THE MORPHO-PHONOLOGY OF (IN)ALIENABLE POSSESSION

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1.   Introduction

The goal of this paper is to demonstrate the necessity of work on the syntax-phonology interface. I will show that while phonology can give us valuable insight into the morpho-syntactic structure of possessive DPs, it is also true that some phonological phenomena can only get an explanatory analysis if we take the morpho-syntactic derivation into account. I will demonstrate my point on the example of two languages, Nivkh and Acholi, that both show a morpho-phonological difference between alienable (AL) and inalienable (IA) possessive constructions.

The data in (1) below examplify the morpho-phonological contrast that I will be talking about. In (1a), phonotactic restrictions on syllable structure are observed; to achieve perfect CV-syllables, the nasal at the beginning of the suffix is deleted. Interestingly, the example in (1b) does not follow this pattern. In the possessive construction in (1b), faithfulness to the input outweighs phonotactic preferences. The only obvious difference between the two examples is a semantic difference: (1a) is a so-called inalienable possessive whereas (1b) is an alienable possessive.

(1)   a.   bad-na   →   bada
                leg-my
                'my leg' (part of my body)

        b.   bad-na   →   badna
                leg-my
                'my leg' (e.g. part of a slaughtered animal that I have been given)
                                                        (Bavin 1996:852)

The alienable/inalienable distinction is found in many languages. Its realization varies considerably from language to language but prototypical inalienable nouns are body part nouns, kinship terms, and personal belongings like tools, weapons, or clothes. The distinction between the two constructions can be morpho-syntactic or morpho-phonological in nature; for this paper, only morpho-phonological differences are relevant.

This paper is structured as follows: In section 2, I will present my proposal which is based on three assumptions. First, only inalienable but not alienable roots merge directly with their possessor. Second, inalienable but not alienable nouns undergo overt N to D movement. Third, there is a phase

boundary between D and its complement. In section 3, I will go over data from two languages and show how the proposed analysis can account for the phonological contrast between alienable and inalienable constructions that occurs in these languages. Finally, I will summarize the results in section 4.

2. Proposal

Most syntactic analyses for possessive constructions are based on languages spoken in Europe. Whereas the most influential works on DPs have been written with focus on English (e.g. Abney 1987) and Hungarian (e.g. Szabolcsi), our ideas about inalienable possessive constructions are largely influenced by data from Romance languages (e.g. Gueron 1984, Authier 1988, Thellier 1990, Vergnaud & Zubizarreta 1992). One assumption generally accepted in the literature is that inalienable nouns but not alienable nouns have an open argument slot for their possessor. In Dobler (2008), I argue that in alienable constructions, the possessor is therefore combined with the possessed noun via a PossP (2).

(2)   AL construction:

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              Num'
             /    \
          Num      PossP
                  /    \
           Possessor    Poss'
                       /    \
                    Poss     NP
                              |
                              N
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By contrast, the possessor in inalienable constructions starts in SpecNP. Therefore, one of the differences between the two constructions is the presence or absence of a PossP. This claim is corroborated by the fact that possessive affixes seem to be limited to alienable constructions. That is, if a language has possessive morphemes, they are only visible on alienably possessed nouns. An example comes from Ojibwa where the possessive morpheme –im is obligatory with monosyllabic alienable roots and optional with multisyllabic alienable roots (3).

(3)   ninikim   *ninik
       ni   + nik   + im
       1Sg + goose + POSS   (Piggott, p.c.)

By contrast, inalienable roots never have a possessive marker, even if they are monosyllabic (4).

(4)　　ninik　　　　　　　　　　　　*ninikim
　　　ni　　+ nik
　　　1Sg　　arm
　　　'my arm'　　　　　　　　　　　(Piggott, p.c.)

Note that the possessors of both constructions will surface in SpecDP. However, only the possessor of the inalienably possessed noun starts out as a direct argument and is thus in a closer relationship with the possessed noun.

Another crucial difference between the two constructions is derivational in nature. Note that cyclic derivation (e. g. Chomsky 1995, 1999, 2005) has interesting consequences for phonology. When feature bundles are sent to Spell Out, phonological well-formedness conditions must apply at the time of Vocabulay Insertion. However, since the words of the subsequent phase are not known at this point, the edge of the phase cannot be adjusted to the output that follows on the ensuing cycle. As Piggott & Newell (2007) state: *'Conditions on the well-formedness of prosodic categories are imposed on all elements that emerge within a phase, if the elements are solely within the phase (Principle of Phase Integrity)'*.

