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Patient-noun Formation in Classical Nahuatl*

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Abstract

This paper focuses on the derivation of patient nouns in Classical Nahuatl, which Stiebels (1999) does not examine in detail, and discusses its implications for her theory of nominalization. The actual process of deverbal noun formation is slightly more complicated, but more regular, than she assumes. A closer look at the patterns of patient-noun formation suggests that two levels should be distinguished within what she interprets uniformly as "argument saturation". This bistratal analysis explains some apparent descriptive anomalies with her model. However, assuming this approach, it turns out that the data which she presents do not really endorse her hypothesis. Through these discussions, this paper intends to give an example of how a polysynthetic, valency-sensitive language deals with the arguments of verbs through nominalization.

1. Introduction

A major purpose of this paper is to examine the noun–verb symmetry hypothesis which Stiebels (1999) proposes citing the example of Classical Nahuatl. Specifically, I focus on the patterns of patient-noun formation which she leaves largely undiscussed.

1.1. Noun–verb symmetry hypothesis

Since the time of Chomsky (1970), the mainstream view of theoretical linguistics has imposed restriction on the possibility of argument inheritance in deverbalization. Various studies have assumed that not all deverbal nouns preserve the argument structure of their source verbs. For example, as summarized in Stiebels (1999:784), Grimshaw (1990:45–63) limits the inheritance of argument structure to what she calls *complex event nominals*. Bierwisch (1989:7), on the other hand, assumes that the internal θ-role is optional in deverbal nouns.

Contrary to these approaches, Stiebels (1999) argues that the inheritance of argument structure is always obligatory in Classical Nahuatl. She argues that all deverbal nouns in this language have the open argument positions which should be saturated by object

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prefixes or incorporated nouns. For instance, the instrument noun *λa-teko:-ni* 'thing by which one cuts something, i.e. knife' (< *tek(i)* 'to take, cut X') has the nonspecific non-human object prefix *λa-* 'something', which typically fills in the object slot in verbal inflectional morphology (e.g. *ni-λa-teki* (I-something-cut) 'I cut something'). Here, the form without *λa-* is not possible as an instrument noun.

If her hypothesis is correct, Classical Nahuatl is an unusual language with a radical parallelism of argument structures between verbs and deverbal nouns. Moreover, her theory of argument linking should have some implications for the disputed typology of polysynthesis proposed by Baker (1996), which considers the overt marking of every argument as an essential characteristic of "polysynthetic languages".[1]

In order to examine her hypothesis, I focus on the formation of patient nouns (*internal argument nominals* in Stiebels' (1999) terminology), which she avoids discussing as too irregular. Although this paper is not intended to support any particular theoretical framework, I borrow two widely accepted sets of notions from modern Generative literature; the first is the Unaccusativity Hypothesis presented by Perlmutter (1978), and the second is the distinction between internal and external arguments made in Williams (1981).

1.2. On the language and the sources

Classical Nahuatl (Classical Aztec, *náhuatl clásico*) refers to a Uto-Aztecan language which was spoken in the Valley of Mexico in the sixteenth and seventeenth centuries. As an indigenous *lingua franca* of the area, it is documented amply in various kinds of texts and has a long tradition of study by missionary grammarians.

It has often been cited as a classic example of so-called polysynthetic languages. Besides its morphological complexity, it also has sometimes been assumed to be "polysynthetic" in the sense of Baker (1996) since it shows a variety of phenomena related to the overt marking of argument structure such as obligatory object marking on (transitive) verbs and fairly productive noun incorporation.

In order to examine the hypothesis of Stiebels (1999), which is mainly based on the data presented by contemporary grammatical literature such as Andrews (1975), Launey (1979), and Sullivan (1988), the argument of this paper is largely based on classical and classic-based traditional dictionaries. The most important among them are two authoritative sixteenth-century dictionaries, Molina (1571a) and Molina (1571b), both organized by a bilingual Franciscan Alonso de Molina. This paper also relies on Siméon (1885), a nineteenth-century dictionary based on classical sources including Molina's dictionaries. In addition to these traditional sources, this paper also consults (i) Campbell (1985), which is composed as an index to Molina (1571b); (ii) Karttunen (1992 [1983]), a compilation of both classical and modern sources with morphological and

[1] As pointed out by Stiebels (1999:785) herself, her model is technically inconsistent with Baker's (1996) hypothesis, which predicts the essential asymmetry in argument structure between verbs and nouns.

etymological annotations;[2] and (iii) Alexis Wimmer's online *Dictionnaire de la langue nahuatl classique*,[3] which compiles a wide range of reliable materials with specification of sources.

Examples in this paper are presented in the Americanist transcription. The letters *š*, *ɬ*, *č*, *λ*, *y*, and *'* stand for /ʃ/, /ts/, /tʃ/, /tˡ/, /j/, and /ʔ/ respectively.

1.3. Noun–verb distinction

Before discussing nominalization, a brief comment on the categories *noun* and *verb* is in order. Although the syntactic distribution of nouns and verbs does not seem as different in Classical Nahuatl as in English and Spanish, it has often been pointed out that Classical Nahuatl clearly distinguishes between nouns and verbs at the morphological and lexical levels. For example, only (transitive) verbs have "definite"[4] object prefixes and only nouns take possessor prefixes. Similarly, tense/aspect and mood are the features which are relevant only to verbs.[5] This distinction is lexically determined; lexically nominal items do not inflect in the way that verbs do without derivational processes, and vice versa. Contemporary theoretical works on Classical Nahuatl such as Andrews (2003) and Launey (1984, 1994, 2003) consider the distinction between nouns and verbs as the most important division within the Classical Nahuatl lexicon although there are certainly several marginal items. Nominalization of verbs, therefore, is an easily identifiable process in general. Patient nouns are especially easy to distinguish from any inflected forms of verbs, for they almost always have absolutive suffixes when unpossessed.

1.4. Object prefixes

As pointed out in Section 1.1, many Classical Nahuatl deverbal nouns have so-called object prefixes. Generally speaking, object prefixes are the prefixes which are typically used in verbal inflectional morphology to indicate the information of the object in just the same way as subject person prefixes mark the subject. For example, the fully inflected verb form *ni-k-kʷa* (I-it-eat) 'I eat it' contains the object prefix *k(i)-* (third person singular object), and *ni-λa-kʷa* (I-something-eat) 'I eat something' has the object prefix *λa-* (nonspecific non-human object).

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[2]Due to its editorial principle, Karttunen (1992 [1983]) does not include all the items found in its sources. More importantly, it includes the expressions from both Classical and modern dialects though it specifies the sources for every entry. Taking these features into account, this paper only deals with the entries from Classical sources and does not use Karttunen (1992 [1983]) as evidence of lexical frequency.

[3]http://sites.estvideo.net/malinal/

[4]What have traditionally been called *definite object prefixes* do not always mark definite or specific objects. Their defining feature is that they can be cross-referenced with other expressions outside of the word boundary, be they definite/specific/referential or indefinite/non-specific/non-referential.

[5]Other diagnostics of noun–verb distinction are pointed out in Launey (1984, 1994, 2003), Andrews (2003), and Stiebels (1999).

The major idea of Stiebels' (1999) noun–verb symmetry hypothesis comes from the fact that deverbal nouns in Classical Nahuatl systematically have the object prefixes which are phonologically identical with those found in verbal inflectional morphology. For example, the deverbal nouns *te:-ikne:li-lis-(λi)* 'mercy, favor' (< *(i)kne:lia:* 'to give X as a favor; to do favor for X') and *λa-kʷa-l-(li)* 'food' (< *kʷa:* 'to eat X') have the object prefixes *te:-* (nonspecific human object) and *λa-* (nonspecific non-human object) respectively. Although some object prefixes (i.e. so-called "definite" object prefixes: see Note 4) can be cross-referenced with other expressions, Stiebels (1999:824–829) points out that deverbal nouns can only include non-cross-referencing object prefixes (i.e. nonspecific and reflexive object prefixes). In this paper, only three types of object prefixes are relevant: *te:-* (nonspecific human object), *λa-* (nonspecific non-human object), and *ne-* (reflexive object).[6]

In the discussions below, I do not limit the term *object prefixes* to the real argument-saturating verbal object prefixes such as *k(i)-* (third person object) in *ni-k-itta* 'I see him/her' and *λa-* (unspecific non-human object) in *ni-λa-kʷa* 'I eat something'. Rather, in addition to these real verbal object prefixes, the term *object prefixes* henceforth refers to all the prefixes which can be interpreted as correlating to a verbal object prefix in the identical form regardless of whether they actually indicate a particular internal argument. Thus, *object prefixes* in this paper include such non-verbal prefixes as *te:-* in *te:-nawati:-l-(li)* 'order', *λa-* in *λa-po:wa-l-(li)* 'thing which is counted', and *ne-* in *ne-no:ɸa-l-(li)* 'agreement', although this paper argues that some of them are not really associated to any internal argument.

