Expressing ownership in tashlhit:
Phrasal affix(ation) vs. bound word(hood)[*]

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En tachelhite, bu(tgmmi) et bab (n tgmmi) expriment le sens de 'propriétaire de (la maison)' respectivement par affixation et par périphrase. Ces noms n'ayant pas reçu de traitement adéquat dans la littérature sur l'amazighe, nous nous attèlerons aux détails de leur morpho-syntaxe, tout en accentuant l'existence d'affixe syntagmatique et de mot lié dans la langue. Nous passons également en exergue les défis que pose ce type de formation pour l'hypothèse de l'intégrité lexicale ainsi que pour la contrainte qui bannit les syntagmes à l'intérieur des mots. D'un point de vue typologique, nous postulerons ultimement que ce mode de formation nominale révèle l'existence d'une morphologie légèrement polysynthétique en tachelhite.

1. Introduction

In Tashlhit, the meaning of 'owner of' is expressed morphologically in two ways, one periphrastic and the other affixational. An example of the first means is the multi-word expression *bab n tgmmi* 'the owner of the house'. Corresponding to this

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expression meaning-wise is the non-periphrastic form *butgmmi*, consisting of the morpheme {bu+} and the noun *tigmmi*, the leftmost vowel of which disappears in Construct State. This type of nouns has, to our knowledge, not received due attention in the literature on Amazigh linguistics, except for a few sporadic mentions (Applegate, 1958; Chami, 1979; Elmoujahid, 1981, 1997; Galand, 2010; Sadiqi, 1997; Boukhris et al, 2008). In fact, there seems to be a tacit assumption in the literature that this type of formation is at best marginal, which is suggested by two facts: (i) the studies devoted exclusively to nominalization tend not to deal with this type of nouns, and (ii) those that mention it do so only in passing. One reason why this type of nouns is not at all marginal, to say the least, is that bu-noun formation is extremely productive, making significantly large the potential number of items concerned.

In this paper, we will scrutinize the two ownership expressions and discuss the issues they raise. Central to this paper is the status of the elements {bu+} and {bab} in these constructions. {bab} subcategorizes a Prepositional Phrase (PP), which aligns it with nouns in the language. Its never standing alone, however, does reveal some sort of bound behavior, hence our treating it as a bound word. Our proposal also consists in treating {bu+} as a derivational affix, given that it never stands alone. The first salient aspect of {bu+} is its full productivity. Theoretically attaching to any noun construction, {bu+} gives rise to the discrepancy between full productivity and derivational status. The bu-noun constructions do additionally reveal complex morphological and syntactic behavior, raising two issues regarding the interface between morphology and syntax. First, by subcategorizing for a fully-fledged inflected noun, {bu+} challenges Greenberg's Universal 28, stipulating that inflection is outer to derivation (Greenberg 1963:93). Second, the affix {bu+} does at times attach to a quite syntactically complex Noun Phrase (NP). This challenges both the Lexical Integrity Hypothesis, which stipulates that "the syntax neither manipulates nor has access to the internal structure of words" (Anderson, 1992:84) and the No Phrase constraint (originally in Botha, 1983; cited in Spencer, 2005), which stipulates that "no phrase may appear within complex words." We will suggest that this calls for treating {bu+} as a special affix, a phrasal affix.

The remainder of this paper is organized as follows. § 2 gives the basic facts about the expressions of ownership in Tashlhit, while § 3 provides a review of the relevant literature. In § 4, concern will be with the morphological and syntactic issues presented by expressions of ownership, especially bu-nouns. Attempts to categorize {bab} and {bu+} elements will be made. The typological consequences of the behavior of {bu+} are explored in § 5. Then we conclude.

2. Expressing ownership in Tashlhit: Basic facts

We provide a general background on bu-noun constructions (buN hereinafter) and their periphrastic bab n-noun counterparts (bab-N hereinafter). More detail will be provided concerning the internal word structure of buNs, their semantics and their phonology. An aspect that will be established in this section is the nominal status of buNs and bab-Ns.

2.1. bu-noun constructions

2.1.1. The internal word structure of bu-nouns

The affix {bu+} attaches before a noun. The resulting buN construction expresses the literal meaning 'the one with+meaning of noun' as shown in (1).[1] This process is very productive, affecting words that are native (1a) and borrowed (from Arabic (1b) and French (1c)):[2]

(1)	a-	bu+agajju	buwgajju	'strong-headed person'
		bu+aɣɣu	buwɣɣu	'the one who sells butter-milk'
		bu+anu	buwanu	'owner of the well'
		bu+urti	buwurti	'owner of the orchard'
		bu+imi	bijmi	'someone with a big mouth'
	b-	bu+zzrriʕa	buzzrriʕa	'seller of nuts/dried fruit'
		bu+ʒʒlliʒ	buʒʒlliʒ	'layer of tiles'
		bu+ʃʃfnʒ	buʃʃfnʒ	'doughnut seller'
	c-	bu+laṣṣall	bulaṣṣall	'owner of the gymnasium'
		bu+labattri	bulabattri	'drummer'
		bu+libitiz	bulibitiz	'one who messes around'

In the morphology of buNs, we will be distinguishing between two types of nouns to which we will refer, for descriptive convenience, as the 'inner' noun and the 'outer' noun: The inner noun is the noun to which {bu+} attaches, while the outer noun is the entire buN combination. Deferred until § 2.1.3 below is the phonology of buNs, which some of the items in (1a) display.

Inflectionally, buNs are quite complex, with both inner and outer noun showing alternations (2). The affix {bu+} has a feminine counterpart, namely {mmu+} (also pronounced [mm] in some other dialects of Tashlhit). In addition, buNs have both a masculine and a feminine plural form, expressed with {id+} and {istt+}, respectively, concatenated before {bu+} and {mmu+}. In addition, the inner noun

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[1] Since the actual meanings associated with buNs can be diverse, our glosses are to be taken just as indicative. See § 2.1.2 for more details on the meanings conveyed by buNs.

[2] The transcriptions used in this paper have their conventional IPA values, except for pharyngealization, which is transcribed with a dot underneath the segment in question. Gemination is rendered by doubling the consonant. The original transcriptions in the references have been adapted to the transcription protocol in this paper. We will also be using the following abbreviations: sg.=singular; pl.=plural; masc.=masculine; fem.=feminine; N=noun; NP=Noun Phrase; PP=Prepositional Phrase; CS=Construct State; FS= Free State.

may be marked for the morphosyntactic categories of gender or number the way 'normal' nouns are.

(2) a- Singular buN *'the one with the head(s)'*

	Masc. sg. inner N	*Fem. sg. inner N*
Masc.	buwgajju	butgajjut
Fem.	mmuwgajju	mmutgajjut

	Masc. pl. innner N	*Fem. pl. inner N*
Masc.	bijg^{w}jja	butg^{w}jja
Fem.	mmijg^{w}jja	mmutg^{w}jja

b- Plural buN *'the ones with the head(s)'*

	Masc. sg. inner N	*Fem. sg. inner N*
Masc.	idbuwgajju	idbutgajjut
Fem.	isttmmuwgajju	isttmmutgajjut

	Masc. pl. inner N	*Fem. pl. inner N*
Masc.	idbijg^{w}jja	idbutg^{w}jja
Fem.	isttmmijg^{w}jja	isttmmutg^{w}jja

A compulsory marking on the inner noun in buN constructions is that of the Construct State (CS), a case marking. The term CS is used in Amazigh studies to refer to the form the noun also takes when it is a post-verbal subject, the object of a preposition or the complement of a numeral (Basset, 1932; Chaker, 1988; Elmoujahid, 1982; Guerssel, 1983; Jebbour, 1991; Saib, 1982 among others). CS is in contrast with the Free State (FS), with which it is in complementary distribution. Generally, CS morphology consists in having the initial vowel [a] of masculine singular nouns replaced by [u] (agajju→ugajju). In feminine nouns, CS forms simply delete the initial vowel, both in singular and plural forms (FS tagajjut/CS tgajjut; FS tig^{w}jja/CS tg^{w}jja).[3] We will return to this characteristic in § 4.2.1.

