorporated from a lower specifier position once the V root moves one projection further up, or it is derived via XP-movement, allowing multiple specifiers for CausP. Neither of these solutions is satisfactory: while the latter is clearly incompatible with Antisymmetry, the former would lead to the wrong prediction that the incorporation of caused subjects could take place freely in languages with suffixal causatives (which Baker 1996 showed not to be the case). This is an additional argument in favor of a base-generation account of the structure in (31), and against an account in terms of head-movement.

The derivation in (32) also has an additional implication, i.e. that not all processes taking place inside of the L-phase are necessarily lexicalized: as can be seen in (31), the theme argument of the NI construction in [Spec, ModP_{|L|}] in (32) is fully referential, since it is resumed by two stranded modifiers (one of which is a RC where object agreement cross-references the IN); structurally, it is a syntactic object as large as a ClassP (if my interpretation of this example is correct, the *te-* prefix also registers its

gender features). This could be used as an argument for my claim that lexical Merge has some syntactic transparency of its own, i.e. it can create transparent combinations like (31): this pairs up with what I observed in 2.2.2.1 about Nahuatl prethematic adjunct NI, since in both cases we have highly transparent INs inside the L-phase (provided that my understanding of the facts is correct). This syntactic transparency is so evident that it gives rise to interesting interactions with agreement, if my reanalysis of the agreement gloss on the RC is correct, since, in my account, a dependent predicate agrees with an IN instantiating its external head.[9] Thus, every predicate can agree with its own internal argument, the matrix V with the incorporated causee and the V of the RC with an object IN in the matrix clause, notwithstanding the fact that this IN is in the L-phase. In my account, this high transparency is derived from the fact that a ClassP is projected on INs in Southern Tiwa: I take this as additional evidence for the XP-status of INs in this language.

As I said, recursive NI is not allowed by suffixal causatives: but what if the causative affix is a prefix? Relevant data are found in Alutor, a Chukotian language closely related to Chukchi (Koptevskaja-Tamm & Muravëva 1993:307):

(33) *gəmmə*   *t-akka-n-nalgə-n-kuww*-at-avə-tk-ən   [ALUTOR]
      I.ABS   1SG.S-**son-CAUS-skin-CAUS-dry**-VBLZ-VBLZ[10]-PRES-1SG.S
      'I am making a son dry a skin/skins.'

Here, we are dealing with a double prefixal causative (the low one acting as a transitivizer, since the matrix V is intransitive). Such a construction must have a totally different derivation if compared to (31), since the causative affix here is not a lexical V root; hence, it must be inside of CausP. But why is it prefixal? I take this prefix as instantiating the head of CausP, and the movement of the V to the Spec of the same projection may be blocked by the trace of the causee, which is probably generated in [Spec, CausP] and later moves to [Spec, ModP$_{|v|}$]. Thus, in this example, we may have to do with another instance of *semiadjacent NI*. I propose the following structure:

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[9] See also Muro & Modena (in press) for a more detailed discussion of this example.

[10] Of the two verbalizers (simply glossed as "suffix" by Koptjevskaja-Tamm & Muravyova, but thoroughly explained in Kibrik et al. 2004:618), *-at* usually derives Vs from Ns, and *-av* Ns from adjectives. The latter crresponds to the Chukchi *–ew* verbalizer we met in (27a).

(34) $[_{\text{ModP}|v|}$ *akka*$_i$ $[_{\text{ModP}|v|}$ Ø $]]|v|$ ... $[_{\text{CausP}}$ t$_i$ $[_{\text{CausP}}$ *n-* $]][_{\text{ThP}}$ *nalgə* $[_{\text{ThP}}$ Ø $]][_{\text{V}}$*n-kuww-at-av*]

This derivation, combined with the one in (32), suggests that lexical causatives and functional ones are structurally totally different. And this is not yet the whole story: a derivation like (34) does not allow for the derivation of a simple suffixal causative, since the suffixal manifestation of the causative would imply that [Spec, CausP] should remain vacant as a landing site for V-movement. But in (34) that position is occupied by the trace of the moved causee. For this case, I have to assume that there should be a third generation site available to languages with obligatorily excorporated caused subjects.[11]

This is important for my proposal about preverbal NI, since the presence of XPs blocking the V's movement can be taken as evidence that this movement actually is a case of XP-movement.

4.3.2. Multiple NI

A different case is that of multiple NI. In this case, one single V incorporates two Ns with different θ-roles (at least apparently). This gives three possible combinations: one argument and one adjunct, two arguments (which only makes sense if these are the direct and indirect objects), and two adjuncts (for which no clear case is attested). I will consider each case in turn.

4.3.2.1. One argument and one adjunct

This is by far the most common case, since it is attested in several language families: as far as preverbal NI languages are concerned, Mithun (1984) gives examples for the Uto-Aztecan language Comanche (855, no. 35) and Takelma (875, no. 124). I will illustrate the point with analogous examples from Chukchi (Kurebito 1998:107-8):

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[11] AffectP could be a good candidate, since many languages express free-standing causees by means of the dative case (which could be an *affectedness dative*). This makes the prediction (yet to be verified) that the CausP in question should be lower than AffectP.