2. Patterns of patient-noun formation

This section provides a descriptive generalization of various types of patient nominalization on the basis of classical and classic-based sources. Especially, I focus on the use of object prefixes in the resulting patient nouns and their relationship to the valency of the source verbs.

2.1. Similarity and variation between patient nouns

As pointed out in Stiebels (1999), the patterns of patient nominalization are especially diverse and irregular among all types of nominalization in Classical Nahuatl, varying in two major crosscutting ways: (i) the stem-type of the base verb and (ii) the pattern of the use of object prefixes.

Nonetheless, in other respects, most patient nouns in Classical Nahuatl have certain formal characteristics in common. First, when unpossessed, patient nouns always have

[6]The reflexive object prefix *ne-* regularly alternates with other forms *no-/to-/mo-*. This alternation is irrelevant to the argument of this paper, for only *ne-* is used in deverbal noun formation.

the regular absolutive suffix[7] *-λ* (*-λi* or *-li* as allomorphs), which is lacking in some other deverbal nouns such as agent and instrument nouns. This is why Carochi (1645:f. 46) calls them *verbales en tli, y li.* Second, most patient nouns do not include any overt nominalizing suffix. The base verb stem converts into a noun stem without any further suffixation and is immediately followed by the absolutive suffix. For example, the base verb stem *poːwa-l-* (< *poːw(a)* 'to count X') is converted as it is into a noun stem *λa-poːwa-l-* 'thing which is counted' (ignore the object prefix *λa-* here).

2.2. Choice of stem-type in patient nouns

Stem alternation in verbs is pervasive throughout the Classical Nahuatl grammar, and so far no grammatically relevant tendency is found as to which of the possible three stem-types of the source verb is chosen as the base of patient nominalization. The choice is partially lexical and partially phonologically motivated, and there are many doublets. In this paper, I tentatively assume that the choice of stem-type is totally unpredictable and theoretically not significant.

The choice of stem-type has been described since the time of earliest missionary grammarians such as Rincón (1885 [1595]:35–36), and virtually all the information which we have today is already given in Carochi (1645:f. 46–47v). Except for a few totally irregular examples, patient nouns are formed on one of the following three stems of the base verb: (i) the *base 4*[8] with the prefix *-l*, (ii) the base 4 without *-l*, and (iii) the perfective stem (*base 2*).[9] Among these three choices, the former two are assumed to be regular. Putting aside the affixation of object prefixes, most patient nouns are derived simply by converting the base 4 of the verb into a nominal stem without any modification (Launey 2011:307–309).[10] When the base 4 source has a suffix *-l* at its end (e.g. base 4 *poːwa-l-* < the verb *poːw(a)* 'to count X'), the resulting noun stem also ends in *-l* (e.g. *λa-poːwa-l-(li)* 'thing which is counted'); when the base 4 does not end in *-l* (e.g. base 4 *tek-* < the verb *tek(i)* 'to take X'), the resulting noun stem also does not have *-l* (e.g. *λa-tek-(λi)* 'thing which is taken').[11] When the verb has two base 4 variants (with and

[7]Absolutive suffixes are the nominal suffixes which usually appear when a noun does not take a possessor prefix. In this paper, only one of them (*-λ*) and its allomorphs (*-λi, -li*) are concerned.

[8]In this paper, I adopt the term *base 4* employed by Launey (1979, 2011). It is related to the *nonactive stem* of Andrews (2003), but differs from it in that base 4 does not involve the suffix *-oː* which follows it in the impersonal and passive forms. Andrews (2003), contrarily, analyzes *-oː* as a part of nonactive stem.

[9]In addition to these three stem-types, Andrews (2003:378–379) reports that there are several patient nouns formed on the imperfective stem (*base 1*). However, since they are rare and sporadic, this paper does not deal with such examples.

[10]Launey (1979:283–284) and its recent English translation Launey (2011:307–309) differ in the way of generalization of patient-noun formation. In this paper, I cite the simpler version presented in Launey (2011).

[11]The allomorphic alternation of the absolutive suffix between *-li* and *-λi* is regular here; the absolutive suffix *-λ* appears as *-λi* when the noun stem ends with a consonant and the consonant *λ* obligatorily

without *-l*), the patient noun can also occur as a doublet (e.g. *pe'pen(a)* 'to choose X' > base 4 *pe'pena-l-/pe'pen-* > patient nouns *λa-pe'pena-l-(li)/λa-pe'pen-(λi)* 'chosen one' (Launey 2011:308)). More importantly, some patient nouns are formed on the perfective stem (base 2) instead of base 4. This type of patient nouns usually occur in doublets with base 4 patient nouns. Carochi (1645:f. 46v) argues that the base 4 counterparts are more regular (perhaps frequent). Thus, the verb *no:ɸ(a)* 'to call X' has a patient noun *no:ɸ-(λi)* 'someone called' formed on the perfective stem *no:ɸ-*[12] in addition to the regular base 4 patient noun *λa-no:ɸa-l-(li)* (< *no:ɸa-l-*).

It is quite possible that the choice of stem-type between the base 4 and the perfective stem has some grammatical significance, for base 4 is the form which typically appears in impersonal/passive forms of verbs while the perfective stem does not itself has such a nature; however, no meaningful tendency is found so far as to the choice between them within the data for this paper. The choice of the stem does not seem to reflect any of the syntactic or semantic features of either the source verb or the resulting patient noun.[13] Such doublets as *λa-po:wa-l-(li)* (< base 4) vs. *λa-po:w-(λi)* (< perfective stem) 'thing which is counted' and *λa-ke:mi-(λ)* (< base 4) vs. *λa-ke:n-(λi)* (< perfective stem) 'thing which is worn, garment' are attested often with the same or similar glosses in the classical and classic-based dictionaries and missionary grammars. Similarly, it is not found to correlate with the presence/absence of object prefixes. To make things worse, the base 4 without the suffix *-l* often has the same form as the perfective stem; it is difficult to determine whether the *tek-* (< *tek(i)* 'to take X') in *λa-tek-(λi)* 'thing which is taken' is the base 4 or the perfective stem. Moreover, the distribution of perfective-based patient nouns suggests that the choice of the perfective stem as the source of patient nouns is not a purely grammatical matter. Since the time of Rincón (1885 [1595]) and Carochi (1645), it has been pointed out that the choice of the perfective stem in patient-noun formation is phonologically conditioned. According to Carochi (1645:f. 46v–47), the perfective stem can serve as the base of a patient noun when it ends with any of the following consonants: *w*, *š*, *s*, *n*, or *ɸ*. Furthermore, James Lockhart comments in his annotation of Carochi (1645) that it may simply be the case that what appears to be the perfective stem is actually the shortest reduced stem of the verb (Carochi 2001:185).

Since there is no evidence that the choice of stem-type has grammatical significance, and since the choice of the perfective stem is at least partially phonologically motivated, I tentatively ignore the problem of the choice of stem-types and treat all of the three types of stems uniformly as the input of the process of derivation of patient nouns.

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assimilates to the preceding *l*.

[12]Although the perfective stem and the base 4 have the identical form for many verbs, the example of *λa-no:ɸ-(λi)* cannot be interpreted as formed on base 4; the verb *no:ɸ(a)* do not have the base 4 without the suffix *-l*, and even if it did, it would not have been **no:ɸ-* but **no:č-* with the final consonant palatalized.

[13]In some doublets, the noun formed on the perfective stem has more lexical and fossilized meaning; e.g. *λa-ka:wa-l-(li)* 'thing which is left' (< base 4) vs. *λa-ka:w-(λi)* 'thing which is left, space' (< perfective stem). However, I cannot be sure whether this is a systematic tendency.

2.3. Use of object prefixes in patient nouns

Temporarily setting aside the choice of stem-types, this paper focuses on the use of object prefixes in patient-noun formation. The distribution of object prefixes exhibits different patterns depending on the valency of the source verbs. Among various types of verbs, what I shall call *nawatia:-type verbs* show an especially odd behavior. Some of them are used both monotransitively or ditransitively, and others alternate as to the semantic role of the object. This type of verbs are discussed in Section 2.3.3 below. In this paper, I temporarily limit the scope of the examination to the non-reflexive patient nouns.