Following Piggott & Newell's (2007) work on Ojibwa, I argue that there is a phase boundary between D and its complement NumP (5).

(5)　PossDPs:

Furthermore, I propose that while alienable nouns move to Num, inalienable nouns move further to D. This movement is triggered by an inalienable feature in D that forces overt movement of the possessed noun in the languages at hand.

(6)　Inalienable PossDP:

In summary, there are two assumptions that are important for my proposal. The first assumption is that there is a phase boundary between D and its complement. The second crucial assumption is that inalienable nouns move overtly into D whereas alienable nouns only move into Num. Due to the movement into D, the possessor and the inalienably possessed noun are within the same phase. Consequently, they are sent to Spell Out together and phonological well-formedness requirements apply to possessor and possessed noun together at the time of Vocabulary Insertion. By contrast, alienable nouns are separated from their possessor by a phase boundary because their overt movement stops in Num (see (7) below). As a consequence, alienable nouns are sent to Spell Out without their possessor. Moreover, when the possessor is inserted on the next cycle, the alienable root is not visible and well-formedness conditions can only be applied to the possessor in isolation.

(7)   Alienable PossDPs:
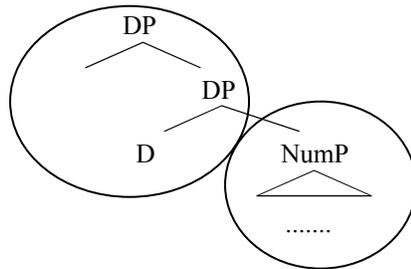
If this proposal is correct, we expect to find various languages where this contrast becomes visible as a morpho-phonological difference. In the following section, I will show that this prediction is for now confirmed by data from two typologically different languages.

3.   The data

The languages that I will present in this section are Acholi and Nivkh. I will start with Acholi, a language that belongs to the Luo group of the Western Nilotic languages; Acholi is mainly spoken in Uganda. In section 3.2, I will then present data from Nivkh, a language isolate spoken on the Sakhalin peninsula in Eastern Russia. We will see that while these languages differ considerably, they both show a morpho-phonological distinction between alienable and inalienable constructions that supports the proposal above.

3.1   Acholi

In Acholi, possessive pronouns are attached as suffixes to the root. The paradigm of possessive pronouns is presented in Table 1.

	Singular	Plural
1st person	(n)a	wa
2nd person	(n)i	wu
3rd person	(n)e	gi

Table 1 (Bavin 1996:852)

Relevant for this paper are the singular forms because they show instances of allomorphy. When a root ends in a vowel, it combines with the full form (*na*, *ni*, *ne*). In the case of body parts, this can lead to ambiguities as is illustrated in (8).

(8)   obo   + ni   →   [oboni]
      lung   + your

      a.   'your lung' (= IA interpretation)
      b.   'lung of a slaughtered animal that belongs to you'
            (= AL interpretation)   (Bavin 1996:853)

The example in (8) shows that inalienables and alienables both combine with the same suffixes. However, only when the root of an inalienable noun ends in a consonant, the initial nasal of the possessive pronoun is deleted as can be seen in (9):

(9)   Inalienable possessives

      a.   bad   + (n)a   →   [bada]
            arm   + my
            'my arm' (part of my body)

      b.   dog   + (n)a   →   [doga]
            mouth + my
            'my mouth'   (Bavin 1996:852-853)

By contrast, alienable nouns are always combined with the full form of the pronoun even if their root ends in a consonant (10); note that in Acholi, nasals are assimilated to preceding consonants, thus resulting in geminates:

(10)   Alienable possessives

     a.   bad   + na   →   [badna]   →   [badda]
          arm/leg + my
          'my leg' (e.g. part of a slaughtered animal that I have been given)

     b.   ot   + na   →   [odna]   →   [odda]
          house + my
          'my house'   (Bavin 1996:852-853)

That the possessive pronoun is a suffix already requires that we analyze the complex *bad+na* as a single word. However, the fact that progressive assimilation takes place from the root to the pronoun further strengthens this claim. This is important because it shows that whatever boundary there is between the possessum and the possessor, it cannot be just a word boundary. With *bad-da*, we have an example for a single word that consists of two domains. Crucially, this is not the case when we look at the examples of inalienable constructions in (9) above. The amount of difference between the two variants can easily be demonstrated with the two contrasting roots in (11) that both end with a [k]:

(11)   a.   buk   + na   →   [bukna]   →   [bukka]
          book + my
          'my book'

     b.   tik   + (n)a   →   [tika]   →   [tixa]
          chin + my
          'my chin'   (Bavin 1996:852-853)