(35)   a.   *t-ə-kuk-iml-ə-nilu-gʔek*   [CHUKCHI]
            1SG.S-LNK-**pot-water-wash**-1SG.S
            'I washed out the pot with water.'

        b.   *kuke-ŋə*   *miml-e*   *t-ə-nilu-gʔen*
            pot-ABS.SG   **water**-INS   1SG.S-LNK-**wash**-3SG.O
            'I washed out the pot with water.'

        c.   *kuke-ŋə*   *t-iml-ə-nilu-gʔen*
            pot-ABS.SG   1SG.S-**water-wash**-3SG.O
            'I washed out the pot with water.'

        d.   **t-ə-kuke-nilu-gʔek*   *miml-e*
            1SG.S-LNK-**pot-wash**-1SG.S   **water**-INS
            'I washed out the pot with water.'

As can be noted in (35a), a direct object may be incorporated together with an instrumental, with the surface order Object-Instrumental-V. This is also the order found in the examples quoted by Mithun (1984): it can be observed that this is not the order in which the elements would appear if they all surfaced in their base-generation sites. As I pointed out in chapter 2, such facts are captured if we assume multiple NI to take place in two distinct morphological phases: in the L-phase, a preverbal adjunct can be incorporated in [Spec, ModP$_{[L]}$], a prethematic modifier position; after the phase is completed, the direct object can be generated in [Spec, ThP$_{DO}$], in the higher *v*-phase. The two operations thus yield the observed surface order. A similar solution had already been proposed by Baker (1988, 1996), who talks about *lexical NI* for cases such as these. The crucial evidence for the prethematic status of the instrumental IN comes from the observation of examples (35b-d): while the version without incorporation is fine (b), a construction with a single IN can only incorporate the instrumental leaving the direct object stranded (c), whereas the incorporation of the direct object with stranding of the instrumental is out (d). The last restriction is particularly interesting, since it denotes a morphological cohesion which is even stronger with the instrumental than it is with the direct object; the latter cannot undergo morphological compounding with the V if the

former has not. In my opinion, this clearly indicates that the compounding is prethematic.[12]

One last thing that must be said is that, in all the attested cases of preverbal, adjacent, double NI, the oblique IN is an instrumental. I have no idea as to why this is so, but this parallels the fact that in Nahuatl, instrumental NI is by far the most common case of oblique NI. This language, however, does not display double NI, if not in cases involving an indefinite quantifier and a direct object N, as in the following example from the classical language (Andrews 2003:263, retranscribed):

(36)   *n-ā-ƛa-kʷi*   [CL. NAHUATL]
         1SG.S-water-something-get
         'I fetch water.'[13]

On the other hand, Nahuatl admits examples equivalent to (35d). True incorporating languages thus seem to differ in this respect: whereas in Mohawk any kind of double NI is totally out, and so is instrumental NI, Nahuatl admits the latter but not the former, allowing for alternation in the incorporation of the instrumental or the direct object (cf. Merlan 1976); Chukchi, on the other hand, admits both, as long as the direct object takes the instrumental in its scope.

So much for preverbal NI. In postverbal NI, things appear to be different, at least for the only language showing double NI, Sora. Let us consider the following examples (Anderson & Harrison 2008:355-6):

(37) a.   *ji-loː-siː-t-am*   [SORA]
            stick-earth-hand-NPST-2O
            'Mud will stick to your leg.'

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[12] Alternatively, one could suppose that a zero instrumental applicative might have triggered the process. However, the instrumental role is rather high to be represented by a zero: I know of no attested cases. Moreover (and crucially), there is no instrumental applicative construction with a free-standing applied object in the languages we are dealing with, and this rules out this alternative explanation.

[13] I would hypothesize that this case displays an indefinite quantifier because it involves a mass N of which only a limited quantity is needed. The quantifier thus would act like a measurer (and fit well in [Spec, ModP$_{|L|}$].

b. ɲen aj-ja:-dar-si:-am
I NEG-receive-cooked.rice-hand-2O
'I won't receive rice from your hand.'

c. jo-me-bo:b-dem-te-n-ai
smear-oil-head-REFL-NPST-INTR-1S
'I will anoint myself with oil.'

As can be noted, in these examples the theme argument falls within the scope of different oblique arguments: a goal (a), a source (b) and a location (c).[14] This entails that these argument be generated in their base positions, i.e. within the *v*-phase. To derive the data in (37), I assume that the V first XP-moves to the specifier of a ThP, and then the whole V-N complex XP-moves to the specifier of the thematic projection involved in the specific case. By way of example, I give the derivation of (37b), with the moved constituents highlighted:

(38) a. $|v|$ ... [$_{SourceP}$ Ø [$_{SourceP}$ -*si:*]][$_{ThP}$ Ø [$_{ThP}$ -*dar*]]|L|[$_{CatP}$ Ø][$_V$ *ja:*]
     b. $|v|$ ... [$_{SourceP}$ Ø [$_{SourceP}$ -*si:*]][$_{ThP}$ [$_V$ *ja:*]$_i$ [$_{ThP}$ -*dar*]]|L|[$_{CatP}$ Ø][$_V$ t$_i$]
     c. $|v|$ ... [$_{SourceP}$ [$_{ThP}$ [$_V$ *ja:*]$_i$ [$_{ThP}$ -*dar*]]|L|[$_{CatP}$ Ø][$_V$ t$_i$]$_{ii}$ [$_{SourceP}$ -*si:*]] t$_{ii}$

To sum up, we have seen that multiple incorporation is a ground where languages with preverbal NI differ, the only thing they share being that the oblique N falls within the scope of the direct object N. Postverbal NI languages normally do not show double NI: the only language that does (Sora), unlike preverbal NI languages, shows the oblique in thematic position.