2.3.1. Simple monotransitive verbs

The term *simple monotransitive verbs* here refers to the monotransitive verbs without the alternation of argument structure of the type exhibited by *nawatia:*-type verbs.

Patient nouns derived from monotransitive verbs are abundantly attested both in dictionaries and texts, and a relatively simple and regular pattern can be identified in them. Contrary to Stiebels' (1999) prediction, the actual distribution of patient nouns in the classical sources supports the traditional generalization that the uniform use of the object prefix *λa-* is the only productive way of patient nominalization. The patient nouns without object prefixes are far less frequent and less regular despite Stiebels' (1999) conjecture that they constitute the regular pattern of patient nominalization. It is true that many patient nouns appear without any object prefix, as exemplified in Table 1; nonetheless, they are statistically scarce and the majority of them have very specialized or fossilized meanings.

Table 1: Patient nouns from monotransitive sources without object prefixes

Patient noun	Source verb
ma:-l-(li) 'captive'	*ma:* 'to hunt X'
keɬa-l-(li) 'quetzal feather'	*keɬ(a)* 'to put X upright; to tell X (e.g. a fable)'
piya-l-(li) 'ward, depot'	*piy(a)* 'to guard X'
ɬak^{w}-(λi) 'glue'	*ɬak^{w}(a)* 'to close X' (?)
ke:m(i)-(λ) 'clothing'	*ke:m(i)* 'to wear X"
na:mik-(λi) 'spouse'	*na:mik(i)* 'to meet X'
teš-(λi) 'flour'	*tes(i)* 'to grind X'
tiλa:n-(λi) 'messenger'	*tiλa:n(i)* 'to send X as a messenger'

As Table 1 shows, some such nouns refer to culturally important things (e.g. *ma:-l-(li)*[14] 'captive', *na:mik-(λi)* 'spouse'); others have hardly predictable meanings (e.g.

[14]The irregularity of the form *ma:-l-(li)* 'captive' is also endorsed by the presence of a long vowel. Carochi (1645:f. 58v) marks the *a* in *ma:-l-(li)* and its verbalized form *ma:-l-t(i)* 'to become a captive' as long although the stem-final vowel of the verbs of the type *ma:* 'to hunt X' is usually short in base 4.

keɬa-l-(li) 'quetzal feather' < *keɬ(a)* 'to put X upright; to tell X (e.g. a fable)'). Moreover, some probably synchronically non-deverbal nouns may also belong to this type. Andrews (2003) attributes *kʷal-(li)* 'good' to the verb *kʷa:* 'to eat X', *ka:wi-(λ)* 'time' to *ka:w(a)* 'to leave X', and so on. If his speculations are correct, it is perhaps the case that the patient nominalization without *λa-* was once productive and has already lost its productivity.

On the contrary, patient nouns with the object prefix *λa-* is overwhelmingly frequent and undoubtedly productive. Not only are they massively found in the dictionaries, they are also described as productive by sixteenth- and seventeenth-century missionary grammarians such as Olmos (1875 [1547]:54–58), Rincón (1885 [1595]:36), and Carochi (1645:f. 46–47v). Furthermore, as exemplified in Table 2, most of them have more transparent and predictable meaning than their counterparts without *λa-*.

Table 2: Patient nouns from monotransitive sources with regular object prefixes

Patient noun	Source verb
λa-či:wa-l-(li) 'thing which is made, creation'	*či:w(a)* 'to make X'
λa-koko:-l-(li) 'injured person'	*kokoa:* 'to hurt X'
λa-kʷa-l-(li) 'food, meal'	*kʷa:* 'to eat X'
λa-pa-l-(li) 'ink'	*pa:* 'to dye X'
λa-ška-l-(li) 'tortilla'	*(i)ška* 'to bake X'
λa-'to:-l-(li) 'word, language'	*(i)'toa:* 'to say X'
λa-kʷa-l-(li) 'food, meal'	*kʷa:* 'to eat X'
λa-tekpa:n-(λi) 'thing which is arranged'	*tekpa:n(a)* 'to set X in order'
λa-tki-(λ) 'property, belongings'	*(i)tki* 'to carry X'
λa-kʷep-(λi) 'thing which is turned'	*kʷep(a)* 'to turn X'

As pointed out in both traditional and contemporary grammatical literature, the use of *λa-* in patient nouns is not limited to those denoting non-human entities despite the canonical use of *λa-* as the nonspecfic non-human object prefix on verbs. Many human patient nouns such as *λa-no:ɬa-l-(li)* 'someone called, cited, or corrected', *λa-telči:wa-l-(li)* 'someone undervalued', *λa-te:kʷtili:-l-(li)* 'someone honored as knight', and *λa-pačo:-l-(li)* 'subject, someone ruled or oppressed' are formed with *λa-* while such nouns with the nonspecific human object prefix *te:-* are extremely rare if any. It is not necessary, therefore, to interpret the use of *λa-* in human patient nouns as irregular as Stiebels (1999:814) does.

Moreover, there are many patient nouns with *λa-* which appears in the dictionaries and grammatical texts but are not attested in other contexts, suggesting that the patient nominalization with *λa-* is so powerful that it was easy to fabricate words which were not in use in real conversations or narratives. Molina's (1571a, b) dictionaries have many patient nouns with abstract meanings such as *λa-čipa:wa-l-(li)* 'something purified' (< *čipa:w(a)* 'to purify X'), *λa-i:na:ya-l-(li)* 'something hidden' (< *i:na:y(a)* 'to hide X'),

and *λa-patla-l-(li)* 'something exchanged with something else' (< *patla* 'to exchange X'), but they are so far not attested in actual texts.

The productivity and regularity of the patient nouns with *λa-* is also evidenced by the doublets with and without *λa-*. A number of patient nouns without object prefixes has the counterparts with *λa-*. In many such pairs, the forms with *λa-* has more transparent and compositionally predictable meanings. The pairs of this type are exemplified in Table 3. It seems reasonable, then, to assume that the forms with *λa-* tend to be more regular than those without *λa-*.

Table 3: Pairs of patient nouns with and without object prefixes

Source verb	Pair of patient nouns
keɸ(a) 'to put X upright, to tell X (a fable)'	*keɸa-l-(li)* 'quetzal feather' *λa-keɸa-l-(li)* 'wood pole; fable'
piy(a) 'to guard X'	*piya-l-(li)* 'ward, depot' *λa-piya-l-(li)* 'thing which is guarded, preserved'
ɸak^{w}(a) 'to close X'	*ɸak^{w}a-l-(li)* 'little hill, pyramid' *λa-ɸak^{w}a-l-(li)* 'place which is enclosed'
	ɸak^{w}-(λi) 'glue' *λa-ɸak^{w}-(λi)* 'thing which is closed'

Probably correlating to the productivity of the forms with *λa-*, some traditional sources treat this type of nouns as something like adjectives or participles, suggesting that the speakers of Classical Nahuatl retained the intuition that at least many of them were deverbal. Olmos (1875 [1547]:54–58) classifies them as *adjective derivatives* (*derivativos adjectivos*) which are likened to participles and emphasizes the distinction between them and derived nouns (especially event nouns). Siméon (1885) also annotates many of them as *verbal adjectives* (*adjectifs verbaux*).

In summary, Stiebels' (1999) interpretation of patient-noun formation should be refined in two ways. First, the presence than absence of an object prefix in patient nouns formed on monotransitive verbs are undoubtedly regular and productive despite her prediction. Second, the choice of *λa-* than *te:-* in the formation of human patient nouns is by no means a deviation. As far as only simple monotransitive source verbs are concerned, the pattern which Stiebels (1999) considers as irregular actually constitutes the predominant pattern.

2.3.2. Constantly ditransitive verbs

Compared to the patient nouns formed on simple monotransitive verbs, those which have ditransitive sources exhibit a more complicated pattern. Since most ditransitive verbs in Classical Nahuatl are the applicative or causative forms of monotransitive verbs, patient nouns from ditransitive sources are far less frequent than patient nouns from monotransitive sources. I shall begin with the simplest examples whose source verbs

do not show the alternation of argument structure.

