

RESEARCH

Suspended Affixation as Morpheme Ellipsis: Evidence from Ossetic Alternative Questions

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This paper provides novel evidence that ellipsis can target bound morphemes. The evidence comes from suspended affixation of case markers in alternative questions in Digor and Iron Ossetic. The current literature on alternative questions (e.g. *Does Mary like coffee or tea?*) proposes that in many languages they are derived by disjunction of and ellipsis in constituents as large as a vP or even as a CP. Language-specific evidence in favor of such structure of alternative questions is available for Ossetic as well. Accordingly, the ostensible disjuncts *coffee or tea* do not actually form a constituent and case must be separately assigned to each of the DPs. Therefore, a case suffix shared under suspended affixation cannot attach to the orP as a whole. A deletion-based analysis can successfully derive the properties of suspended affixation in Ossetic alternative questions. I advance a specific proposal that incorporates ellipsis into the Distributed Morphology derivation.

Keywords: syntax; morphology; ellipsis; suspended affixation; Ossetic

1 Introduction

How similar is morphology to syntax? Can processes usually thought of as exclusively syntactic occur in morphology as well? The expected answer to this question depends on one's theoretical stance: if one pursues a strictly lexicalist theory, e.g. such as developed in Di Sciullo & Williams (1987) or Bresnan & Mchombo (1995), or a realizational theory of morphology in the spirit of Stump (2001), the expected answer is negative. On the other hand, if one assumes that morphology should be essentially similar, or even reduced, to syntax, as the current work in Distributed Morphology does, see a.o. Halle & Marantz (1993; 1994); Marantz (1997); Noyer (1997); Embick & Noyer (2001); Siddiqi (2010); and Arregi & Nevins (2012), the expected answer is affirmative. In this paper, I will present novel evidence that in Ossetic one such process, namely ellipsis, may target bound morphemes (specifically, case markers) to produce suspended affixation. Finally, if one chooses to pursue a prosodic deletion analysis of the facts, one would be forced to explain why it is only morphemes, and, moreover, only some morphemes that can be targeted by this deletion process.

Suspended Affixation (which will be abbreviated here as SA) is a phenomenon, or a class of superficially similar phenomena, when an affix only appears on the edgemoost coordinand (or disjunct), but takes scope over all the coordinands (or disjuncts) (1a). SA is possible both with suffixes and prefixes, but, in this paper, I will focus on suffixes. I will consider only examples with two coordinands in this paper (the properties of coordinations with more coordinands are completely identical in the relevant respects). In pretheoretical terms, I will say that the “suspended” affix is shared between the conjuncts (or disjuncts). In the examples in (1b–c), the shared affixes are marked in boldface.

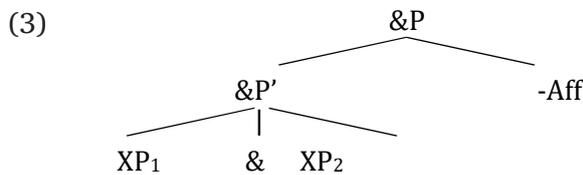
- (1) a. XP_1 & XP_2 -**AFF** *instead of* XP_1 -**AFF** & XP_2 -**AFF**
- b. John or Mary’s signature
- c. *Turkish*
 yılan(-dan) ve köpek-ten korkuyorum.
 snake(-ABL) and dog-ABL I.fear
 ‘I fear snakes and dogs.’

The term “suspended affixation” was apparently coined by Lewis (1967). Other terms used in the literature are *brachylogy*, *morphological ellipsis*, both used by Pounder (2006), *coordination reduction*, Kenesei (2007), and *unbalanced coordination*, Johannessen (1998). The latter work provides a number of examples of this phenomenon from the world’s languages.

As has been observed in Kornfilt (2012), suspended affixation is similar to the right node raising (2): in the case of the RNR, instead of a shared suffix, two conjuncts share an entire DP or more syntactic material, Hartmann (2000); Chaves (2014); and Sabbagh (2014). For instance, in (2), the shared material is the DP *the beans*.

- (2) Mary cooked, and John ate **the beans**.

A number of scenarios are imaginable by which suspended affixation comes about. Some of them are common with analyses of the right node raising, which has been argued to not be a uniform phenomenon, Barros & Vicente (2011); Chaves (2014). One logically possible analysis proposes that the “suspended” suffix attaches to the entire coordinate phrase (3). For expository purposes, I use a symmetric, non-binary branching structure for coordination and disjunction here and elsewhere in the paper.



This is essentially what has been proposed by Kornfilt (2000; 2012) and Broadwell (2008) for Turkish, and, with certain morphological complications, by Belyaev (2014) for Ossetic, although Broadwell’s and Belayev’s formulations were couched in the LFG terms. A reformulation of Broadwell’s (2008) analysis in terms of multidominance is given in Weisser & Guseva (2016). The analysis of Korean in Yoon & Lee (2005) is also similar in spirit, modulo that in their system case heads take DPs as complements.

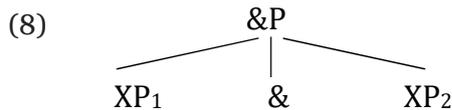
A different approach, advanced in Erschler (2012a) for suspended affixation in Ossetic and Eastern Armenian, and in Weisser & Guseva (2016) for Mari, assumes that the absent affixes on the non-final conjuncts get deleted by means of a process similar or identical to the syntactic ellipsis (4). Trommer (2008) proposed that, in Hungarian, ellipsis is not restricted to free morphemes either. Kornfilt (2012: 190) mentions a possibility of “backward gapping applying in syntax” as the source of the SA, although this is not the analysis she eventually opts for.



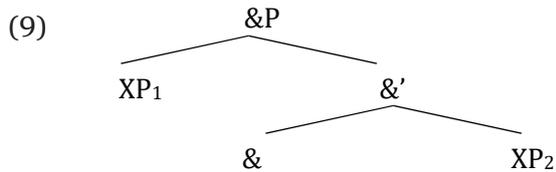
The analyses schematized in (3) and (4), that is, affixation to &P and affixation to each coordinand followed by deletion, are not easy to tell apart empirically. In this paper, I

- b. *Iron Ossetic* (Galuanty 2008)
 adejmag k^wəd fežənd? arv-ə c'ɛχ(-ej) ɛvi šəɟət-ɛj rajg^wərd?
 human how appeared sky-OBL blue-ABL or.Q clay-ABL was.born
 'How did the humans appear? Were they born from the sky blue or from
 clay?'

Accordingly, suspended affixation of case markers in Ossetic alternative questions has to be analyzed as morpheme ellipsis. The rest of the paper develops this argument in more detail. A word about the theoretical assumptions of this study is in place here. As I have mentioned already, I use the ternary branching structure for coordination (8).



Nothing in the argument below would change substantially if one uses an asymmetric structure (9) in the spirit of Munn (1993); Zoerner (1995); Johannessen (1998); and Hartmann (2000), and adopted by much of the literature since then.² In the case of disjunction, this structure was adopted by den Dikken (2006).



I adopt a derivational approach to the post-spellout stages of computation, as represented, for instance, by Embick & Noyer (2001); Embick (2010) and Arregi & Nevins (2012).

The paper is organized as follows: in Section 2, I overview the basic background facts about Ossetic, focusing on case marking, coordination, and disjunction in these languages. In Section 3, I focus on alternative questions: I provide evidence for a “big disjunct” analysis of alternative questions in Ossetic and overview some minor types of alternative questions. Section 4 provides a description of suspended affixation in Ossetic. In Section 5, I formulate the proposal about how to integrate morpheme deletion in the framework of Distributed Morphology. In Section 6, I show how the proposal derives the observed properties of SA in Ossetic. In Section 7, I address several ostensible challenges to the current proposal and show that it can actually handle the facts. In Section 8, I compare the current proposal to several alternative ones. In Section 9, I discuss the relation between suspended affixation and right node raising. Section 10 concludes.

2 Background on Ossetic

Here, I provide some background information on Ossetic and Ossetic grammar, specifically, I address case marking in Section 2.1; and the properties of coordination and disjunction in Section 2.2.

² If, on the other hand, one adopts the proposal of Camacho (2003) that only sentence-sized constituents can be coordinated, the argument presented here will only be strengthened: ostensibly coordinated DPs will never belong to a same case assignment domain.

Digor and Iron Ossetic are closely related East Iranian languages³ spoken in the Central Caucasus. These languages are loosely head-final: noun phrases and non-finite clauses are rigidly head-final, whereas for finite clauses, verb-finalness is merely a statistical tendency. The SOV order is the most frequent one, but scrambling is fairly free. The alignment is nominative-accusative. Both languages have a large system of Wackernagel or almost Wackernagel clitics, a circumstance that will turn out useful for us when arguing for a large disjunct analysis of alternative questions. The languages exhibit pro-drop of subjects. For non-nominative pronouns, clitic and non-clitic forms alternate. For more background on these languages and their grammar, see e.g. Erschler (2012b) and references there.

2.1 Case marking

In this subsection, I describe the morphophonology of the Ossetic markers in some detail. The upshot of the discussion is that the case marking is nearly agglutinative for nouns and is based on several stems for pronouns.

In a DP, the case and number are only marked on the head noun, no overt agreement of any kind exists (10). Case suffixes only undergo little morphological variation and attach directly to the stem (10a), only preceded by the plural marker (10b). A peculiar behavior of DPs with numerals will be addressed in Section 7.1: for the time being, it is not important for our discussion.

- (10) *Digor Ossetic*
- a. ači ustur bel
this big spade
'this big spade'
 - b. ači ustur bel-tə-bəl
this big spade-PL-SUP
'on these big spades'

The case inventory of Ossetic comprises the nominative, accusative, genitive,⁴ dative, ablative/instrumental, allative, superessive, inessive, and equative. Traditional descriptions of Iron Ossetic also list the comitative case, which probably should be analyzed as a postposition. In this subsection, I provide some typical paradigms; see Axvlediani (1963); Abaev (1964); Isaev (1966); and Takazov (2009) for more data.

The behavior of stems is different in nouns and in pronouns. For nouns, changes in the stem that can be triggered by a case suffix are minimal, whereas for pronouns, two or three different stems occur in case forms.

For nouns, the shape of case suffixes depends on whether the stem ends in a consonant, as illustrated for Iron and Digor *bɛχ* 'horse' in Tables 1 and 2, in a vowel other than *ɐ*, as illustrated for Iron *gɐdɔ* 'cat' in Table 1 and Digor *k'ibila* 'bucket' in Table 2. In Iron, singular nouns in *ɐ* do not differ from other vowel-final stems, as the paradigm of *žɛrdɛ* 'heart' in Table 1 shows. I postpone a systematic discussion of the properties of *ɐ*-final stems, and, in particular of plural forms, until Section 7.2.

³ As an anonymous reviewer correctly remarks, they are called dialects of a single language in much of the literature. This is not, however, how they are perceived by the speakers of Digor Ossetic, nor are they mutually intelligible.

⁴ The accusative and the genitive differ for very few lexical items, these include the pronominal clitics and the wh-word 'what': the genitive clitics procliticize to possessed noun phrases, while the accusative ones occupy the Wackernagel position in the clause. For the wh-word 'what' the accusative form coincides with the nominative one. The inessive differs from the oblique for enclitic pronouns and, in Digor, for numerals and numeral phrases. I use the label 'oblique' whenever these morphological forms coincide.

Table 1: Iron singular nouns.

Nominative	beχ	gedə	žerde
Accusative	beχ-ə	gedə-jə	žerde-jə
Genitive	beχ-ə	gedə-jə	žerde-jə
Inessive	beχ-ə	gedə-jə	žerde-jə
Ablative	beχ-ej	gedə-je	žerde-j-e
Dative	beχ-en	gedə-j-en	žerde-j-en
Superessive	beχ-əl	gedə-j-əl	žerde-j-əl
Allative	beχ-me	gedə-me	žerde-me
Equative	beχ-aw	gedə-j-aw	žerde-j-aw
(Comitative)	beχ-ime	gedə-j-ime	žerde-j-ime
	'horse'	'cat'	'heart'

Table 2: Digor singular nouns, not e-final.