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[3] In a class of special nouns, the masculine singular vowel is maintained in the CS, whose vowel appears as a glide [w] instead, as in FS anu/ CS wanu 'well' and FS urti/ CS wurti 'orchard'. Note that the feminine CS form of these nouns keeps the initial vowel (tanut and turtit).

It should be pointed out that there are further complex aspects of buNs and bab-Ns which have not been raised in the literature and which we believe to require serious investigation. We will return to these in § 4 and § 5 below.

2.1.2. The semantics of bu-noun constructions

Meaning-wise, we may contend, at the risk of oversimplifying, that {bu+} expresses the generic notion of 'the one with X', where X stands for any noun, as in bulmal 'the rich one (literally the one with money)'. In this respect, it is opposed to the generic meaning 'the one without', expressed by war in warlmal 'the poor one (literally the one without money)', and its feminine counterpart tar in tarlmal, for example.[4]

Nevertheless, buNs may express more specific meanings. buNs are used to express ownership, personal characteristics, and professions (3). In addition, some buNs have shifted to the domain of lexicalized words, others once used as nicknames have become proper nouns, and others yet are used idiomatically (4).

(3) Meanings associated with buNs

    a. Ownership: butgmmi (bu+house), butfunast (bu+cow)

    b. Profession: buwuna (bu+wells), butammnt (bu+honey), butijni (bu+dates), bijslman (bu+fish), buɣrum (bu+bread), bijlmawn (bu+skins (of animals))

    c. Personal characteristics: bulmal (bu+money), butfustt (bu+small hand), bijbaʃiln (bu+big feet), bustta (bu+six (fingers)), bijjmi (bu+mouth), buwħlig (bu+belly), butmẓẓuɣt (bu+small ear), butamartt (bu+beard), buwmggṛd (bu+neck)

(4) Lexicalized bu-nouns:

    a. Proper nouns:

        i- Personal names:

            buwḍaḍ (bu+finger), buwmẓẓuɣ (bu+ear), buwfus (bu+hand), buwɣaras (bu+way), butgajjut (bu+small head), bulħja (bu+beard), buwulli (bu+livestock), bijʒddign (bu+flowers), bijzmawn (bu+tigers), bijzgarn (bu+cattle), bijẓran (bu+stones)

        ii- Toponyms: buwargan, buwabuḍ, bijkarran, bijgʷra, bijzakarn, bijgudijn

        iii- Animal names: butagant 'boar', buttgra 'turtle', bumħnd 'hedge-hog', butfala 'viper', busskka 'snake'

        iv- Insect names: buʒʒɣlal 'snail'

        v- Illness names: butllis 'sight problem (inability to see in dim light)'

        vi- Plant names: buqsas 'kind of parasitic plant'

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[4] It is worth mentioning in this respect that {war+} does not enjoy the same extent of productivity as {bu+} does.

b. Idiomatic expressions/euphemisms:

    i- Idiomatic expression: bijggᵂrdan 'jail (literally the one with fleas)'

    ii- Euphemism: butmɣarin 'womanizer (lit. the one with women)', buddrrit 'pedophile (lit. the one with children)'

The buNs directly relevant in the present context are in (3a), those expressing ownership. Nevertheless, we will be interested in the remaining buNs as well, and most specifically in the complexities in the morphological make-up of these nouns, and what will be said later qualifies over these, too. The remainder of buNs have commonalities with (3a), but they may as well display differences. We do not pursue this matter here.[5]

2.1.3. The phonology of bu-noun constructions

The buNs in (1) and (3) above exhibit two processes. The first process is glide formation. With vowel initial nouns, {bu+} brings in another vowel, as in /bu+agajju/ 'bu+head' and /bu+aɣɣu/ 'bu+butter-milk'. These inner nouns are required to have an initial {u+}, the mark of the CS, which results in a sequence of two vowels *[uu]. This hiatus is resolved through turning the second vowel into the glide [w], and the two buNs are pronounced [buwgajju] and [buwɣɣu].[6]

The second process is where the vowel of {bu+} assimilates the features of the following vowel [i] (bu+i→ bi+i; bi+i → bij). There are two cases: (i) singular nouns with an initial [i] and (ii) plural nouns, generally having an initial [i] as well. Note that glide formation takes place here, too, with the second [i] changing into a glide [j]. Examples are /bu+imi/ 'bu+mouth' and /bu+islman/ 'bu+fish (pl.)' pronounced [bijmi] and [bijslman], respectively.

To sum up, the primary aim of this section has been to describe the phonology of buNs focusing on the processes that take place. Also interesting are the phonological processes that fail to take place, an aspect which will gain more importance in the analysis later (see § 4.1).

2.2. bab-Ns: Periphrasis in expressing ownership

A very interesting quirk is that Tashlhit buN meaning 'the owner of' has a parallel that is periphrastic. Haspelmath (2000:654) states that "the term periphrasis (from Greek periphrasis 'paraphrase, circumlocution'), in its most general sense refers to the use of longer, multi-word expressions in place of single words…" In its narrower sense, periphrasis refers to "a multi-word expression…used in place of a

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[5] A note is in order concerning the gender and number of buNs in (4). Logically, [mmu] is not to be attested in personal names. In the Tashlhit areas, a patriarchal mode of social organization is prevalent, so children generally take their father's name. We know of no exceptions.

[6] Some Tashlhit dialects resolve hiatus through deleting one of the vowels, so that the word buwgajju is pronounced as bugajju, and mmuwgajju as mmugajju. This poses the further issue of which vowel is deleted, the [u] of {bu+} or that of CS.

single word in an inflectional paradigm…" The example of the comparative form of beautiful is provided as a periphrastic inflection (more beautiful/ *beautifuller). In the same vein, Spencer (2006:287) says that "the term 'periphrasis' is most commonly used to denote a construction type in which a grammatical property or feature is expressed by a combination of words rather than a single (inflected) word form." Spencer adds that periphrasis can refer to structures that contain many words, giving among others the example of particle verbs such as make up (a story). Spencer (2006:293) concludes that periphrasis is different from syntax in that periphrastic constructions express grammatical properties or are used derivationally. Although periphrasis uses multiword expressions, it closely interacts with morphology either paradigmatically or 'allomorphically'.

Periphrastic ownership nouns in Tashlhit consist of masculine {bab}, which corresponds to {bu+}, or feminine {lal+}, corresponding to {mmu+}. In bab-Ns, the inner noun is obligatorily preceded by the preposition [n] 'of' and is in the CS. Examples are provided in (5). A point worth noting is the status of the forms {bab} and {lal}, which cannot stand alone. This probably is consonant with these forms being bound words/roots. They cannot be considered affixes as they require a prepositional phrase (henceforth PP) to complement them, which makes them behave more like independent nouns.