4.3.2.2. Direct and indirect object

Dative objects almost never incorporate: this is a well-established generalization, noted by many reserachers and dealt with by Baker (1988, 1996). The only counterexamples to this generalization are discussed in Baker (1996:332, n.12), and involve two types of

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[14] Actually, in this example the gloss is not very useful, since it could be read as 'I will smear oil on my head' (with 'head' as a location) or else as 'I will smear my head with oil' (with 'oil' as an instrument). I have chosen the first interpretation, since this appears to be the rule in this language.

data: on the one hand, the Australian language Mayali (as discussed by Evans 1991) allows the incorporation of the N root *yau* 'baby' even when this performs the role of a dative argument:

(39) *gorrk   abanmani-yau-wo-ng*   [MAYALI]
      clothes   1SG.S/3DU.O-baby-give-PST.PFV
      'I gave the clothes to the two babies.'

Since this is the only root showing such an exceptional behavior, Baker stipulates that it is incorporated as an adverbial element. The other counterexample comes from Wichita (Rood 1976:207), where the V meaning 'tell' can incorporate its indirect object, as long as the direct object is a (quotative) clause:[15]

(40) *a:ʔ-á-ki-[i]c-iye:s-ʔak-wa:ri*   [WICHITA]
      QUOT-REFL-AOR-POSS[16]-child-PL-tell
      'He told his children...'

Baker gets rid of this example by assuming that the real argument structure of the Wichita V *wa:ri* is more like that of English 'inform' than that of 'tell'; in this way, the putative incorporated goal turns out to be the direct object.

The above data can be used as arguments to defend the head-movement hypothesis for NI: what Baker wants to avoid is to be forced to admit the incorporation of a specifier. As far as the two examples exposed above are concerned, I have no serious objection to Baker's arguments: however, care is needed if we want to use them to exclude the possibility that specifiers may be involved in NI constructions. What we need is an example which clearly shows both an incorporated direct object and an incorporated dative; moreover, to prevent ambiguities due to idiosyncrasies in the argument structures of the single V, the ideal example would have to show this double NI pattern with the prototypical dative V, i.e. the equivalent of English 'give'.

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[15] Curiously enough, this example too involves the N meaning 'child'.
[16] Baker glosses this morpheme as 'possessive', although Rood considers it a 'dative', whatever that means. It could be some sort of applicative, which would be compatible with Baker's explanation, but I still don't understand why the gloss has been changed into 'possessive'.

I know of only one such example attested in the literature: Harrington (1910:28) reports precisely the construction we need for Taos, a Tanoan language closely related to Southern Tiwa:

(41)   *sŏănäna*   *ʼăⁿ-kău-pʼâ-mĭă-hŭă*   [TAOS]
       man   3SG.AN.S/3SG.IN.O/3SG.AN.D-horse-water-give-FUT
       'The man is giving the horse some water.'

As can be seen, the indirect object ('horse') is here not a prototypical goal, thus it cannot be assigned an adverbial meaning (as was the case with the Mayali incorporated dative); moreover, we can claim with certainty that the 'give' V in (41) does not show particular idiosynchrasies in argument structure, since the agreement prefix is ditransitive. This means that, in this case, we are dealing with the incorporation of two arguments: and if this is a problem for Baker's theory because it entails that XPs take part in NI construction, for my theory, on the other hand, this is nothing else than another prediction which proves to be borne out, since I assume incorporated arguments in the *v*-phase to remain *in situ*.

Of course, this construction is highly marked, thus we expect it to be extremely rare for two reasons, i.e. for the incorporation of the dative argument on the one hand and for the double NI construction on the other hand: indeed, Allen et al. (1984) report that equivalent constructions are ungrammatical in Southern Tiwa. This is the only example given by Harrington: however, the author claims that the construction was productive at the time of his fieldwork. For these reasons, I argue that the almost general ungrammaticality of constructions like (41) follows from markedness constraints, rather than from the impossibility of violating principles of Universal Grammar like the head-movement hypothesis (as in Baker's theory) .

4.3.2.3. Two adjuncts?

Axelrod (1990:183) reports an example of a V with two INs for the Alaskan Athapaskan language Koyukon, a very rare phenomenon in Athapaskan languages, only found in this and one other case (in Dogrib). The example is as follows (glosses adapted):

(42)   *bokko netlaatl'ooɬk'ets'edenletsoɬ*   [KOYUKON]
        b-okko
        3SGO-in.search.of
        ne-tlaa-tl'ooɬ-k'e-ts'e-de-ne-Ø-le-tsoɬ
        there.and.back-**head-rope**-something-HUM.S-?-?-TMA-STAT-
        move(FLEXIBLE.IN.S)
        'We go around with a rope tied to our necks in search of it.'