Nominative	beχ	k'ibila
Accusative	beχ-i	k'ibila-j
Genitive	beχ-i	k'ibila-j
Inessive	beχ-i	k'ibila-j
Ablative	beχ-ej	k'ibila-j-ej
Dative	beχ-en	k'ibila-j-en
Superessive	beχ-bəl	k'ibila-bel
Allative	beχ-me	k'ibila-me
Equative	beχ-aw	k'ibila-j-aw
	'horse'	'bucket'

A remark about syncretism patterns is in place here. The suffix *-i* in Digor and its cognate *-ə* in Iron serve as the marker of the accusative, genitive, and inessive for lexical nouns. Moreover, it appears as the numeral suffix with nouns in the nominative. While in Digor its phonological properties are unremarkable, in Iron it causes affricativization in velar stops: it turns *k* into *tʃ* and *g* into *ɟ*. This occurs in all the four functions of the suffix, as is illustrated for *k*-final stems⁵ in (11).

- (11) *Iron Ossetic*
- a. kark
'chicken'
- a' park
'park'
- b. kartʃ-ə ajk
chicken-GEN egg
'chicken's egg'
- b'. partʃ-ə bəru
park-GEN fence
'the fence of the park'

⁵ I illustrate it for an animate noun, 'chicken' and an inanimate noun, 'park', because animates cannot normally be marked with the inessive (a postpositional construction is used instead), while inanimates, as an anonymous reviewer correctly remarks, are not normally overtly marked with the accusative.

- c. asə kartʃ-ə raʒdər nɐ = fedton
 this chicken-ACC earlier NEG = I.saw
 ‘I haven’t seen this chicken before.’
- d. partʃ-ə mɐ = ləman-ə fedton
 park-LOC 1SG = friend-ACC I.saw
 ‘I saw my friend in the park.’

Synchronically, this is not an automatic phonological rule: the superessive suffix *-əl*, which also begins in *ə*, does not cause palatalization: *kark* ‘chicken’ *kark-əl* chicken-SUP ‘on the chicken’; *fəndag* ‘road’, *fəndag-əl* road-SUP ‘along the road’.

For pronouns, the situation is more complex: each pronoun can exhibit one, two, or three inflectional stems, as illustrated in Tables 3–4 for personal pronouns and in Table 5 for *wh*-pronouns. The inessive form is not used with pronouns and, accordingly, the respective row is missing from the tables, see the discussion in Footnote 14 below.

If the case markers in Ossetic were clitics, and not affixes, the fact that they may undergo ellipsis might have been less surprising.⁶ However, Ossetic case markers are definitely affixes: this claim is substantiated, for instance, by the fact that case suffixes can attach to the stems that are not independent words, contrary to what would be expected for clitics.⁷

Table 3: Declension of personal pronouns in Digor.

	1SG	2SG	3SG	1PL	2PL	3PL
Nominative	ɛz	du	je	maχ	sumax	je-te
Oblique = Accusative/Genitive	men	dew	wo-j	maχ	sumax	won-i
Dative	men-en	dew-en	wo-m-en	maχ-en	sumax-en	won-en
Ablative	men-ɛj	dew-ɛj	wo-m-ɛj	maχ-ɛj	sumax-ɛj	won-ɛj
Superessive	men-bel	dew-bel	wo-bel	maχ-bel	sumax-bel	wone-bel
Allative	men-me	dew-me	wo-me	maχ-me	sumax-me	wone-me
Equative	men-aw	dew-aw	wo-j-aw	maχ-aw	sumax-aw	wone-j-aw

Table 4: Declension of personal pronouns in Iron.

	1SG	2SG	3SG	1PL	2PL	3PL
Nominative	ɛʒ	də	wəj	maχ	šəmaχ	wədon
Oblique=Accusative/Genitive	men	dew	wəj	maχ	šəmaχ	wədon-ə
Dative	men-en	dew-en	wə-m-en	maχ-en	šəmaχ-en	wədon-en
Ablative	men-ɛj	dew-ɛj	wə-m-ɛj	maχ-ɛj	šəmaχ-ɛj	wədon-ɛj
Superessive	men-əl	dew-əl	w-əl	maχ-əl	šəmaχ-əl	wədon-əl
Allative	men-me	dew-me	wə-me	maχ-me	šəmaχ-me	wədon-me
Equative	men-aw	dew-aw	wəj-aw	maχ-aw	šəmaχ-aw	wədon-aw

⁶ A connection between the ability to undergo SA and clitic, rather than affix status, has been proposed by Good & Yu (2005: 321) for certain verbal endings in Turkish. Similarly, in Hungarian, the ability or inability of certain morphemes to undergo SA has been connected to their being case markers (affixes) or postpositions (clitics), see Kiss (2002: 184).

⁷ That is to say, case markers show a high degree of selection, as affixes should according to diagnostic (A) in Zwicky & Pullum’s (1983) list of properties that distinguish clitics and affixes. I am not aware of arbitrary gaps in the set of combinations, diagnostics (B). For examples of morphophonological idiosyncrasies, diagnostic (C), see the discussion of epenthesis in Section 7.2. As an example of a semantic idiosyncrasy, one can name the ban for animate nouns to stand in the inessive, diagnostic (D).

Table 5: Declension of wh-pronouns.

	Digor		Iron	
	'who'	'what'	'who'	'what'
Nominative	ka	či	či	sə
Accusative	ke	či	kej	sə
Genitive	ke	cej	kej	sej
Superessive	ke-bəl	ce-bəl	ke-wəl	ce-wəl

This happens, for instance, for the stems *kə-* 'who' (Ir., Dig.) and *cə-* (Dig.)/ *sə-* (Ir.) 'what', as a partial paradigm in Table 5 illustrates. Additionally, for the plural forms of some wh-based indefinites, the case marker may be trapped inside a word form. For instance, in the ablative plural of 'who' the ablative marker precedes the plural marker *kam-əj-t-i* who-ABL-PL-OBL 'from whom' (Digor). This behavior is entirely unexpected for clitics.

Accordingly, if suspended affixation in Ossetic is a result of ellipsis, this ellipsis process must indeed target parts of words.

2.2 Coordination and disjunction

For coordination, the conjunction *əma* (Digor)/*əmə* (Iron) is used, which is placed between the coordinands, (12).

- (12) *Iron Ossetic*
 rəʃuɔd čəʒdʒə-tə **əmə** təχdʒən ləppu-tə
 beautiful girl-PL and strong boy-PL
 'beautiful girls and strong boys'

Besides that, in Iron, DPs can be coordinated by means of the negative marker *nə*, which is placed in front of each coordinand to express the meaning 'neither ... nor' (13).

- (13) *Iron Ossetic*
nə k^wəj-t-əj **nə** kəlmə-t-əj tərʃə.
 NEG dog-PL-ABL NEG snake-PL-ABL fears
 'S/he fears neither dogs nor snakes.'

For reasons discussed in Section 5.2 below, the emphatic enclitic = *dər* can attach to both conjuncts (14a). In this case, the coordinating conjunction may be omitted (14b). Under negative coordination, = *dər* attaches to the conjunctions *nə* = rather than to the coordinated DPs (14c).

- (14) *Digor Ossetic* (Aghuzarti 2008)
- č'ife = **dər** **əma** wazal = **dər**
 dampness = EMP and cold = EMP
 'dampness and cold'
 - χ^warz-əj = **dər** fud-əj = **dər** či fə-wwid-ton
 good-ABL = EMP bad-ABL = EMP what PRV-see.PST-PST.1SG
 'What I have seen of the good and of the bad'
 - Iron Ossetic*
nə = **dər** k^wəj-t-əj **nə** = **dər** kəlmə-t-əj tərʃə.
 NEG = EMP dog-PL-ABL NEG = EMP snake-PL-ABL fears
 'S/he fears neither dogs nor snakes.'

Two different lexical items (Digor *kəne*/Iron *kəne* and *ɐvi*) are used for disjunction, only one of which, *ɐvi*, can occur in alternative questions.⁸

(15) *Iron Ossetic* (K'əbysty 1977)

də = məm ɐsɛg zurəš **ɐvi**/***kəne** = mɐ mɐ = quš-tɐ šajənc?
 you = ALL.2SG real talk or.Q/or = ACC.1SG my = ear-PL deceive
 'Are you really talking to me or do my ears deceive me?'

When the alternatives of a questions are expressed by DPs (e.g. 'Do you fear SNAKES or DOGS?'), some speakers of Ossetic prefer the second disjunct to follow the entire question (16a) rather than have both DPs precede the verb (16b).

(16) *Iron Ossetic*

- a. kɛlmə-t-ɐj tɛršəš ɐvi k^wəj-t-ɐj?
 snake-PL-ABL you.fear or.Q dog-PL-ABL
 'Do you fear snakes or dogs?'
- b. kɛlmə-t-ɐj ɐvi k^wəj-t-ɐj tɛršəš?
 snake-PL-ABL or.Q dog-PL-ABL you.fear
 'Do you fear snakes or dogs?'

3 Derivation of alternative questions

Starting with Han & Romero (2004), evidence has accumulated that in many languages alternative questions are always derived by conjoining much larger constituents and then performing ellipsis in one of them, even when ostensibly only DPs are disjoined as in (17a). The actual parse of (17a) is assumed to be (17b) or (17c). Ellipsis, however, creates an illusion of direct DP disjunction in such questions.

(17) Uegaki (2014b: 252)

- a. Do you want coffee or tea?
 b. [Do you want coffee] or [~~do you want~~ tea]?
 c. Do [[you want coffee] or [~~you want~~ tea]]?

The languages where this has been argued for so far are English, Hindi, and Korean in Han & Romero (2004); Japanese in Uegaki (2014a; b); Serbo-Croatian in Gračanin-Yüksek (2016a); and Turkish in Gračanin-Yüksek (2016b). Arguments for this type of analysis are, however, language specific. In this subsection, I provide evidence that this analysis is correct for Ossetic as well.

3.1 Big disjunct analysis in Ossetic

Ossetic-specific evidence for an ellipsis analysis of alternative questions comes from the behavior of Wackernagel clitics in alternative questions. Ossetic has a large number of Wackernagel and almost Wackernagel clitics. In Iron, they obligatorily occupy the appropriately defined second position of the clause, Lowe & Belyaev (2015), while in Digor placement of the cluster is somewhat freer, Erschler (2010).

In Iron, the clitic cluster is placed after the first word of the clause, (18a–b). If the first constituent is an NP or a DP, however, enclitics attach to the right edge of the noun phrase, (18c–d).

⁸ Both disjunction markers occur in declaratives; their distribution is irrelevant for my present purposes. It is plausible that *ɐvi*, which I gloss here 'interrogative or', is used in declaratives when the speaker considers discourse-relevant the choice between the alternatives introduced by disjunction, as has been proposed for systems of this type by Haspelmath (2007).

(18) *Iron Ossetic*

- a. maχ = **ej** žədtam.
we = ACC.3SG we.knew
'We knew it.'
- b. *maχ žədtam = **ej**.
we we.knew = ACC.3SG
Idem (intended)
- c. [asə χatt] = **dər = ta = jə** wəm nəjjəfta.
this time = too = again = ACC.3SG there s/he.caught.up
'And this time too he caught up with him/her there again.'
- d. *[asə = **dər = ta = jə** χatt] wəm nəjjəfta.
this = too = again = ACC.3SG time there s/he.caught.up
Idem (intended)

In Digor, (extended) noun phrases are impenetrable for clitics as well, (19a) but the clitic cluster may be placed further from the sentence left edge than in Iron, although acceptability of such sentences decreases the further the clitics are from the second position, (19b–c).