(5)

		bu+tigmmi 'house'	*Periphrastic construction*
Masc.	Sg.	butgmmi	bab n tgmmi
	Pl.	idbutgmmi	idbab n tgmmi
Fem.	Sg.	mmutgmmi	lal n tgmmi
	Pl.	isttmmutgmmi	isttlal n tgmmi

Both the masculine and feminine of the periphrastic forms have a plural form, [idbab] and [isttlal], respectively. {id+} and {isst+} are always concatenated with respect to bab/lal n-nouns, rather than behaving in a replacive morphological fashion, which is reminiscent of the pluralization of buNs. Another characteristic of buNs that holds for bab-Ns is the complex inflectional patterns of the inner noun. As these have been established in (2) above, we do not dwell on them; rather, we discuss very briefly some differences that hold between the two constructions.

There are differences that are basic in the present context. One such difference relates to the (in)alienability of the possession expressed by either of the constructions. Inalienable possession refers to items considered to be a part of oneself intrinsically (e.g. body parts), whereas alienable possession refers to the things acquired through one's life (e.g. objects or possessions). Compare for example:

(6) a- bu tgmmi   ≈   bab n tgmmi   'the owner of the house'

    b- buwgajju   ≠   bab n ugajju

     'the one with the head'   'the owner of the head (e.g. of a sheep)'

The two items in (6a) mean more or less the same thing, with {bu+} and {bab} both expressing ownership. In this case, possession is alienable. In (6b), on the contrary, two meanings are expressed: {bu+} expresses inalienable possession, while bab-N expresses alienable possession (the head of an animal, for example, owned by someone). In other words, while {bab} can only convey alienable possession, {bu+} can denote both alienable and inalienable possession. Further differences between the two constructions will be discussed further below.

To sum up, {bu+} takes a fully inflected noun as its base of derivation. The nouns thus obtained may reveal very complex inflections themselves, both on the inner and outer nouns. We have also shown that some of the nouns derived by the addition of such an affix have periphrastic counterparts.

2.3. Nominal status of buNs and bab-Ns

The aim of this subsection is to provide further evidence based on distribution, pronominalization, clefting, and modification that buNs and bab-Ns are indeed nominal constructions. Every time, we will draw a parallel with indisputably nominal forms. In § 3.2.2 below, we deal with buNs whose internal structure is very complex, and the statements in this section apply to such cases, too.

First, we show in (7) that the distribution of buwgajju 'hard-headed person' and bab n tgmmi 'the owner of the house', on the one hand, and that of argaz 'man', on the other hand, is the same. In pre- and post-verbal subject position (7a), the three constructions have the same behavior, in this case with respect to the verb form juʃkad 'he-come-perfective-position particle (here)'. In (7b), we notice the same behavior in object position with the verb form ẓriɣ 'see-perfective-I'. (7c) and (7d) provide further evidence, showing that the noun formations in question behave in a like manner when occurring with the numeral jan 'one' and in genitive constructions with tamɣart n 'the wife of', respectively.

(7) Distributional criteria:

       a- juʃkad urgaz   argaz juʃkad
          juʃkad buwgajju   buwgajju juʃkad
          juʃkad bab n tgmmi   bab n tgmmi juʃkad

       b- ẓriɣ argaz
          ẓriɣ buwgajju   ẓriɣ bab n tgmmi

       c- jan urgaz
          jan buwgajju   jan bab n tgmmi

       d- tamɣart n urgaz
          tamɣart n buwgajju   tamɣart n bab n tgmmi

Pronominalization facts provide the second argument. Once again, buNs and bab-Ns behave the same way as the noun argaz, be it in bound or free pronominalization, as illustrated by (8a) and (8b) respectively:

(8) Pronominalization:

    a- ẓriɣ argaz/   ẓriɣ buwgajju/ ẓriɣ bab n tgmmi

      ẓriɣ-t

    b- madd juʃkan?

    argaz/   buwgajju/   bab n tgmmi

    nttan

As is clear from (8), the bound pronoun {+t} 'him' or the free one nttan 'him' replace the nouns argaz, buwgajju and bab n tgmmi. In (8b), in answering the question madd juʃkan? 'who-here-come-perfective; who came here?', one can either produce a short answer containing the nouns in question, or one can use the free pronoun nttan.

The third argument comes from a movement operation whereby the nouns we are interested in are subject to clefting. argaz, buwgajju and bab n tgmmi occur in the same place and under the same conditions with ad ẓriɣ 'particle-see-perfective-I; that I saw':

(9) Clefting:

    a- argaz ad ẓriɣ/ buwgajju ad ẓriɣ/ bab n tgmmi ad ẓriɣ

    b- nttan ad ẓriɣ

Finally, we consider modification. The nouns that concern us here appear in (10a) with the post-modifying participle iʕzzan 'be-handsome-sg.'. In addition, the same nouns appear in (10b) with the modifying clause lli sak nniɣ 'that-you-tell-perfective-I; that I told you about':

(10) Modification:

    a- argaz iʕzzan/ buwgajju iʕzzan/ bab n tgmmi iʕzzan

    b- argaz lli sak nniɣ/ buwgajju lli sak nniɣ/ bab n tgmmi lli sak nniɣ

The modifiers in (10) come with more structural complexities, to which we will turn in more detail in § 3.2.2 below.

In a nutshell, tests of structure such as distribution, pronominalization, movement, and modification reveal that buNs and bab-Ns behave in a similar fashion to the basic noun argaz. These tests establish this type of constructions as categorically belonging to the class of nouns.

3. Previous treatments of {bu-} and {bab}

In the previous literature, there is no consensus as to the transcription of buNs nor as to the appellation given to the affix {bu+}. Most researchers seem, however, to

agree on characterizing buNs as involving a process of compounding. bab is much easier to deal with given its being a word followed by a PP.

3.1. Transcription

In the previous literature on Amazigh, ownership nouns are transcribed in different ways, and, at times, even in an inconsistent fashion by the same author.

We start with the more general treatments in Applegate (1958), Sadiqi (1997), Boukhris et al. (2008) and Galand (2010). In Applegate (1958:22), the following transcriptions are found: {bu-} and {bab}. However, a certain inconsistency is noted as an individual word is transcribed as a hyphenated word or a single word: bu-mħand 'hedgehog' and id bumħand 'hedgehogs'. bab-Ns are also transcribed with hyphens (bab-l-faṛħ 'one who enjoys'). Galand (2010:153) transcribes the affix in isolation as bu-, while buNs have a hyphen as in bu-tkrkas/mm-tkrkas 'the one with lies; liar, masc./fem'. In Sadiqi (1997:121), buNs are consistently transcribed as two separate words, whether they occur alone or inside sentences: (ii) bu ulli 'the one with sheep', bu tmẓin 'the one with barley'; (ii) ẓriɣ jan bu ulli 'I saw a shepherd', idda bu ulli 'the shepherd has left', ggudin id bu ulli luqt ad 'the shepherds are numerous nowadays'. In their reference grammar of Standard Amazigh, Boukhris et al. (2008:36) write buNs as two separate words.

Second, we review the more detailed and specific treatments in Elmoujahid (1981, 1997). In Elmoujahid (1981:209-210), the affix is transcribed in isolation as bu-/mm-. A buN, however, is transcribed as a single word, a hyphenated word, or two separate words (we assume that a space between two items indicates word division): (i) bumħmmd 'hedgehog'; bu-jkrkas 'the one with lies; liar'; (iii) bu tħanut 'the one with the shop'. When pluralized, however, buNs are transcribed as one word separated by a space from id: id bumħmmd, id butħanut. bab-Ns are transcribed as three separate words id bab n tgmmi 'the owners of the house'. In Elmoujahid (1997:133), buNs are transcribed as hyphenated words or two words: bu-tgra/ bu tgra 'turtle'; mm iɣanimn 'valley name'.