The author does not provide many comments about this very difficult example. The two INs are considered by Rice (2000:106) as one participant (*tl'ooɬ* 'rope') and one nonparticipant (*tlaa* 'head'), although this requires some thought. The agreement prefix (glossed by Rice as 'human Subject' and by Axelrod as 'S1pl') seems to indicate a generic human subject used as a first plural, a typologically common situation. The V root (a classificatory V), however, classifies the subject as an inanimate, flexible object, and thus a paradox arises, since the rope appears to be an incorporated subject, but the agreement marker signals a human subject. It may be, then, that the rope is a manner adjunct, which influences the way in which the subject moves, so that 'we' move in a manner that is influenced by the presence of a rope, and the classifier V 'move' thus comes to classify a "ropelike" subject. But this is only possible if a "ropelike" element is present elsewhere in the V, and thus the N 'rope' must be incorporated. In this way, the V would come to agree with a manner adjunct in its classificatory properties, and with a human subject in its θ-role, thus showing some kind of disagreement between semantics and syntax. About the double IN, finally, it must be observed that the two incorporated elements do not seem to be independently related to the verb; rather, they stand in a modification relationship (Mod-H), the outer one specifying the location of the inner one. In this way, the construction could be associated with the ones discussed in the section on the incorporation of compounds. To be sure, however, more data would be needed, and these are not available; therefore, I cannot draw a firm conclusion about this example, and for the moment, the question will have to remain open.

4.4. Incorporation of whole RCs?

In several examples considered in the previous discussion (mainly from Northern Iroquoian languages), we have seen the incorporation of constructions which show the morphology of a relative clause. One such example is (14) above, repeated here below as (43) for ease of reference:

(43) *w-at-ya?t-awi-?tsher-ase?-stsi-?tsher-owá:ne*   [MOHAWK]
      DEF-**SREFL-body-in.tube-NMLZ-be.new-INTENSIVE-NMLZ-be.large**
      'The brand new dress is big.'

The IN *atyà:tawi* 'one's body is in a tube' is itself a NI construction, here nominalized by the suffix *-?tsher*; this construction qualifies as a RC, but its meaning is lexicalized, since the word is simply translated as 'dress'. Some degree of lexicalization, in our examples, is a prerequisite for incorporation. However, Graczyk (2007:200) reports that in the Siouan language Crow fully referential RCs can be incorporated; moreover, if the RC contains an object agreement morpheme, this may occupy different slots, according to pragmatic purposes. The examples are the following (glosses from Graczyk 2007, adapted; translations as in Rankin et al. 2002):

(44) a. [_{RC} *ak-dii-ammalapáshkuua-ss-aa-lee]-waa-chiin-m-oo-k* [CROW]
          [_{RC}**REL-2O-Billings-GOAL-PORTATIVE-go**]-1S-**look.for**-one-MODE-DECL
          'We'll look for someone who [will] take *you* (not someone else) to Billings.'

      b. *[_{RC} ak-ammalapáshkuua-ss-dii-aa-lee]-waa-chiin-m-oo-k*
          [_{RC} **REL-Billings-GOAL-2O-PORTATIVE-go**]-1S-**look.for**-one-MODE-DECL
          'We'll look for someone who [will] take you *to Billings* (not somewhere else).'

The whole RC appears in a position where, in other constructions, an IN or an object agreement prefix might stand (since NI is nonadjacent in Crow, as more generally in Siouan languages). Rankin et al. (2002) and Graczyk (2007) agree in assuming that these RCs are incorporated; the reason why they make such an assumption appears to be a

phonological one (the word bears only one main stress and pauses are not admitted within it). However, two things are not consistent with this assumption: first, incorporated elements (or parts of them) are generally not sensitive to pragmatic differences, and in particular the order of their components is generally not subject to variation triggered by pragmatic differences; second, since the 1st person agreement prefix *waa-* may start a grammatical word in many Siouan languages, it may be wondered whether, actually, two grammatical words may be involved in the above examples. This question, too, must remain open.

4.5. Complex incorporating Vs

As I said in the introduction to this chapter, morphological complexity in NI constructions is in a way one-sided: the great variety of complex constructions we have just surveyed may involve INs or complex Vs formed by NI constructions taking functional structure (e.g. causative constructions); on the other hand, there are almost no examples of incorporating Vs showing a particular morphological complexity motivated by NI. I will now examine two interesting cases, one involving *reduplicated* V roots and the other verbal V-V compounds (*serialized* V roots).

On the one hand, apparent examples of complex incorporating Vs could be represented by some Nahuatl reduplicated V roots we have met in the previous chapters, like e.g. *tataka* 'scratch' ot *teteʔki* 'cut'; these roots seem to display the reduplication of the first syllable; the fact is that these are not particularly complex formations, but rather the vocabulary entries for the Vs in question. These data are thus not so much to be taken as evidence that complex morphological processes may operate on Vs in NI constructions; rather, they could pertain to what I mentioned in chapter 2 about the compositional nature of roots: the reduplication in these examples could instantiate what I called the √ component of free-standing Vs. In these cases, this must necessarily be overt, since the Vs in question have an inherently intensive meaning (they are definitely patient-affecting, since they could entail injuries for a human object); in most other cases, the √ component may be null (remember that, if it were not projected, we would have an affixal V or a bound root).

