Contextually conditioned allomorphy and the Basque locative

Spelling out the Basque extended nominal projection

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This paper proposes a non-paradigmatic analysis of the Basque case system that facilitates a unified analysis of two anomalies in the distribution of the locative in Basque, namely the unexpected lack of exponence of the definite singular locative throughout the directional cases and in the scope of the adnominal linker *-ko*. These anomalies are analysed as effects of contextually conditioned zero spell-out of the locative morpheme and the singular determiner. Based on Embick's (2010) theory of cyclic spell-out, the present analysis predicts two cross-linguistic restrictions on morpheme interactions in the nominal domain.

1. Introduction

The present paper deals with the interactions of nominal structure and the locality conditions governing context sensitive allomorphy. It proposes a non-paradigmatic analysis of the Basque case system based on an articulated structure of the extended nominal projection. Certain effects sometimes treated in terms of a split between a basic and a local case paradigm are analysed in terms of contextually conditioned null exponence of functional morphemes. I suggest that the relevant locality conditions are captured in Embick's (2010) $\mathbb{C}_1$-LIN theory under the assumption that K is a cyclic head and that this approach predicts two cross-linguistic restrictions on the possibility of morpheme interactions in the nominal domain that could be further tested.

In particular, I propose a unified treatment of two special properties concerning the exponence of the definite singular locative *-an*, which seems to remain unexpressed under certain conditions. The empirical phenomenon forming the basis of my argument is illustrated by the contrast in (1) between the predicative locative phrase and its adnominal counterpart. While (1b) retains the locative meaning, the locative singular ending *-an* cannot be realised in the presence of the attributive linker *-ko*, cf. (1c). Note that other adverbial case endings appear without problems in the context of *-ko*, as shown in (1d).

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(1) a. Zuhaitz-a etxe aurre-an dago.
tree-DET house front-LOC.SG 3SG.is.located
'The tree is in front of the house.'[1]

b. [$_{DP}$ etxe aurre-ko zuhaitz-a]
house front-KO tree-DET
'the tree in front of the house'

c. *etxe aurre-an-ko zuhaitz-a
house front-LOC.SG-KO tree-DET

d. [$_{DP}$ Thessaloniki-ra-ko hegaldi-a]
Thessaloniki-ALL-KO flight-*det*
'the flight to Thessaloniki'

Another instance of morphologically special behaviour of the locative concerns the distribution of the marker *-ta* that is attested throughout the local cases apart from the definite singular forms. I suggest that this marker represents the unmarked realisation of the locative morpheme, and that the singular allomorph receives overt spell-out only if it is at the edge of the spell-out domain.

The discussion will proceed as follows. I am going to discuss the two locative anomalies as well as the challenges facing a paradigmatic treatment in the next section. A reanalysis of the morphology of Basque noun phrases is presented in section 3. Section 4 gives a short overview of Distributed Morphology and presents the proposal for deriving the case paradigm of Basque from the structure of the extended nominal projection (xnP). Section 5 shows the generalisations unifying the locative anomalies that emerge under this analysis. In section 6, I show how these generalisations can be derived in Embick's (2010) framework of contextually conditioned allomorphy. Crucially, I also present two predictions that the locality conditions imposed by the current analysis make regarding the cross-linguistic possibility of interactions between morphemes instantiating D and K. The final section wraps up and points out some further questions raised by the discussion.

2. *The locative anomalies*

In this section I will present the two morphological puzzles involving the locative morpheme which will form the basis of my argument. The first anomaly concerns the interaction between the locative and the attributive linker *-ko*, the second concerns the distribution of locative markers in the so-called local case paradigm. I will also briefly discuss the shape of the locative singular morpheme. Finally, I will show that a paradigmatic approach to the Basque case system does not provide us with a satisfactory answer regarding the relationship between these anomalies.

[1]Unless indicated, the examples were elicited from consultants from the Gipuzkoa province, speaking standard Basque. Glossing is as follows: 1,2,3 – person; ABL – ablative; ABS – absolutive; ALL – allative; AUX – auxiliary; BEN – benefactive; COM – comitative; DAT – dative; DET – determiner; DIR – directional; ERG – ergative; GEN – genitive; INSTR – instrumental; LOC – locative; PART – partitive; PL – plural; SG - singular; TERM – terminative

2.1. The locative-linker anomaly

In contrast to most other 'adverbial case' markers, the inessive/locative[2] *-an* cannot appear in the context of the linker *-ko*, as indicated in the introduction. Similarly, the PP in (2a) has no overt exponent for either the locative singular morpheme (usually *-an*) or the definite article (usually *-a*).

Interestingly, the plural and indefinite versions of the inessive do not show the same behaviour. It is only the final *-n* of the definite plural *-etan* and the indefinite *-tan* that is missing in (2b) and (2c) compared to their use in non-adnominal contexts (in effect their citation forms).

(2) a. lantegi-∅-ko tximini-a
factory-LOC.SG-KO chimney-DET
'the chimney in the factory'

b. lantegi-eta-ko tximini-a-k
factory-LOC.PL-KO chimney-DET-PL
'the chimneys in the factories'

c. hainbat lantegi-ta-ko tximini-a-k
many factory-LOC.INDEF-KO chimney-DET-PL
'the chimneys in many factories'

I assume that the determiner and the locative morpheme are syntactically present in cases like (1b) and (2a) in spite of the lack of morphological exponence.

As we will see in the next section, the lack of exponence of the determiner is common to all locational cases. As for the locative morpheme, the correspondence in meaning to the unanimously locative-marked phrases – *etxe aurre-an* 'in front of the house' for (1b) and *lantegi-an* 'in the factory' for (2a) – as well as the parallel in meaning between the singular and the plural and indefinite locatives in connection with *-ko* indicate the presence of a locative in all those phrases.

Moreover, the absence of a locative meaning in the combination of *-ko* with other complements, cf. the instrumental marker *-z* in *harri-z-ko eliza* 'the church made of stone', shows that, contrary to the traditional description of *-ko* as *locative genitive*, it is something other than *-ko* that contributes the locative meaning (Höhn 2011, 2012).

These two observations show that the locative morpheme is present for interpretation at LF. By hypothesis, the Inclusiveness Condition 'bars introduction of new elements (features) in the course of computation' (Chomsky 2001:2). I take this to imply that the locative is present in the output of syntax even when it has no exponent.[3]

[2]I will mostly use the term *locative*, but will occasionally make use of the alternative term *inessive* to avoid confusion with the more general *locational cases* that involve the stative locative as well as the dynamic directional cases.

[3]A reviewer notes a complication for the argument that everything that is interpreted at LF has to be present in narrow syntax from arbitrary arguments, which are usually argued to be absent in syntax (Rizzi 1986). While this is an important limitation of the present kind of argument, the presence of overt exponents in indefinite and definite plural contexts makes an analysis of the missing definite singular forms in purely interpretive terms seem improbable.

Finally, while the absence of the configuration LOC+KO seems to hold across most dialects of Basque, the Souletin dialect in France seems to allow or have allowed forms like *etxe**n**ko* 'who is at home' (de Rijk 2008:103) with locative *-n*.[4] This again indicates that *-ko* is not itself a locative marker.

The above observations lead me to the conclusion that a locative morpheme is present in the relevant *-ko*-phrases even when not overtly expressed. The first locative anomaly thus concerns the lack of phonological realisation of the definite locative singular in the context of the linker morpheme.