This blatant, unsystematic variation in transcription is most probably due to the difficulty in classifying the affix {bu+}, an issue we return to in   § 4.1.

3.2. Appellation and morphological process

The descriptions of buN-formation and the terms relating to {bu+} in the literature on Amazigh linguistics reveal that there is no consensus on the status of {bu+}. One of the early terms we could find is 'formative prefix' (Applegate, 1958:22). Chami (1979) refers to {bu+} as an adjectivalizing morpheme ("morphèmes adjectiveurs"). For Elmoujahid (1981:208), {bu+} (and a few other morphemes) are referred to as derivational monemes ("les monèmes 'dérivateurs'") and are attested only in this type of nouns. In Elmoujahid (1997:133), buNs are nominal lexemes, which are most often frozen, and which are formed via the affixation of bound morphemes. Galand (2010:153) refers to {bu+} and other morphemes (like war, gar, u/ajt) as initial terms ("termes initiaux"). Finally, in Boukhris et al.

(2008:36), the term attributive morpheme is used ("morphème à valeur attributive").

The operation via which buNs are formed has not received unanimity, either. Applegate (1958:18) distinguishes buN-formation and the related bab-Ns: "Another group of derived nouns has been formed by the combination of {bab} 'owner, master' with basic or derived noun stems. These may occur as alternants of those formed with {bu+} in many cases… They must be considered compound words, however, for they are formed by the combination of two words rather than a stem and an affix." For Sadiqi (1997:121-122), buNs are compound nouns, more specifically "synthetic compounds", on the basis of the absence of a preposition. Like-wise, Elmoujahid (1981:205) notes that buNs are nominal synthemes called compounds ("synthèmes nominaux dits composés"). For Galand (2010:153), buNs are compounds involving a combination of two nouns via a process of 'juxtaposition'.

Elmoujahid (1997), a work devoted to the morphology and syntax of Tashlhit nouns, seems to us to be the only work that dwelt on buNs. The author treats buNs as being the result of 'affixal compounding' (Elmoujahid, 1997:133). Assuming the basic tenets of Word Syntax (Selkirk, 1982), the author claims that these compounds are elements of the category X^0 (Elmoujahid, 1997:134). Referring to typology, the author further comments on the relation between the elements of compounds in buNs as a genitive relation which is synthetic, as opposed to the analytic relation in aʒʒig n tafukt "sun-flower", for example. The author concludes by saying "l'on maintient l'idée que les composés, comme les dérivés, sont formés dans le lexique et projetés en syntaxe avec leur étiquette catégorielle de N^0." (ibid.: 136). This amounts to saying that buNs are word-category elements.

However, Elmoujahid, (1997:134) concedes that "la formation des composés est de type syntaxique en ce sens qu'il s'agit de la concaténation de mots qui s'analysent comme des syntagmes. Il va de soi qu'une analyse plus approfondie de ces syntagmes implique généralement l'interaction entre processus morphologiquees [sic] et processus syntaxiques que nous n'aborderons pas ici." At least two comments are in order at this point. First, buNs are treated as phrases and buN-formation is, accordingly, considered syntactic in nature, which is not what the model of morphology espoused in the work would suggest. In addition, the analysis of this type of phrases is not undertaken. This move seems to us to be quite perplexing; it is all the more so given the subtitle of the book, i.e. the Morphology and Syntax of the Noun in Tashlhit (Morphologie et Syntaxe du Nom en Tachelhit).

To sum up, buNs established as N^0, which clearly sets them apart from phrases. Nonetheless, the complexity is still there, even in works completely devoted to the morphology and syntax of Tashlhit nouns.

3.3. Against compounding in buNs

A strict definition of a compound insists on the fact that the two, or more, parts of a compound are separate words when occurring in a different context. Let's consider first the definition in Fabb (1988): "A compound is a word which consists of two

or more words." It is already clear that containing two or more words is a crucial criterion for defining compounds. For the sake of comparison, we consider Bauer's (2001:695) definition, which states that "a compound can be defined as a lexical unit made up of two or more elements, each of which can function as a lexeme independent of the other(s) in other contexts." ten Hacken (2000) similarly states that "traditionally, word formation is divided into derivation and compounding…As a starting point for recognizing the two classes, we can assume that a prototypical compound consists of two words, e.g. *book-shop*, and a prototypical derivation of a word and an affix, e.g. *employer*." (See Bauer (2006) and ten Hacken (2000) for a number of criteria for the recognition of compounds.)

As far as buNs are concerned, there seems to be agreement that buN-formation is a type of compounding (except perhaps the case of Applegate (1958), in which buN-formation is viewed as affixation, while bab-N formation is seen as compounding). First of all, a strict definition of compounding does not apply to buNs, since they do not consist of lexemes that can stand alone in other contexts, especially the {bu+} part, which would mean nothing when used alone, except the abstract meaning any normal affix would be assigned on its own. From another angle, it is not clear to us how the term compounding can be used to characterize buNs while there is not any commitment to a specific model or definition of compounding. A cursory look at the literature immediately reveals that the works dealing with buNs do in fact use the notion of compounding but no discussion of how exactly compounding works or what model of morphology is used to comprehend the phenomenon are to be found.

Now, given that treating buNs as compounds is highly improbable synchronically, it may be possible to envisage this option as a possibility diachronically.[7] {bu+} in this conception is a separate word that occurs elsewhere in the language. Attractive though this option may seem, it needs confirmation through internal reconstruction or the comparative method. One thing is clear; undertaking historical linguistics in languages without written documents, as is the case with the morphology of Tashlhit, may turn out to be quite exacting. If ever this were possible, {bu+} would be a word that has lost its independent status to become a bound affix through the process of grammaticalization. Further evidence is required to sustain such an assertion.

4. Phrasal affixation vs. bound wordhood

The basic idea in this paper is that expressing ownership in Tashlhit relies on the use of two types of nouns, buNs and bab-Ns, each of which is morphologically complex in its own way. The option we take in this paper is not to consider {bu+} just any type of affix, but a bound, phrasal affix. According to Hanckamer (2004:289), "some things that are phonologically like affixes actually combine

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[7] In this connection, the Arabic origin of the affix {bu+} has been claimed in almost all the references above; however, the morphosyntactic complexity of the affix points in a different direction. Space limitations do not allow us to delve into this.

with phrases," and the term phrasal affix is used to refer to such units.[8] This is the way we will characterize {bu+}, and in this section, we will adduce evidence from three areas to support our hypothesis, namely phonology, morphology and syntax. Along the way, we will point out some challenges that buN-formation confronts morphology with. {bab}, on the other hand, is treated as a word on its own, since it can take a PP as a complement. However, because it cannot stand alone, we treat it as a bound root/word (see Packard (2000) and Pirani (2008) and references therein.).

4.1. {bu+} as a phrasal affix: Phonological evidence

Conversely to the processes discussed in § 2.1.3 above, there are two phonological processes that fail to apply to buNs. The major argument of this section is twofold: (i) the inner noun in buNs does not constitute the stem domain in which labial dissimilation takes place, which happens to be a domain smaller than the word; and (ii) {bu+} does not behave as a fully-fledged word, or even a clitic, that would require glide epenthesis in case the following word is vowel initial.