When the alienable noun *buk* 'book' combines with the possessive pronoun *-na* 'my' (11a), the resulting word is sometimes pronounced as *bukna* in slow speech. That is, there is no doubt that this root indeed merges with the full form of the pronoun even though the root ends in a consonant. *buk* 'book' like *kiyu* 'glasses' combines with *-na* and not with *-a*. This contrasts with the process that can be observed with respect to the inalienable noun *tik* 'chin' (11b). The root *tik* 'chin' only combines with the reduced form *-a* 'my' which results in *tika*. There exists no variant *tikna*. However, voiceless consonants between two vowels are weakened in Acholi. Hence, *tika* is pronounced as *tixa*. Importantly, this never happens with *bukka* 'my book'. In summary, the contrast between these two roots demonstrates notably the difference between inalienable and alienable nouns in Acholi: In the case of an inalienable stem, a final consonant prevents the insertion of the full form *-na*. By contrast, an alienable root always combines with *-na* whether the root ends in a consonant or not.

The data show that the contrast is not triggered by the phonological environment. Instead, the distinction is caused by the same semantic properties

that decide whether a noun falls into the group of inalienable nouns or not. However, semantic properties do not trigger phonological processes but can only have an effect on the syntax. The given variants all fit into the picture when we assume that there is a phase boundary between the alienable noun and its suffix but not between the inalienable noun and its suffix. I thus propose that alienable possessive DPs in Acholi have the head-final structure illustrated in (12) below. I assume that in the case of pronominal possessors, SpecDP is filled with *pro* which is linked to a possessive pronoun in D. Furthermore, I propose that alienably possessed nouns remain in the complement of D. Therefore, when the pronominal affix *-na* is inserted in D, it is separated from the noun by a phase boundary. Consequently, the affix is not sensitive to the final consonant of the noun.

(12)   Alienable PossDP

Phase boundary

```
                              DP
                    ┌──────────┴──────────┐
                   DP                     DP
               ┌────┴────┐               △
             NumP        D             pro₁
             △          na₁
            buk
```
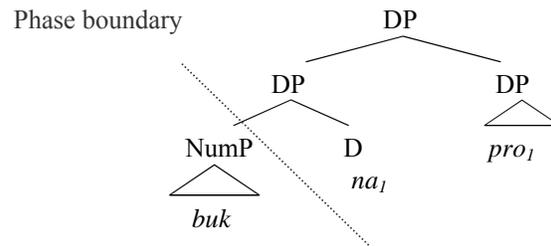
In fast speech, cliticization can occur; as a result, gemination applies and *buk-na* 'my book' becomes *buk-ka* (13).