A more interesting example comes from languages with postverbal NI, in verbal constructions that resemble the constructions which, in less synthetic languages, are known as *serial verb constructions*. One example of this is the following V stem from Mapudungun (Smeets 2008:319):

(45)   ***angkad-püra-kawellu-***   [MAPUDUNGUN]
        take/ride.on.the.back-climb-horse-
        'to take someone/to ride on the back of a horse'

Here, the V roots *angkad* 'ride' and *püra* 'climb' appear to be serialized; we could say that 'ride' acts as a modifier of 'climb', since we have seen that the structure of V roots includes a ModP above √P, which in other constructions may host a prethematic adjunct IN. Similar examples are reported for the Munda language Sora (Anderson & Harrison 2008), another language with postverbal NI. The explanation I propose for cases like these, of course, entails that these serialized Vs and prethematic adjuncts should never occur together, which indeed is the case (but probably also because prethematic adjunct NI never appears postverbally). It must be stressed that these constructions are peculiar of languages with postverbal NI, probably because they instantiate the only case in which ModP$_{|L|}$ comes to be filled.

4.6. Summary of the evidence

The goal of this chapter, as said in the introduction, was to produce evidence from morphologically complex NI construction that can support the theory of NI as XP-movement developed in chapter 2. In that chapter, the evidence considered was mainly *indirect*, since it involved correlations between two related (but distinct) phenomena of verbal morphology, i.e. NI and personal agreement. The evidence considered here, on the other hand, was *direct*, since in this chapter I only dealt with the core of NI constructions. As we have seen, proof that different kinds of functional processes are active in NI constructions can be found at several levels, i.e., for INs, at least in the following fields:

- distributivity/number
- categorial derivation
- adjectival modification
- possessive morphology

These processes vary in their ability to serve as diagnostics for ascertaining the X° vs. XP nature of INs, since the first two could also be argued to follow from head movement: the facts regarding adjectival modification, on the other hand, are not compatible with head-movement, since this device falls short of accounting for directionality alternations, which happen to be found even within one single language (in the Nahuatl case). Finally, possessive morphology on INs provides a good argument for assuming that (nonadjacent) preverbal INs are XPs, since the high specificity of these elements follows from their movement properties and from Sportiche's (2005) generalization that arguments cannot acquire specificity in their base-generation sites.

Furthermore, we have also seen that other complex elements can be incorporated, such as:

- N-N compounds
- lexicalized DPs
- PPs
- *wh-* roots

The first two of these confront us with the compositional aspect of INs: if compounding *per se* is liable to an explanation in terms of head movement, its interactions with affectedness suggest that the components of the incorporated compounds interact with the Thematic Field, rather than being simply generated inside of a DP in the complement position of V; moreover, I have tried to show that in the Greenlandic case of lexicalized DPs, lexicalization does not necessarily imply entering the derivation as a head. On the other hand, the Greenlandic PP incorporation pattern is highly productive, and the incorporated part is a fully legitimate PP; finally, about the incorporation of *wh-* roots, I have shown that not only can these functional elements incorporate, but they can only

incorporate *preverbally*, in compliance both with their XP nature and with my theory of preverbal NI (which can be extended to all XPs blocking the V's movement), since this presupposes an XP status for all preverbal incorporees, arguments, adverbs or modifiers. This XP status implies that preverbal INs should be formed by one or more structural projections, which could be organized in the following hierarchy:

(46)   *The Hierarchy of Preverbal INs*
        |I| AgrP > PossP > QP > (NumP?) > |A| Adjectival FPs > DistrP > ClassP > |L| CatP > ModP > √P > LexP

I tentatively assume that adjectival FPs define a morphological phase I call the A-phase, since the other two phases clearly parallel those of the verbal derivation (possessive agreement corresponding to personal V agreement and the lowest phase individuating a root in both Ns and Vs). A difficult point is whether a NumP or a lower DistrP is involved in Wakashan reduplications; as far as quantifiers are concerned, the only example I have in my corpus is (15) in ch. 3. As in the case of the NI Hierarchy of Verbal Structure exposed in chapter 2, here too some details are yet to be worked out.

Finally, other complex phenomena deserve our attention: first of all, the examples of recursive NI display a difference between prefixal and root (incorporating) causatives on the one hand, and suffixal causatives on the other, in that the former can trigger incorporation of a causee, whereas the latter cannot: this is consistent with my hypothesis of prefixation as the presence of XPs blocking the XP-movement of lower projections if we assume that the causee is generated in [Spec, CausP] in languages with a prefixal causative (like Alutor), and somewhere else in languages with a suffixal causative, since, in such languages, the causee must excorporate and the V is free to move to [Spec, CausP]. Southern Tiwa, which has a lexical, incorporating causative V root patterns with the first category in that it allows recursive NI of causee and theme argument, since the former is the theme argument of the causative V. All of these facts are captured by an XP-movement account of V-movement and NI.