(19) *Digor Ossetic*

- a. [ustur < = *in > adgin < = *in > rajdzast < = *in >
large < * = DAT.3SG > tasty < * = DAT.3SG > beautiful < * = DAT.3SG >
surχ < = *in > fət k' u] = **jin** ravardtonçə.
red < * = DAT.3SG > apple = DAT.3SG they.gave
'They gave him a beautiful large tasty red apple.'
- b. [mink'ij k'əbis] = **dan** = **in** aboni ravardtonçə.
little puppy = QUOT = DAT.3SG today they.gave
'(They say), they gave him/her a little puppy today.'
- c. ?[mink'ij k'əbis] aboni = **dan** = **in** ravardtonçə.
little puppy today = QUOT = DAT.3SG they.gave
Idem

Now, in Iron, *ta* 'again',⁹ which we have already seen in (18c), is a Wackernagel clitic. In (20), it encliticizes to *əvi* 'or', which shows that the constituent 'or again a potato pie' forms a separate clause: otherwise we would expect *ta* to cliticize in the second position of the whole sentence, after the constituent Alan-DAT. Furthermore, semantically the clitic *ta* 'again' modifies the event of making a potato pie in (20a) and of biting Khetag in (20b). It is hard to see how to derive these meanings unless the conjunction 'or' introduces an entire clause rather than a DP.¹⁰

⁹ It is accidentally homophonous with the contrastive topic marker *ta*. Pronominal clitics cannot be used for this test: they are not felicitous in alternative questions. Only non-clitic pronouns can be used there.

¹⁰ An anonymous reviewer wonders whether these data can be replicated in sentences with coordinated subjects, where verbs normally show plural agreement and derivation with ellipsis in big conjuncts is implausible. However, (i), the would-be counterpart of (20a), is ungrammatical.

(i) *Iron Ossetic*

- *qəwu-mə šošlan əmə = **ta** mədine ərbaşədəštə.
village-ALL Soslan and = again Madina they.arrived
'To the village Soslan arrived and, again, Madina.' (intended)

- (20) *Iron Ossetic*
- a. alan-ən jə = mad fəččən škodta ɛvi = ta kartofdʒən?
 Alan-DAT his = mother meat.pie made or.Q = again potato.pie
 ‘Did Alan’s mother cook him a meat pie or [did she again cook him a potato pie]?’
- b. asə k^wəz šošlan-əl [ɛvi = ta χetəg-əl fəχəsədi]?
 this dog Soslan-SUP or.Q = again Khetag-SUP bit
 ‘Did this dog bite Soslan or [did it again bite Khetag]?’

If, on the other hand, =*ta* attaches to the first constituents in (20a–b), we obtain two different readings:

- (21) *Iron Ossetic*
- a. alan-ən = ta jə = mad fəččən škodta ɛvi kartofdʒən?
 Alan-DAT = again his = mother meat.pie made or.Q potato.pie
 Reading 1: ‘What happened again: did Alan’s mother cook him a meat pie or a potato pie?’
 Reading 2: ‘[Did Alan’s mother cook him a meat pie again] or did she cook him a potato pie (this time)]?’
- b. asə k^wəz = ta šošlan-əl [ɛvi χetəg-əl fəχəsədi]?
 this dog = again Soslan-SUP or.Q Khetag-SUP bit
 Reading 1: ‘What happened again: Did this dog bite Soslan or Khetag?’
 Reading 2: ‘Did this dog again bite Soslan or (this time) Khetag?’

The scope evidence can be replicated for Digor as well. In the Digor sentence in (22a), *babəj* ‘again’, an almost Wackernagel clitic, only takes scope¹¹ over the clause ‘made a potato pie’, which shows that ‘for Alan, his mother a meat pie’ is a separate clause, an outcome of backward gapping, (22b).

- (22) *Digor Ossetic*
- a. alan-ən ɛ = made fidgun ɛvi = **babəj** kartofgun iskodta?
 Alan-DAT his = mother meat.pie or.Q = again potato.pie made
 ‘Did Alan’s mother cook him a meat pie or again a potato pie?’
- b. alan-ən ɛ = made fidgun ~~iskodta~~ ɛvi = **babəj** kartofgun iskodta?
 Alan-DAT his = mother meat.pie made or.Q = again potato.pie made

Finally, under the word order illustrated in (16a), with the second alternative following the entire question, the ellipsis is rather obvious given the standard assumptions about coordination (23): otherwise, a sentence would be coordinated with a DP.

- (23) *Iron Ossetic*
- kəlmə-t-ɛj təršəš ɛvi k^wəj-t-ɛj təršəš?
 snake-PL-ABL you.fear or.Q dog-PL-ABL you.fear
 ‘Do you fear snakes or dogs?’

As an additional piece of evidence,¹² one can add that non-constituents may be ostensibly disjoined in Ossetic alternative questions. In (24), *soslan-i bæwungə-bəl* Soslan-ACC street-

¹¹ Given that almost Wackernagel clitics need not occupy the second position, the placement of *babəj* far from the sentential left edge in (22a) is not enough to show that it only belongs to the second clause.

¹² I thank James Yoon for the suggestion to look at this type of facts.

SUP ‘Soslan in the street’ is clearly not a constituent: ‘in the street’ is supposed to modify the event of seeing rather than the DP Soslan.

- (24) *Digor Ossetic*
 fedtaj mədin-i sk’ola-j ɛvi soslan-i ɬɛwungɛ-bɛl?
 you.saw Madina-ACC school-INCESS or.Q Soslan-ACC street-SUP
 ‘Did you see Madina in the school or Soslan in the street?’

3.2 Minor varieties of alternative questions

Even speakers who prefer alternative questions without ostensible disjunction of DPs as in (23), allow ostensible disjunction in fragment questions and split questions, as is schematically shown in (25a) and (25b), respectively. The term “split questions” was introduced by Arregi (2010).

- (25) a. Rice or beans?
 b. What did Mary cook, **rice or beans**?

As argued in Arregi (2010), derivation of split questions involves deletion of the rest of the material in a full-fledged alternative question. This analysis (and the arguments in its favor) can be applied *verbatim* to isolated fragment alternative questions, which, to the best of my knowledge have not been addressed in the literature: the bulk of the research on fragments focuses on fragment answers, see Merchant (2005); Weir (2014), and references there.

An additional variety of alternative questions are “or-slucices”: embedded alternative questions where everything but the ostensible disjuncts is deleted. In other words, these are embedded fragment alternative questions. Such constructions are relatively common cross-linguistically. In the German sentence in (26a), the or-slucice is (*dem*) *Uwe oder (dem) Jan* DEF.DAT Uwe or DEF.DAT Jan ‘Uwe or Jan’. In the Polish sentence in (26b), the or-slucice is (*czy*) *ryż czy kasz-ę gryczan-ą* Q rice.ACC Q buckwheat-ACC porridge-ACC ‘rice or kasha’.

- (26) a. *German*
 (Der) Hans hat jemandem geschmeichelt, aber ich weiß nicht
 DEF Hans has someone.DAT flatter.PRTC but I know.PRS.1SG NEG
 ob (**dem**) **Uwe oder (dem) Jan**
 Q DEF.DAT U. or DEF.DAT J.
 (~~der) Hans geschmeichelt hat.~~
 ‘Hans flattered someone, but I don’t know whether (it is) Uwe or Jan (that Hans flattered).’
- b. *Polish*
 Zosia coś ugotowała, ale nie wiem, (**czy**) **ryż czy**
 Zosia something she.cooked but NEG I.know whether rice whether
kasz-ę gryczan-ą.
 porridge-ACC of.buckwheat-ACC
 ‘Zosia cooked something, but I don’t know whether (she cooked) rice or buckwheat.’ (Stanisław Dunin-Horkawicz, p.c.)

Note that in both sentences in (26), the DPs in the sluices stand in the case assigned by the verb in the antecedent, the dative by *schmeicheln* ‘to flatter’ in (26a), and the accusative by *ugotować* ‘to cook’ in (26b). In the same way as for regular sluicing, Ross (1969[2012]); Merchant (2001), this fact serves as evidence for ellipsis derivation of or-slucices.

Ossetic languages have all these varieties of reduced alternative questions: fragment questions (27a), split questions (27b), and or-slucices (27c). As we will see in the next section, SA of case markers is possible in all of them. For the sake of clarity, now I only give the variants without SA.

- (27) a. *Iron Ossetic* (Comartaty 2012: 157)
 g^wərziag ɛvi wərəššag?
 Georgian or.Q Russian
 ‘Russian or Georgian?’
- b. *Digor Ossetic*
 kəmə ɛnɛlmə kəši **mənme ɛvi uruzmagmɛ?**
 who.ALL waiting you.look I.ALL or.Q Uruzmag.ALL
 ‘Who are you waiting for, for me or for Uruzmag?’
- c. *Iron Ossetic*
 šošlan kejdər waržə fɛlə nɛ = žonən **mɛdinejə ɛvi fatimejə.**
 Soslan someone.OBL loves but NEG = I.know Madina.OBL or.Q Fatima.OBL
 ‘Soslan loves someone, but I don’t know whether (he loves) Madina or Fatima.’

4 Suspended affixation in Ossetic: Descriptive generalizations

With the background facts about case marking, coordination, disjunction, and alternative questions at hand, we can proceed to discussion of suspended affixation in Ossetic. In this section, I first formulate the overall descriptive generalizations about SA in Ossetic (Section 4.1) and illustrate them for regular coordination, and then focus on SA in alternative questions (Section 4.2). In Section 4.3, I argue that availability of SA in alternative questions together with the fact that alternative questions are derived by ellipsis compel us to a deletion analysis of SA, no matter what the precise technical implementation of this idea is.

4.1 Descriptive generalizations

In the descriptive literature, suspended affixation in Ossetic was addressed in Kulaev (1981); two different theoretical analyses (with additional descriptive details) were proposed in Erschler (2012a) and Belyaev (2014). Descriptively, suspended affixation in Ossetic has the following properties.

- (A) Suspended affixation occurs with any type of coordinator.
- (B) SA only proceeds backwards.
- (C) Only case markers, and any case markers, may be suspended.
- (D) Remnants under suspended affixation construction must be substrings of the respective full forms (modulo phonological readjustments, and one very interesting exception that concerns numeral phrases, which will be discussed below).
- (E) A remnant under SA substring must be an actual independent word.
- (F) This word should not have an accidental idiosyncratic lexical meaning.
- (G) When both conjuncts are pronouns or are marked with the enclitic = *dər*, suspended affixation is ungrammatical.

To comment upon property (A), suspended affixation freely occurs under coordination with ‘and’, (28a), negative coordination (28b), and under disjunction, (28c). The DPs that participate in SA are bolded. I postpone the discussion of SA in alternative questions until the next subsection.

- (28) a. *Digor Ossetic* (Aghuzarti 2006)
ʁəd-tɛ(-mɛ) ɛma ɣ^wɛnɣ-tɛ-mɛ sɛ = ɣe rajstonɕe.
 wood-PL(-ALL) and mountain-PL-ALL 3PL = REFL they.took
 ‘They took themselves to woods and mountains.’
- b. *Iron Ossetic*
nɛ k^wəj-tɛ(-ɛj) nɛ kɛlmə-t-ɛj tɛrʂə.
 NEG dog-PL-ABL NEG snake-PL-ABL fears
 ‘S/he fears neither dogs nor snakes.’
- c. *Iron Ossetic*
widag(-əl) kɛnɛ [mɛldəɟ-ə gubakk] -əl dɛ = k’aɣ ma
 root-SUP or ant-OBL hill-SUP 2SG = leg NEG.MOD
 šk^wər.
 stumble.IMP.2SG
 ‘Don’t stumble upon a root or an anthill!’

Property (B), that SA only proceeds backwards, requires the shared affix to appear on the rightmost conjunct: the grammatical example in (29a) with the dative case marker is removed on the first conjunct satisfies this property, while its mirror image (29b), where an attempt is made to remove the case suffix on the second conjunct, is ungrammatical.

- (29) *Digor Ossetic*
- a. alan(-ɛn) ɛma soslan-ɛn sɛ = madɛ
 Alan-DAT and Soslan-DAT 3PL = mother
 ‘Alan and Soslan’s mother’
- b. *alan-ɛn ɛma soslan-~~ɛn~~ sɛ = madɛ
 Alan-DAT and Soslan-DAT 3PL = mother
Idem (intended)

Property (C) states that only case suffixes (and any case markers) can be suspended in Ossetic. Unlike in Turkish (see Lewis 1967; Kornfilt 1996; 1997; and Kabak 2007) and in some other Turkic languages, the nominal plural marker cannot be suspended, nor is SA available for any verbal suffixes. SA is possible for any morphological case in Ossetic (30), no matter as structural as the case of the possessors in (30a), lexically assigned by the verb as the allative in (30b) or the ablative in (28b), or semantic, as the inessive (which is expressed the oblique suffix in this instance) in (30c), the allative in (28a), or the superessive in (28c).