(13)
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                    DP
              ┌──────┴──────┐
             D'             DP
          ┌───┴───┐        △
        NumP      D       pro₁
        △        t_na
      buk-ka₁
```
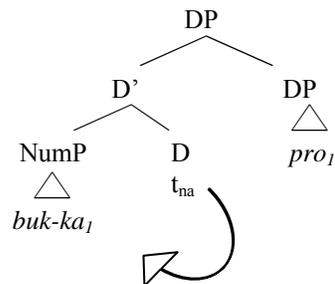
Support for an analysis of Acholi DPs as spec- and head-final comes from the data in (14).

(14) a.   lok   pa   laco-ni
             word POSS   man-DET
             'this man's words'   (Bavin 1996:847)

      b.   agulu deko   ma-tidi-ni
             pot   food   REL-small-DET
             'this small cooking pot'   (Bavin 1996:850)

      c.   gin   cam-mi
             thing eat-DET
             'this thing for eating'   (Bavin 1996:850)

As the examples in (14) show, the determiner is always at the end of the DP. Importantly, this observation holds even in the presence of an adjective (14b). Note that *agulu deko* 'cooking pot' and *gin cam* 'thing for eating' are considered compounds.

For inalienable constructions, I assume that the possessed noun moves overtly to D (15).

(15)   Inalienable PossDP
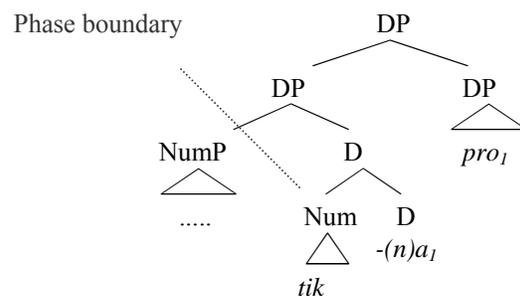
Since noun and pronoun occupy the same head by the time they reach Spell Out, well-formedness conditions can apply to both at the time of Vocabulary Insertion. To avoid a sequence of the shape /Cn/, the reduced form of the affix, that is -*a* instead of -*na*, is inserted when the root ends in a consonant. The root-final consonant is then re-analysed as onset and – if applicable – undergoes weakening between the two vowels.

In conclusion, Acholi provides clear evidence for a boundary inside the DP. Even though the possessive pronoun is attached as a suffix and is close enough to the root to undergo assimilation, it is not sensitive to the final segment of the root at the time of Vocabulary Insertion. Under my assumption that root and suffix belong to different phases, this seeming contradiction finds a natural explanation. Moreover, the data from Acholi are consistent with my proposal that inalienables and their possessors are within the same phase at the time of Vocabulary Insertion.

3.2 Nivkh (West Sakhalin)

Table 2 provides us with the paradigm for possessive pronouns which attach directly to the possessed noun.

	Full form	Clitic
1st person	ɲi	ɲ-
2nd person	c^{h}i	c^h-
3rd person	if	i^N-
Reflexive	p^{h}i	p^h-

Table 2 (Shiraishi 2006:38, ex. 40)

According to Shirashi, the full form of the possessive pronoun is only found in combination with emphatic particles (16):

(16) Galik c^{h}i   park   ŋarma-
      Galik 2Sg   only   wait
      'Galik waits only for you'
      (Shiraishi 2006:40, fn. 14)

In every other context, the use of the reduced form (clitic) is obligatory. Furthermore, the reduced form triggers systematic changes on the following consonant. If the root starts with a consonant cluster, vowel epenthesis applies between the possessive pronoun and the root. Interestingly, Shirashi observes the systematic insertion of an epenthetic /i/ between the reduced form of the pronoun and the root if the root is an alienable noun. Vowel epenthesis even applies if the host does not start with a consonant cluster but with a vowel as can be seen in (17e), (17f) and (17i).

(17) Alienable roots:[1]

a.	pʰi-mur-puks	*one's own reins* (lit. *horse belt*)
b.	pʰi-naχ	*one's own bed*
c.	pʰi̥-saqo	*one's own knife*
d.	pʰi̥-caqo	*one's own knife*
e.	pʰi̥-eŋ	*one's own skis*
f.	pʰi̥-oq	*one's own coat*
g.	pʰi̥-ɲo	*one's own storehouse*
h.	pʰi̥-ro-jnɨ-x-xu	*one's own equipments*
i.	cʰi-olɣoŋ oɣla-gu	*your pig children*
j.	pʰi-pilkar caqo	*one's own big knife*
		(adapted from Shiraishi 2006:41, ex. 50a-j)

By contrast, no epenthesis takes place in the context of inalienable constructions; this holds even if the result gives rise to unusual consonant clusters as for example in (18a) and (18b):

(18) Inalienable roots:

a.	pʰ-nanak		*one's own elder sister*
b.	pʰ-ɲaχ		*her own eyes*
c.	pʰ-χan-gu	(< qan)	*one's own dogs*
d.	pʰ-fo	(< vo)	*one's own village*
e.	pʰ-fivus	(< vivus)	*one's own belt (dog)*
			(Shiraishi 2006:41, ex. 51)

The only phonological environment that where epenthesis ocurrs in inalienable constructions is between two nasals (19).

(19) ɲi-nanak   *one's own elder sister*   (Shiraishi 2006:43, ft. 17)

Crucially, the pattern of this distinction is consistent with my prediction. Whereas the possessive pronoun forms a single head together with the inalienable root, there is a clearly visible (or audible) boundary between the possessive pronoun and the alienable root.