Second, multiple NI takes on different forms according to whether it occurs pre- or postverbally, since in the former case, adjuncts usually incorporate in a prethematic, lexical ModP$_{|L|}$ (with the surface order Object-Adjunct-V), whereas in the latter case they

show up in their expected thematic position (in the V-Object-Adjunct order). This may be evidence that a √P cannot move from a complement position of a ModP to the specifier position of the same projection (unless that projection is the edge of a morphological phase, as in the case of nominalizers and verbalizers), a movement that would yield the unattested order *V-Adjunct-Object. In this way, my theory of postverbal NI as XP-movement of the V root is once again confirmed.

In conclusion, I think all the data assembled here converge in showing that an XP-movement approach is superior to one in terms of head-movement, as far as NI constructions are concerned. The predictions of the theory I developed in chapter 2 are thus borne out by the data from complex NI constructions.

5. Conclusions

At the end of our journey, I must first of all resume the thread of the variation I have detected in the morphosyntax of the NI constructions to be found in the languages surveyed in this work: this is done in section 1, where the most important sets of correlations proposed in the literature (by Rosen 1989 and Baker et al. 2004) are weighed against my data and my theoretical proposals. The correlations are reformulated and tried with some representative languages of my sample.

Section 2 outlines the main theoretical implications which my proposal entails: I will show how the advantages gained by the TIP and my theory of movement (as exposed in chapter 2) have a reverse side in that they imply reformulating some well-established assumptions. My theory of Morphological Phases, on the other hand, still needs to be developed to determine how it can be related to Chomsky's (1999) original proposal of a syntactic phase-by-phase derivation; in other words, it must be developed into a theory of the morphology/syntax interface.

Last but not least, a "macroparametric" question must be raised: how come do polysynthetic languages show NI, whereas this phenomenon is virtually unknown to European languages? I will suggest two typological correlations (which were inherent in other literature), as well as a new perspective in the light of the theory developed in this work.

5.1. Typological implications

In chapter 1, we have seen two different proposal regarding syntactic NI: on the one hand, Rosen 1989 proposed to distinguish two types of NI constructions with different effects on the V's agreement morphology and clause syntax. The main properties of the two types of constructions were described in 1.1.2 and summarized in Table 1, repeated here below for convenience:

Classifier NI	Compound NI
Valence-neutral effect	Antipassive effect
Modifier stranding	No stranding
CNI or syntactic doubling	No CNI or doubling

Tab.5.1: Classifier and Compound Noun Incorporation

Of these three correlations, Baker et al. (2004:173) only recognize the first two, pointing out the fact (noted by Rosen, but not convincingly explained) that Southern Tiwa cannot be considered a member of the "Classifier NI" class (which I re-termed the *valence-neutral* NI class, as opposed to the *antipassive* NI class), since it displays no CNI or doubling. Moreover, the authors refine this typology by adding two important correlations:

➢ on the one hand, we have the incorporability alternation of unaccusative subjects (reanalysed here in 2.3.3.2), which establishes that such elements may give rise to NI constructions freely in valence-neutral languages, but in languages with antipassive NI they can only incorporate if a DP affectee co-occurs in the clause, or in weather predicates.

➢ on the other hand, more importantly, we have the observation that the languages with valence-neutral NI also have a productive system of morphological gender.

The authors explain these alternations in terms of different feature contents on the traces if INs in these languages: this is done in order to maintain a head-movement approach to NI. Departing from this assumption, in this dissertation I have assumed that the features of morphological gender are contained in a low FP on the IN: I called this ClassP. All the observable differences recognized by Baker et al. (2004) have been reformulated in terms of the activation (or non-activation) of this low FP.

Moreover, in 3.3 I noted how the label "modifier stranding" is too generic a label to adequately describe the different patterns found in incorporating languages, since different types of modifiers show different behaviors. In 3.3.2, I showed how the only

ideal candidate that qualifies as a distinctive feature of valence-neutral NI should be the stranding of demonstratives: therefore, I would correct the label "modifier stranding" in Table 1 into *demonstrative stranding*. A revised version of the above table is given below:

ClassP	No ClassP
Valence-neutral effect	Antipassive effect
Demonstrative stranding	No demonstrative stranding
No restriction on unaccusative Ss	Unaccusative Ss only allowed if a DP affectee occurs or with weather Vs

Tab.5.2: Two Types of INs

Apart from these correlations, I could note a tendency of valence-neutral NI languages toward CNI and syntactic doubling, but Southern Tiwa (for reasons at present unknown) constitutes an exception that prevents us from generalizing this observation.