2.2. The local case paradigm anomaly

The second locative anomaly concerns what de Rijk (2008) characterises as the local case paradigm, given in (3). The morpheme *-ta* that shows up throughout the locative and directional endings in all but the definite singular forms sets the local cases apart from the rest of the case paradigm, as shown in (4).[5]

(3) Local cases (cf. Hualde & Ortiz de Urbina 2003:173, Table 59)

	INDEFINITE	DEFINITE			Translation
		SG	PL		
			GENERAL	PROX	
LOC	leku**ta**n	leku*an*	leku**ta**n	lekuo**ta**n	at a place
ABL	leku**ta***tik*	leku*tik*	leku**ta***tik*	lekuo**ta***tik*	from a place
ALL	leku**ta***ra*	leku*ra*	leku**ta***ra*	lekuo**ta***ra*	to a place
DIR	leku**ta***rantz*	leku*rantz*	leku**ta***rantz*	lekuo**ta***rantz*	towards a place
TERM	leku**ta***raino*	leku*raino*	leku**ta***raino*	lekuo**ta***raino*	up to a place

(4) Grammatical and non-local adverbial cases (cf. Hualde & Ortiz de Urbina 2003:173, Table 59)

	INDEFINITE	DEFINITE			Translation
		SG	PL		
			GENERAL	PROX	
ABS	leku	leku**a**	lekuak	lekuok	-
ERG	lekuk	leku**a**k	lekuek	lekuok	-
DAT	lekuri	leku**a**ri	lekuei	lekuoi	-
GEN	lekuren	leku**a**ren	lekuen	lekuon	of a place
BEN	lekurentzat	leku**a**rentzat	lekuentzat	lekuontzat	for a place
COM	lekurekin	leku**a**rekin	lekuekin	lekuokin	with a place
INST	lekuz	leku**a**z	lekuez	lekuoz	with a place

[4] I leave open the question of why the locative is not realised as *-an* here, which I argue in section 3.1 to be its definite singular form. In Standard Basque the vowel is preserved in hiatus contexts, cf. *leku-an* 'at the place' and the discussion in section 3.1. It may be that the locative exponent in Souletin has been reanalysed as a simple *-n*.

[5] I disregard the partitive and the prolative here, which only have an indefinite form. Also note that I use the term paradigm in a purely descriptive way, as I will argue that they do not represent grammatical primitives.

Crucially, in the definite singular local forms the bare postpositions (*-an, -tik...*) attach directly to the stem. In contrast to the grammatical cases and the non-local postpositions, there is no exponent of the definite article *-a*. Likewise, the definite singular forms do not show any marker paralleling the *-ta* morpheme found in the other definiteness-number combinations of the local cases. This peculiarity of the locative singular has already been noted by Jacobsen (1977).

A further effect specific to all the local cases is their incompatibility with animate arguments. The use of a proxy morpheme is mandatory in order to connect them with any of the local endings. This can be either the suffix *-gan* (Table (5)) or the free morpheme *baita* as in *mutilaren baitan* 'on/in the boy' (Hualde & Ortiz de Urbina 2003:176f.; cf. also de Rijk 2008:ch. 3.6). In both cases the ground argument or *relatum* is in the genitive case, if only optionally in the case of the definite singular. Note that in these cases the definite singular forms do not lack the definite article. However, the genitive marker *-ren* can optionally be dropped.

(5) Local markings of mutil 'boy' (Hualde & Ortiz de Urbina 2003:176, Table 64)

	INDEFINITE	DEFINITE		
		SG	PL	
			GENERAL	PROX
LOC	mutilengan	mutila(ren)gan	mutilengan	mutilongan
ABL	mutilengandik	mutila(ren)gandik	mutilengandik	mutilongandik
ALL	mutilengana	mutila(ren)gana	mutilengana	mutilongana
DIR	mutilenganantz	mutila(ren)ganantz	mutilenganantz	mutilonganantz
TERM	mutilenganaino	mutila(ren)ganaino	mutilenganaino	mutilonganaino

To conclude, this set of data raises the question of what the systematic distinction between the local and the basic cases results from, i.e. what the status of the *-ta* morpheme is and how the special local forms for animate nouns can be explained. The local case paradigm anomaly consists in the special behaviour of the definite singular locative as compared to the parallel definite plural and indefinite forms, in particular its lack of an exponent marking definiteness/number and of a marker corresponding to *-ta*.

2.3. Challenges to a paradigmatic approach

De Rijk (2008:ch. 2 and 3) assumes a split of the case system into a 'basic system of case endings' and a locative case system with the three distinctive properties introduced above. This is suggested to result from the fact that the local case system is historically older than the basic one, preceding the development of the definite article.

According to de Rijk (2008:54), the morpheme *-ta* noted above represents an indefinite marker. Elsewhere (*ibid.*: 97), he identifies both *-ta* and *-eta* as number indicators in the locative system. It is not quite clear whether these two claims are mutually compatible, but both options regardless raise further questions.

If *-ta/-eta* are number markers, it is puzzling why indefinites should carry number marking, while the definite singular forms remain unmarked. This would be the mirror image of the non-local cases, where definites show a form of number marking via the article *-a* and indefinite

forms lack any marking. On the other hand, if *-ta* is an indefinite marker, its obvious similarity to the definite plural marker *-eta(n)* remains mysterious. While answers to these questions may be conceivable, an issue common to both analyses is that the historical account for the paradigmatic split does not explain why the split between the paradigms is where it is. That is to say, one might wonder why it should be the local system that did not undergo the relevant changes and whether this would indicate some special connection or interaction between number marking and locatives. It is not clear how such a connection would be motivated. I will suggest in section 3.2.3 that *-ta(n)* is the unmarked exponent of the locative morpheme and *-e* the plural allomorph of the definite article.

Let me now turn to the locative-linker anomaly. Contrary to the identification of the linker *-ko* as 'locative genitive' in traditional treatments and its inclusion as a 'relational' in the description of the system of nominal inflections by Hualde & Ortiz de Urbina (2003:173ff.), it has been widely argued that the linker should not be treated as a case marker in Basque (Wilbur 1979; Eguzkitza 1993; Trask 1997:102; de Rijk 1988, 1993, 2008:ch. 5.3; Höhn 2011, 2012). Hence the locative anomaly with the linker morpheme does not lend itself to an explanation in terms of the split in the case paradigm. De Rijk (1988, 1993) suggests a rule of postposition deletion instead that can apply in the context of *-ko*. He argues that what has been described as bare noun complements to *-ko* involves the same mechanism as the locative-linker anomaly and proposes five separate deletion rules (locative, elative, allative, sociative, instrumental). I will not deal with the other cases here because only the locative cannot appear alongside the linker at all (except in the Souletin variety, cf. section 2.1), while the other four forms can in principle be used with the linker (Höhn 2011, 2012). If they are the result of some deletion rule, then that would have to be significantly more constrained than in the case of the locative, pointing to a distinction between the locative-linker anomaly and whatever governs the bare NP complements of *-ko*.

Finally, if we assume that the linker is indeed not part of the case paradigm, there is no reason to assume common behaviour. Hence, the similarities between the local case paradigm anomaly and the locative-linker anomaly have to be treated as coincidental. The fact, however, that both involve the same morphological effect on the realisation of the locative singular seems to me to suggest some kind of connection after all. I believe that an alternative analysis of the apparent case paradigms will open up the possibility for a unified analysis of the locative anomalies and allow a less idiosyncratic perspective on the case system of Basque.

3. Rethinking case paradigms

3.1. The shape of the locative singular morpheme

Before turning to a reassessment of the Basque case paradigms, a discussion of the composition of the locative singular suffix *-an* may be helpful. I will argue here that of the following three potential analyses the first one is the most probable.

1. determiner ∅ + locative allomorph *-an*

2. determiner *-a* + locative allomorph *-an* with a-reduction as in /-a/ final nouns, cf. (7a)

3. determiner *-a* + locative allomorph *-n*

Historically, the *-an* morpheme is probably derived from a consonant initial form /-Xan/.[6] This implies that the locative ending includes an /a/, hence favouring the first or second analysis.