The basic structure is the same as the one proposed for Acholi in the previous section. The only difference is that DPs in Nivkh have specifier and head on the left side.

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[1] The given data are collected from a single speaker. The sample is not bigger because Shiraishi collected the data with a different research goal in mind and had no reason pursue this particular issue further.

(20)   Alienable PossDP
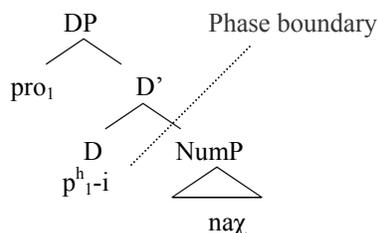
(21)   Inalienable PossDP
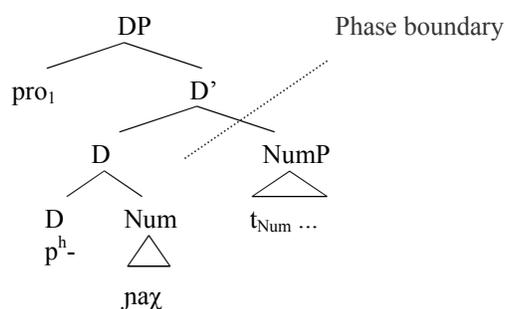
In the case of an inalienably possessed noun, N moves to D. Consequently, D and N are sent to Spell Out simultaneously and after Vocabulary Insertion, the pronoun and the noun form a prosodic word together. In contrast to the inalienable construction, the alienable construction makes it impossible for the pronoun to be in the same phase as the alienable root because the root does not move into D. Instead, it is sent to Spell Out when the NumP is complete. The top-most layer of the DP is sent to Spell Out on the subsequent cycle. On a phonological level, these structures translate into the structures in (22).

(22)   a.   AL: PWd   b.   IA: PWd
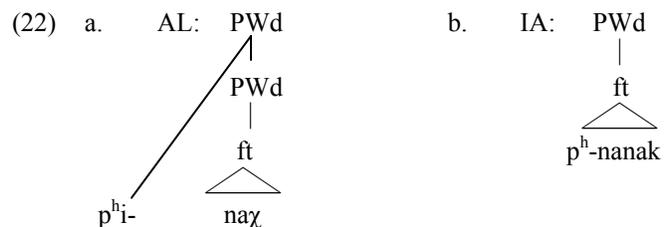
This structure explains why consonant clusters are allowed at the beginning of inalienable possessive constructions but not at the beginning of alienable possessive constructions. In Government Phonology (e.g. Kaye, Lowenstamm & Vergnaud 1990), a nucleus may license a preceding empty category. However, this is only possible within a prosodic word. That is, I

propose that the consonants at the beginning of an inalienable construction do not form a complex onset. Instead I assume that they are split by an empty nucleus that is licensed by the following nucleus of the root. This mechanism makes epenthesis superfluous. The only environment within a PWd in which this cannot apply is between two like consonants as is the case in example (19). As mentioned above, this kind of licensing is locally and cannot occur outside of a PWd. Therefore, it is not possible in an alienable construction where the possessive pronoun is outside the PWd of the alienable root as is illustrated in (23).

(23)   Interconstituent government (e.g. Kaye 1987; Charette 1988, 1990):

a.   Nucleus can license preceding empty category within a PWd:
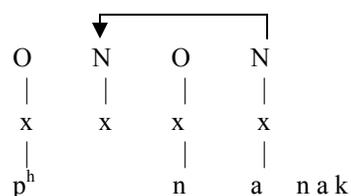
b.   Licensing can only apply locally:
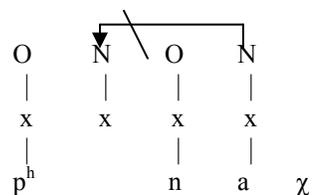
This analysis explains why seemingly identical phonological environments lead to *i*-epenthesis in the case of alienables (24) but not in the case of inalienables (25).

(24)   AL roots: a. p^hi-**na**χ   *one's own bed*
                     b. $p^h_{\circ}$i-**ɲo**   *one's own storehouse*

(25)   IA roots: a. p^h-**na**nak   *one's own elder sister*
                     b. p^h-**ɲa**χ   *her own eyes*

In conclusion, the lack of epenthesis in examples like (25) supports the theory that inalienable nouns form a prosodic word with their possessors. By contrast, the insertion of an epenthetic vowel in (24) or (17e) indicates that alienable nouns and their possessive pronouns are part of two separate prosodic

domains. This means that the data from Nivkh show a similar contrast between alienable and inalienable possessive constructions as the data from Acholi.

4.   Conclusion

In this paper, I demonstrated that morpho-phonological differences between alienable and inalienable possessive constructions find a natural explanation if we analyze them as differences in the morpho-syntactic structure and derivation. Furthermore, I provided support for the existence of a phase boundary between D and its complement. Moreover, I have shown that this is not a language-specific phenomenon but a pattern that can be observed across languages that are genetically and typologically different; inalienable possessive constructions display phonological closeness whereas alienable possessive constructions show phonological separatedness.

The implications of my proposal are clear: If my analysis is correct, then we should not find languages where the alienable-inalienable distinction is expressed the opposite way; that is, I predict that there are no languages that apply epenthesis between inalienable roots and possessive affixes/clitics but deletion between alienable roots and their possessive affixes/clitics. In addition, no language should have an overt realization of Poss in inalienable but not in alienable possessive constructions. Future research will tell if these hypotheses hold.

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