The first process is segmental and is related to hiatal situations. Examples are ones involving the vocative [a] 'hey' and a following vowel initial noun or a personal clitic following a vowel final verb. In /a argaz/ 'hey man' → [ajargaz] and /ara at/ 'Write! 2p pl. masc.' → [arajat], for instance, hiatus is resolved by splitting the two vowels by an epenthetic [j]. This shows that {bu+} does not behave phonologically as a clitic, let alone as an independent word. In /bu+agajju/, the interim surface form is [bu+ugajju], where the hiatus is resolved either through deletion or glide formation, depending on the dialect. Thus, two variants are attested, [bugajju] and [buwgajju], which both show that hiatus is not resolved through j-epenthesis in buNs. This reveals a very special phonological behavior of buNs in that they fail to behave like a sequence of two words or a clitic and a word.

Another aspect of the special behavior of buNs phonologically is their resistance to two related, quite general, featural dissimilation processes. An example of the first process is the alternation affecting the agentive noun prefix, an underlying {m+} (Bensoukas, 1994, 2012a). This prefix dissimilates to [n] whenever the verbal base it attaches to contains a primary labial consonant /b, f, m/, segment adjacency notwithstanding (Boukous, 1987; Elmedlaoui, 1992/1995; Lasri, 1991; Selkirk, 1993, 1995; Bensoukas, 1999, 2004). Examples are amkraz, derived from krz 'plow', and ang^{w}mar, derived from g^{w}mr 'hunt'.

The second dissimilation process is the one affecting round features in two different cases: a sequence of two round vocoids and the co-occurrence of a round vocoid and a labialized consonant. Underlyingly labialized /k^w, g^w, x^w, ɣ^w, q^w/ are unrounded when co-occurring with *u* or *w* (Jebbour, 1985; Lasri, 1991; Elmedlaoui, 1992/1995; Selkirk, 1993, 1995; Bensoukas, 2006). Examples are /ag^{w}ru/ 'frog', which surfaces as sg. [agru] and pl. [ig^{w}ra], and /aɣ^{w}i/ 'calf', with sg. and pl. [aɣ^{w}i]

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[8] Hanckamer (2004:289) uses "the more transparent term 'ad-phrasal affix', since these affixes are not themselves phrases but rather affixes that attach to phrases." In this paper, we will continue to use the term phrasal affix to refer to {bu+}.

and [uɣa], respectively. Likewise, a sequence of two rounded segments is affected (Bensoukas, 1999 and references therein): the perfective form of awi 'take' is iwi instead of the expected *uwi. It is noteworthy that these two related dissimilation processes observe a domain requirement binding it to the stem (Elmedlaoui, 1992/1995; Lasri, 1991; Selkirk, 1993, 1995).

buNs are not subject to the same constraints. (11a) shows that the affix {bu+} co-occurs freely with labial consonants, and (11b) shows that {bu+} co-occurs freely with both rounded vocoids and labialized consonants:

(11)   a-   buwabuḍ   'place name'
                butfunast   'owner of the cow'
                bumḥnd   'hedgehog'
        b-   butakk^{w}st   'one with a belt'
                butg^{w}mma   'owner of houses'
                butax^{w}stt   'one with a small tooth'
                buwuna   'well digger, cleaner'
                buwɣɣu   'one who sells butter-milk'
                buwɣṛum   'one who sells bread'

A word like butfunast shows that labial dissimilation is not operative in the formation of buNs. The borrowed word abuwwab 'janitor' is pronounced in some Tashlhit dialects as aduwwab, with the first labial [b] dissimilated to the coronal [d]. If such a behavior were to take place in butfunast, we would have the pronunciation *dutfunast. Words like butax^{w}stt and buwɣṛum have double specifications of the feature [round], which does not seem to be consonant with the data described above. Actually, forms like *butaxstt and *biwɣṛum, in which the labialized consonant and the round vowel of {bu+} are dissimilated, respectively, are ill-formed.

To sum up, we have surveyed in this section the phonological behavior of buNs. Two different phonological processes are notable in that featural dissimilation seems to distinguish {bu+} from normal affixes, while j-epenthesis distinguishes it from clitics and independent words. {bu+} is thus treated by the epenthesis process as an affix rather than a word. It is also treated by the dissimilation processes as lying outside the stem domain, suggesting an affix attaching to a constituent other than the stem, most probably another word. We will claim a phrasal affix status for {bu+}, with the first part of the argument elaborated in the following subsection.

4.2. Morphological issues in buNs and bab-Ns

In this section, we will show that inflectional morphology is relevant, and quite conspicuously very different, in both the inner and outer nouns in buNs and bab-Ns. The first point we will stress in this section is that these constructions show inflectional patterns that are quite different from the ones shown by 'normal' basic

or derived Tashlhit nouns. The second point is that buNs contain inflectional morphology inside of them. While this aspect of buN-formation provides further support for the fact that the inner noun is not a stem, it is particularly challenging if we consider {bu+} a derivational affix, and concomitantly buNs as derived nouns.

4.2.1. Outer noun vs. inner noun inflections

As we have mentioned in §2.1.1, buNs and bab-Ns are overtly marked for both gender and number, both inherent inflections. These constructions are not overtly marked for case, which is a contextual inflection.

We start with buNs and focus first on the outer noun. As far as gender is concerned, {bu+} has a feminine counterpart {mmu+}, which replaces it (butgmmi/ mmutgmmi "owner of the house, masc./fem."). As to number, buNs take the affix {id+}, or {istt+} in feminine nouns, which is concatenated with the entire buN (idbutgmmi/isttmmutgmmi). The periphrastic counterpart of buNs is also marked overtly for gender and number, but not for case. {bab} has a feminine counterpart, {lal}, as in bab n tgmmi/lal n tgmmi. The plural of this type of construction again takes the affix {id+}, or its feminine counterpart {istt+}, which is concatenated with the entire construction as in id bab n tgmmi/ istt lal n tgmmi. Here we see a parallel with buNs.

It is noteworthy that the plural of bab-Ns is different from the plural of normal N+PP constructions. This is clearly shown in (12):

(12)

		Sg.	*Pl.*
N+PP	*Masc.*	afus n ħmad	ifassn n ħmad
	Fem.	taħanut n ħmad	tiħuna n ħmad
bab+PP	*Masc.*	bab n tgmmi	idbab n tgmmi
	Fem.	lal n tgmmi	isttlal n tgmmi

As can be seen, the plural of N+PP constructions is realized on the head N, while that of bab-Ns is expressed by {id+} concatenated before the entire construction. Plurals like *idafus n ħmad and *isttaħanut n ħmad, in which the N+PP constructions is treated like bab-Ns, are ruled out.

We now deal with the inner noun in expressions of ownership in Tashlhit. Although the facts are more or less the same for buNs and bab-Ns, buNs raise a more challenging issue. Like outer nouns, inner nouns in buNs are overtly marked for gender and number. Unlike the outer nouns, however, the inner nouns are also marked for case, a contextual inflection. In (13), we reproduce the items in (2a) for convenience:

(13)

	Masc. sg. inner N	Fem. sg. inner N
Masc.	buwgajju	butgajjut
Fem.	mmuwgajju	mmutgajjut

	Masc. pl. innner N	Fem. pl. inner N
Masc.	bijg^{w}jja	butg^{w}jja
Fem.	mmijg^{w}jja	mmutg^{w}jja

The inner noun may appear with the feminine affix, which can be a circumfix {t+…+t}. The inner noun may also appear in its plural form, which can be sound or broken. In (13), all the plurals are broken. An example in which the plural is sound is bijfrxan/butfrxin 'the one with boys/girls'. Finally, the inner noun is overtly marked for case and obligatorily shows up in CS. buNs with the inner noun in FS are simply ruled out (*buagajju, *butagajjut, for example). In short, the inner noun can be inflectionally marked, bearing the inherent inflections of gender and number as well as the contextual inflection of case.[9]

To conclude, let us point out the asymmetry in buNs. The inner noun in buNs is overtly marked for both the inherent (gender and number) and contextual (case) inflections. The outer noun, however, is marked overtly for inherent inflections but not for contextual inflection.

