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Iterated D-layers and Multiple Case Exponence: The structure and significance of a morphological *rarissimum*

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The paper addresses a typologically unusual instance of Multiple Exponence – some wh-based items in Digor Ossetic, an agglutinative Eastern Iranian language spoken in the Caucasus, exhibit double case marking in the plural. For example, the allative plural of the indefinite *ka-der* who-INDEFINITE 'someone' is *ke-me-der-te-me* who-ALLATIVE-INDEFINITE-PLURAL-ALLATIVE. I propose an analysis of this phenomenon in the framework of Distributed Morphology. The key ingredients of the analysis are the presence of two D heads on the spine of such a nominal; and the possibility of last-resort sharing of a case value between these heads. Furthermore, under appropriate conditions, the case exponents associated with the two D heads undergo haplological dissimilation. The rarity of this kind of double case exponence is due to the fact that a number of independent conditions need to be met simultaneously in order for it to obtain.

1 Introduction

Multiple Exponence (ME), in the explicit definition of Harris (2017: 9) is "the occurrence of multiple realizations of a single morphosemantic feature, bundle of features, or derivational category within a word". Assembling an extensive array of case studies, Harris (2017) showed the phenomenon to be fairly common cross-linguistically. As the examples in (1) illustrate, a wide variety of features can be multiply exponed.

(1)   a.   ME of gender concord, Karata (Northeast Caucasian; Russia)
                b-eč'et'iro-**b**   riha
                B-black-**B**   goat(B).ABS[1]
                'black goat'   (Magomedbekova 1971: 85)

          b.   ME of φ-feature agreement, Ibibio (Cross-River; Niger-Congo; Nigeria)
                ɔmmɔ **e**-ya-**e**-dep   ebot
                they   **3PL.SG**-FUT1-**3PL.SG**-buy goat
                'They will buy a goat.'   (Baker & Willie 2010: 101)

          c.   ME of pluractionality marking, Lower Bal Svan (South Caucasian; Georgia)
                dina   išg-**al**-**æl**-i   pur-ær-s
                girl.ABS milk-**PLL**-**PLL**-PRS cow-PL-DAT
                'The girl milks cows.'   (Harris 2017:63)

          d.   ME of causative marking, Lusoga (Bantu; Uganda)
                bà-kùb-**ír**-ágán-**ír**-á
                3PL-beat-**CAUS**-REC-**CAUS**-FV
                'they beat each other'   (Caballero & Inkelas 2018: 132)

ME does not constitute a uniform phenomenon. To address different instances of ME, several different mechanisms have been proposed in the Distributed Morphology literature so far. Some ME phenomena have been shown to be derived by idiosyncratic, but well-motivated postsyntactic operations: Fission (Noyer 1997; Arregi & Nevins 2012; McGinnis-Archibald 2016); phonological reduplication of the relevant exponents, (Harris & Halle 2005; Arregi & Nevins 2012; Deal 2016), and "enrichment," which essentially is a reduplication of morphological features, Müller (2007). On the other hand, some ME phenomena have been shown to arise still in the narrow syntax and to be a manifestation of a more involved syntactic structure, but not to require any non-standard syntactic operations (Baker & Willie 2010; Oxford 2017).

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[1] The paper uses the following glosses and abbreviations: ABL ablative; ABS absolutive; ADV adverbial; ALL allative; B B-gender (in Northeast Caucasian languages); CAUS causative; COM comitative; COR correlative; DAT dative; EMP scalar particle; EQU equative; ERG ergative; FUT future; FV final vowel;GEN genitive; IDF indefinite; INS instrumental; LOC locative; NMZ nominalizer; NOM nominative; M a suffix in dative, ablative, and inessive wh-words in Ossetic; OBL oblique; PART partitive; PLL puractionality; PRS present; PV preverb; REC reciprocal; SBJV subjunctive; SUBJ subject marker; SUP superessive; TR transitivizer; V verbalizer; DM Distributed Morphology; VI Vocabulary Item.

In this paper, I address an apparently typologically rare phenomenon, multiple case exponence in the plural forms of wh-words and wh-based indefinites in Digor Ossetic, an endangered minority East Iranian language spoken in the North Caucasus. The pattern of case marking in such items is illustrated in (2) with a partial paradigm of the wh-word *ka* 'who' and the indefinite *ka-dɐr* who-IDF 'someone'. In all the cases with non-null exponents, i.e., all the cases other than the nominative, case marking appears twice: after the wh-stem and after the plural marker.