Furthermore, there is another important point where incorporating languages differ, i.e. the *argument* vs. *adjunct* dichotomy in the semantic relationship between the IN and the V host: I say semantic relationship, and not θ-role, because, as said in ch. 2 and resuming arguments by Baker (1996), I have reason to suppose that adjunct NI is actually a prethematic process, taking place in the L-phase. This dichotomy does not correlate with the *ClassP* vs. *No ClassP* set of properties in any meaningful way, since languages of both categories behave quite freely in this respect; however, in 3.3.1.1 I hypothesized that some kind of microparameter might be active in this phenomenon, since in two languages with antipassive NI (i.e. Chukchi and Nahuatl), prethematic adjunct NI occurs together with a pattern of recursive incorporation of adjectival roots in the INs, yielding the surface order A-N-V. The exact nature of this remains to be understood, but both facts point toward a compounding pattern which is more developed in these languages than in those with valence-neutral NI. I think it is compatible with the fact that antipassive NI languages lack the ClassP on their INs, and thus are free to proceed with further compounding in order to further restrict their semantics. Therefore, even though it is true that languages choose freely between allowing or disallowing prethematic

adjunct NI, a weak correlation between the latter and antipassive NI may be hypothesized.

The foregoing discussion only applies to languages with adjacent, preverbal NI; but one of the main goals of this work was to point out that there are other types of NI. How do these fit in the picture outlined above? As I said, adjacent, preverbal NI is a subtype of preverbal NI, other subtypes being semiadjacent and nonadjacent NI. The former is a special case, only occurring in some constructions, and the data I have are too scarce to draw any generalization.

Nonadjacent NI may be illustrated by considering the situation of Slave; in this language, the following facts can be noted (Rice 1989):

- ➢ NI has an antipassive effect.
- ➢ No stranding is allowed.
- ➢ Subject NI is allowed, but the restrictions on it are different than those outlined for antipassive NI, as animacy hierarchies are involved as well.
- ➢ As far as I can tell, there is no CNI; on the other hand, doubling is allowed, but the extra argument must be introduced by an oblique-case postposition.
- ➢ Adjunct NI is freely available, but the INs cannot take adjectival modifiers.

An additional property of NI in this language is that INs can bear possessive markers, a feature which is unknown (as far as I know) in languages with adjacent NI. As can be noted, the patterns described above display many affinities with antipassive NI, but there are also a few differences, whose motivations cannot be explained at the present state of our knowledge.

About postverbal NI, the situation in Mapudungun is as follows (Baker et al. 2004):

- ➢ Antipassive NI.
- ➢ No stranding.
- ➢ Restrictions on unaccusative subject NI as in antipassive NI languages.
- ➢ No CNI or doubling.

- ➤ No adjunct NI.

The picture here is the same as with antipassive NI, the only difference being the unavailability of adjunct NI (which, however, was only stated as a weak correlation). This can be explained if we think about my proposal regarding the directionality alternation, i.e. that postverbal NI involves an X° as the IN, with the V root XP-moving to the Spec position of the latter. If the V root is the complement of the IN, however, it cannot move to the Spec of the same projection, unless this projection is a morphological phase edge (which is not the case under consideration, since $ModP_{|L|}$, the site of prethematic adjuncts, is not the edge of |L|). This account would explain this peculiarity of postverbal NI.

Last but not least, I have described a difference between true NI and affixal predication, explaining it as a difference in the number of active projections inside the L-phase. The two families considered in this work which display this pattern (Wakashan and Eskimo) differ in their properties, which I have tried to express as follows:

- ➤ Antipassive NI.
- ➤ No stranding in Wakashan (which displays a very unusual pattern of modifier incorporation); in Eskimo, adjectives can be stranded, but when they are, they must take an oblique case.
- ➤ Unaccusative affixal predicates are very few in Wakashan, and their properties have not been exhaustively examined; Eskimo, on the other hand, has absolutely no unaccusative affixal predicate.
- ➤ No CNI or doubling.
- ➤ No adjunct INs.

Again, the last restriction may be explained in terms of my account of affixal predication, since the non-root status of affixal predicates follows from the lack of a $\sqrt{P}$, which implies the lack of a ModP, since the latter is projected precisely by a $\sqrt{P}$. As to the other correlations, these prove that we are dealing with a phenomenon which is totally

different from true NI, although the precise nature of the restrictions (as well as the differences between the two families) still escape us.

In short, the account developed in this work allows to capture several important correlations about different types of NI constructions. Other details remain obscure, partly because of the lack of data, partly because the present state of our theoretical knowledge is not developed enough to adequately account for them.

5.2. Theoretical implications

An important question that must be raised regards the way in which the proposal defended in this work may affect the currently most widely accepted theoretical assumptions. As I said in chapter 2, in this dissertation I make use of the basic mechanisms of Antisymmetry (X-bar theory and asymmetric c-command), combined with the theory of movement outlined in Koopman & Szabolcsi (2000), with minor refinements (such as the restriction of XP-movement of a complement to the Spec of the same projection only at a phase edge, or the exclusion of head-movement). Moreover, in the spirit of the Cartographic Project, I adopt the assumption that the syntactic derivation is organized in a rich, fixed hierarchy of structural projections.

However, the cartography I propose differs in one important way from the most currently accepted hierarchies, in that I assume internal arguments (direct object and unaccusative subjects) to be generated as specifiers of dedicated thematic projection, rather than as complements to the V head (which, in any case, I claim to be a much more complex structure). On the one hand, this could be thought of as an advantage, since it brings the verbal derivation into line with what has recently theorized about the DP (i.e. that the derivation starts with the N root, cf. Cinque 2007): I stated this as a principle of UG, the TIP outlined in chapter 2 and repeated here below:

(1)   *The Total Incrementality Principle (TIP)*
        Never have functional structure as a complement to lexical structure.