Furthermore, one of the central synchronic effects providing evidence for that diachronic hypothesis supports the first option. If the locative singular follows a consonant-final noun, a process of *e*-epenthesis takes place between the stem and the locative singular ending (Hualde & Ortiz de Urbina 2003:179, de Rijk 2008:50). Crucially, this preserves the form *-an*. Since there is no *e*-epenthesis in the absolutive singular between the stem and the definite article *-a*, it seems plausible that the preserved /a/ in (6a) is not an exponent of the definite article, but belongs to the locative ending.

(6) a. *azal-ean* vs. **azal-an* 'in/on the skin' (loc. sg.)
b. *azal-a* vs. **azal-ea* 'the skin' (abs. sg.)

Finally, Karlos Arregi (p.c.) points out to me the following observations regarding Bizkaian variants of Basque, which lend strong support to the first option (silent determiner + *-an*). In Bizkaian, stem-final /a/ is raised to /e/ (or /i/ in Lekeitio Basque) before the singular determiner, cf. (7), and deleted in the plural (Jacobsen 1977; Hualde et al. 1994:87f.). The schema in (8) shows this effect for the absolutive and the dative (with raising to /e/ instead of /i/).

(7) *neska* 'girl' + def. article
a. standard Basque (Batua): *neska-a* → *neska*
b. Lekeitio (Bizkaian): *neska-a* → *neski-a*

(8) *arbola* 'tree'

*arbol**e**-a*	abs.sg
arbol∅-ak	abs.pl
*arbol**e**-a-ri*	dat.sg
arbol∅-a-ri	dat.pl

The presence of the definite article *-a* in the locative singular under the second and third hypothesis would predict raising of stem-final /a/, hence a form like **arbolean*. The observed form *arbolan* 'in the tree' does not show vowel raising though. The fact that vowel raising does not apply with the *a*-initial plural determiner shows that it is not a purely phonological rule, but sensitive to morphological features. Consequently, no vowel raising is expected under the first hypothesis because the /a/ following the stem is not part of the singular determiner. If we plausibly assume a phonological rule shortening the /a/+/a/ sequence as found in other standard varieties of Basque, the first hypothesis makes the correct prediction as illustrated in (9).

(9) a. Hypothesis 1: ✓ arbol(a)-∅-an → *arbolan*
b. Hypothesis 2: arbole-a-an → **arboleaan* → **arbolean*
c. Hypothesis 3: arbole-a-n → **arbolean*

[6]Cf. Jacobsen 1977:164, Hualde & Ortiz de Urbina 2003:179 and de Rijk 2008:50.

On these grounds I will assume here that the definite locative singular contains a silent definite article and a locative morpheme *-an*.[7]

3.2. A reanalysis of the paradigms

While de Rijk's (2008) division of the 'case system' of Basque into a basic and a locative system captures valid observations and may be well justified from a diachronic perspective, the theoretical status and basis of this distinction for a synchronic analysis is not clear. I will propose here that there is no need to refer to paradigms, but that the peculiarities noted above are rooted in properties of the locative/inessive morpheme.[8]

3.2.1. Cases and postpositions

Before explicating this point, I should point out that I make a distinction between the grammatical cases, i.e. ABS, ERG, DAT, GEN, and the 'adverbial case' markers (analysed as a type of postposition), that is, the rest of the paradigm in (4) as indicated by the horizontal line. Apart from the observation that the meaning of the adverbial cases corresponds to adpositions in many other languages, they also differ from the grammatical cases in various respects (Eguzkitza 1993, Höhn 2012:120ff.). While the postpositions 'have their own referential content' (Eguzkitza 1993:166), the grammatical cases seem to be more dependent on external elements like a case-assigning verb or a head noun for what Eguzkitza calls their 'referential content'. On a morphosyntactic note, the grammatical cases trigger agreement markers on the finite auxiliary (Arregi & Nevins 2012), while postpositions do not.[9] Furthermore, postpositions can trigger overt case marking on the noun as seen in (10), hence they are not in complementary distribution with grammatical case markers. Finally, the examples in (11) illustrate that case marked nouns are not compatible with the linker *-ko*, while those marked by postpositions are.

(10) ama-ren-tzat
mother.DET-GEN-BEN
'for (the) mother'

(11) a. *etxe-(a)-ri-ko-a
house-DET-DAT-KO-DET

[7]Note, however, that with proper names the locative is just plain *-n* as in (ia), with *e*-epenthesis after noun-final consonants, cf. (ib). This seems to support the third analysis under the assumption that the lack of /a/ in these cases stems from the absence of the definite article with proper names.

(i) a. Bilbo-n
Bilbao-LOC
b. Irun-en *e*-epenthesis
Irun-LOC

[8]Wilbur (1979:93) also strongly argues against paradigmatic analyses of Basque: 'If, on the other hand, we treat these strings of nominal affixes as a sequence of elements that are systematically added in the course of the generation of Basque sentences, we destroy the inflexional illusion and dismiss the offense of superdeclension.'

[9]This argument does not bear on the genitive, which is restricted to the nominal domain.

b. harri-z-ko-a
stone-INST-KO-DET
'the one made of stone'

c. diru-rik gabe-ko gizon-a
money-PART without-KO man-DET
'the man without money'

3.2.2. Free and bound postpositions

The term postposition calls for clarification, since it enjoys a somewhat wider acceptance for a different class of morphemes comprising, e.g., *gabe* 'without', *kontra* 'against' and *buruz* 'about'; for clarity I will refer to these by the term 'free postpositions'. They take a nominal complement and seem to assign case to it. Like the 'adverbial cases', henceforth bound postpositions, they follow their complement and can be used with the linker *-ko* as shown above in (11c), but have a larger degree of syntactic freedom than those (Hualde 2002 and de Rijk 2008:34f.). Free postpositions can be coordinated directly as in (13). In order to coordinate bound postpositions, the head noun needs to be repeated or another appropriate host, e.g. a personal pronoun, has to be used, see (12). In the following, the term postposition will be used in reference to the bound postpositions unless stated otherwise, and they will be symbolised by little p.[10] The class of bound postpositions consists at least of the adverbial cases introduced above, and probably some more postpositions whose status has been disputed, e.g. *-gatik* 'because of', the distinctive property being their morphophonological dependence on a preceding word.

(12) bound postpositions (after de Rijk 1993:157)

a. Sorgin-a-ren-tzat eta *(sorgin-a-ren)-gatik egin zen hau.
witch-DET-GEN-BEN and witch-DET-GEN-because.of do AUX this
'this was done for the witch and because of the witch'

b. Sorgin-a-ren-tzat eta *(ha-ren)-gatik egin zen hau.
witch-DET-GEN-BEN and 3SG.DEM-GEN-because.of do AUX this
'this was done for the witch and because of her'

(13) free postpositions

a. zu-re kontra ala alde
2SG-GEN against or for
'for or against you' (Hualde 2002:333)

b. etxe-a-ren aurre-an eta atze-an
house-DET-GEN front-LOC.SG and back-LOC.SG
'in front of and behind the house'

Note that while the words *aurrea* and *atzea* in (13b) are sometimes described as free postpositions, they can probably be more accurately characterised as members of a class of location nouns (cf. Hualde 2002; de Rijk 2008:ch. 4) spelling out Svenonius's (2008) AxPart, similar to English *in **front** of*. As far as the local case markings are concerned, like their English counter-

[10] Not to be confused with the categorising node p sometimes used in the DM framework.

parts they are restricted to the singular. Otherwise they seem to behave just like regular nouns, reducing the number of instances of clear free postpositions to a few ones like those in (13a).

3.2.3. Morphological reanalyses

Recent analyses of the structure of spatial PPs suggest that dynamic/directional PPs contain a lower static locative element (e.g. Svenonius 2008; Koopman 2010; den Dikken 2010; Terzi 2010). This allows for a reevaluation of the locative patterns.