- (30) *Iron Ossetic*
- a. šoʂlan(-ə) ɛmɛ alan-ə mad
 Soslan(-GEN) and Alan-GEN mother
 ‘Soslan and Alan’s mother’
- b. šoʂlan(-mɛ) ɛmɛ alan-mɛ ɛnqɛlmɛ kɛʂɛm.
 Soslan(-ALL) and Alan-ALL waiting we.wait
 ‘We are waiting for Soslan and Alan.’
- c. *Digor Ossetic*
 ači kiwunugutɛ balɣɛdton mɛsku(-j) ɛma boston-i.
 this book.PL I.bought Moscow(-LOC) and Boston-LOC
 ‘I bought these books in Moscow and Boston.’

Property (D), that remnants under SA must be substrings of the respective full forms, describes the contrast of the type illustrated in (31). While *dəw*, the stem of *dəw-bəl* and an independent word, the oblique (i.e. the accusative and genitive) form of *du* ‘you.SG’ is possible in SA (31a), the nominative form *du*, which is not a substring of *dəw-bəl*, is judged ungrammatical¹³ (31b).

- (31) *Digor Ossetic*
- a. **dəw(-bəl)** ɛma mədine-bəl isəmbalttən.
 you.OBL-SUP and M-NOM-SUP I.met
 ‘I met you and Madina.’
- b. ***du** ɛma mədine-bəl isəmbalttən.
 you.NOM and M-NOM-SUP I.met
 ‘I met you and Madina.’ (intended)

Readjustments will be discussed in sections 7.2 and 7.3 below.

Property (E) is that a stem that cannot function as an independent word may not appear as a remnant under SA. For instance, in Iron Ossetic, the reciprocal stem *kərəzi* is a word, whereas its Digor cognate, *kərədʒe*, cannot be used without a case suffix. Accordingly, in Iron but not in Digor the reciprocal stem may serve as a non-last conjunct in suspended affixation constructions. The two sentences in (32a–b), the grammatical Iron one and the ungrammatical Digor one (32b), are fully parallel. The grammatical Digor sentence in (32c) shows that (32b) becomes grammatical once the case marker is restored on *kərədʒe*.

- (32) *Iron Ossetic*
- a. ?nə = dəwə gədə-jə **kərəzi** ɛmə nə = kwəz-əj təršync.
 our = two cat-OBL each.other and our = dog-ABL fear.PRS.3PL
 ‘Two our cats are afraid of each other and of our dog.’
- Digor Ossetic*
- b. *nə = duwə tikiš-i **kərədʒe** ɛma nə = kuj-əj təršuncə.
 our = two cat-OBL each.other and our = dog-ABL fear.PRS.3PL
Idem (intended)
- c. nə = duwə tikiš-i **kərədʒe-jə** ɛma nə = kuj-əj
 POSS.1PL = two cat-OBL each.other-ABL and POSS.1PL = dog-ABL
 təršuncə.
 fear.PRS.3PL
Idem

Property (F) requires that the remainder under SA may not be a word with an idiosyncratic meaning, which accidentally or for diachronic reasons coincides with a conjunct minus the suspended affix. This property can be illustrated by the behavior of the Iron *wəm*

¹³ An anonymous reviewer observes that examples such as (i) are encountered in written texts, where both conjuncts are pronouns and the first pronoun in the nominative. Such examples are problematic for any account that proposes that case is assigned to all the conjuncts. My consultants, however, find such examples ungrammatical.

(i) *Iron Ossetic*
 ɛž ɛmə dəw-ən
 I.NOM and you-DAT
 ‘for me and you’

‘there’, historically the inessive of the third person singular pronoun. As it has acquired an idiosyncratic lexical meaning,¹⁴ it cannot serve as the remainder in (33a).¹⁵

- (33) *Iron Ossetic*
- a. ***wəm** ɐmə mədinə-jən didinɟətə ratta.
there and M-DAT flowers gave
‘S/he gave flowers to her and Madina.’
- b. **wəm-ən** ɐmə mədinə-jən didinɟətə ratta.
s/he-DAT and M-DAT flowers gave
‘S/he gave flowers to her and Madina.’

To illustrate the working of (G), the ban on emphasis on both disjuncts, consider the pairs of sentences in (34). In (34a), SA with two coordinated pronouns is attempted. The sentence is well-formed with respect to constraints (A–F). It is nevertheless ungrammatical, while its counterpart without SA (34b) is fine. Likewise, (34c) is an attempt to do SA with two DPs marked with the enclitic =*dər* and coordinated by the conjunction ‘and’. The control (34d) is the same sentence without =*dər*, where SA is fully grammatical. Finally (34e–f) illustrate the same effect for ‘neither ... nor’ coordination.

- (34) *Digor Ossetic*
- a. ***dew-bəl** ɐma mən-bəl isəmbalttəncə.
you.OBL-SUP and I-SUP they.met
‘They met you and me.’ (intended)
- b. **dew-bəl** ɐma mən-bəl isəmbalttəncə.
you.OBL-SUP and I-SUP they.met
‘They met you and me.’
- c. *Iron Ossetic*
*k^wəj-**tə** = dər ɐmə kəlmə-**t-əj** = dər təršə.
dog-PL = EMP and snake-PL-ABL = EMP fears
‘S/he fears dogs and snakes.’ (intended)
- d. k^wəj-**t-əj** = dər ɐmə kəlmə-**t-əj** = dər təršə.
dog-PL-ABL = EMP and snake-PL-ABL = EMP fears
‘S/he fears dogs and snakes.’
- e. *nə = dər k^wəj-**tə** nə = dər kəlmə-**t-əj** təršə.
NEG = EMP dog-PL NEG = EMP snake-PL-ABL fears
‘S/he fears neither dogs nor snakes.’ (intended)
- f. nə = dər k^wəj-**t-əj** nə = dər kəlmə-**t-əj** təršə.
NEG = EMP dog-PL-ABL NEG = EMP snake-PL-ABL fears
‘S/he fears neither dogs nor snakes.’

¹⁴ A reviewer argues that the Iron *wəm* ‘there’ and *am* ‘here’ are to be treated as the regular inessive forms meaning ‘in it’. However, first, unlike regular inessive forms, these words do not imply location within some container, and, second, *kəm* ‘where’ has undergone reanalysis of the same type: it means ‘where’ instead of the compositional ‘in who’. The meaning ‘in it’ can only be expressed by a postpositional phrase, *jə = midəgə* 3SG = inside or *jə = χ^wəlfə* *idem*.

¹⁵ Belyaev (2014: 40) reports that, in this type of example, the pronoun could be put in the oblique:

- (i) *Digor Ossetic*
woj ɐma Alan-ən sɐ = χədzarə ɐgər mink’ij ɐj.
s/he.OBL and Alan-DAT their = house too small is
‘Their house is too small for him and Alan.’

The speakers I have consulted, however, judged (i) ungrammatical.

The reasons for this phenomenon will be addressed in Section 5.2.

4.2 Suspended affixation in alternative questions

Crucially for the argument of this paper, SA in Ossetic is also possible in alternative questions, which, as we have seen, are derived by ellipsis in these languages. In written texts, suspended affixation is admittedly rare in such contexts, however, it is judged possible by native speakers both in unreduced alternative questions,¹⁶ (35), and different varieties of reduced alternative questions, (36–38).

In (35a), the ablative marker can be omitted on the DP ‘dog’. The ablative is lexically assigned by the verb ‘to fear’ to the cause of fear. In (35b), the oblique, which in this case functions as the inessive, can be omitted on the DP ‘Vladikavkaz’.

- (35) *Iron Ossetic*
- a. asə gədə k^wəz(-əj) ɛvi wərə-**jə** təršə?
 this cat dog-ABL or.Q rat-ABL fears
 ‘Is this cat afraid of a dog or a rat?’
- b. zəwudʒəqəw(-ə) ɛvi čermen-ə sərəš?
 Vladikavkaz-OBL or.Q Chermen-OBL you.live
 ‘Do you live in Vladikavkaz or in Chermen?’

In the fragment question in (36) the ablative marker on the first disjunct, again assigned by the verb ‘to fear’, may be omitted.

- (36) *Iron Ossetic*
- A: alan kəmējɔdər təršə.
 Alan someone.ABL fears
 ‘Alan is afraid of someone.’
- B: šošlan(-əj) ɛvi χetəg-əj?
 Soslan-ABL or.Q Khetag-ABL
 ‘Of Soslan or of Khetag?’

To illustrate SA in split questions, in the question in (37a), the oblique marker, which can be omitted on the first disjunct ‘table’ serves as the genitive: both ‘feast’ and ‘funeral’ are possessors of the word ‘table’. In (37b), the ablative can be omitted on the first disjunct, Alan.

- (37) *Iron Ossetic*
- a. Aghnajty (2006)
 ɛsəgdər šə = χəzər-ə sə i k^wəvd(-ə) fəng ɛvi žian-ə fəng?
 really their = house-OBL what exists feast-OBL table or funeral-OBL table
 ‘What is really in their house: a feast or a wake?’

¹⁶ For unclear reasons, SA is impossible in all the varieties of alternative questions if the first disjunct is a pronoun, (i a) although, as we have seen in Section 4.1, it is fully grammatical in parallel sentences with coordination, (i b):

- (i) *Digor Ossetic*
- a. mən-*(mə) ɛvi uruzmæg-mə ɛnɛlmə kəši?
 I.OBL-ALL or.Q Uruzmag-ALL waiting you.look
 ‘Are you waiting for me or for Uruzmag?’
- b. mən-(mə) ɛma uruzmæg-mə ɛnɛlmə kəši?
 I.OBL-ALL and Uruzmag-ALL waiting you.look
 ‘You are waiting for me and Uruzmag?’

I leave this phenomenon for further research.

- b. kəməj təršəš alan(-ej) evi šošlan-ej?
 who.ABL you.fear Alan-ABL or.Q Soslan-ABL
 ‘Who are you afraid of, Alan or Soslan?’

To illustrate SA in or-sluites, in the sluice ‘in Matsuta or in Dzinagha’ in (38a), the oblique serves as the inessive. It can be dropped on ‘Matsuta’. In (38b), the sluice is ‘Madina or Fatima’ and the suspended case is the allative, which is lexically assigned by the verb ‘to wait’. In (38c), the sluice is ‘Madina or Fatima’, and the oblique, which can be suspended, functions as the accusative. Finally, in (38d), the sluice is ‘to Sarmat or to Uruzmag’ and the suspended case, the allative, is assigned to the addressee of the verb ‘to talk’.

(38) *Digor Ossetic*

- a. soslan kəmidər digorgom-i cardəj fal nə = ʁudi
 Soslan somewhere Digor.Valley-OBL s/he.lived but NEG = thought
 kənun məcutə(-j) evi ɕinaʁa-j.
 I.do Matsuta-OBL or.Q Dzinagha-OBL
 ‘Soslan lived somewhere in the Digor Valley, but I don’t remember whether
 (he lived) in Matsuta or in Dzinagha.’
- b. nə = zonun mədinə(-mə) evi fatimə-mə ɛnɛlmə kəsuj soslan,
 NEG = I.know Madina-ALL or.Q Fatima-ALL waiting looks Soslan
 fal wonəj kəmədər ɛnɛlmə kəsuj.
 but they.ABL someone.ALL waiting looks
 ‘I don’t know, whether Soslan is waiting for Madina or for Fatima, but he’s
 waiting for some one of them.’