Although the event nouns with the derivational suffix *-lis* are easily and regularly formed from ditransitive verbs, patient nouns of this type are unnaturally infrequent. They include *te:-λa-mak-(λi)* 'gift' (< *maka* 'to give X to Y'), *te:-λa-ka:walti:-l-(li)* 'thing which is prohibited' (< *ka:waltia:* 'prohibit X from Y'), *te:-λa-mači:-l-(li)* 'thing which is distributed' (< *mačia:* 'to judge or distribute X for the sake of Y'), *te:-λa-tkiti:-l-(li)* 'thing which is carried by people' (< *(i)tkitia:* 'to cause X to carry Y'), and *te:-λa-piyalti:-l-(li)* 'thing which is deposited, entrusted' (< *piyaltia:* 'to entrust X in the care of Y'). They have the object prefix cluster *te:-λa-* and refer to the non-human entities which correspond to the direct objects of source verbs.

2.3.3. *nawatia:*-type verbs

The most problematic examples of patient nouns are those whose source verbs show the lexical alternation of argument structure. In this paper, I refer to such verbs as *nawatia:-type verbs* since the verb *nawatia:* 'to order X; to give an order to X' is a typical instance of this type. Andrews (2003:225–226) notes that certain monotransitive verbs have either a human object (goal, recipient, beneficiary, or maleficiary) or a non-human object (theme) alternately. They include *nawatia:* 'to order X; to give an order to X' and *(i)kne:lia:* 'to give X as a favor; to do favor for X' among others. Interestingly, several *nawatia:*-type verbs have patient nouns in pairs. The verb *nawatia:* 'to order X; to give an order to X' has both *te:-nawati:-l-(li)* 'order'(i.e. non-human theme) and *λa-nawati:-l-(li)* 'someone who received an order, messenger' (i.e. human recipient).[15] Similarly, *(i)kne:lia:* 'to give X as a favor; to do favor for X' bears both *te:-ikne:li:-l-(li)* 'mercy, favor' and *λa-kne:li:-l-(li)* 'someone who received a favor'.

This phenomenon is not limited to constantly monotransitive verbs. According to Siméon, a few verbs alternate between ditransitive and monotransitive (with a human object). They include *mačtia:* 'to teach X to Y; to instruct Y (a person)' and *λa:wtia:* 'request X (a thing) from Y (a person); give a service to Y (a person)'. Curiously, this type of verbs behave in a similar way to the monotransitive *nawatia:*-type verbs cited above in patient nominalization despite that these two groups differ in the possible argument structures. Thus, from the verb *mačtia:* 'to teach X to Y; to instruct Y', both *te:-mačti:-l-(li)* 'instruction, sermon' and *λa-mačti:-l-(li)* 'disciple, student' are derived. The examples of both subtypes of *nawatia:*-type verbs are shown in Table 4.

Stiebels (1999:818–819) seems to consider this phenomenon as an argument saturation which occurs within the argument structure of a constantly ditransitive verb. However, as the examples above show, the actual pattern is much more complicated. As far as Siméon (1885) reports, *nawatia:* 'to order X; to give an order to X' and *(i)kne:lia:* 'to give X as a favor; to do favor for X' are used only monotransitively.

[15]In addition to them, there is another noun *nawati:-l-(li)* 'law, obligation'.

Table 4: Pairs of patient nouns with nonspecific human/non-human object prefixes derived from *nawatia:*-type verbs

Source verb	Argument structure	Pair of patient nouns
nawatia: (ORDER)	'to order N' 'to give an order to H'	*te:-nawati:-l-(li)* 'order' *λa-nawati:-l-(li)* 'someone who received an order, messenger'
(i)kne:lia: (DO FAVOR)	'to give N as a favor' 'to do a favor for H'	*te:-ikne:li:-l-(li)* 'mercy, favor' *λa-kne:li:-l-(li)* 'someone who received a favor'
mačtia: (TEACH)	'to teach N to H' 'to instruct H'	*te:-mačti:-l-(li)* 'instruction, sermon' *λa-mačti:-l-(li)* 'disciple, student'
λa:wtia: (REQUEST/ GIVE SERVICE)	'to request N from H' 'to lend service to H'	*te:-λawti:-l-(li)* 'gift, benefit, service' *λa-λawti:-l-(li)* 'gift; someone favored or rewarded'
no:no:ɸ(a) (REPROACH)	'to inform, narrate N' 'to reproach, scold H'	*te:-no:no:ɸa-l-(li)* 'reproach, scolding' *λa-no:no:ɸa-l-(li)* 'someone who is reproached, scolded'

N: Non-human object; H: Human object

In conclusion, there are two subtypes to the potential source verbs for *te:-/λa-* pairs of patient nouns: (i) monotransitive verbs which can have either a human object (recipient etc.) or a non-human object (theme); (ii) verbs which alternate between ditransitive and monotransitive. This observation does not match the interpretation by Stiebels (1999:818–819) that the *te:-/λa-* pairs are derived from ditransitive verbs through argument saturation.

2.3.4. Intransitive verbs

It seems that the patient nouns of the type discussed in this paper cannot be regularly derived from intransitive verbs regardless of whether the source verb is unaccusative or unergative.

Patient nouns of this type are rarely derived from unaccusative verbs.[16] For example, such nouns as **weɬi-l-(li)* 'someone who falls, thing which falls' (< *weɬ(i)*), **(λa-)λa:kati-l-(li)* 'someone who is born' (< *λa:kat(i)* 'to be born'), and **e:wa-l-(li)* 'someone who ascends/departs, thing which rises' (< *e:wa* 'to rise, depart') are not attested.[17] The regular and productive way to derive nouns which refer to the patient/theme of unaccusative verbs is to use the so-called agent noun derivational suffix *-k(i)*, which is typically used to derive an agent noun from a transitive verb: e.g. *weɬ-ki* 'person who fell' (cf. *λa-piš-ki* 'guardian' < *piy(a)* 'to guard X').

Similarly, I have not encountered an unobjectionable example of a patient noun formed on an unergative source. This is as expected, for unergative verbs are supposed not to have explicit internal arguments. Moreover, the majority of unergative verbs in Classical Nahuatl are actually transitive verbs whose internal argument is saturated by nonspecific object prefixes.

In contrast to these two classes, impersonal weather verbs often have the nominal counterparts in the same form as patient nouns discussed in this paper. They include *to:ma-l-(li)* 'warmth of the sun, day' (< *to:n(a)* 'for it to be warm'), *se:wa-l-(li)* (< *se:w(a)* 'for it to be cold'), and *yowa-l-(li)* (< *yowa* 'for night to fall') among others. As these examples show, the deverbal nouns of this type has the parallel form to those of patient

[16]Many Classical Nahuatl verbs are found in transitive–unaccusative pairs, e.g. *man(a)* 'to spread X' vs. *man(i)* 'to spread'; *koto:n(a)* 'to cut X' vs. *koto:n(i)* '(for a cord, thread etc.) to snap'. The patient nouns derived from such verbs sometimes look as if they were formed on unaccusative counterparts due to the loss of the stem-final vowels which mark the transitive–unaccusative distinction. Thus, *λa-man-(λi)* 'thing which is spread, thing' (< *man(a)* 'to spread X') and *λa-koto:n-(λi)* 'thing which is cut apart' (< *koto:n(a)* 'to cut X') might appear to stem from *man(i)* 'to spread' and *koto:n(i)* 'to snap' respectively. Nevertheless, they are naturally related to the transitive verbs *man(a)* 'to spread X' and *koto:n(a)* 'to cut X' since no example is found so far which cannot be understood as the derivation from the transitive counterpart.

[17]The noun *kikis-(λi)* 'conch shell trumpet' (< *kikis(i)* 'to hiss') may belong to this type. Also *či:či:wa-l-(li)* 'breast' (<? **či:či:wa* 'to be suckled' < *či:či:* 'to suckle X') may be the patient noun of this type, but it is not clear whether this etymology is correct; the expected source verb **či:či:wa* 'to be suckled' does not exist or is at least uncommon.

nouns although they by no means refer to the patient or the theme.

3. Analysis and theoretical implications

In this section, I discuss how the descriptive generalizations made in Section 2 above should be interpreted. In order to cover the various types of patient nouns illustrated above, I propose to distinguish two levels of object prefixation. This approach is in a contrast to the approach adopted by Andrews (2003) and Stiebels (1999) which considers that the object prefixation in patient nominalization is essentially the same process as that of verb inflection.

3.1. Problems with the uniformity approaches

Firstly, I argue that both Stiebels' (1999) and Andrews' (2003) analyses fail to explain the actual distribution of object prefixes in patient nouns. Both of them suppose that the affixation of object prefixes is basically subject to the same rules as that of the object prefixation on verbs. I refer to these approaches as the *uniformity approaches*. Since the attested patterns of patient-noun formation do not correspond one-to-one with the argument structures of source verbs, these approaches make several incorrect predictions.