4.2.2. Productivity, morpheme order and lexical integrity

So far, the challenges raised by the buNs of Tashlhit relate to productivity, the order of inflection and derivation and the lexical integrity hypothesis.

Productivity has always been used as a criterion to distinguish inflectional morphemes from derivational ones. While inflectional morphemes are claimed to be fully productive, derivational ones are generally semi-productive. As we have seen above, {bu+} is rather characterized as a derivational affix. Furthermore, it can virtually attach to any noun, which makes of it a very productive affix. This characteristic of {bu+} then gives rise to the discrepancy between the status of the affix, as derivational, and its full productivity, a characteristic of inflectional affixes. Compared with the remaining two challenges, this might turn out to be a minor concern.

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[9] An important issue for which we do not have an account is how to explain the CS marked on the inner noun of buNs. This definitely means that some syntactic effect is taking place. Thanks to R. Laabdelaoui for having pointed this fact to me. The issue is further complicated by the fact that juxtaposing two nouns does not induce CS on the second noun (e.g. tigmmi tazg̱g^{w}aɣt 'red house' and aḍar afasi 'right foot'). Also, other affixes like {bu+} do not seem to induce the CS on the inner noun; this is clearly the case of war/tar 'the one without, fem./masc.' and gar 'bad' as in wartamɣart 'the one without a wife' and gartamɣart 'a bad woman', where tamɣart is in FS as opposed to tmɣart in CS in butmɣart.

The second issue is the fact that buNs contain inflectionally marked inner nouns. These can in fact be marked for all the nominal inflections in Amazigh, namely gender, number and case. Accordingly, the inner noun can take both the form of the feminine or masculine, singular or plural, and FS or CS. As {bu+} cannot be treated as an inflectional affix, this is a clear case of a derivational affix occurring outside inflection. This is a serious challenge especially to Greenberg's (1963:93) Universal 28, which stipulates that "if both the derivation and inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection" (see also Principle # 505 of The Universals Archive; Universität Konstanz). buNs reflect just the opposite situation.

The last challenge bu-nouns pose is one related to the Lexical Integrity Hypothesis (see for example Anderson, 1992; Booij, 2009; Lieber and Scalise, 2007), which states that "the syntax neither manipulates nor has access to the internal structure of words" (Anderson, 1992:84). The CS in Amazigh is a contextual inflection, namely that of case, marked on the noun in a certain syntactic position. Since the affixation of {bu+} requires the CS, it seems that there is some syntax taking place inside a morphological formation, in which case syntax just seems to "manipulate" or "have access" to word internal structure. We will see in § 4.3.2 that buN-formation interacts in another quite different respect with syntax, in which case another constraint seems to be at stake, the No Phrase Constraint.

4.3. Syntactic issues in bu-noun and bab n-noun constructions

Some of the syntactic aspects of ownership expressions in Tashlhit we will look at show that the inner noun in buNs is actually a noun phrase that can contain a coordinated structure and can be pre- or post- modified, which makes it potentially syntactically complex. This aspect of buN-formation further consolidates our conceptualization of {bu+} as a phrasal affix. We will also compare ownership expressions as far as {bu+} and {bab} are concerned, one major difference being the subcategorization frame of {bab} and its bound status.

4.3.1. Structural discrepancy

On the basis of a few structural tests, we will compare the buNs, bab-Ns and normal noun+PP constructions to see the affinities as well as the differences between the three constructions.

We start with clitic attachment. bab-Ns subcategorize for a PP headed by n 'of', as in bab n tgmmi 'the owner of the house'. tigmmi is in CS, as is generally the case with Tashlhit nouns that are objects of prepositions. In (14), we compare bab-Ns to constructions with a noun followed by a preposition and a clitic. (14a) and (14b) reveal that the two forms behave the same way with respect to clitic attachment, as the clitic pronoun replaces the noun that is the object of the preposition n, irrespective of gender or number. However, buNs behave in a different way, as they do not allow clitics to be attached to them, which shows the structural difference between {bu+} and {bab}. The ill-formed items in (14c) bear testimony:

(14)   *Sg.*   *Pl.*
  a- N+P+Clitic: afus ns   ifassn ns
                        taħanut ns   tiħuna ns
  b- bab+P+Clitic: babns   idbab ns
                        lalns   isttlal ns
  c- bu+(P+)Clitic: *bu ns/ *bus   *idbu ns/ *idbus
                        *mmu ns, *mmus   *isttmmu ns, *isttmmus

As can be seen, bab-Ns can be followed by the clitics indicating possession, as in bab ns 'its owner, masc.' and lal ns 'its owner, fem.'. The [-s] in this case is actually a pronominal element that replaces the inner noun. buNs do not allow such behavior. Accordingly, [-s] never surfaces with buNs: *bus is just as ill-formed as *bu ns, in which the preposition intervening between [bu] and [s] makes the well-formedness of the construction no better. The conclusion is that pronoun clitic attachment establishes the same status for bab-Ns and normal noun [n]-noun constructions. By the same token, a different status is established for the ownership items {bab} and {bu+} proper.

The second structural aspect is that of pronominalization. Asking the question [man]+noun 'which+noun' and answering with a pronoun instead of the noun, we again see affinities as well as differences between the three expressions in (14) above. The pronoun [win] 'that of (masc.)' and [tin] 'that of (fem.)' do replace the normal noun in (15a), but neither {bab} nor {bu+} in (15b) and (15c), respectively:

(15) a- N+PP: afus n ħmad   man afus?   win ħmad
               taħanut n ħmad   man taħanut?   tin ħmad
     b- bab+PP: bab n tgmmi   *man bab?   *win tgmmi
               lal n tgmmi   *man lal?   *tin tgmmi
     c- bu+NP: butgmmi   *man bu?   *win tgmmi
               mmutgmmi   *man mmu?   *tin tgmmi

The structural tests above reveal that bab-Ns have affinities with both buNs and N+PP constructions, yet they also reveal that bab-Ns do not quite behave in a similar fashion to either. Therefore, bab-Ns may be said to reveal a certain structural discrepancy.

4.3.2.   Coordination, ambiguity and the No Phrase Constraint

We have already seen in § 4.2.2 that buNs pose a few morphological challenges, one of which is related to the Lexical Integrity Hypothesis, in which case syntax seems to interfere with buN-formation. A further complexity in this area of Tashlhit noun morphology is related to the No Phrase Constraint, according to which "no phrase may appear within complex words" (originally in Botha (1983)) (cited in Spencer 2005). The main assumption behind the constraint is that in forming words, the bases are other words, roots, or stems, but not phrases. In this section, we will see various aspects in which buNs breach the No Phrase Constraint.