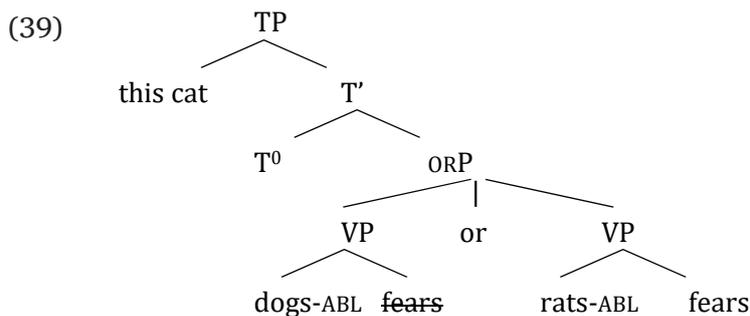
Iron Ossetic

- c. šošlan kejdər waržə fəle nə = žonən mədinə(-jə) evi fatimə-jə.
 Soslan someone.OBL loves but NEG = I.know Madina-OBL or.Q Fatima-OBL
 ‘Soslan loves someone, but I don’t know whether (he loves) Madina or Fatima.’
- d. šošlan kəmədər zərdta fəle = jə nə = qʷədə kənən
 Soslan someone.ALL talked but = ACC.3SG NEG = thought I.do
 šərmət(-mə) evi wəʁəžmæg-mə.
 Sarmat-ALL or.Q Uruzmag-ALL
 ‘Soslan talked to someone, but I don’t remember whether (he talked to)
 Sarmat or Uruzmag.’

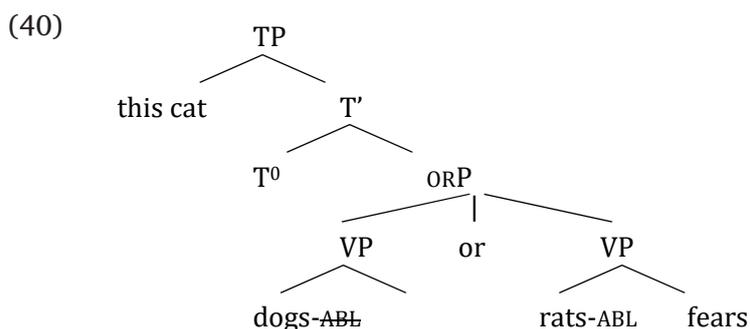
4.3 Suspended affixation in alternative questions: Implications for analyses

Let us now see why existence of SA in alternative questions that are derived by ellipsis compels us to a deletion analysis of the question. Given that the DPs ostensibly disjoint in an alternative question in actuality do not belong to the same VP, any approach that analyzes SA as assignment of case to the entire &P will wrongly predict SA to be impossible in alternative questions.

Now let us see how the exponent deletion analysis derives suspended affixation in Ossetic alternative questions. For instance, consider the derivation of the sentence in (35a). At the first stage, an alternative question will be derived with case affixes on both DPs, (39). To repeat, the precise mechanism of case assignment is immaterial for our current purposes. To be specific, I represent the structure as a disjunction of two VPs, but nothing will substantially change in the argument if larger constituents are to be disjoint. As I have argued in section 3.1, the verb deletes in the first of the VPs in (39).



At the second stage, when the DPs that are to share an affix are already string-adjacent, the affix on the first of them undergoes deletion, (40).



Derivation of sentences in (35b) and (36–38) is analogous to the one shown above, modulo an additional step, ellipsis of everything except the DP in the other disjunct.

Accordingly, no matter what a concrete technical implementation, suspended affixation in alternative questions can only be achieved by morpheme deletion.¹⁷ In the next section, I lay out a specific proposal to this effect.

5 Proposal

In this section, I formulate the proposal regarding the place of ellipsis in the syntax-morphology interface and address the licensing conditions that need to hold for this variety of ellipsis to occur. In the next section, I will show how this proposal deduces the properties of SA listed in Section 4.

5.1 Place of deletion in derivation

I adopt the standard assumptions of distributed morphology, Halle & Marantz (1993; 1994); Halle (1997); Noyer (1997); Embick & Noyer (2001); Siddiqi (2010); and Arregi & Nevins (2012). I assume thus that syntactic computations operate with feature bundles, while vocabulary insertion of the exponents occurs late in the derivation. Vocabulary insertion is followed by phonological readjustments (application of morpheme-specific rules in terms of Arregi & Nevins 2012). The existence of this stage is motivated by intuitively clear difference between the choice of phonologically unmotivated allomorphs (e.g. *I* vs. *me*) and phonologically motivated changes (e.g. the English indefinite article taking the form *a* before consonant-initial words and *an* before vowel-initial ones).

Under these assumptions, it makes sense to ask when deletion occurs. The logically possible options are deletion of feature bundles prior to vocabulary insertion,¹⁸

¹⁷ A possibility that gapping and case marker deletion may occur in one fell swoop is discussed, and rejected in Section 8.2.

¹⁸ This is essentially equivalent to Total Impoverishment proposed in Murphy (2016).

deletion of inserted exponents before phonological readjustments, and deletion after the readjustments have taken place.

I propose that morpheme deletion proceeds after vocabulary insertion but prior to application of morpheme specific rules. Other possibilities necessarily lead to incorrect empirical predictions.

If we assume that deletion precedes VI, we would expect allomorphy contexts to be destroyed, and, in particular, the default allomorphs of pronouns, rather than their oblique forms, to surface under SA, as shown in (31), repeated here as (41), for the 2SG pronoun.

- (41) *Digor Ossetic*
dɛw(-bɛl)/*du ɛma mɛdine-bɛl isɛmbalttɛn.
 you.OBL-~~sup~~/you.NOM and M-NOM-SUP I.met
 ‘I met you and Madina.’

If deletion had occurred after the application of morpheme specific rules, we would expect results of readjustments to remain visible after SA. For instance, as we have seen in Section 2.1 the oblique suffix in Iron causes affricativization of velar stops (42a). However, under SA, the respective stems surface in their underlying form: in (42b) it is *park* rather than **partʃ* in the first conjunct.

- (42) *Iron Ossetic*
 a. park park.NOM partʃ-ə park-OBL
 wəŋg street.NOM wəŋdʒ-ə street-OBL
 b. park ɛmɛ wəŋdʒ-ə
 park and street-OBL
 ‘in/of the street and the park’

Other examples of readjustments relevant for the morphophonology of SA in Ossetic are addressed in Sections 7.1 and 7.2.

The derivation is thus proposed to proceed in the following stages.

Step I. Ellipsis that forms alternative questions occurs.

Step II. Vocabulary insertion.

Step III. Checking the licensing condition and morpheme deletion

Step IV. Phonological readjustment

Given that gapping, including backwards gapping, is insensitive to the PF identity, it is reasonable to assume that it occurs prior to VI. If one adopts the proposal of Murphy (2016) who treats gapping as VI of null exponents, one can unify Stage I and Stage II of this derivation.

5.2 Licensing conditions

I propose that two conditions need to hold in order for morpheme deletion to proceed in Ossetic: the underlying form of the deleted affix must be identical to its overt correlate, and additionally, the coordinands or disjuncts should not all bear [+EMP] feature.

Full pronouns carry this feature as part of their lexical specification; while on lexical DPs, it is marked with the enclitic =*dɛr*. I stay agnostic as to the precise semantic interpretation of [+EMP] feature. The reason to postulate it is that both =*dɛr* marking and use of full pronouns is associated with some kind of prominence that is hard to precisely capture at the present stage of research.

As we have seen in Section 2, Ossetic languages use several series of personal pronouns. For subjects, Romance-type pro-drop occurs. For non-subject pronouns, the clitic forms are used by default. A large amount of generative literature has strived to pin down the difference between clitic and non-clitic pronouns in such languages, starting at least with Cardinaletti & Starke (1999), see also Neeleman & Szendrői (2007) and Sigurðsson (2011). Although the difference is often identified with something like contrast (“strong” pronouns tend to appear when some contrast is present), see, a.o., Öztürk (2001); Frascarelli (2007); Frascarelli & Hinterhölzl (2007); and Sigurðsson (2011), it is not clear whether they only appear in the presence of contrast, see examples in Cardinaletti & Starke (1995: 163) for Romance languages and in Bohnacker (2013) for Swabian, a Southern German variety, which, as Bohnacker argues, exhibits a Romance-type pro-drop.

The idea to include the respective *prima facie* information-structural feature in the lexical makeup of a pronoun was advanced by Herbeck (2016) who proposes that, in Spanish, overt subject pronouns have feature [+Foc] in their feature bundle. I propose that a purely formal [+EMP] feature underlies the occurrences of strong pronouns in Ossetic.

As for the enclitic = *der*, besides its occurrences in coordinations, it also may be used in the capacity of scalar particles ‘too’ and ‘even’. Additionally, it marks universal quantifiers in the absence of the clausal negation. Provisionally, I propose that all these uses involve the same feature [+EMP] as overt pronouns.

If this proposal is on the right track, a plausible reason why a considerable number of speakers disallow SA in alternative question can be that, for such speakers, the disjuncts of an alternative question both carry [+EMP] feature.

5.3 Directionality of morpheme deletion

In Ossetic, suffix deletion only proceeds backwards, nor am I aware of any cross-linguistic evidence for forward suffix deletion, as schematized in (43).

(43) *X-AFF & Y-AFF

At present, SA is the only known ellipsis variety in Ossetic that may only proceed backwards. Gapping and sluicing that can proceed in both directions in Ossetic. On the other hand, stripping can only proceed forward, as the contrast illustrates between the grammatical sentence in (44a) and the ungrammatical one in (44b). This shows that Ossetic in principle allows unidirectional ellipsis types, and it is not particularly surprising that there exists one that only can proceed backwards.

(44) *Digor Ossetic*

- a. soslan lešken-i cəruj ɐma **mədiŋe** = **der**.
Soslan Lesken-OBL lives and Madina = EMP
‘Soslan lives in Lesken, and Madina too.’
- b. ***mədiŋe** = **der** ɐma soslan lešken-i cəruj.
Madina = EMP and Soslan Lesken-OBL lives
*‘Madina too and Soslan lives in Lesken.’

Correctly predicting the cross-linguistic variation of ellipsis directionality is a problem for all existing accounts of ellipsis, and I leave the matter for the further research.

6 Deriving the generalizations

With a proposal at hand about the process in the narrow grammar that is responsible for SA, I now proceed to showing that the properties of SA in Ossetic (described in Section 4) are predicted by my proposal coupled with some standard assumptions about the syntax-phonology interface and processing requirements.

Property (B) was discussed in Section 5.3 above.

Property (C) that only case markers can undergo SA, needs a longer discussion and is addressed in Section 6.2 below.

Property (D) that remnants under SA are substrings of the respective full forms, follows immediately from the assumption that deletion occurs after VI.

Property (E) that requires a remnant under SA to be a free-standing word is discussed in Section 6.1.

Property (F), the ban on words with an idiosyncratic meaning as SA remnants, has to do with exigencies of processing rather than with grammar in the proper sense, cf a similar proposal of Kabak (2007) regarding the ban on bare verb stems to occur as remnants under SA in Turkish.

Property (G), the ban for all coordinands to be pronouns or be marked with the clitic = *der*, was addressed in Section 5.2 and was argued to follow from the licensing requirements on ellipsis.

6.1 Ban on non-words as remnants under suspended affixation

I propose that the ban for non-words to serve as SA remnants ensues from a general property of the syntax-phonology interface: I take being able to occur as a free-standing word a lexical diacritic, and only free-standing words can be coordinated in Ossetic.

Languages vary on whether this constraint is absolute: Polish, for instance is reported to have constructions where a verbal prefix, for instance *prze-* in (45), is ostensibly coordinated with a phrase.

- (45) *Polish* (Citko 2017)
 Jan **prze-** a Piotr pod-pisał list do prezydenta.
 Jan PRV- CTR Peter PRV-wrote letter to president
 ‘Jan copied and Peter signed the letter to the president.’

Ossetic, although possesses a system of verbal prefixes similar to a Slavic one, disallows such constructions. The ungrammatical (46) is a direct counterpart of (45). In (46), a stranded preverb *nə-* stands for the phrase *nə-ffəšta pišmo prezident-mə* ‘wrote a letter to the president’, and is coordinate with the phrase *ra-fəšta pišmo prezident-mə* ‘copied a letter to the president’.

- (46) *Iron Ossetic*
 *šošlan **nə-** χetəg = ta ra-fəšta pišmo prezident-mə.
 Soslan PRV- Khetag = CTR PRV-wrote letter president-all
 ‘Soslan wrote and Khetag copied, the letter to the president.’ (intended)

6.2 Restriction of suspended affixation to case markers

As we have seen, suspended affixation in Ossetic can only target case markers: unlike in Turkish, the nominal plural marker or the verb agreement suffixes cannot undergo SA.