(2) Nominative   ka-tɐ   ka-dɐr-tɐ
                       who-PL   who-IDF-PL
                       'who.PL'   'someone.PL'
       Non-nominative cases
                       wh-**CASE**-PL-**OBL**   wh-**CASE**-IDF-PL-**CASE/-PL-OBL**
       Dative   kɐm-**ɐn**-t-**i**   kɐm-**ɐn**-dɐr-t-**ɐn**/t-**i**
                       who-DAT-PL-OBL   who-DAT-IDF-PL-DAT/-PL-OBL
       Allative   kɐ-**mɐ**-t-**i**   kɐ-**mɐ**-dɐr-tɐ-**mɐ**/-t-**i**
                       who-ALL-PL-OBL   who-ALL-IDF-PL-ALL/-PL-OBL

I will argue that this instance of ME arises due to a combination of a rather idiosyncratic internal syntax of these items and a postsyntactic operation motivated by haplology avoidance. More specifically, I propose that such plural indefinites involve two D heads, each of which receives the case feature. The higher D head receives the feature by the regular case-assignment mechanism, while the lower one receives the same feature from the higher by a dedicated last-resort feature-sharing mechanism. A similar feature-sharing procedure was proposed in Clem & Dawson (2021: 13) for multiple occurrences of D in nominals in Tiwa (Tanoan). I provide additional language-specific evidence for the existence of this mechanism in Digor Ossetic and propose a locality condition for it. At the spellout, a haplology-resolving operation takes place under certain conditions in Digor, which results in the spellout of non-identical case markers.

This paper is organized as follows. In Section 2, I introduce the empirical puzzle this paper deals with, double case exponence in certain wh-based plurals. In Section 3, I show that postsyntactic operations proposed in the DM literature to account for Multiple Exponence cannot account for the phenomenon under discussion. Section 4 provides the necessary background on Digor Ossetic case and number morphology, and on the structure of wh-based indefinites in this language. Section 5 systematically addresses case and number marking in wh-based items. Section 6 treats the syntax of DPs in Digor in general, and the internal structure of wh-items of different types, wh-based indefinites, and of their plural forms. It introduces the first crucial ingredient of the analysis – the distinction between nP-sized and DP-sized wh-words, and the presence of two copies of D in the plural forms of the latter. Section 7 uses the syntax developed in Section 6 to show that narrow syntax-based proposals advanced for other instances of ME by Baker & Willie (2010) and Oxford (2017) cannot be generalized to our situation. Section 8

deals with case assignment in nominals involving two D heads. It introduces the second crucial technical ingredient of the analysis – the operation of last-resort feature transmission. Section 9 addresses haplological dissimilation of case exponents. Section 10 discusses possible reasons for the cross-linguistic rarity of the Ossetic-type double case marking pattern.

Unless explicitly indicated otherwise, all examples in this paper are from Digor Ossetic. Unattributed examples all come from my fieldwork materials.

2 The Puzzle

The phenomenon to be addressed in this paper is a typologically unusual pattern of multiple case exponence in the plural forms of some wh-words and wh-based indefinites in Ossetic. This phenomenon has not been previously addressed in the theoretical literature. In more traditional literature, Zgusta (1965) discussed the data and noticed their typological uncommonness.[2]

Ossetic builds indefinites on the basis of wh-stems, which by itself is common cross-linguistically, see Haspelmath (1997) for a typological overview, and specifically Haspelmath (1997: 281) for an inventory of indefinites in Iron Ossetic and an overview of their functions. I will call the series of indefinites of interest to us the *jes*-series and *dɐr*-series, respectively.

The case marking in these indefinites is borne by the wh-stem, as illustrated by the partial paradigms of 'who'-based indefinites in (3). For background information on Ossetic case morphology and complete paradigms, see Section 4 below.

(3)		wh	*jes*-series	*dɐr*-series
			IDF-wh	wh-IDF
	Nominative	ka	jeʃ[3]-ke	ka-dɐr
	Oblique	ke	jeʃ-ke	ke-dɐr
	Allative	kɐ-mɐ	jes-kɐ-mɐ	kɐ-mɐ-dɐr
		'who'	'somebody'	'somebody'

Furthermore, wh-words and indefinites of *jes*- and *dɐr*-series allow plural marking (4). For wh-words, this fact by itself is not typologically unusual, at least not for the region where the Ossetic languages are spoken, see e.g. Kornfilt (1997: 316–317) for plural-marked wh-words in Turkish (Turkic, Turkey); Tschenkéli (1958: 196) for Georgian (South Caucasian; Georgia); Dum-Tragut (2009: 148) for Standard Eastern Armenian (Indo-European; Armenia); and Bagirokova et al. (2022: 289) for Adyghe (Northwest Caucasian; Russia).