As outlined in section 2.3, analysing the morpheme *-ta* as a number or indefiniteness marker is problematic. I suggest instead that *-ta(n)* is simply an exponent of the locative morpheme, with the final /n/ subject to deletion. This explains the commonality between the indefinite and the definite plural forms of the 'local case paradigm', as well as the restriction of this morpheme to forms involving the locative without the necessity of stipulating a separate locative paradigm. Furthermore, I analyse the morpheme *-e* found in almost all definite plural forms and the corresponding *-o* throughout the proximal plural as counterparts of the definite singular article *-a*, cf. the tables in (3) and (4). Consequently, the apparent definite plural locative morpheme *-etan* actually consists of at least two morphemes, *-e* + *-tan*. This approach also makes it clear that we are not dealing with two but only one locative anomaly in both phenomena described above, namely the lack of the definite article with the local postpositions and of a counterpart to *-tan* with all local postpositions except the locative.

Finally, this view permits a clearer treatment of the interaction of animacy and the local postpositions as well. Instead of ascribing the incompatibility with animate nouns to a whole paradigmatic case system, it becomes possible to localise that property in the locative morpheme. The purpose of the proxy morphemes *-gan* and *baita* might then be to intervene between a [+animate] feature on a noun phrase and the locative so as to circumvent this incompatibility.

The following section will outline an analysis of the structure of the nominal domain in Basque to provide a basis for a proper description of the nature of the locative anomaly.

4. The structure of the Basque nominal domain

4.1. Distributed Morphology

My analysis is grounded in the framework of Distributed Morphology (DM; Halle & Marantz 1993 and subsequent work). A basic tenet of DM is that there is only one generative component in grammar, namely syntax. Therefore, the assembly of complex 'words' is a result of regular syntactic structure building and post-syntactic, morphological (and eventually phonological) operations on these structures. Accordingly, the building blocks of syntax are not complex 'words', but functional morphemes and Roots.

The latter are open-class items corresponding to 'lexical' categories or 'content words' in other theories. These category-neutral Roots have their categorial behaviour determined by categorial functional heads *n, v* and *a* (Marantz 1996, 1997; Embick & Marantz 2008; Embick 2010). Functional morphemes only consist of (sets of) features and get their phonological content post-syntactically through the process of Vocabulary Insertion.[11] This draws on a list of

[11] As the question is tangential to the main issue, I remain agnostic here as to whether Roots enter the derivation

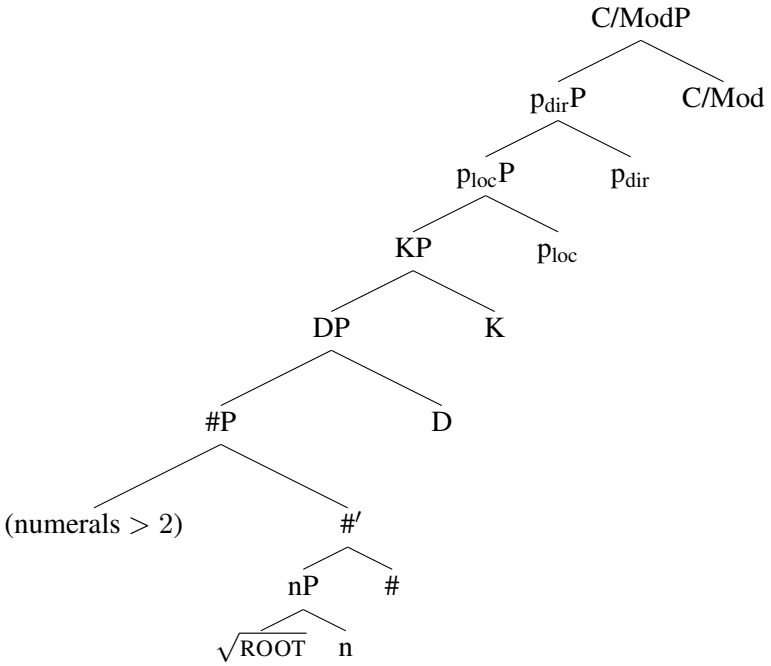
Vocabulary Items (VIs) with potentially underspecified, context-sensitive rules for the realisation of functional morphemes. Under this view, inflectional paradigms are mere artefacts of structure building and subsequent spell-out effects (Bobalijk 2001, 2008; Embick & Marantz 2008).

One might wonder whether Grimshaw's (2005) notion of extended projections of *lexical* categories is compatible with a framework involving category-neutral Roots. Obviously, such an object cannot project a *category-specific*, e.g. nominal, extended projection. I assume that instead it is the category-defining functional heads *n, v, a* that form the basis of an extended projection.[12]

4.2. The extended nominal projection of Basque

My analysis of the extended nominal projection (xnP) in Basque is represented in (14).

(14)



Basque is an OV language, so by the tendency for harmonic word orders within languages one would expect Basque to be right headed in the nominal domain as well. In harmony with the assumptions made before, a nominalising functional head n takes a category-free Root as its complement, yielding a syntactic object with nominal properties.[13]

The head # is the location of number features, the numeral *bat* 'one' and certain quantifiers, and it accommodates quantificational phrases in its specifier, particularly also numerals > 2.

with phonological content or are subject to late insertion (cf. e.g. Embick 2010:ch.2, fn. 1 for the former view; see Marantz 1995 and Haugen & Siddiqi to appear for the latter one).

[12]The view taken here that Merge(n, Root) forms an nP raises the question of where nominal complements would be merged. These questions will not be addressed in the present work, but cf. e.g. Cinque (2005:327, fn. 34) and the references there, as well as Adger (2013) for the hypothesis that nouns do not have complements at all.

[13]In principle, the structure is compatible with NP instead of nP as well.

Several arguments for this projection (alternatively identified as Q(uantifier)P) have been adduced by Artiagoitia (2002, 2006, 2012). In line with Etxeberria (2007) and contra Artiagoitia (2002), I take the article *-a* to indiscriminately originate in the head D.[14] I adopt the view that the grammatical cases (including the genitive) are instantiations of a K(ase) head (cf. among others Eguzkitza 1993), and that absolutive case is marked by the absence of KP (cf. Nichols 1986; Bittner & Hale 1996; Neeleman & Weerman 1999; Neeleman & Szendrői 2007:679, fn. 5; Arregi & Nevins 2012:ch. 2).

As discussed in section 3.2.3, I assume that the so called adverbial case markers realise a p head in the xnP. Note the split into a locative and a directional p head following current assumptions in the literature (Svenonius 2008; Koopman 2010; den Dikken 2010 among others) and the discussion in section 3.2.3. In a plain locative, p_{dir} will be absent; non-local postpositions will also involve only one projection of the p type. I will not address the question of whether other projections that have been proposed for spatial Ps are present in the xnP. If p is indeed a part of the xnP instead of starting its own extended projection, it should be a functional head. In the next section I will argue that this is indeed the case.

I have suggested elsewhere (Höhn 2011, 2012) that the linking morpheme *-ko* represents a functional head C or Mod that facilitates nominal modification. For example, PPs can be used adnominally only in the presence of the linker, cf. (1d) above. To accommodate the analysis of bound postpositions as functional heads, I have to modify that proposal in one respect. Instead of locating the linker in the extended projection of PP, I assume that at least in the context of bound postpositions it is the highest functional head in xnP.[15]

Before going on to substantiate my claim about the functional nature of Basque bound postpositions, a few general words on the structure sketched in (14) are in order. The reader should be aware that the structure given in (14) above is not meant as a template of the extended noun phrase as an independent theoretical object. It is rather intended to be an illustration of the sort of structures I will be concerned with in the further discussion. Moreover, it is not meant to be exhaustive, nor is it the case that all the heads included in (14) need to be always present — in fact, the assumption that K is absent in the absolutive will be crucial to the argument. Finally, I assume that syntactic structure is defined purely in terms of hierarchical relations without reference to linear order. Consequently, the tree in (14) is right-headed for illustrative purposes only, since linearisation takes place post-syntactically (but before Vocabulary Insertion).