The ban on suspended affixation of plural markers is motivated by the requirement for an SA remnant to be a word: on their own, plural stems are not independent words.

The plural is formed from the plural stem and the plural suffix *-tə*. Plural stems often undergo small, but unpredictable changes as compared to singular stems. For instance, in Iron, *qug* ‘cow’ yields in the plural *quṭs:iṭə* ‘cows’ with a change *g > ts:i*; but *dug* ‘epoch’ becomes *dugtə* ‘epochs’, without any change in the stem. Likewise, in the plural stem of

gal ‘bull’ no changes occur: the plural is *galte* ‘bulls’, but in a word with a similar final syllable a change does occur: *embal* ‘friend’, *embeltte* ‘friends’: the *a* of the final syllable becomes *ɐ* and the *-t-* of the plural marker reduplicates. Accordingly, the plural stems must be inserted as allomorphs at the stage of vocabulary insertion, and phonological readjustment cannot undo these changes.

Suspended affixation is impossible for any verb forms either (47). I argue that this follows from the requirements for the remnant to be an extant word (already discussed in Section 6.1) and to not have an idiosyncratic meaning of its own.

- (47) a. *Iron Ossetic*
 səd-*(tɛn) ɐmɐ kʷəd-tɛn
 go.PST-PST.1SG and cry.PST-PST.1SG
 ‘I was walking and crying’
- b. *Digor Ossetic*
 cɛw-*(gɐ) =ma kɛw-gɐ
 go.PRS-CVB and cry-PRS.CVB
 ‘walking and crying’

All the verb forms are based on either the present stem or the past stem. For a given verb, its past stem is not synchronically predictable as illustrated by the three Iron forms in Table 6: the present stems only differ in the initial consonant, but the past stems are formed differently for all the three. The natural conclusion is the relationship between a present stem and the past stem is listed lexically.

The status of present stems is somewhat different in Digor and Iron: in Digor, they cannot function as independent words, while in Iron they coincide with the second person imperative form.¹⁹ Accordingly, what prevents SA with present stem verbs in Digor is that the would-be remnant would not be a word, while in Iron, the remnant would be interpreted as the imperative.

The past stem, for the vast majority of the verbs, coincides with the past participle, which obviously is a word. However, the past participle on its own has the distribution of a noun. I propose that this is what prevents SA with verb forms created from the past stem.

7 Challenges

In this section, I discuss several finer points of Ossetic morphology that ostensibly are problematic for the analysis advocated for in this paper and show that they can be accounted for by the current proposal.

Table 6: Present and past stems in Iron Ossetic.

Present stem	Past stem	Translation
sɛw-	səd-	‘go’
kɛw-	kʷəd	‘cry’
lew	lewəd	‘stand’

¹⁹ In Digor, the imperative carries a dedicated suffix *-ɐ*: *kɛn-ɐ* do-IMP.2SG.

7.1 Suspended affixation and numeral phrases

Belyaev²⁰ (2014) noticed an interesting pattern in SA with numeral phrases, which, as an anonymous reviewer suggests, can be a problem for the analysis presented in this paper. Before presenting the relevant data, and arguing why they do not actually pose a problem for my analysis, I need to recall some facts about numerals and numeral phrases in Ossetic already touched upon in Section 4.1.

The numeral precedes the noun phrase. When the entire phrase stands in the nominative, the (phrase-final) noun gets marked with a suffix that is homophonous to the oblique case marker, *-ə* in Iron and *-i* in Digor (48a, c). The usual plural marking of the noun is impossible in the presence of a numeral (48 b, d).

- (48) *Iron Ossetic*
- a. *dəwə bəχ-ə*
two horse-NUM
'two horses'
 - b. **dəwə bəχ-tə/-tə*
two horse-PL/-PL.NUM
- Digor Ossetic*
- c. *duwə bəχ-i*
two horse-NUM
'two horses'
 - d. **duwə bəχ-tə/-ti*
two horse-PL/-PL.NUM

If the entire phrase stands in a case other than the nominative, the marking patterns differ somewhat in Iron and Digor. In Iron, the numeral suffix on the noun gets “overwritten” by the case assigned to the entire DP (49).

- (49) *Iron Ossetic*
- a. *dəwə bəχ-əj*
two horse-ABL
'from two horses'
 - b. *dəwə bəχ-ən*
two horse-DAT
'for two horses'
 - c. *dəwə bəχ-aw*
two horse-EQU
'as two horses'

In Digor, on the other hand, numerals have a separate inflectional paradigm, and it is an exponent from this paradigm that appears on the noun in a numeral phrase, as illustrated in Table 7. Specifically, a suffix *-e-* or *-em-*, depending on the case, is inserted between the stem and the case marker.

Now, as was observed in Belyaev (2014), when two numeral phrases are coordinated, for many speakers it is the numeral suffix (i.e. the one homophonous to the oblique case) rather than the nominative (or null) marking that emerges under SA. In (50a) and (50c), the superessive gets assigned by the verbs ‘to meet’ and ‘to bite’, respectively; and in (50b) the ablative is assigned by the preposition ‘without’.

²⁰ I overview his proposal in Section 8.1.

Table 7: Numeral declension in Digor.

	duwe ‘two’	duwe bəχ-i ‘two horses’
Nominative	duwe	duwe bəχ-i
Oblique	duw-e-j	duwe bəχ-e-j
Dative	duw-em-en	duwe bəχ-em-en
Ablative	duw-em-əj	duwe bəχ-em-əj
Inessive ²¹	duw-em-i	duwe bəχ-em-i
Superessive	duw-e-bəl	duwe bəχ-e-bəl
Allative	duw-e-me	duwe bəχ-e-me
Equative	duw-e-j-aw	duwe bəχ-e-j-aw

(50) *Digor Ossetic*

a. ɛrtɛ kiʒg-i/?kizgɛ ɛma duwɛ biččew-e-bəl isəmbaldtən.
 three girl-NUM/girl.NOM and two boy-NUM-SUP I.met
 ‘I met three girls and two boys.’

b. ɛnɛ cuppar bəχ-i/ ?bəχ/ bəχ-e-məj ɛma gal-əj.
 without four horse-NUM horse/ horse-NUM-ABL and bull-ABL
 ‘without four horses and a bull.’

c. *Iron Ossetic*

asə k^wəz faron ɛrtɛ ləppu/-jə/-jəl ɛmɛ čəʒg-əl fɛχasədi.
 this dog last.year three boy/-NUM/-SUP and girl-SUP bit
 ‘This dog last year bit three boys and a girl.’

Given that the numeral suffix is homophonous with the oblique (i.e. genitive/accusative) case marker (-i in Digor and -ə in Iron), it seems *prima facie* natural to identify it with this case marker. Under this assumption, its behavior under SA is not what the system I have laid out here predicts. For instance, in (50a), when the superessive case is assigned to both conjuncts, we obtain (without suspended affixation):

(51) *Digor Ossetic*

ɛrtɛ kiʒg-e-bəl ɛma duwɛ biččew-e-bəl
 three girl-NUM-SUP and two boy-NUM-SUP
 ‘on three girls and two boys’

Under the assumption that the marker -ə/-i assigned by the numeral is case, we must conclude that, as a result of deletion, the first conjunct would have to lose overt case marking (52a), which is not what happens for many speakers (52b):

(52) *Digor Ossetic*

a. ?ɛrtɛ kizgɛ ɛma duwɛ biččew-e-bəl
 three girl and two boy-NUM-SUP

b. ɛrtɛ kiʒg-i ɛma duwɛ biččew-e-bəl
 three girl-NUM and two boy-NUM-SUP

However, it is plausible that the numeral suffix is not a form of case marking, but a different entity,²² specifically, a form of plural marking that is only used in the presence of

²¹ As was mentioned above, the numeral paradigm in Digor is one of the very few instances where the inessive form differs from the oblique one.

²² Assuming which I concur with Belyaev (2014).

numerals. Accordingly, SA is not expected to apply to it: (52a) will be ill formed because of the absence of the plural marking.²³

Another way to explain the grammaticality of (50) could be to assume that the external case is only assigned to the second conjunct in (50a–b). However, this is not what happens in Ossetic. As we have seen in Section 4.1, if the case could be assigned only to the second conjunct, we would expect to obtain, alongside with (53a), also (53b), with the pronoun in the nominative. However, such sentences are ungrammatical.

- (53) *Digor Ossetic*
- a. **dew-bel** ɐma mɛdine-bɛl isɛmbalɬten.
 you.OBL-SUP and M-NOM-SUP I.met
 ‘I met you and Madina.’
- b. ***du** ɐma mɛdine-bɛl isɛmbalɬten.
 you.NOM and M-NOM-SUP I.met
 ‘I met you and Madina.’ (intended reading)

To conclude, the idiosyncratic behavior of numeral morphology does not present a problem to deletion-based analyses of SA in Ossetic.

7.2 Behavior of *v*-final stems

When a noun with an *v*-final stem participates in SA, the remnant can ostensibly violate generalization (D) that the remnant under SA must be a substring of the corresponding full form (54). Such nouns include plural stems in both languages and *v*-final singular stems in Digor.²⁴ This is one important situation where the relative timing of ellipsis and phonological readjustments plays a role is SA with *v*-final stems. Under SA, when a noun of this type is (the head of) the first conjunct, the final *-v* obligatorily resurfaces (54).

- (54) a. *Digor singular*
 zɛrdɛ (ɐ)ma wod-i
 heart and soul-OBL
 ‘in the soul and the heart’
- b. *Digor plural*
 kiʒgi-tɛ (ɐ)ma biččew-t-ɛn
 girl-PL and boy-PL-DAT
 ‘for girls and boys’
- c. *Iron plural*
 k’oʒo-tɛ (ɐ)mɛ ʒok’o-t-əl
 mosquito-PL and mushroom-PL-SUP
 ‘about mosquitoes and mushrooms’

On my proposal, this is accounted for by the assumption that deletion of a case morpheme occurs before readjustments take place, and that deletion of the stem-final *-v* in front of a vowel-initial suffix is a readjustment that occurs to resolve hiatus. If the case suffix is deleted, no need for a readjustment arises, and the final *-v* is retained.

²³ I thank James Yoon for pointing out the possibility of this argument.

²⁴ Iron lost the final *v* in most of the singular nouns. In those that retained it, it now behaves as a regular final vowel, so that the epenthetic *-j-* is inserted between a stem and a vowel-initial case suffix, e.g. *ʒɛrdɛ* heart.NOM; *ʒɛrdɛ-j-ɛn* heart-EP-DAT.

When discussing morphophonology of case marking in Section 4.1, we have postponed examination of *v*-final stems. Now is the time to resume this discussion. When such a noun takes a vowel-initial case suffix, the final *-v* of the stem disappears, Table 8.

With consonant-initial case stems, that is, the allative *-mæ* in Digor and *-m* in Iron, and the superessive *-bæl* in Digor, the final *-v* is retained, Table 9.

Under the current proposal, the derivation of the normal Digor oblique *zərđi* heart.OBL and of its occurrence in the suspended affixation in (54a) proceeds in the following steps. In the absence of suspended affixation, vocabulary insertion produces *zərđə-i*, which undergoes readjustment to result in *zərđə-i*. In a suspended affixation configuration, the derivation proceeds as shown in (55): vocabulary insertion again produces *zərđə-i*, after which morpheme deletion applies.

- (55) a. *Vocabulary insertion*
zərđə-i (v)ma wod-i
 heart-OBL and soul-OBL
- b. *Deletion*
zərđə-i (v)ma wod-i
 heart-~~OBL~~ and soul-OBL

This is not the only situation when a morpheme-final *-v* gets deleted to resolve hiatus: the same process occurs, for instance, with the prefix *ənə-* ‘without’: it surfaces as *ənə-* before consonants and as *ən-* before vowels, Table 10.

Table 8: Paradigms of *v*-final stems with vowel-initial case suffixes.

	Digor singular	Digor plural	Iron plural
Nominative	zərde	zerdi-tə	žard-tə
Oblique	zərd-i	zerdi-t-i	žard-t-ə
Dative	zərd-en	zerdi-t-en	žard-t-en
Ablative	zərd-ej	zerdi-t-ej	žard-t-ej
Equative	zərd-aw	zerdi-t-aw	žard-t-aw
Superessive			žard-t-əl

Table 9: Paradigms of *v*-final stems with consonant-initial case suffixes.