The first aspect we will consider is inner noun coordination in buNs and bab-Ns. In (16) below, we provide a set of examples. We admit here that it is not clear to us how to transcribe {bu+} in these cases, so we leave it separate from the phrase for the sake of clarity, but without any serious commitment to this type of transcription:

(16)   bu lxʷḍrt d ddisir   'bu+vegetables and fruit'
        bu tmɣart d tarwa ʕzzanin   'bu+wife and beautiful children'
        bijlqʷnajnn d ifullusn   'bu+rabbits and chicken'
        bab n lqħwa d ṣṣaka   'bab + n+ café and tobacconist/ newspaper stand'

The inner coordinated nouns can be modified by parentheticals, which makes the buNs quite long. This is illustrated by the examples in (17):

(17) a- bu tmɣart (lli) baħra isawaln d tarwa (lli) baħra baslnin
        'the one with the very talkative woman and the very spoilt children'

    b- bu lxʷḍrt lli jaɣ bdda tsrrħt d ddisir llid ʒʒun ur tiwit
        'the seller of vegetables, which you have always given us abundantly, and fruit, which you have never brought'

    c- bu lxʷḍrt lli jaɣ tsrrħt ajlliɣtt sur ur nħml d ddisir llid sul ur ttawit ajlliɣ ʕlajn att nttu
        'the seller of vegetables, which you have given us so abundantly that we no longer like them, and fruit, which you no longer bring until we have almost forgotten it'

The third structural aspect is that of modification. Here we focus on buNs. In (18), buNs are listed with inner nouns that are subject to quite complex modification. The inner noun timɣarin can be pre-modified by a numeral in (18b), as are the other inner nouns. (18c) is quite intriguing in the sense that the inner noun is pre-modified by a numeral and post-modified by a clause, which makes of it a quite complex noun phrase.

(18) a- bu tmɣarin   'the one with the wives'
    b- bu jat tiṭṭ   'the one with one eye'
        bu sin iḍuḍan   'the one with two fingers'
        bu kraṭṭ rrwajḍ   'the one with three wheels'
        bu kkuẓt tmɣarin   'the one with four wives'
    c- bu kkuẓt tmɣarin (lli) ur ginin i ɣid ula ɣinn
        'literally: the one with the four wives that aren't useful here or there; the ones with the four hopeless wives)'

The internal constituent structure of the inner nouns (18b-c) may be represented as in (19a-b), respectively:

(19) a- [$_{N''}$bu+[$_{N''}$[$_{N'}$[$_{AP}$ kkuẓt] [$_N$ tmɣarin]]]]

  b- [$_{N''}$bu+ [$_{N''}$[$_{N'}$[$_{AP}$ kkuẓt] [$_{N'}$[$_N$ tmɣarin] [$_{CP}$(lli) ur ginin i ɣid ula ɣinn]]]]]

The fact that the inner noun is subject to complex modification results in cases of structural ambiguity when the post-modifier is a participle, a PP, or a clause. We start with buN+participle configurations.[10] In (20), we list a few instances and show which ones are ambiguous:

(20)

a- butgmmi mẓẓin bab n tgmmi mẓẓin	*ambiguous*	owner of small house
		house owner who is young
b- id butgmmi mẓẓin id bab n tgmmi mẓẓin		owners of small house
c- id butgmmi mẓẓinin id bab n tgmmi mẓẓinin		house owners who are young
d- butg^{w}mma mẓẓin bab n tg^{w}mma mẓẓin		owner of houses who is young
e- butg^{w}mma mẓẓinin bab n tg^{w}mma mẓẓinin		owner of small houses
f- id butg^{w}mma mẓẓinin id bab n tg^{w}mma mẓẓinin	*ambiguous*	owners of small houses
		owners of houses who are young

In the case of (20a) and (20f), there is structural ambiguity resulting from whether the participle mẓẓin modifies the inner noun or the outer noun, in which case the following internal constituencies hold:

(21) bu+[tgmmi mẓẓin] / bab n [tgmmi mẓẓin]
      'owner of small house'
  [bu+tgmmi] mẓẓin / [bab n tgmmi] mẓẓin
      'house owner who is young'
  id+bu+[tg^{w}mma mẓẓinin] / id+bab n [tg^{w}mma mẓẓinin]
      'owners of small houses'
  [id+bu+tg^{w}mma] mẓẓinin / [id+bab n tg^{w}mma] mẓẓinin
      'house (pl.) owners who are young'

Here again, we notice the affinities between the buNs and the bab-Ns.

Now we consider another kind of post-modification, that involving a PP or a clause. In (22), we present the item buliqqamt 'mint seller' and a following PP n uḍuwwar 'of the village', which involves structural ambiguity:

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[10] Participles in Tashlhit can show syncretism as far as number is concerned so that only one form, mẓẓin for example, can be used in both singular and plural. When syncretism is involved, the ambiguity becomes even more complicated. We do not pursue this here, and in our examples, we do not syncretize for the sake of the clarity of the argument.

(22)   a- Outer noun+modifier: bu+liqqamt [n uḍuwwar]
        b- Inner noun+modifier: bu+[liqqamt n uḍuwwar]

In (22a), we are talking about the mint seller in the village, and probably not the one in the marketplace. In (22b), we are talking about the mint that is grown in the village and not one which is grown elsewhere.

A similar situation holds when the post-modifier is a clause, as in (23), where the clause lli-d ittaʃkan ɣ tiznit means 'that comes from Tiznit':

(23)   a- Outer noun+modifier: bu+liqqamt [lli-d ittaʃkan ɣ tiznit]
        b- Inner noun+modifier: bu+ [liqqamt lli-d ittaʃkan ɣ tiznit]

The buN construction has two readings: (23a) the mint seller who comes from Tiznit and (23b) the seller of the mint which comes from Tiznit. When the buN in (24) is in the plural, there are two forms, one corresponding to (24a) and the other to (24b). Here, as long as the participle agrees in number, the ambiguity dissipates (cf. footnote 10):

(24)   a- Outer noun+modifier: id+bu+liqqamt [lli-d (i)ttaʃkanin ɣ tiznit]
        b- Inner noun+modifier: id+bu+[liqqamt lli-d ittaʃkan ɣ tiznit]

To sum up, buNs can be subject to very complex modification, so much so that structural ambiguity may result in certain cases.

To conclude, we have seen how the inner noun can be (i) modified and (ii) coordinated when there are two inner nouns. We have also shown above that the modification may involve both a pre-modifier and a post-modifier at the same time, which results in very complex cases of internal modification resulting in structural ambiguity. The point that is noteworthy at this stage is the fact that the inner nouns are phrases that may exhibit a certain level of complexity in terms of their internal constituency is a serious challenge to the No Phrase Constraint. The presentation also shows that {bu+} attaches to full-fledged phrases, which consolidates its status as a phrasal affix.

4.4. {bab} as a bound word/root

Recall from (14) and (15) above, repeated for convenience in (25a) and (25b), respectively, that bab-Ns do at times behave syntactically like normal Noun+Prep+Noun constructions, and at other times not, in which case their behavior is more like that of buNs:

(25)

a-		*Sg.*	*Pl.*		
	i- N+P+Clitic:	afus ns	ifassn ns		
		taħanut ns	tiħuna ns		
	ii- bab+P+Clitic:	babns	idbabns		
		lalns	isttlalns		
	iii- bu+(P+)Clitic:	*bu ns/ *bus	*idbu ns/ *idbus		
		*mmu ns, *mmus	*isttmmu ns, *isttmmus		
b-	i- N+PP:	afus n ħmad	man afus?	win ħmad
		taħanut n ħmad	man taħanut?	tin ħmad
	ii- bab+PP:	bab n tgmmi	*man bab?	*win tgmmi
		lal n tgmmi	*man lal?	*tin tgmmi
	iii- bu+NP:	butgmmi	*man bu?	*win tgmmi
		mmutgmmi	*man mmu?	*tin tgmmi

It seems to us that the difference between the bab-Ns in (25a-ii) and those in (25b-ii) is that in the former the word bab is in a context where the preposition [n] is attested along with a possessive pronoun, which is not the case in the latter. In fact, in (25b-ii) bab does not occur with the preposition [n], which seemingly turns out to be a sine qua non condition for bab to occur. In other words, although bab is a word by itself, it cannot occur independently of the preposition [n] and an accompanying noun or a bound pronoun.