3.1.1. Problems with Andrews' model

Andrews (2003) associates many patient nouns with the impersonal forms of source verbs with the object positions saturated by object prefixes. According to Andrews (2003:369), the input for the patient noun *λa-pi:ɸa-l-(li)* 'flute' is *λa-pi:ɸa-l-o:* 'for there to be blowing', the impersonal verb form of *pi:ɸ(a)* 'to blow X' whose internal argument position is filled by the object prefix *λa-*. Although this understanding seems straightforward at a first glance, it is inconsistent with the descriptive facts about patient-noun formation. Before examining Stiebels' (1999) analysis, I shall discuss that of Andrews (2003) and point out that it cannot cover the actual distribution of patient nouns.

First, the "impersonal" analysis by Andrews (2003) cannot predict the uniform use of *λa-* in patient nouns. For example, the impersonal form of *telči:w(a)* 'to undervalue X' would be *te:-telči:wa-l-o:* 'for there to be undervaluing' with the nonspecific human object prefix *te:-* if the implicit object is a person. However, as shown in Section 2.3.1, *telči:w(a)* actually yields *λa-telči:wa-l-(li)* 'someone who is undervalued' with the nonspecific non-human object prefix *λa-*.

Second, if the impersonal form of the verb serves as the input of the nominalization process, intransitive verbs (or at least unaccusative verbs) should also be nominalized through the same process, for intransitive verbs also have impersonal forms regardless of the animacy of the original subject. In fact, as discussed in Section 2.3.4, patient nouns cannot regularly be derived from intransitive verbs. It is of course possible that the

derivation of patient nouns from intransitive verbs are ruled out by another functional or morphological restriction; nonetheless, it is hard to justify a constraint which excludes intransitive (unaccusative/unergative) verbs from the input for patient nominalization while permitting intransitivized/impersonalized transitive verbs.

Third, it cannot account for those patient nouns formed on *nawatia:*-type verbs. As illustrated in Section 2.3.3, some *nawatia:*-type verbs (e.g. *mačtia:* 'to teach X to Y; to instruct Y') alternate between ditransitive and monotransitive while others (e.g. *nawatia:* 'to order X; to give an order to X') are always used monotransitively and alternate only in the semantic role of their single object (e.g. recipient/human and theme/non-human). If the impersonal forms are the input of patient nominalization, and if we trust Siméon's (1885) description on the valency of verbs, then these two forms of *nawatia:*-type verbs would result in different types of patient nouns, which is contrary to fact.

3.1.2. Problems with Stiebels' model

Stiebels' (1999) analysis suffers from the same problems. Although her analysis differs from that of Andrews (2003) in an important way, they share the major idea that the process of affixation of object prefixes is uniform in both verb inflection and deverbalization.

The major difference between Andrews (2003) and Stiebels (1999) is that Stiebels (1999) seems to consider that the argument saturation by object prefixes takes place after the nominalization while Andrews (2003) suggests that the input form of the patient nominalization is already saturated. In Stiebels' (1999) model, the argument positions of the source verb remain unsaturated through the process of deverbalization by the operation of argument linking, so that the resulting nominal also has unsaturated argument positions which should be filled in. For example, the recipient position of the source verb *mačtia:* 'to teach X to Y' is unsaturated when the nominalization process is initiated; the resulting noun stem inherits this unsaturated position from its source verb, which is thereupon saturated by the nonspecific human object prefix *te:-*. Consequently, the actual patient noun *te:-mačti:-l-(li)* 'instruction, sermon' is deduced.

However, there is still a few problems with Stiebels' (1999) model. If the argument structure of the source verbs are projected on resulting patient nouns as she argues, the selective restriction on the object prefix (*te:-/λa-*) should be retained in corresponding patient nouns. Thus, as noticed by Stiebels (1999) herself, this model incorrectly predicts such forms as **te:-telči:wa-l-(li)* 'someone who is undervalued' (< *telči:w(a)* 'to undervalue X') instead of the actual *λa-telči:wa-l-(li)* if an object prefix is to be added at all, for her analysis expects the relevant argument position to require a human object prefix. Although Stiebels (1999) seems to assign this fact to the lexical irregularity of patient-noun formation, the data presented in Section 2 above prove that it is not really an exception. Moreover, it fails to account for the actually attested forms such as *te:-nawati:-l-(li)* 'order' (< *nawatia:* 'to order X; to give an order to X'). Since the

source verb *nawatia:* is not attested with two objects, her model predicts that there should not be the same type of pair of patient nouns as the potentially ditransitive verbs such as *mačtia:* 'to teach X to Y; to instruct Y'. More importantly, Stiebels' (1999) theory predicts that the internal argument in question should not be saturated in patient nominalization, for the original internal argument should be promoted to the referential argument of the resulting patient noun.

3.2. Bistratal analysis

Since the actual patterns of the use of object prefixes do not conform to the argument structure of the source verbs, the uniformity analysis which characterizes all object prefixes as the realization of the process of argument saturation fails to explain the data presented in this paper.

In order to cover the data presented in Section 2 above, I propose a bistratal approach which distinguishes two different levels in the affixation of object prefixes in patient nominalization, only one out of which is the real argument saturation of the type which Stiebels (1999) and Andrews (2003) consider.

3.2.1. Identifying the basic pattern

Let us begin with the most basic type of patient nominalization illustrated in Section 2.3.1, where the source verb is a monotransitive verb which does not alternate as to the argument structure. The patient nouns of this type include *λa-poːwa-l-(li)* 'thing which is counted' (< *poːw(a)* 'to count X') and *λa-telčiːwa-l-(li)* 'someone who is undervalued' (< *telčiːw(a)* 'to undervalue X'), for example. They consistently have the object prefix *λa-* which is phonologically identical with the nonspecific non-human object prefix on verbs regardless of whether they refer to a human or not. The absence of object prefix is sporadic and highly lexical, and the use of the nonspecific human object prefix *teː-* in place of *λa-* is never attested.

As pointed out above, neither Andrews' (2003) analysis nor that of Stiebels (1999) can give a deductive account to this phenomenon. Andrews covers these data by defining different rules for each individual type of patient nominalization while Stiebels (1999) leaves it as an open question. Rather than considering the use of *λa-* as an irregularity, I shall confirm the descriptive fact that a simple monotransitive verb can be turned into a patient noun by adding *λa-*.

The actual derivation process is assumed to consist of at least two operations: (i) the prefixation of *λa-* and (ii) the shift of the stem into the base 4 or the form which alternates with it. I tentatively label the operation (i) as *TLA* and (ii) as *LLI*.

3.2.2. Two levels of object prefixation

Assuming the cases with monotransitive source verbs as the basic type, let us turn to more complicated cases.

Of course, TLA/LLI alone cannot account for every type of patient-noun formation. The patient nominalization of ditransitive verbs and/or *nawatia:*-type verbs shows much more complicated patterns, and the use of object prefix other than *λa-* should also be taken into account.

In order to make a model of patient nominalization, it seems useful to begin with three stable descriptive generalizations. First, if the source verb is a simple monotransitive verb, it is consistently nominalized with the object prefix *λa-* regardless of whether the resulting noun refers to a human or a non-human. Second, if the source verb has more than one internal arguments (i.e. ditransitive) and/or exhibits the alternation of argument structure (i.e. *nawatia:*-type), the use of object prefixes in the resulting patient noun is at least partially animacy-sensitive. Third, patient nouns cannot regularly be derived from intransitive sources even when the source verb is unaccusative.

These observations suggest that the uniform use of *λa-* which is observed with monotransitive sources cannot be reduced into any other type of object affixation process although it is not enough to cover other types of patient nominalization. It seems most straightforward, then, to assume that there are two types of object affixation processes. The first is TLA, which uniformly adds *λa-* regardless of animacy and forms patient nouns from monotransitive sources. The second is sensitive to the human/non-human distinction and is only relevant in the patient nominalization of ditransitive and/or *nawatia:*-type sources. In this paper, I claim that this bistratal approach is necessary to cover the actual patterns of patient-noun formation.

3.2.3. Stiebels' idea on *nawatia:*-type verbs

Let us then see how the approach presented in the last section accounts for more complicated cases.

In the following discussions, I shall base myself on Stiebels' (1999) idea that the argument of a ditransitive source verb which does not realize as the referential argument of the resulting patient noun is saturated by an object prefix, for it seems to have overcome the problems with Andrews' (2003) "impersonal" interpretation.