This creates problems when we move into clause syntax, since the above principle falsifies the standard GB conception of *government* as defined in terms of c-command of

the V root on a complement NP (or DP). Case and θ-role assignment are not affected by this change, since I assume they are assigned in dedicated projections, but other theoretical systems defined in terms of government (such as Rizzi's (1990) *Relativized Minimality*, just to name one) will have to be re-explained in some other way, if the view exposed here are correct.

Other implications concern the theory of Morphological Phases: since I make clear that these only define an interface between word syntax and clause syntax, and they do not coincide with syntactic phases (except for $|v|$), it may be wondered what properties they have on a universal level, and how exactly they interact with clause-syntactic phases. This question cannot be answered here, and will have to be left for future work.

5.3. Why don't European languages have NI?

NI is almost never found in European languages: the only productive examples I know of are German infinitival forms (common within PPs) like *Zeitunglesen* or *Biertrinken*, but, crucially, these become ungrammatical when we try to give them finite inflections: **ich zeitunglese*, **ich biertrinke*. This could mean that these forms are actually generated by the nominal derivation, not by the verbal one.

As far as Romance languages are concerned, the few apparent instances of phenomena pertaining to the sphere of NI could be easily characterized as lexical, i.e., in my terms, they are formed within the L-phase. In Italian, it is extremely rare to find full V root combined with a N root: an example is *automunito* ("car-provided", i.e. having a car). The IN *auto-* here stands in an instrumental relationship with the V, which makes it a good candidate for ModP$_{|L|}$, i.e. prethematic adjunct NI. Apart from this, in ch. 2 I mentioned that some derivational affixes could be considered affixal predicates, e.g. *-(i)fic* in *prolificare* (offspring-make-INF 'to proliferate') and *-(i)fer* in *legiferare* (law-bring.about-INF 'to legislate'). These morphemes are exclusively bound, and the processes defined are institutionalized activities; the INs seem to have a direct object status, but the status of the *-i* linker is not clear. These constructions, moreover, are only possible when the IN has a mass interpretion: this pairs up with the fact that these INs

have no referential status, and can never be resumed by external modifier, and much less are they transparent to anaphora. In short, Italian "NI phenomena" are always a function of the L-phase or of lexicalized affixal predication constructions, which might have been reinterpreted as lexical units.

This situation is part of a more general trend of the European language area to use compounding exclusively in nominal morphology, but this is not the only factor at play in the ban on NI in European languages: another important element in the picture is the role of pronouns.

Cardinaletti & Starke (1999) show that Romance pronouns can be arranged on a cline (strong > weak > clitic); on the typological level, we know that agreement markers are often derived from clitics. At face value (an independent, painstaking study would be needed to ascertain this), this four-stage cline (strong pronoun > weak pronoun > clitic > agreement marker), could be argued to be developed differently by languages: Romance languages appear to have all of these stages, but most polysynthetic languages may have only two, i.e. strong pronouns and agreement markers (e.g. Mohawk, Chukchi and Nahuatl), or strong pronouns and clitics (the Wakashan languages and Hopi). It is very rare to find three of these categories represented (the only example I know of is the Uto-Aztecan language Cora). It is thus natural to suppose that these distinctions should be implemented in some other way.

Now, Mithun (1984) has shown how NI can be very active in discourse, being used to background known information (Type III NI). Thus, in this use, NI can perform a task which is normally carried out by resumptive clitics in Romance (maybe weak pronouns could be involved in this process as well); the lack of the specialization of the Romance pronoun system would thus be obviated, in some polysynthetic languages, by Type III NI. On the other hand, Romance languages do not need Type III NI, since they have a very well-developed pronoun system which can perform the task of backgrounding known information.

But I could also suggest a third reason, which could be cast in theoretical terms. As I explained in ch. 2, the mechanism of CatP is responsible for the categorial authetication of lexical categories on a universal level: how this is implemented by single languages may give rise to cross-linguistic variation. What happens, for instance, when a

[-full] feature is assigned by the head of a verbal CatP? It can be observed that Romance languages have an obligatory theme vowel as part of their V stems. But I also assumed that heads with negative feature values should not, in general, have overt exponents: this could mean that [-full] features might be obligatorily repaired in some languages, which change it to full; Romance theme vowels may be an instance of this. The repairing strategy of polysynthetic languages, on the other hand, is NI: thus, even in this case, we may see how languages choose different implementations to obviate the same problems.

Of course, the topic of why a particular construction is found in some languages and not in others is a very difficult one, and cannot be answered in one short paragraph; however, in this section I have outlined two typological facts (i.e. the reservation of compounding for nominal morphology and the greater development of the pronoun system) and one theoretical reason (the hypothesis that Romance languages do not allow NI because they have obligatory theme vowels on their Vs) that could suggest some directions where one should look in order to find an explanation. It remains to be seen if and how these facts are interrelated.

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