	Digor singular	Digor plural	Iron plural
Allative	zərde-ma	zerdi-te-mæ	žard-te-m
Superessive	zərde-bæl	zerdi-te-bæl	

Table 10: *v*-deletion with the prefix *ənə-* in Iron Ossetic.

redəd	‘mistake’	ənə- redəd	‘faultless’
žonge	‘familiar’	ənə- žonge	‘unfamiliar’
əχšəšt	‘peeled’	ən- əχšəšt	‘unpeeled’
axxoš	‘guilt’	ən- axxoš	‘guiltless’

Accordingly, interpreting the deletion of *-v* before vowel-initial suffixes as a phonological readjustment is independently motivated.

7.3 Case marking of reflexives

Finally, Belyaev (2014) reports that SA is possible for some speakers of Iron Ossetic²⁵ when the first conjunct is a reflexive pronoun. An anonymous reviewer suggests that these data are problematic for the current proposal given the peculiar morphology of the case marking in reflexives, see Table 3 below. In this section, I advance a proposal about the representation of the reflexive morphology in the grammars of such speakers.

For speakers who allow SA with reflexives the bare stem *χi-* emerges in the first conjunct. For instance, in (56a), the first conjunct is *mɐ = χi* 1SG = REFL instead of the expected ablative-marked form *mɐ = χisaj* 1SG = REFL.ABL. Likewise, in (56b), the first conjunct is the same bare stem, instead of the superessive-marked *mɐ = χiwəl* 1SG = REFL.SUP.

- (56) *Iron Ossetic*
- a. ?mɐ = χi(sej) ɐmɐ šošlan-ɐj rappedədtən.
 1SG = REFL.ABL and Soslan-ABL I.praised
 ‘I praised myself and Soslan.’
 - b. ?ɐrməšt mɐ = χi(wəl) ɐmɐ šošlan-əl ɐwwəndən.
 only 1SG = REFL.SUP and Soslan-SUP I.believe
 ‘I only trust myself and Soslan.’

These facts are surprising because case paradigms of reflexives in Ossetic are somewhat peculiar. Reflexives are formed by the reflexive stem *χe-* (Digor) / *χi-* (Iron) and a possessive prefix that expresses the phi-features of the binder: *dɐ = χi* 2.SG = REFL.OBL ‘yourself’ (Iron). The inflection paradigms of the reflexive in Iron and Digor are given in Table 11.

These paradigms show two remarkable features: first, in the dative and the ablative, *-c-/-s-* appears between the stem and the case marker; second, in the Iron superessive, *-w-* emerges in the same position.

Prima facie, there are three possible ways to account for this phenomenon. First, one can posit stem allomorphs *χis-/χec-* and *χiw-* for the respective cases. Second, one can posit the existence of allomorphs *-sej/-cɐj* of the ablative suffix; *-sən/-cən* of the dative suffix and *-wəl* of the superessive suffix. Third, insertion of *-c-/-s-* and *-w-* can be treated as epenthesis²⁶ that resolves hiatus that is created between the reflexive stem *χi-* and the

Table 11: Declension of reflexive pronouns in Digor and Iron (fragment).

	1sg reflexive, Digor	1sg reflexive, Iron
Nominative	-	-
Oblique	me=χe	me=χi
Dative	me=χe-c-en	me=χi-s-en
Ablative	me=χe-c-ɐj	me=χi-s-ɐj
Superessive	me=χe-bel	me=χi-w-əl
Allative	me=χe-me	me=χi-me
Equative	me=χe-j-aw	me=χi-j-aw

²⁵ No one among my Digor consultants allows SA in this case.

²⁶ Epenthesis of a non-homorganic segment, in particular of a coronal such as *-s-* is not uncommon cross-linguistically, see a discussion and examples in Lombardi (2002).

vowel-initial case suffixes *-ən*, *-ɛj*, and *-əl*. It is possible, moreover, that different speakers can have different representations of these consonants in their grammars.

If the consonants *-c-/s-* and *-w-* are parts of the stem, the current account predicts SA with reflexives to be impossible for these cases. We would have expected to obtain *χec-/χis-* and *χiw-* as the remnants under SA, but they are not independent words and the derivation would have crashed.

I propose to treat the insertion of these consonants as morpheme-specific epenthesis, see various proposals for morpheme-specific phonology in Kisseberth (1970); Kirchner (1993); Nouveau 1994; Ito & Mester (1995a; b); Orgun 1996; Inkelas (1999); Pater (2000; 2010); Anttila (2002); Caballero 2005; and Inkelas & Zoll (2007).

Therefore, it occurs at the stage of phonological readjustment, and, if the case suffix is deleted at the preceding stage, epenthesis is no longer motivated and does not occur at all.

The interpretation of *-c-/s-* as an epenthetic consonant is independently motivated by the fact that, in Iron, an epenthetic *-s-* also appears between certain vowel-final preverbs²⁷ and the stem in some *a*-initial verbs in Iron, Table 12.

A reviewer objects that this leads to a single root *χi* using two different epenthetic consonants, *-w-* and *-s-*. Diachronic reasons for this are clear: historically, as the reviewer correctly remarks, *-w-* is a reflex of the initial *-b* of the superessive suffix. As long as the case suffix was stop-initial, no epenthetic consonant was needed. Synchronically, it is reasonable to assume that *-w-* has gotten reanalyzed as an epenthetic glide: for the reciprocal *kerezi* it is already in free variation with the default glide *-j-*. Additionally, *w* is in variation with *j* or null in *widon*; *(j)idon* ‘bridle’ *widaz/(j)idaz* ‘reins’ Abaev (1989: 105–106). It also appears in the onset in *wasin* ‘ladder’ in the Kudar dialect of Iron spoken in South Ossetia, as opposed to *ašin* in North Ossetian Iron, (Cheung 2008: 215, the editor’s footnote).

To recapitulate, I propose that speakers of Iron who allow SA with reflexives treat *-w-* and *-s-* that emerge in different paradigm cells as epenthetic consonants and insert them at the stage of phonological readjustments.

8 Alternative analyses

In Section 4.3, I have already argued against one type of possible analyses of SA in Ossetic, namely the one that is based on case assignment to the entire &P or orP. I have shown that this is incompatible with the data from alternative questions brought up in this paper. I overview here, in Section 8.1, a specific implementation of this idea by Belyaev (2014). In this section, I address two more possible alternative analyses of SA in Ossetic. In Section 8.2, I explore the option that single features rather than morphemes can be deleted under

Table 12: Epenthetic *-s-* after Iron Ossetic preverbs.

Preverbless stem	araž-	aχš-	agur-
Translation	‘build’	‘catch’	‘search’
With preverb <i>ra-</i>	ra- s -araž-	ra- s -aχš-	ra- s -agur-
With preverb <i>a-</i>	a- s -araž-	a- s -aχš-	a- s -agur-
With preverb <i>fe-</i>	fe- s -araž-	fe- s -aχš-	fe- s -agur-
Gloss	PRV-EP-build-	PRV-EP-catch-	PRV-EP-search-

²⁷ An anonymous reviewer objects to this interpretation on the grounds that *-s-* is inserted after the consonant-final preverb *vr-* as well. However, historically this preverb apparently was *r-*, i.e. it consisted of a syllabic /r/, which was phonemic at that stage, Cheung (2002). At that stage, insertion of an epenthetic after /r/ was phonologically motivated. Digor completely lost *-c-* epenthesis after preverbs, and *-j-* or *-ʔ-* are inserted there instead.

identity, while in Section 8.3 I compare my analysis to ones based on string deletion, as, for instance, proposed by Mukai (2003) and by An (2016) for certain ellipsis-like constructions in Japanese and Korean.

8.1 Two-layer case assignment to &P or orP

I overview here the analysis of Belyaev (2014) eschewing, however, the LFG formalism he couches it in. The crucial point is that this argument presupposes that SA only happens in real coordinations and does not allow an intermediate stage of ellipsis.

Belyaev (2014) proposes that each case in Ossetic is composed of two layers of features: the first layer is feature [Dir] or [Obl], and the second layer consists of features for all other cases other than the nominative, i.e. [Gen], [Dat], etc. He assumes that the accusative and the genitive are underlyingly the same case in Ossetic, but this does not seem to be crucial for his analysis or my arguments against it.

An item in the nominative than will have feature specification {[Dir], \emptyset } and an item in the case other than the nominative {[Obl], [Case]}, where [Case] is the morphological case of the item, e.g. the dative. For a pronoun in the case other than nominative, e.g. *mən-ən* I-DAT the stem *mən* will bear [Obl] feature while the case marker *-ən* will express the feature [Dat].

Suspended affixation is assumed to occur in surface-true coordinations. When case is assigned to coordinated DPs, both coordinands must have the same inner case feature, that is, they must be either all [Dir] (57a–a') or all [Obl] (57b–b'), while the outer case feature can be only assigned to the rightmost coordinand, i.e. it is the outer case that is assigned to &P as a whole.

- (57) *Iron Ossetic*
- | | | | |
|-----|-----------------------|------------|---------------------------------|
| a. | DP ₁ [Dir] | & | DP ₂ [Dir] |
| a'. | <i>əž</i> | <i>əmɐ</i> | <i>žawər</i> |
| | 1SG.[Dir] | & | Zaur.[Dir] |
| | I.NOM | and | Zaur.NOM |
| | 'I and Zaur' | | |
| b. | DP ₁ [Obl] | & | DP ₂ {[Obl], [Case]} |
| b'. | <i>mən</i> | <i>əmɐ</i> | Zaur.DAT |
| | 1SG.[Obl] | & | Zaur.{[Obl],[Dat]} |
| | I.NNOM and | and | Zaur.DAT |
| | 'for me and Zaur' | | |

Ungrammatical coordinations of a nominative pronoun with a non-nominative DP, such as illustrated in (53b) above, will be ruled out because the coordinands will not match in the feature [Obl]/[Dir].

Under the assumption that case in SA construction is only expounded on the rightmost edge of &P, the retention of the numeral morphology under SA discussed in section 7.1 above is *a priori* not a problem.

Finally, to the best of my understanding, the approach of Belyaev (2014) does not predict the ungrammaticality of SA for two coordinated pronouns, or two lexical DPs marked with =*der*. Probably, the proposal could be modified to account for this fact, but the fact that the outer case attaches to &P as a whole appears to be crucial for Belyaev (2014).

8.2 Deletion of features

On the current proposal, deletion targets morphemes. One can envisage an alternative system where features are allowed to delete one by one, irrespective of whether the deleted feature corresponds to a vocabulary item. Such a system, however, will vastly

overgenerate. For Ossetic, one immediate prediction of a deletion by feature analysis concerns the nominal plural. If the deletion had targeted single features and thus were unrelated to vocabulary insertion, we would expect that the nominal plural be deletable. However, as we have seen in Section 6.2, this is not the case. Further examples of overgeneration require a more careful examination of the relevant feature geometry. I will address here two such instances: of possessive marking in Turkish compounds, where Kharytonava (2012) proposed a feature deletion analysis, and, closer home, of SA in Ossetic.

The relevant Turkish facts are the following. In a non-coordinated compound without a possessor, the 3rd person possessive suffix appears on the head of the compound, *-i* in (58a). In possessed compounds, it gets replaced by the possessive suffix whose phi-features match those of the possessor, *-iniz* in (58b).

- (58) *Turkish*
- a. doğum yer-**i**
 birth place-POSS.3SG
 ‘birth place’
- b. (siz-in) doğum yer-**iniz**
 you.PL-GEN birth place-POSS.2PL
 ‘your birth place’

When two heads are coordinated, in the absence of SA, both carry a possessive suffix (59).

- (59) *Turkish*
- (siz-in) doğum yer-**iniz** ve tarih-**iniz**
 you.PL-GEN birth place-POSS.2PL and date-POSS.2PL
 ‘your birth place and date’, Kharytonava (2012: 175)

Somewhat analogously to the case marking and NUM marking in Ossetic DPs with numerals (as was discussed in Section 4.2), the possessive marker on the first conjunct may undergo partial deletion (60a) to leave the 3rd person possessive suffix, or complete deletion, (60b).