4.3. Functional postpositions

In the remainder of this section let us consider whether the bound postpositions (i.e. the adverbial case endings) do indeed show characteristics of functional elements. Abney (1987:43f.) proposes the following prototypical properties of functional heads:

(15) a. Functional elements constitute closed lexical classes.
b. Functional elements are generally phonologically and morphologically depen-

[14] The head # may have some import on the realisation of D though, e.g. by the process of Fusion, cf. section 6.

[15] As implicitly assumed in the work cited, I believe that *-ko* may turn out not to be very restrictive regarding the category of its complement. That question is orthogonal to the problem of locatives though.

dent. They are generally stressless, often clitics or affixes, and sometimes even phonologically null.

c. Functional elements permit only one complement, which is in general not an argument. The arguments are CP, PP, and (I claim) DP. Functional elements select IP, VP, NP.

d. Functional elements are usually inseparable from their complement.

e. Functional elements lack what I will call "descriptive content". Their semantic contribution is second-order, regulating or contributing to the interpretation of their complement. They mark grammatical or relational features, rather than picking out a class of objects.

Bound postpositions clearly meet the first and second criteria. They are not productive and, as defined in section 3.2.2, they cliticise or affix to a preceding element. The variety of complements they take seems to be restricted to DP/KP (or p_{loc} in the case of p_{dir}). The bound postpositions are not separable from their complement as shown in section 3.2.2 above. Finally, while one of the arguments in section 3.2.1 for a distinction between the bound postpositions and the grammatical cases was that the former have a somewhat more specific meaning, it seems equally plausible to say that postpositions 'mark [. . .] relational features'. They certainly do not pick out a class of objects, not even in the abstract sense in which verbs may refer to events. Hence, four and possibly even all five of the characteristics of functional morphemes apply to the bound postpositions.

Another argument comes from the observation that certain phonological processes in Basque seem to be sensitive to the distinction between lexical Roots and affixes. Final /n/ in affixes is deleted under certain conditions, e.g. if preceding a velar stop in the onset of a following affix — voice assimilation or e-epenthesis are no option (16). Similarly, adjacent heterorganic stops in coda and onset of two affixes do not lead to epenthesis, but to deletion of the final consonant in the preceding morpheme (17).

(16) a. emakume-e-kin
woman-PL-COM

b. emakume-e-ki-ko diskriminazio-a
woman-DET.PL-COM-KO discrimination-DET
'discrimination against women'

c. *emakume-e-kin-ko

d. *emakume-e-kin-go

e. *emakume-e-kin-eko

(17) a. ama-ren-tzat
mother.DET-GEN-BEN

b. ama-ren-tza-ko opari-a
mother.DET-GEN-BEN-KO present-DET
'the present for (the) mother'

c. *ama-ren-tzat-ko

d. *ama-ren-tzat-eko

Proper names ending in consonants (18), on the other hand, resolve these kinds of clashes either by e-epenthesis or, alternatively, by voice assimilation (a,b) or deletion of the onset of the second segment (c,d). With respect to the linker *-ko* at least, the contrast in (19) implies that for adverbs voice assmilation seems to be the standard strategy, while it is bled by epenthesis with common nouns (cf. Hualde & Ortiz de Urbina 2003:43f.).

(18) *Proper names* (Hualde & Ortiz de Urbina 2003:177f.)

a. Irun-go/ Irun-e-ko
Irun-KO Irun-EPENTHESIS-KO

b. Irun-dik/ Irun-e-tik
Irun-ABL Irun-EPENTHESIS-ABL

c. Irun-a/ Irun-e-ra
Irun-ALL Irun-EPENTHESIS-ALL

d. Paris-a/ Paris-e-ra
Paris-ALL Paris-EPENTHESIS-ALL

(19) *Common nouns and adverbs* (Hualde & Ortiz de Urbina 2003:175)

a. egun-e-ko
day-EPENTHESIS-KO
'of the day'

b. egun-go
today-KO
'of today'

Pending further inquiry, it seems a plausible working hypothesis that the choice of resolution strategy correlates with the class of the morphemes involved in the way specified in (20).

(20) a. When two adjacent functional morphemes produce an illicit consonant cluster, the preceding morpheme undergoes adjustment.

b. Lexical morphemes (or, possibly, Roots) tend to remain unaffected by any phonological readjustment processes.

Hence, if the coda and onset of two functional morphemes produce an illicit consonant cluster, it is the preceding morpheme that is subject to adjustment (usually deletion of the coda). If the first one is a content word, then either epenthesis takes place or the following functional morpheme undergoes appropriate modification (elision or voice assimilation of the onset) in order to rectify the problem. A possible reason for that may be that the "content words" are actually Roots, subject to early insertion, which could make phonologically conditioned allomorphy of late-inserted following functional morphemes preferable to adjustments of the phonological matrix of the Root.

To the extent that the general spirit of the above generalisation is valid, it provides us with further evidence that the morpheme *-ta* in the directional forms discussed in section 2.2 does indeed correspond to the locative marker *-tan*. If p_{loc} is a functional morpheme generally realised as *-tan*, then according to the generalisation, deletion of the final nasal is expected whenever it is followed by another functional morpheme (in the same phonological domain). The morpheme

-ta in examples like (21) is therefore simply the realisation of p_{loc} after the application of a standard phonological adaptive process to avoid an /nk/ cluster.

(21) mendi-e-ta-ko haitzulo-ak
mountain-DET.PL-LOC-KO cave-DET.PL
'the caves in the mountains' (Hualde & Ortiz de Urbina 2003:145)

Interestingly, the above observations about the sensitivity of phonological processes to certain types of morphemes lend strong support to the notion that there is a substantial difference between the locative ending and the proxy morpheme *-gan* found with animate nouns in connection with the local postpositions, cf. table (5) in section 2.2.

In contrast to the locative, the morpheme-final /n/ is not subject to ellision. Instead, the onset of a following functional morpheme undergoes voice assimilation if it is a stop (ablative: *mutilarengan-dik* 'from the boy') or is deleted in the case of a rhotic (allative: *mutilarengan-a* 'to the boy'). While the linker is not used with *-gan* in Modern Basque (instead the alternative proxy morpheme *baita* is used, yielding *baitako*), the form *-gango* is attested in older stages of the language (de Rijk 2008:97). So with respect to its phonological integrity, the morpheme does not behave like a regular functional morpheme at all. Hence an analysis where *-gan* is an alternative realisation of the locative in an animate context seems problematic. Rather, the pattern resembles the one found with proper names, common nouns and adverbs in its tendency to keep the phonological matrix intact. In view of the tentative explanation given above, this might be a result of early insertion, which, by hypothesis, is a property of Roots.

The fact that complements of the proxy morphemes *-gan* and *baita* are marked with the genitive case hints at their nominal character.[16] This looks similar to locational nominals like *aurre* 'front' — introduced as a free pronoun in (13b) in section 3.2.2 — which also assign genitive to their complements. However, while both allow the genitive marker on their complement to be absent, this is restricted to singular definite complements, which moreover retain their definite article, with the proxy morphemes, cf. the table in (5). With locational nouns, on the other hand, deletion of the whole determiner-case-cluster is licensed in the plural too (*lagun(en) artean* 'among friends', Hualde & Ortiz de Urbina 2003:187). Also, the strategy of avoiding illicit consonant clusters with the proxies is not e-epenthesis as with common nouns, but rather corresponds to the strategies used with proper names (18) and adverbs (19).