In Andrews' (2003) view which considers the impersonal form as the input of patient nominalization, the contrast in the *te:-/λa-* pairs such as that between *te:-nawati:-l-(li)* 'order' and *λa-nawati:-l-(li)* 'someone who received an order' is due to the different forms of impersonal sources (Andrews 2003:373–374). This interpretation is also implied by Launey (1979:284–285). According to their understanding, *te:-nawati:-l-(li)* 'order' is derived from *te:-nawati:-l-o:* 'for there to be ordering to someone' and *λa-nawati:-l-(li)* 'someone who received an order' from *λa-nawati:-l-o:* 'for there to be

ordering something'.

However, this analysis is not quite useful to account for the meanings of the resulting nouns. It is not clear, for instance, how the meaning of *te:-nawati:-l-(li)* 'someone who received an order' is derived from 'for there to be ordering something'; it might be the case that the resulting noun refers to the *order* which is made or the *event of ordering* itself. More generally, Andrews' (2003) model seems to fail to explain the fact that, in this type of patient nominalization, a form with the *human* object prefix *te:-* refers to a *non-human* while that with *non-human* object prefix *λa-* refers to a *human*.

In contrast, the interpretation by Stiebels (1999) appears free from these problems. Although she does not formalize the actual derivational process, the glosses in Stiebels (1999:819) suggest that she assumes that, when the source verbs are of *nawatia:*-type, one particular internal argument is extracted from the original argument structure by λ-abstraction and is promoted to the referential argument of the resulting noun. To put it in another way, she considers that the object prefixes only saturate the arguments which do not realize as the referential arguments of the resulting nouns. If so, the above phenomenon appears easy to understand intuitively, knowing that *te:-* is typically used for a human object ('someone') and *λa-* for a non-human object ('something'). Informally speaking, *te:-nawati:-l-(li)* 'order' is a thing which is ordered *to someone* while *λa-nawati:-l-(li)* 'someone who received an order, messenger' is a person who is ordered to do *something*.

However, there is still a problem with her analysis. Stiebels (1999) appears to assume that the *te:-/λa-* pairs of patient nouns are derived from constantly ditransitive source verbs, citing from Launey (1979:285) the pairs *te:-mačti:-l-(li)* 'instruction, sermon' vs. *λa-mačti:-l-(li)* 'disciple, student' and *te:-nawati:-l-(li)* 'order' vs. *λa-nawati:-l-(li)* 'someone who received an order'. As discussed in Section 2.3.3, this is not really the case. Although *mačtia:* 'to teach X to Y; to instruct Y' can certainly be ditransitive, *nawatia:* 'to order X; to give an order to X' probably cannot. Thus, if the pairs of the type discussed above are derived through the argument saturation of ditransitive sources, such nouns as *te:-nawati:-l-(li)* 'order' and *te:-ikne:li:-l-(li)* 'mercy, favor' would not exist.

3.2.4. Underlying ditransitivity hypothesis

In this paper, I seek to refine the analysis of Stiebels (1999) slightly so that it can account for the actual patterns of patient nominalization of *nawatia:*-type verbs. Specifically, I argue that all *nawatia:*-type verbs are underlyingly ditransitive and thus conform to her model.

The observations above suggest that the use of object prefixes cannot be fully explained simply by supposing that the actually attested argument structure constitutes the input for patient nominalization. By assuming the parallel lexical-syntactic structures for all *nawatia:*-type sources, Stiebels' (1999) model can successfully account for the actual patterns of patient-noun formation.

There are indeed a couple of descriptive reasons to suppose that *nawatia:*-type verbs are underlyingly ditransitive. First, many of them have the applicative verb ending *-(l)ia:* or causative verb ending *-tia:* even though some of them are not found to be used ditransitively. Second, some *te:-/λa-* pairs of patient nouns suggest that they stem from a single argument structure. As summarized in Table 4 above, some *te:-/λa-* pairs do not correspond to the alternation of argument structure of their base *nawatia:*-type verbs. As Andrews (2003:373) observes, the meanings of the patient nouns *te:-no:no:ɬa-l-(li)* 'reproach, scolding' and *λa-no:no:ɬa-l-(li)* 'someone who is reproached, scolded' clearly stem from that of the verb *(te:-)no:no:ɬ(a)*[18] 'to reproach, scold X (a person)' but not *(λa-)no:no:ɬ(a)* 'to relate, narrate X (a story)'. Here, the contrast between two patient nouns cannot be interpreted as reflecting the alternation in argument structure of the base verb *no:no:ɬ(a)*; rather, as Andrews (2003) argues, it seems more plausible to assume that both patient nouns are derived from *(te:-)no:no:ɬ(a)* 'to reproach, scold X' despite the inconsistency of the surface argument structure. Similarly, the meanings of *te:-λawti:-l-(li)* 'gift, benefit, service' and *λa-λawti:-l-(li)* 'gift; someone favored or rewarded' seem to have nothing to do with *(te:-λa-)λawtia:* 'to request X from Y', but are obviously related to *(te:-)λawtia:* 'to do X a favor'. Accordingly, it seems reasonable to suppose that the *te:-/λa-* pairs of patient nouns are derived from a single ditransitive underlying lexical-semantic structure.

If so, the surface argument structures reported in the dictionaries and attested in the texts are the secondary ones derived by some lexical-syntactic process which supresses some internal arguments. The argument structures which serve as the sources of patient nominalization, on the other hand, should be assumed to preserve the original ditransitive structures from which at least some *te:-/λa-* pairs of verbs are derived. There is so far no predictive generalization to this argument-suppressing process, but one thing should be pointed out here: although Classical Nahuatl is very strict as to the valency of verbs, the lexical distinction between monotransitive and ditransitive verbs seems less absolute than that between transitive and intransitive verbs. Verbs which are typically used ditransitively often behave like monotransitive verbs whereas (mono-)transitive verbs seldom serve as intransitive verbs. Major dictionaries such as Molina (1571b) and Siméon (1885) report that a large number of (di-)transitive verbs have more than one argument structure.

Let us then suppose that Stiebels' (1999) analysis can also be applied to the derivation of patient nouns from *nawatia:*-type verbs. As for the potentially ditransitive verbs such as *mačtia:* 'to teach X to Y; to instruct Y', we can simply assume two internal argument positions: recipient (human) and theme (non-human). If the resulting noun is expected to refer to the theme, the other internal argument (i.e. recipient) should be saturated by the human object prefix *te:-*. Contrarily, in order for it to be a recipient noun, the extra internal argument (i.e. theme) should be saturated by the non-human object prefix *λa-*.

[18]In this section, I specify the argument structures of verbs by object prefixes in parentheses. For example, the notation *(te:-)no:no:ɬ(a)* indicates that the verb *no:no:ɬ(a)* takes a single human object.

The "underlying ditransitivity" hypothesis makes it possible to assume the same process for those *nawatia:*-type verbs which are themselves not actually used ditransitively such as *nawatia:* 'to order X; to give an order to X'. The verb *nawatia:* is supposed to have two internal argument positions just like *mačtia:*, either of which should be saturated by an object prefix.

However, there is still a problem with this account. In the discussions above, I proposed to generalize the model of patient nominalization of simple monotransitive verbs proposed in Section 3.2.1 to other cases. If we assume TLA and LLI to be the regular operations to derive patient nouns, *nawatia:*-type verbs should have resulted in the forms with an extra *λa-* added by TLA. That is, the model incorrectly predicts such forms as **λa-te:-mačti:-l-(li)* and **λa-λa-mačti:-l-(li)* instead of the actual forms *te:-mačti:-l-(li)* 'instruction, sermon' and *λa-mačti:-l-(li)* 'disciple, student'.

3.2.5. The absence of extra object prefix in *nawatia:*-type pairs

Before discussing this issue, let us see how this model works for the consistently ditransitive verbs mentioned in Section 2.3.2 above. They include *maka* 'to give X to Y' and *ka:waltia:* 'prohibit X from Y' for example. As far as I observed, this type of verbs only have the non-human patient nouns which refer to the theme, and do not have the human patient nouns which refer to the recipient, beneficiary, or maleficiary. Thus, my model expects the patient nouns formed on these verbs to have both a *te:-* and a *λa-*; *λa-* is the realization of TLA and *te:-* is inserted through the argument saturation process. The argument saturation process selects *te:-* instead of *λa-* because the resulting patient noun refers to the theme.