- (60) *Turkish*
- a. Kharytonava (2012: 175)
 (siz-in) doğum yer-i ve tarih-iniz
 you.PL-GEN birth place-POSS.3SG and date-POSS.2PL
 ‘your birth place and date’
- b. Kharytonava (2012: 175)
 (siz-in) doğum yer ve tarih-iniz
 you.PL-GEN birth place and date-POSS.2PL
 ‘your birth place and date’

Kharytonava (2012) proposes a natural feature representation of the Turkish possessive suffixes. Underlyingly, the head *yer* ‘place’ of the first coordinand in (59) are assumed to carry the features corresponding to the 3rd person singular and the 2nd person plural. The 2nd person plural suffix is assumed to be inserted as more fully specified, according to the standard Panini principle. (60a) is derived if the features corresponding to the 2nd person plural suffix are all deleted *simultaneously*, while in (60b) all the possessive phi-features have deleted.

However, under such an analysis, the fact is accidental that both the features corresponding to the 2nd person and the plural are deleted simultaneously. Should deletion indeed proceed feature by feature, we would expect that the possessor’s feature [+PL]

could be deleted on its own. In the case of the sentence in (59), this would produce the sentence in (61) with the 2nd person singular suffix on the first conjunct. However, this sentence is ungrammatical.

- (61) *Turkish*
 *(siz-in) doğum-in yer ve tarih-iniz
 you.PL-GEN birth-POSS.2SG place and date-POSS.2PL
 ‘your birth place and date’ (intended)

To ensure that only grammatical sentences in (60) be derived, we must require that ellipsis may only target combinations of features that correspond to actual morphemes. This phenomenon provides evidence for the reality of morphemes, contrary to what is proposed in purely realizational, in the sense of Stump (2001), theories of morphology.

Turning to the case of the SA in Ossetic, let us assume, for the sake of the argument, that feature deletion may follow gapping that creates alternative questions. To compare morpheme-based and feature-based deletion approaches, we need to specify a feature decomposition of cases in Ossetic. Recall that the case inventory of Ossetic is comprised of the nominative; accusative and genitive, which coincide for most lexical items; inessive; dative; ablative; superessive; and equative.

Given that it is the nominative forms that are used as the default forms (in the sense of Schütze 2001), it is natural to consider them unmarked for morphological case,²⁸ that is to assume that they do not bear any morphological case feature.

Then, if we assume that each non-nominative case corresponds to an atomic feature of its own, say [+Dat] for the dative, [+Sup] for the superessive, etc, we predict that, under SA, the nominative forms of pronouns will surface. As we have seen, this prediction is not borne out.

Therefore, it is necessary to posit a richer structure of case features as shown in Table 13.

One must stipulate then that only the external case feature may be deleted (to avoid surfacing of nominative pronominal forms as first conjuncts), and, moreover, that this must be the only type of feature in Ossetic that can undergo deletion, to avoid predicting SA of anything other than case suffixes.

The first conjunct under SA will then only carry the case feature [+NNom], and this will be the only situation when nominals with such a feature specification surface.²⁹ With this stipulation, this system would be essentially equivalent to the one developed in this paper.

8.3 One fell swoop deletion of a verb and a case marker

Crucially, the current proposal assumes that SA in alternative questions proceeds in two stages: verb deletion (which occurs relatively early in derivation) and affix deletion (which occurs after VI). This is what distinguishes the current proposal from some analyses of somewhat similar phenomena in Japanese and Korean.

²⁸ I adopt the approach that distinguishes the abstract case and the morphological case that surfaces on the nominals, McFadden (2004); Legate (2008), and the ensuing literature. To repeat, I stay agnostic as to the way case is assigned in syntax.

²⁹ Belyaev (2014) argues that this form occurs as the complement of the preposition *ɐnɐ* ‘without’. For lexical nouns, the complement of this preposition either lacks overt case marking *ɐnɐ bɛχ* without horse ‘without a horse’ or is marked with the ablative *ɐnɐ bɛχ-ɛj* without horse-ABL. The ablative marking is optional. For personal pronouns, the choice is between the oblique form *ɐnɐ mɛn* without I.NNOM ‘without me’ and the ablative form *ɐnɐ mɛn-ɛj* without I.NNOM-ABL. However, for all wh-based items the case assigned by *ɐnɐ* is obligatorily ablative: *ɐnɐ kɛmɛj* without who.ABL ‘without whom’; *ɐnɐ iʃ-kɛmɛj* without IDF-who.ABL, etc. However, if *ɐnɐ* were able to only assign the feature [+NNom], we would have wrongly expected the non-nominative stems of wh-words to be able to combine with it: **ɐnɐ kɛ(m)*.

Table 13: Feature specifications of case-marked forms (Iron Ossetic).

Non-nominative stem	+NNom	beχ	men
Accusative	+NNom, +Acc	beχ-ə	men-∅
Genitive	+NNom; +Gen	beχ-ə	men-∅
Dative	+NNom; +Dat	beχ-en	men-en
Ablative	+ NNom; +Abl	beχ-ej	men-ej

An anonymous reviewer inquires whether this proposal is substantially different from one advanced for Japanese by Mukai (2003). She addressed the construction illustrated by the sentence in (62) (example (40) in Mukai’s paper). The DP *tyokoreeto* ‘chocolate’ in (62) lacks the expected accusative marker *-ga*. She calls this construction verbless conjunction.

- (62) *Japanese*
 Tom-ga tyokoreeto Mike-ga keeki-o tabeta.
 Tom-NOM chocolate Mike-NOM cake-ACC ate
 ‘Tom ate some chocolate and Mike ate some cake.’

Mukai (2003) argues that (62) is derived by PF-level deletion of the string that includes the accusative case marker *-ga* and the verb *tabeta* ‘ate’ as shown in (63).

- (63) *Japanese*
 Tom-ga tyokoreeto-~~ga~~-~~tabeta~~ Mike-ga keeki-o tabeta.
 Tom-NOM chocolate-ACC ate Mike-NOM cake-ACC ate
 ‘Tom ate some chocolate and Mike ate some cake.’

Effectively, this means that verbless conjunction is an extended type of gapping, with the case marking deleted alongside with the verb. As known since Ross (1970), Japanese only allows backwards gapping. Ossetic, on the other hand, allow both backward and forward gapping. If SA were a byproduct of gapping, we would have expected it possible in forward gapping sentences as well. This would have yielded a construction similar to the one described by An (2016) for Korean.

However, neither the direct analog of (63) with backward gapping nor its “mirror image” with forward gapping are grammatical in Ossetic. (64a), a sentence with backward gapping, is only grammatical if the case marking is retained on the remnant DP ‘her husband’. The same holds for (64b): forwards gapping is possible only if the case marking stays on the remnant.

- (64) a. *Iron Ossetic*
 medine jə = moj*(-mɛ) ɛnqɛlmɛ-keʃə šoʃlan = ta jə = wuʃ-mɛ
 Madina 3SG = husband-ALL waiting looks Soslan = CTR 3SG = wife-ALL
 ɛnqɛlmɛ keʃə.
 waiting looks
 ‘Madina (is waiting) for her husband, while Soslan is waiting for his wife.’
- b. *Digor Ossetic*
 medine gorɛt-mɛ fɛccɛwuj fatimɛ = ba ɞɛdɛ*(-mɛ) fɛccɛwuj.
 Madina city-ALL leaves Fatima = CTR forest-ALL leaves
 ‘Madina is leaving for the city, and Fatima is leaving for the forest.’

This shows that SA in Ossetic is a phenomenon different from gapping. On the current proposal, however, SA can be fed by gapping that is required to create a configuration where the DPs participating in SA be adjacent to a conjunction or disjunction.

Additionally, if deletion were purely string-based, we would not be able to account for subtler morphophonological effects discussed in Sections 7.2 and 7.3.

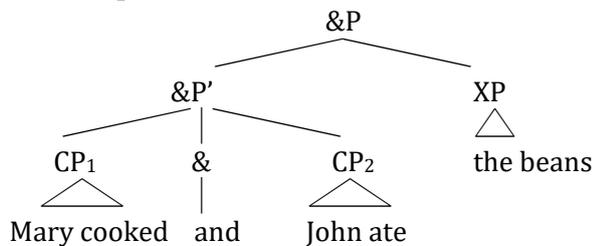
9. Suspended affixation and Right Node Raising

As has been mentioned in the introduction, Kornfilt (2012) noticed a parallel between suspended affixation and the right node raising. Recall that the RNR is a construction of the following type (the sentence from (2) repeated):

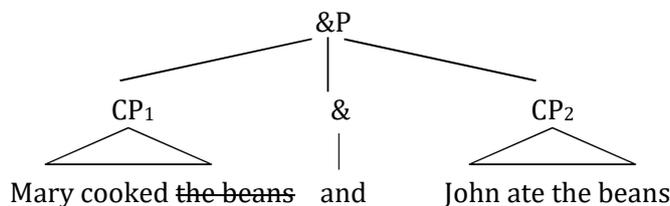
(65) Mary cooked, and John ate **the beans**.

Much of the discussion of the RNR turns around the question whether the pivot, that is, the shared constituent of the two coordinated clauses – for instance, *the beans* in (65), is external to the coordinated phrase, (66a) or internal to the second clause, (66b), see overviews in Sabbagh (2014) and Citko (2017).

(66) a. *External pivot*



b. *Internal pivot*



Languages, or even different instantiations of RNR in a single language, may vary as to the structure of the RNR, see, e.g. Barros and Vicente (2011); Chaves (2014); Sabbagh (2014); and Citko (2017).

These two analyses of the RNR are directly parallel to the two analyses of suspended affixation discussed in this paper: the external pivot analysis corresponds to attachment of the affix to the entire &P (or the disjunction phrase), whereas the internal pivot analysis corresponds to the deletion analysis argued for in the case of Ossetic.

The analogy between the RNR and the SA is not perfect. In Ossetic, suspended affixation and the right node raising show one more crucial difference: while, as we have seen, suspended affixation is possible in these languages, the right node raising is not (67).

(67) *Digor Ossetic*

*mədine iskodta ɐma soslan baχ^wardta k'ere.
 Madina made and Soslan ate pie
 'Madina cooked and Soslan ate, the pie.' (intended reading)

An anonymous reviewer raised a concern whether the fact that the sentence in (67) is not verb-final does not independently explain its ungrammaticality. In fact, although the verb-final order is statistically more common, both Digor and Iron Ossetic allow non-verb final, and in particular SVO, sentences as illustrated in (68).

- (68) *Digor Ossetic* (Gurdzibety 2006)
 nijjeræg-i ječi dzurd-tə rafunχtontsə alan-i mast.
 parent-OBL that word-PL they.boiled Alan-OBL ire
 ‘Those words of the parent’s boiled up Alan’s ire.’

10 Conclusion

In this paper, I have provided an analysis of suspended affixation in Ossetic in terms of morpheme deletion. My main argument for this analysis is the fact that suspended affixation is available for disjuncts of alternative questions. The latter, as I have shown, are obtained in Ossetic by disjunction of large constituents (at least of the size of a VP and probably actually larger) and ellipsis. I have proposed an explicit derivation that leads to suspended affixation and predicts its major observed properties. Some of these properties, as I have argued, result from exigencies of processing rather than from the workings of grammar in the narrow sense.

It remains an open question whether all instances of suspended affixation can be explained by deletion: it well might be the case that, cross-linguistically, suspended affixation is not a uniform phenomenon.

Abbreviations

ABL = ablative, ACC = accusative, AFF = affix, ALL = allative, CTR = contrastive topic, DAT = dative, DEF = definite, FUT = future, or.Q = interrogative ‘or’, LOC = locative, NOM = nominative, MOD = modal, NEG = negation, OBL = oblique, PF = phonological form, PL = plural, POSS = possessive, PRF = perfect, PRS = present, PST = past, Q = interrogative, QUOT = reported speech, RNR = Right Node Raising, SA = suspended affixation, SG = singular, SUP = superessive, & = coordination marker.

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Competing Interests

The author has no competing interests to declare.

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