While the question of the categorisation of the proxy morphemes remains unsolved at the moment, the discussion strongly implies that they are not of the same type as the bound postpositions. Pending further inquiry, I will assume that they are nominal either as complement or even as a realisation of an n head that takes a [+animate] complement. Either way they start a new xnP, which may account for the fact that the proxies are obligatory for locatives of animate nouns. If the locative morpheme is incompatible with a [+animate] xnP, the proxies could provide a [-animate] host for p_{loc}.

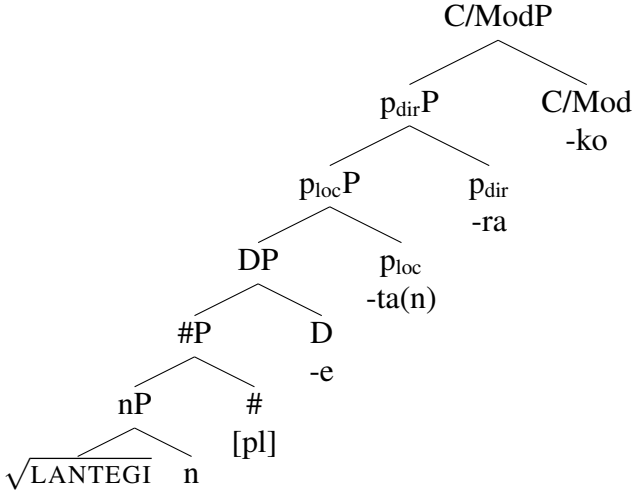
[16] In the light of the present discussion it seems plausible to assume that the root of *baita* is actually something like $\sqrt{\text{BAI}}$, which is treated as a regular indefinite noun, whence the locative morpheme *-ta(n)*, cf. *mutila baitan* 'in the boy'. The homophony of the proposed Root to *bai* 'yes' is probably accidental. The other proxy *-gan* might be historically related to the noun *gai* 'thing', which Hualde (2002:333) takes to be the source of the postposition *-gaitik* 'because of.'

5. Descriptive conditions on locative realisation

In this section, I will exemplify how some forms of the case paradigms are analysed under present assumptions. More importantly, I will propose two descriptive generalisations that unify the locative-linker and the local case paradigm anomalies. The relevant components will turn out to be D and p_{loc} in interaction with their environment.

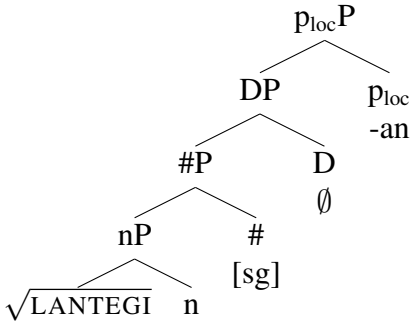
Let us first look at the structure and spell-out of an unspectacular locative plural form with the linker morpheme, such as (22).[17] Since p_{loc} has an absolutive complement, KP is absent, cf. section 4.2.

(22) *lantegietarako (bidea)* '(the road) towards the factories'



Compare this to the definite singular locative in (23), which I have argued in section 3.1 to involve null spell-out of D.

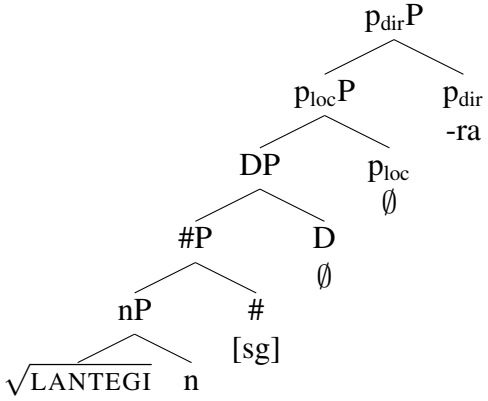
(23) *lantegian* 'in the factory'



With an additional p_{dir} projection, as in the allative for instance, both D and p_{loc} receive zero spell-out. The structure in (24) thus corresponds to the local case paradigm anomaly.

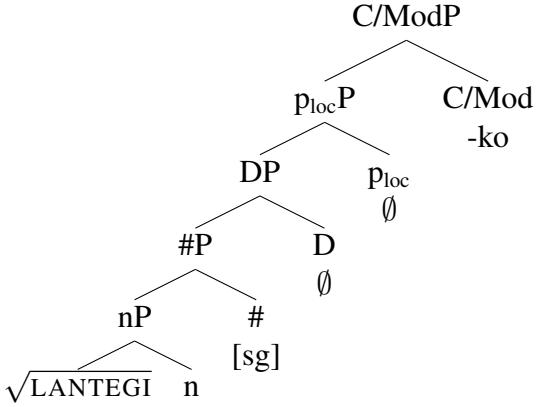
[17] Note that the phonological realisations of the individual heads are included for illustration only.

(24) *lantegira* 'towards the factory'



Strikingly, the same effect can be observed if the linker is added instead of p_{dir}. Again, we yield null spell-out of both D and p_{loc}as shown in (25), the case of the locative-linker anomaly.

(25) *lantegiko (tximiniak)* '(the chimneys) in the factory'



These observations can be captured by the following generalisations:

(26) a. The singular determiner is silent in the context of p_{loc}.
b. Basque p_{loc} is overtly realised iff a) its complement does not bear a singular feature or b) it is the highest head in the extended nominal projection.

As the zero variants of those morphemes do not seem to differ in interpretation from their overt counterparts, it seems reasonable to view these as morphophonologically conditioned effects. The next section will flesh out that hypothesis.

6. Locality conditions for the locative anomalies

In this section, I will propose that the generalisations in (26) result from zero spell-out rules for D and p_{loc} which apply under locality conditions consistent with the predictions of Embick's (2010) $\mathbb{C}_1$-LIN theory of context-sensitive allomorphy. The necessary assumptions about domain formation also predict two cross-linguistic limitations of possible morpheme interactions.

6.1. The $\mathbb{C}_1$-LIN theory and two predictions

Embick proposes that context-sensitive allomorphy is subject to a linear adjacency condition restricted to locality domains determined by cyclic spell-out. Spell-out of a cycle is triggered by the category-defining heads and presumably also the phase heads of syntactic theory (Chomsky 2001). Spell-out and hence domain formation is governed by the principles stated in (27), deriving in turn to the two corollaries in (28) and (29).

(27) $\mathbb{C}_1$-LIN theory (Embick 2010:51-54)

a. SO1: When cyclic head x is merged, cyclic domains in the complement of x are spelled out.

b. SO2: Merge of cyclic y triggers Spell-Out of cyclic domains in the complement of y, by (SO1). For a cyclic domain headed by cyclic x in the complement of y, this means that the complement of x, the head x itself and any edge$^+$ material attached to x's domain undergoes Vocabulary Insertion.[18]

c. SO3: Material in the complement of a phase head that has been spelled out is not active in subsequent PF cycles. That is, the complement of a cyclic head x is not present in the PF cycle in which the next higher cyclic head y is spelled out.

(28) Domain Corollary (Embick 2010:56)
Cyclic head x is not present in the PF cycle of computation that is triggered by Merge of x. Thus, x is *not* subjected to Vocabulary Insertion (and thus cannot undergo any phonological processing) until the next cycle of Spell-Out, when it is in the *domain* of another cyclic head.

(29) Activity Corollary (Embick 2010:56)
In $[[\ldots x]y]$, x, y both cyclic, material in the complement of x is not *active* in the PF cycle in which y is spelled out.

The pruning operation in (30) renders phonologically empty morphemes transparent for the purpose of the linear adjacency condition on allomorph selection.