In reality, the patient nouns of this type have the prefix cluster *te:-λa-*; e.g. *te:-λa-mak-(λi)* 'gift' (< *maka* 'to give X to Y'), *te:-λa-ka:waltiː-l-(li)* 'thing which is prohibited' (< *ka:waltia:* 'prohibit X from Y'). The relative order between *te:-* and *λa-* here is as expected. Classical Nahuatl inflectional morphology exhibits the characteristics of "template morphology" in the meaning of Simpson & Withgott (1986) and Stump (1997); that is, in Classical Nahuatl, the order of argument affixes is decided by the position of relevant affix slots but not by the argument structure. The nonspecific human object prefix *te:-* and the nonspecific non-human object prefix *λa-* fit in different slots. Consequently, *te:-* always precedes *λa-* except for some highly lexicalized forms. Although this feature is typical for inflectional morphology, it also seems to hold for some lexical processes in Classical Nahuatl. The combination of *te:-* and *λa-* always realizes as *te:-λa-* but not **λa-te:-*. Also the cluster *λa-λa-* seems to be disfavored in at least some cases[19] since in such a cluster a single morphological slot is targeted by two affixes except when one prefix is lexically fusioned as a part of the verb stem (e.g. *λa-λa-či:wi:-l-(li)*

[19]Andrews and Launey seem to disagree on the acceptability of such clusters as *te:-te:-* and *λa-λa-*. Andrews (1988, 2003) obviously admits the combination of more than one nonspecific object prefixes of the same type while Launey (1979) appears to consider that such a cluster is at least disfavored.

'someone who is charmed, enchanted' < *λa-chi:wia:* 'to enchant X').

Let us now turn back to *nawatia:*-type verbs. The model developed so far can account for the forms of human patient nouns but not those of their non-human counterparts, which would be expected to have the affix cluster *te:-λa-*. The fact that the human patient nouns do not have two *λa-*'s can be attributed to the supposed dispreference of the combination of two nonspecific object prefixes in a single slot. The only remaining problem is that the non-human patient nouns have a single *te:-* instead of *te:-λa-*. The fact that the patient nouns which do not appear in pairs (i.e. those derived from the ditransitive verbs without argument structure alternation) have the *λa-* inserted by TLA while the patient nouns which appear in *te:-/λa-* pairs do not[20] suggests that the absence of extra *λa-* in the latter group is motivated by some functional or economical factors. It may be the case that the insertion of *λa-* in non-human patient nouns is blocked because the *λa-* in their human counterparts functionally comes to indicate that their referents are human. Another possibility is that the status of theme-denoting forms without *λa-* derived from *nawatia:*-type verbs (e.g. *te:-mačti:-l-(li)* 'order') is analogous to that of the irregular patient nouns without *λa-* illustrated in Section 2.3.1 above (Shinya Hirasawa, personal communication).

3.2.6. Summary of the bistratal analysis

In the discussions above, I argued how the descriptive facts summarized in Section 2 should be generalized. Two levels should be distinguished within object affixation as long as the animacy-neutral use of *λa-* in patient-noun formation from simple monotransitive sources is considered as regular. The first one, TLA, is a part of the nominalization process itself and always adds *λa-* to the monotransitive source. The second one, on the other hand, saturates the extra argument by the animacy-sensitive object affixes *te:/λa-* when necessary. This speculation is based on Stiebels' (1999) idea that one particular internal argument is extracted by λ-abstraction through the process of patient nominalization. The symmetrical patterns in patient nouns derived from different types of *nawatia:*-type sources can be explained by assuming that all *nawatia:*-type verbs are underlyingly ditransitive, which is supported by the resulting meanings of some patient nouns of this type. The only remaining problem is the absence of extra *λa-* in *nawatia:*-type pairs such as *te:-nawati:-l-(li)* 'order' and *λa-nawati:-l-(li)* 'someone who has received an order', which should be accounted for separately.

[20]The patient nouns formed on the ditransitive verb *maka* 'to give X to Y' seem to constitute an exception to this generalization. There are at least three corresponding patient nouns to this verb, all of which mean 'gift, thing which is given': (i) *te:-λa-mak-(λi)* with both *te:-* and *λa-*; (ii) *te:-mak-(λi)* with a single *te:-*; (iii) *ne-mak-(λi)* with the reflexive object prefix *ne-*. The speculation presented in this section cannot account for the absence of the human counterpart of *te:-mak-(λi)* which refers to the person who has received the gift (i.e. **λa-mak-(λi)*). It might be the case, however, that such a noun is morphologically possible and predictable but constitutes a lexical gap perhaps due to the low pragmatic necessity to denote a person who is given something without specifying the gift s/he has received.

Besides the bistratal analysis presented here, there could be another interpretation of patient-noun formation which assumes two different patient-noun forming processes: (i) TLA which is applied to a monotransitive verb and (ii) that which derives a non-human theme noun from a ditransitive source, namely "TETLA". However, this analysis cannot account for the complicated pattens of patient nominalization of *nawatia:*-type verbs. The bistratal analysis proposed in the previous sections can capture the correlation between the argument structures of source verbs and the forms of resulting patient nouns, which cannot be explained by simply hypothesizing two different nominalization processes. Therefore, this paper adopts the position that there is no particular process which applies only to ditransitive source verbs.

3.3. Characteristics of patient nominalization

Lastly, I shall make a few comments on the characteristics of TLA and LLI defined in Section 3.2.1 above especially in terms of their relationship to the argument structure, although at present there is not enough evidence to clarify their functions. I suggest that, despite the presence of an object prefix *λa-*, TLA does not really saturate a particular internal argument position. Similarly, it is quite doubtful that LLI suppresses any argument at all, although it has been pointed out that the suffix *-l* may have the function to reduce the valency of verb roots throughout the grammar of Classical Nahuatl.

3.3.1. Characteristics of TLA

From the theoretical point of view, the bistratal approach proposed in the preceding sections has at least one theoretical advantage; that is, TLA is not necessarily interpreted as saturating an internal argument. Rather, as shall be discussed in Section 4 below, it is theoretically more favorable to assume that TLA does not saturate a particular internal argument.

Their apparent similarity notwithstanding, TLA is assumed to be a synchronically distinct operation from the familiar use of the nonspecific non-human object prefix *λa-* in the inflection of verbs. Firstly, as already seen, TLA is insensitive to the semantic feature (e.g. human/non-human) of the corresponding argument; the prefix added by TLA is always *λa-* regardless of the animacy of the resulting noun. Secondly, the fact that some irregular patient nouns such as *ma:-l-(li)* 'captive' lacks the overt realization of TLA seems to suggest that TLA is a lexical operation while the use of usual object prefixes on verbs undoubtedly belongs to inflectional morphology. It is not necessary, then, to presume that TLA is a process which suppresses a particular internal argument.

More corroboration which supports the position that TLA does not suppress an internal argument comes from the patterns of patient-noun formation from reflexive verbs summarized in Andrews (2003:365, 369). The correspondence between the argument structures of the sources and the form of the resulting patient nouns is much more obscure

when the source verb is reflexive. In some examples, the referent of the resulting patient noun is the same as that of the reflexive object of the source verb; e.g. *ne-'to:-l-(li)* 'promise, vow' (< *m-i'toa:* 'for a thing to be said'). In other cases, the resulting noun refers to an entity which is not contained in the argument structure of its source verb, e.g. *ne-no:ɸa-l-(li)* 'agreement' (< *mo-no:ɸ(a)* 'to deliberate, assemble, speak to each other'); *ne-k^{w}ito:no:-l-(li)* 'wealth' (< *mo-k^{w}ito:noa:* 'to be rich'). In the example *ne-mak-(λi)* 'gift' (< *maka* 'to give X to Y'), the actual form of the resulting patient noun does not conform to that of the original source verb; the verb *maka* 'to give X to Y' requires two internal arguments and its monotransitive use (**mo-maka*) is not attested. In such forms as *ne-k^{w}epa-l-(li)* 'the action of turning around' (< *mo-k^{w}ep(a)* 'to turn around'), the identical process as patient nominalization appears to derive event nouns instead of patient nouns. Though this paper cannot discuss this type of patient nouns in detail, it should be pointed out that the use of the reflexive object prefix *ne-* clearly do not correspond to a particular internal argument in at least some examples. Rather, it appears as if the object prefix *ne-* is inserted by a process analogous to TLA only in order to mark that the source verb is reflexive. If this speculation is correct, then TLA and its reflexive counterpart ("NE") do not directly affect the internal argument structure.