The closest case we could find in the literature to the situation at hand is that of bound words/roots. Packard (2000) and Pirani (2008), for example, report various (Mandarin) Chinese words that are bound in the sense that they cannot occur alone, although they have properties of independent words. Packard (2000:77) reports that "bound roots are the largest class of morpheme type in Chinese…Bound roots are morphemes with lexical rather than grammatical identity that cannot occur in a syntactic form class category slot until they are supplemented with additional morphological material that causes them to be 'completed' as words." The author goes on and compares Chinese bound roots with English ones: "This is also true for the so-called 'Latinate' stems in English (anti-, -itis, -osis, -ectomy, etc.)". In a similar fashion, Pirani (2008) compares Mandarin Chinese bound roots with Indo-European ones and concludes that they not only behave similarly from a morphological viewpoint, but they have also evolved in the same way from a historical and lexical perspective.

Going back to our bab-Ns, the element bab can never occur alone, unless we have in mind the situations in which morphemes can be referred to in isolation. One such situation would be when one is asking in Tashlhit about the meaning of a word, a free morpheme. The normal way is to ask the question 'what is word X?.' For example, when one asks the question 'majgan tisitan?', the answer one would get is 'tisitan is the plural of tafunast (cow) in some varieties of Tashlhit.' However, it seems to us unlikely to ask a similar question with bab, so much so that a question like 'majgan bab?' would sound like the question 'majgan bu?' or 'majgan id?' Additionally, bab can actually never occur outside the context of

expressing possession, in which case the preposition [n] is mandatory, as is the noun or pronoun following it.

Given these considerations, the item bab in bab-Ns must be some sort of bound word/root. Therefore, bab cannot be properly characterized as an affix, but it cannot be properly characterized as a free word, either. In answering the question why are bound roots used in Chinese, Packard (2000:78) considers possibilities among which are (i) the lexicalization of free morphemes over time so that they are no longer free and (ii) the existence of universal or language particular constraints that turn free morphemes into non-free ones. While both options seem very attractive in their own right, pursuing them goes beyond the scope of the present paper. Therefore, suffice it to say that bab in Tashlhit is a bound word/root.

5. Typological considerations

The aim of this section is to propose that buN morphology provides evidence for the existence of polysynthetic morphology in Tashlhit. This idea, which is dealt with in some detail in Bensoukas (2012b), is summarized here.

In morphological typology, languages are categorized on the basis of their morphological systems (see Bynon (2004), Helmbrecht (2004) and references therein). Generally, four language types are recognized: fusional, agglutinative, isolating and polysynthetic. Other ways of classifying languages have been proposed, mainly using their degree of fusion and synthesis (see Bynon, 2004). Tashlhit morphology has been characterized as involving a combination of fusion and agglutination. A survey of the literature on Amazigh morphology in general immediately reveals the non-concatenative patterns interacting with the concatenative ones, even in the same morphological class, which correspond more or less to the fusional and agglutinative types. Never in the literature has there been mention of polysynthesis in the morphology of Tashlhit.

De Reuse (2006) and references therein (see also De Reuse, 2009) list the following properties of polysynthesis: (i) Productivity, (ii) recursion, (iii) concatenation, (iv) interaction with syntax, and (v) lexical category change (ibid.:746-747). Examples are provided from English, for instance, with anti- and re- both being productive and recursive as in the words antiantiabortion and rerewrite. De Reuse (2006:747) uses the term "productive non-inflectional concatenation" (PNC) for such affixes, and further asserts that languages can be (i) mildly polysynthetic (a few elements of PNC), (ii) solidly polysynthetic (over 100 PNC elements), or (iii) extremely polysynthetic (several hundreds of PNCs).

In Tashlhit, we will be concerned more specifically with ways in which buN data reveals polysynthetic behavior. Concerning productivity, we have shown how productive {bu+} is. It is an affix that is concatenated with other morphological bases, and also potentially with other affixes. Although our data does not involve any cases with {bu+} imposing a lexical category change, we have shown various ways in which buN morphology closely interacts with syntax. The most revealing, and actually quite intriguing, aspect about buNs in this respect is probably recursion, which seems not to be documented in the literature.

(26) contains buNs showing a certain amount of recursion: {bu+} is repeated twice or co-occurs with the feminine {mmu+} in each case. (26a) gives a case of frozen buNs. (26b) gives both masculine and feminine outer buNs, with an inner noun in the feminine. These also show the same pattern of recursion, illustrating how general this aspect of the morphology of buNs can be.

(26) *Recursion*:
    a- **bu**ttgra   'turtle'
       bubuttgra/**mmubu**ttgra   'the one with the turtle, masc./fem.'
    b- **mm**idlaln   'the one with braids, fem.'
       bummidlan/**mmumm**idlaln 'the one with the one with the braids (fem.), masc./fem.'

In (27), we present what we consider the most interesting case. Recursion in buNs can actually result in quite long words, with {bu+} and the plural {id+} repeated consecutively at the beginning of the word agajju/ igʷjja 'head/heads'.

(27)   **bu**wgajju   'strong-headed person'
       *id***bi**jgʷjja   'strong-headed persons'
       bu*id***bi**jgʷjja   'father of strong-headed persons'
       *id***bu***id***bi**jgʷjja   'fathers of the fathers of …'
       bu*id***bu***id***bi**jgʷjja 'father of the fathers of the fathers…'
       *id***bu***id***bu***id***bi**jgʷjja 'fathers of the father of the fathers…'

It should be noted here that we can technically go on recursively adding the affixes {bu+} and {id+}. More significantly, if there are any constraints on the extent of such recursion, and there seemingly are, these would be of a psycho-linguistic nature, or other, rather than a purely morphological one.

The conclusion to be drawn from this is that, in addition to the concatenative, and obtrusively non-concatenative, morphology in Tashlhit, there is a certain degree of polysynthetic behavior revealed by the morphology of buNs. Tashlhit can, accordingly be characterized as a mildly polysynthetic language with a few PNC elements.[11]

6. Conclusion

This paper has dealt with one type of noun formation in Tashlhit, that of buNs. The relevance of the paper is twofold. As far as Amazigh linguistics is concerned, this aspect of the morphosyntax of the language has, to our knowledge, not received

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[11] The range of this proposal is yet to be explored. Bensoukas (2012b) does that with a wider array of noun types and exclusively in relation to the plural affix {id+}. Clearly, a more in-depth investigation is in order before we can establish the extent of this polysynthetic behavior. We keep it to the minimum of 'mildly polysynthetic' at the moment until more substantial evidence is available.

due attention in the literature. Second, as far as morphological theory is concerned, the aspects dealt with here bring to the foreground aspects of the morphosyntax of Tashlhit that are relevant to the discussion of phrasal affixes and bound words. Along the way, we have brought to attention a single morphological formation which challenges the Lexical Integrity Hypothesis and the No Phrase Constraint, on the one hand, and which establishes some polysynthetic morphology in Tashlhit, on the other.

In addition, we have shown that in Tashlhit, the notion of ownership is expressed morphologically in two ways, one periphrastic and the other affixational. The multi-word expression bab-Ns, co-existing with buNs provides us with a periphrastic means of noun formation in Tashlhit, which opens an area of investigation that has not been explored in the past. It is worthy of note that buNs and bab-Ns may have similarities, but they may have differences as well. The alienability/inalienability distinction is probably the most notable difference, and this itself requires further investigation. We leave issues like these to future research.

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