(30) Pruning schema (Embick 2010:59)
$\sqrt{\text{ROOT}}^\frown$[x, -$\emptyset$],[x, -$\emptyset$]$^\frown$Y$\rightarrow$ $\sqrt{\text{ROOT}}^\frown$Y

I stipulate here that a complete xnP always forms a PF domain. Crucially, I furthermore assume that n and K are cyclic heads, but not D or any of the p heads. While these assumptions are made with reference to the present case study, they yield two predictions that may be further tested cross-linguistically.[19]

(31) a. D-type morphemes cannot be sensitive to K morphemes (or anything structurally higher). While K triggers the spell-out of the next lower cyclic domain (Root, n and its edge$^+$ domain) and therefore also D, it is not itself inserted until the

[18] Edge$^+$ refers to all contiguous non-cyclic heads between two cyclic heads.

[19] Thanks to David Embick for pointing out the significance of this issue. Notice also that these predictions hold to the extent that KP is syntactically projected. If there is cross-linguistic variation to the effect that some languages encode case as a non-projecting feature, e.g. on D, the present predictions naturally do not carry over directly.

next cycle, cf. the Domain Corollary (28). D may however be sensitive to p-type morphemes provided that cyclic K is not present.

b. K(ase) morphemes should not show Root-conditioned allomorphy, since according to the Activity Corollary (29) in a configuration $[_{KP}$ K ... $[_{nP}$ n Root]] upon spell-out of K the Root is no longer active.[20]

The prediction in (31a) is what is at issue in the case of the locative anomalies.

6.2. A sample derivation

To illustrate the spell-out process, assume the following toy list of Vocabulary Items. Brackets indicate sensitivity to phonologically conditioned allophony of the bracketed phoneme, the symbol ⁀ in X⁀Y indicate that X is linearised directly adjacent to Y. Note that as hinted in section 4.2, I assume that (post-syntactic) Fusion of # and D (possibly preceded by head movement) results in a single node containing the features of both heads to account for the alternation between the singular (*-a*) and plural (*-e*) articles.

(32) #+D[def, pl] ↔ -ak / __]$_{\text{PF domain}}$
#+D[def, pl] ↔ -e
#+D[def, sg] ↔ -∅ / __⁀ [loc]
#+D[def, sg] ↔ -a

(33) p_{loc}↔ -an / [sg] ⁀ __]$_{\text{PF domain}}$
p_{loc}↔ ∅ / [sg] ⁀ __
p_{loc}↔ -tan

The zero allomorph of the definite determiner in (32) is inserted iff it linearly precedes the locative, capturing the first generalisation in (26). This VI cannot apply to plural determiners, for which more specific rules are available.

The second generalisation is captured by (33). The traditional *-an* allomorph is inserted for p_{loc} iff it the preceding morpheme has a [sg] feature and p_{loc} is not followed by anything else in its PF domain.[21] This captures the strongly restricted distribution of that allomorph. If the second condition is not met, the zero allomorph is triggered. This is the situation observed in the locative-linker anomaly as well as the local case paradigm anomaly. Finally, *-tan* represents the elsewhere case.

The stepwise derivation in (34) of the allative singular form *lantegira* 'to the factory' illustrates how both generalisations result in the sketched theory.

[20]Depending on the analysis of suppletion, root-allomorphy/suppletion sensitive to K would be ruled out as well. While this prediction seems to be largely valid cross-linguistically, it has recently come to my attention that there seem to be some cases of case-sensitive suppletion for some singular-only nouns, e.g. in Lezgian (Moskal 2013), representing a challenge to the strong claim made here.

[21]Notice that sensitivity to the domain edge is also assumed to account for the limited distribution of the *-ak* allomorph of the plural determiner, cf. (32).

(34) *Fusion of # and D:* $\sqrt{\text{LANTEGI}}^\frown$(n)$^\frown$(#+D[def, sg])$^\frown$(p[loc])$^\frown$(p[all])
Insertion: $\sqrt{\text{LANTEGI}}^\frown$(n, ∅)$^\frown$(#+D[def, sg], ∅)$^\frown$(p[loc], ∅)$^\frown$(p[all], -ra)
pruning: $\sqrt{\text{LANTEGI}}^\frown$(p[all], -ra)
spell-out: lantegira

Notice how this approach predicts that the absence of KP in the absolutive is crucial for this effect. Thanks to this, all the heads in the xnP are spelled out at once, placing #+D and p_{loc} adjacent to each other and in the same PF cycle. These are the necessary conditions to allow them to trigger each other's null spell-out. In contrast, the presence of a zero K head intervening between D and p_{loc} would predict the unattested output **lantegi-a-ra*.[22]

Remember that we have predicted in (31a) above that spell-out interactions of the type observed in the locative anomaly should be impossible if K intervenes between D and p. For example, zero spell-out of D should not be triggered in a string of the form D$^\frown$K$^\frown$p. And indeed bound postpositions triggering genitive marking, like the benefactive in (35), do not allow a zero D when they are definite.

(35) mutil-*(a)-re-ki-ko maitasun-a
boy-DET.SG-GEN-COM-KO love-DET.SG
'the love for/towards the boy'

While this observation involves negative evidence, the animate locative forms from the table in (5) might present a more direct test case. They generally involve a genitive complement, but the genitive marker is optional in the definite singular. It seems plausible to assume that K is still syntactically present then. In principle, D and the locative marker[23] are adjacent after pruning of K. However, as in the hypothetical scenario with a null absolutive K, they are located in separate PF cycles. Consequently, D should not receive null spell-out—which, in this case, is actually what we find as illustrated in (36).

(36) a. mutil-a]$_{PF}$-(ren)-gan-dik
boy-DET.SG-GEN-LOC-ABL
'from the boy'

[22] Merger of K would trigger spell-out of n and its edge$^+$ domain up to D, cf. (ia). K and p_{loc} would be inserted in the next cycle. Pruning silent K would place p_{loc} adjacent to D as in (ib), so p_{loc} could receive zero spell-out. For D, though, only phonological adjustments would be allowed, as it has undergone insertion in the previous cycle.

(i) a. *Fusion of # and D:* $\sqrt{\text{LANTEGI}}^\frown$(n)$^\frown$(#+D[def,sg])$^\frown$K[abs]
insertion: $\sqrt{\text{LANTEGI}}^\frown$(n, ∅)$^\frown$(#+D[def,sg], -a)$^\frown$K[abs]
pruning: $\sqrt{\text{LANTEGI}}^\frown$(#+D[def,sg], -a)$^\frown$K[abs]
spell-out: lantegia
b. *insertion:* {(#+D[def,sg], -a)}$^\frown$(K[abs], ∅)$^\frown$(p[loc], -tan)$^\frown$(p[all], -ra)
pruning: {(#+D[def,sg], -a)}$^\frown$(p[loc], -tan)$^\frown$(p[all], -ra)
adaptation: {(#+D[def,sg], -a)}$^\frown$(p[loc], ∅)$^\frown$(p[all], -ra)
pruning: {(#+D[def,sg], -a)}$^\frown$(p[all], -ra)
spell-out: * lantegiara

[23] Notice that this argument might lose force if the speculations in section 4.3 regarding the nominal nature of the proxies are true. Unfortunately, I am not aware of any other test case that could provide positive evidence.

b. *mutil-∅-gan-dik

So under the assumption that K is cyclic but that the absolutive is marked by the absence of K, the generalisations in (26) can be successfully analysed as results of contextually conditioned zero spell-out of D and p_{loc}, with the $\mathbb{C}_1$-LIN theory correctly predicting the relevant locality conditions.

6.3. Alternatives to null spell-out

To conclude this section, I will briefly sketch potential alternatives to the account above. The two relevant variables seem to me to be the mechanism leading to null exponence and the nature of the domain in which the relevant mechanism applies.