It is still possible that TLA actually suppresses the external argument instead of an internal argument. However, this speculation cannot be tested at present. Patient nominalization is limited to transitive source verbs in Classical Nahuatl and accordingly there seems to be no regular cases where an internal argument is involved while an external argument is not.

3.4. Characteristics of LLI

In Section 3.2.1 I proposed the hypothetical operation LLI, which turns the source verb into a particular stem-type (base 4 or perfective) and converts the whole verb stem into a nominal stem. The question arises, then, as to whether it has the function to affect the argument structure of the base verb.

The function of base 4, or more specifically that of the suffix *-l* which is a part of the regular form of base 4, is important here. As noted in Section 2.2 above, base 4 is typically related to the impersonal/passive forms of the verbs. Since patientivity and passive voice is clearly related, it might appear to be natural that LLI affects the argument structure of source verbs in a similar way that the process of passivization does. Moreover, Launey (1994:266) notes that many patient nouns have the suffix *-l* as a part of their base 4 stem. Although it is beyond the scope of this paper to examine the diverse uses of this pervasive morpheme, Launey (1994) and Baker (1996:367–369) suggest that the major function of *-l* is to reduce the valency of verbal items, perhaps by suppressing the external argument.

However, as far as nominalization is concerned, it is doubtful that *-l* suppresses a particular argument. First, as already noted in Section 2.2, base 4 is not always used in patient nominalization. Base 4 and the perfective stem are sometimes used

interchangeably in patient-noun formation, and there appears to be no grammatically significant implications in it. Second, some deverbal nouns derived from weather verbs are formed on the base 4 stems: e.g. *to:na-l-(li)* 'warmth of the sun, day' (< *to:n(a)* 'for it to be warm'), *se:wa-l-(li)* 'shade, shadow' (< *se:w(a)* 'for it to be cold'), *yowa-l-(li)* 'night' (< *yowa* 'for night to fall'). Though they are clearly not patient nouns, these examples suggest that the base 4 does not always imply the reduced valency; weather verbs are assumed to be always impersonal and non-argument-taking in Classical Nahuatl. Thus, it seems appropriate to assume that LLI does not suppress any particular argument at least synchronically. Nonetheless, the function of base 4 and the suffix *-l* in general needs further investigation both descriptively and theoretically.

4. Theoretical implications

Lastly, I discuss the implications of the bistratal approach proposed above. The bistratal model can account for a few apparent anomalies with the model of Stiebels (1999). However, assuming this approach, the data which Stiebels (1999) argues as supporting her noun–verb symmetry hypothesis turn out not to be the positive evidence for her claims.

4.1. Explaining Stiebels' descriptive anomalies

If we adopt the bistratal approach and assume that TLA does not saturate any particular internal argument, two unnatural assumptions in Stiebels (1999) become unnecessary. First, it is not necessary to consider the patient nouns without object prefixes (e.g. *ma:-l-(li)* 'captive'), which is proved to be actually sporadic and nonproductive, as regular. As Stiebels (1999:814) herself notes, her model predicts that the object should not be saturated in patient nominalization; if a patient noun is derived by promoting a particular internal argument to the referential argument, the original internal argument in question becomes inaccessible for the process of argument saturation. Though she attributes the presence of *λa-* in many patient nouns to the confusion of result nouns and real patient nouns, this additional account can be discarded if we assume that TLA is not really an argument-saturating process. Second, the use of *λa-* instead of *te:-* need not be ascribed to the lexical irregularity. Consequently, as for patient nominalization, the descriptive facts turn out to be supporting her prediction.

Stiebels' (1999) model refined above is also compatible with the fact that patient nominalization is not productive when the source verb is intransitive. Both Andrews' (2003) analysis and the original version of Stiebels' (1999) model would predict that the intransitive (especially unaccusative) verbs are nominalized more easily than transitive verbs, for they do not have extra argument positions to be saturated. Contrarily, since the bistratal model assumes a particular operation which selects a transitive source, intransitive sources can be correctly excluded.

4.2. Implications for the noun–verb symmetry hypothesis

In the previous section, I argued that the bistratal approach can account for a few descriptive facts which Stiebels (1999) fails to explain. However, the analysis presented in this paper has another major implication for her argument; that is, if TLA is a different process from the affixation of argument-saturating object prefixes, the patterns of patient-noun formation provide no positive evidence for the view that the original argument structure of the base verb is preserved through the process of nominalization. Rather, it might be the case that the argument saturation process in patient-noun formation is a pre-nominalization process whose outcomes become inert after the nominalization.

Stiebels' (1999) discussions are based on the fact that deverbal nouns in Classical Nahuatl tend to have the same kind of object prefixes as those which appear in the inflectional morphology of verbs. However, once we assume that TLA and the saturation of extra internal arguments are separate processes, the question arises as to whether the argument saturation process takes place before or after the nominalization. It is equally possible that the argument saturation process is already completed when the nominalization process is initiated; informally speaking, the process of the saturation of extra internal arguments in ditransitive sources may be a preliminary process which "precooks" the input for the patient nominalization process which can only be applied to a monotransitive source (not intransitive, not ditransitive).

Although there is not enough evidence to determine whether the argument saturation precedes or follows the nominalization (i.e. whether it occurs within the lexicon or not), this latter interpretation seems intuitively more natural. As pointed out by Baker (1996:99), the argument saturation process only employs nonspecific or reflexive object prefixes which do not cross-reference to other noun phrases (Baker 1996:99). The use of "definite" (i.e. cross-referencing) object prefixes such as *k(i)-* (third person object) is not attested in patient nouns.[21] This fact may be interpreted as suggesting that the outcomes of the argument saturation process become inert and inaccessible after the nominalization.

Thus, from the point of view of the bistratal approach presented in this paper, the data which Stiebels (1999) argues as proving her hypothesis do not at least directly support her noun–verb symmetry hypothesis.

[21] A counterexample to this generalization is the agent-noun form *ti-k-matka:-ɸin-(λi)* 'you (sg.) are its knower (honorific); you (sg.) are one who knows it (honorific)', which is attested abundantly in the conseling speech and the instruction by the elders in ***Florentine Codex*** (Sahagún 1950–1982). It contains a cross-referencing third-person singular object prefix *k-*, and the nominal suffix *-λ(i)* indicates that the whole word is undoubtedly a noun. It is nonetheless the only obvious example of the use of a cross-referencing object prefix in a deverbal noun found so far, and no corresponding example has been found in patient nouns.

5. Conclusion

This paper discussed the pattern of patient-noun formation which remained unexamined in Stiebels' (1999) paper on the nominalization in Classical Nahuatl.

Section 2 illustrated the actual patterns of patient-noun formation and pointed out that the pattern which Stiebels (1999) interprets as irregular actually constitutes the predominant type. Section 3 attempted to account for the pattern of patient-noun formation by proposing the bistratal approach which distinguishes two levels of object prefixation in patient nominalization and examined the characteristics of each operation. Section 4 discussed two major implications of the bistratal approach for the argument of Stiebels (1999). Though the bistratal account can resolve a few descriptive problems with her generalizations, it also suggests that the evidence which she cites does not positively support her model of argument inheritance. The pattern of patient-noun formation can be accounted for without assuming argument inheritance if the process of pre-nominalization argument saturation is hypothesized.

Whether the argument saturation takes place before or after the nominalization is theoretically an important question, but it is not easy to prove it descriptively. Nevertheless, the data which are not fully dealt with in this paper, such as the behavior of the reflexive verbs and the transitive verbs with incorporated internal arguments, may shed light on this issue.

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古典ナワトル語の被動者名詞形成について

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キーワード: ナワトル語、名詞化、項構造、形態論、語形成

本稿では、Stiebels (1999) が詳細に検討していなかった古典ナワトル語 (Classical Nahuatl) の被動者名詞派生に着目し、同現象が名詞化についての彼女の仮説にどのような影響を与えるかについて考察する。実際の被動者名詞の形成過程は、彼女の想定している過程よりやや複雑ではあるが規則的である。被動者名詞形成のパターンを詳しく観察すると、彼女がひとまとめに「項飽和」(argument saturation) と呼んでいるもののなかに 2 つの異なるレベルを区別する必要が出てくる。このような二段式の分析をとることで、彼女のモデルでは例外のようにみえるいくつかの事実が説明できる。ただし、この立場をとると、彼女の提示したデータは彼女の説の裏づけにはならないことになる。以上の議論を通して、本稿では、複統合的で述語の価数に敏感な言語が脱動詞化に際して動詞の項構造をいかに扱うかという問題についての実例を提供することを目指す。

(ささき・みつや)