With respect to the first issue, a reasonable alternative might involve deletion of the locative and the determiner instead of a null allomorph. Regarding the second question, I have stated earlier that a syntactic deletion mechanism seems unlikely as that would lead to different structures and prevent interpretation of the D and p_{loc} at LF for the singular local cases, which is not what we observe. There are, however, alternatives relying on post-syntactic domains. Instead of restricting the domain for the relevant rules by means of cyclic spell-out augmented by a linear adjacency condition, one could imagine reference to prosodic domains (Ackema & Neeleman 2003, Nevins 2012) or the M(orphological)-Word level (Nevins 2012).

For the first option, a deletion rule in the spirit of Ackema & Neeleman (2003) could apply whenever the feature clusters [def,sg] and [loc] are contained in the same prosodic domain, cf. (37). In departure from Ackema & Neeleman (2003), the prosodic word rather than the phonological phrase would seem the more natural domain in the present case.

(37) $\{ \ldots \mathrm{Y} \ldots [\text{def,sg}] \ldots [\text{loc}] \ldots \mathrm{X} \ldots \} \rightarrow \{ \ldots \mathrm{Y} \ldots \mathrm{X} \ldots \}$[24]

In Nevins's (2012) conception, rules at the prosodic level are subject to a strict adjacency restriction, hence one might also consider the stricter formulation in (38).

(38) $\{ \ldots \mathrm{Y} \frown [\text{def,sg}] \frown [\text{loc}] \frown \mathrm{X} \ldots \} \rightarrow \{ \ldots \mathrm{Y} \frown \mathrm{X} \ldots \}$

An alternative domain to consider is the M-Word level, where an M-Word is a '(potentially complex) head not dominated by another head projection' (Embick 2010:37, (15a)). Non-adjacent nodes can interact on this level (Nevins 2012), so a rule like (39) follows almost directly from the generalisations in (26).

(39) $[\ [\ [\ \ldots \mathrm{Y}\{\text{sg}\}\ ]_{\mathrm{YP}}\ p_{loc}\ ]_{p_{loc}\mathrm{P}}\ \mathrm{X}\ ]_{\mathrm{XP}} \rightarrow [\ [\ [\ \ldots \cancel{\mathrm{Y}\{\text{sg}\}}\ ]_{\mathrm{YP}}\ \cancel{p_{\overline{loc}}}\ ]_{p_{loc}\mathrm{P}}\ \mathrm{X}\ ]_{\mathrm{XP}}$
If p_{loc} dominates a head with a singular feature and is dominated by any other head in the M-Word, both p_{loc} and the node carrying the singular feature are deleted.

The $\mathbb{C}_1$-LIN theory seems preferable to all these hypothetical alternatives insofar as the locality conditions it poses on whatever mechanism leads to the non-realisation of D and p_{loc} are more restrictive. The alternative theories seem prone to allowing more unattested interactions

[24] Curly brackets indicate prosodic domains.

between D and the locative marker than Embick's account. In particular, they may run into problems with the animate locative cases discussed at the end of the previous section. To the extent that the proxy morpheme *-gan* does not form a separate prosodic domain, nor presumably a separate M-Word, the interaction between D and the locative marker should lead to the unattested **mutil-∅-∅-gan-dik*, cf. the previous section.

It is, however, feasible that deletion may account for the absence of overt exponence of D and p_{loc} instead of null allomorphy, provided that the application of the relevant rule is subject to the locality conditions of the $\mathbb{C}_1$-LIN theory. I will only provide two tentative arguments that lead me to prefer a treatment in terms of allomorphy for the time being. Usually, deletion rules like the ones suggested above have some independent motivation (e.g. in terms of haplology, cf. Nevins 2012). At the moment, I am not aware of what such a motivation might look like in these cases. The phonological matrix of Vocabulary Items, on the other hand, is expected to be basically arbitrary, so contextually conditioned zero-allomorphs for the definite article and the locative morpheme are not all that extraordinary. Theresa Biberauer (p.c.) also points out to me that deletion most commonly occurs at domain edges, while according to the present analysis null exponence of p_{loc} is crucially triggered exactly when it is not at the edge of the xnP.

7. Conclusion and outlook

The present paper has proposed a unified treatment of different cases of lack of exponence of the Basque locative. I have argued for a reanalysis of the Basque case paradigms, deriving from the structure of the extended nominal projection and post-syntactic effects of the spell-out of that structure. In particular, I have proposed that there is a distinction between the grammatical cases and the so called adverbial cases, which should be analysed as postpositions realising some higher functional head in the xnP; furthermore, that the morpheme *-tan* represents the default realisation of the locative; and finally that the morpheme *-e* is the default allomorph of the definite determiner *-a* in the plural. The observation that special locative forms are found with animate nouns has been taken to indicate that animacy is a grammatically active feature in Basque, which the locative morpheme is incompatible with and which can be blocked in some way by the proxy morphemes *-gan* and *baita*.

Based on these assumptions, I have traced the common origin of both locative anomalies to the interaction of the definite singular determiner and the locative morpheme, which seem to have contextually conditioned null allomorphs. I have argued that these kinds of interactions are best restricted by the locality conditions arising from Embick's (2010) $\mathbb{C}_1$-LIN theory, while leaving open the possibility that sufficiently restricted deletion rules rather than null allomorphs might account for the silence of D and the locative morpheme in the locative anomalies.

The assumption that n and K are cyclic nodes has lead to two predictions restricting the possible interactions between case and determiner-like morphemes which should hold cross-linguistically. In the presence of a KP, D should not be sensitive to K or higher material in the xnP. The realisation of K morphemes, on the other hand, should not be sensitive to the identity of the Root. There are challenges at least to the inverse of the second prediction, whether there is a general lack of sensitivity of the realisation of Roots to K, cf. Moskal (2013) and fn. 20, that call for further investigation.

To conclude, I am going to list some further questions arising from the present discussion. De Rijk (1988, 1993) has claimed that the ablative, the allative and the comitative endings can be optionally deleted under the linker as well, in parallel to the locative-linker anomaly. If these structures (treated as 'bare NP' complements to *-ko* in Hualde & Ortiz de Urbina (2003:147f.)) are really cases of optional deletion, one might wonder whether they yield to a similar treatment as the one proposed here for the obligatorily silenced locative morpheme.

Another non-trivial issue concerns e-epenthesis before locative /-an/ with consonant-final stems, cf. (6a). I would speculate that this phenomenon could be treated as a form of stem allomorphy, or *readjustment* in DM-terms.

A further question is how certain nominal elements can be restricted from occuring with certain features in higher functional heads, *viz.* how local nouns lik *aurre* 'front' can be restricted to definite singular features on #+D. If the animacy-blocking proxy morphemes are indeed nominal, that also raises the issue of why *-gan* shows definite behaviour, whereas *baita* seems to pattern as a non-definite noun. A very tentative hypothesis may be that these are actually functional nouns, special instances of n rather than regular Roots merged with n. If xnP is indeed projected by n, the idea that n could impose restrictions on xnP may not be completely outlandish.

Finally, on a crosslinguistic note, silent locative adpositions have been observed elsewhere, for example in Modern Greek and some Italian dialects (cf. Terzi 2010 and references given there). The conditions on the appearance of silent locative prepositions identified by Terzi (2010) for Modern Greek differ rather significantly from what has been proposed here for Basque. There, it seems that properties of the preposition, the ground argument and the verb interact in licensing P-drop, which is, moreover, generally optional. In Basque, in contrast, we have seen strong indications that the silence of the locative is obligatory and structurally triggered, independent of the ground argument (save for the apparent sensitivity to animacy). In spite of these differences, the question whether there are any properties that could unify these and other cases of non-realisation of — particularly locative — adpositions seems an interesting subject for future investigation.

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