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[2] I thank Ronald Kim for this reference.

[3] In the dialect of Digor Ossetic represented here (spoken by the majority of Digor speakers, except the inhabitants of the town of Digora), sibilants and affricates palatalize when they, or the consonant clusters they are a part of, are followed by a front vowel. Accordingly, in such situations the prefix *jes*- takes the form [jeʃ]. In the nominative form here, the root is irregular – it is *ke* instead of the expected *ka* (which would have produced the indefinite **jes-ka*).

(4) wh   *jes*-series   *dɐr*-series
     wh-PL   IDF-wh-PL   wh-IDF-PL
     ka-tɐ   jeʃ-ke-tɐ   ka-dɐr-tɐ
     who-PL   IDF-who-PL   who-IDF-PL
     ʧi-tɐ   jeʃ-ti-tɐ⁴   ʧi-dɐr-tɐ
     what-PL   IDF-what-PL   what-IDF-PL

While the singular forms are in principle number-neutral, the plural forms can be used when some kind of a plurality presupposition is involved (5).

(5) a. tsard-i   medɐgɐ berɐ **ʧi-dɐr-tɐ** jes
         life-OBL inside   many what-IDF-PL   exists
         'There are many different things in life.' (from a recorded narrative)

     b. zɐʁ-ɐ=nin   de=mbɐl-ttɐ   **ka-tɐ** (ɐ)ntsɐ   woj
         say-IMP.2SG=DAT.1PL   2SG=friend-PL   wh-PL   be.PRS.3PL COR.OBL
         'Tell us who your friends are.'   Maliti (1995: 216)

Unexpectedly, in all the cases other than the nominative, the plural forms of these indefinites carry two overt case markers. One of them is the 'actual' case exponent on the wh-stem, and the other follows the plural marker, as is illustrated in (6) by a partial paradigm of 'who'-based indefinites. For the plural forms of wh-words and *jes*-series indefinites, the outer case suffix is always the oblique case marker -*i*, (6 a–c). On the other hand, for the plural forms of the *dɐr*-series it can be either the OBL marker -*i* or a second instance of the actual case marker (6 d–f).

(6) a. **ke**-t-**i**
         who.OBL-PL-OBL
         'who.PL.OBL'

     b. kɐ-**mɐ**-t-**i**
         who-ALL-PL-OBL
         'who.PL.ALL'

     c. kɐ-**bɐl**-t-**i**
         who-SUP-PL-OBL
         'who.PL.SUP'

     d. **ke**-dɐr-t-**i**
         who.OBL-IDF-PL-OBL
         'someone.PL.OBL'

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⁴ In the *jes*-series indefinites based on *ʧi* 'what', the initial affricate of the root is dissimilated from the sibilant of the prefix to produce /t/.

    e.   kɐ-**mɐ**-dər-tɐ-**mɐ/-**t-**i**
        who-ALL-IDF-PL-ALL/-PL-OBL
        'someone.PL.ALL'

    f.   kɐ-**bɐl**-dər-tɐ-**bɐl/-i**
        who-M-SUP-IDF-PL-SUP/-OBL
        'someone.PL.DAT'

The sentential examples in (7) below illustrate the use of these items.

(7)   Plural wh-words
    a.   **kɐm-ɐj-t-i**   ra-kordʑɐnɐ   ɐχtsa?
        who-ABL-PL-OBL   PV-ask.FUT.2SG money
        'Who will you borrow money from?'

    b.   **tsɐ-bɐl-t-i**   ʁudi   kɐni?
        what-SUP-PL-OBL thought do.PRS.2SG
        'What are you thinking about?'

    Plural *jes*-indefinites
    c.   **jes-kɐm-ɐn-t-i**   ɐnχusʁon=dɐr=ma   ɐntsɐ
        IDF-who-DAT-PL-OBL helpful=EMP=more be.PRS.3PL
        'To some, they are even helpful.' Sk'odtati (2012: 237)

    Plural *dɐr*-indefinites
    d.   samel   **tsɐ-bɐl-dɐr-t-i**   fɐ-ssaʁɐs-tɐ   kodta
        Samel what-SUP-IDF-PL-OBL PV-thought-PL do.PST.3SG
        'Samel thought about something.' Maliti (2006: 77)

    e.   **kɐ-mɐ-dɐr-tɐ-mɐ/kɐ-mɐ-dɐr-t-i**   ɐnʁɐlmɐ kɐsun
        who-ALL-IDF-PL-ALL /who-ALL-IDF-PL-OBL waiting look.PRS.1SG
        'I am waiting for somebody.'

It goes without saying that in the plural forms of lexical DPs, case is only marked once. Furthermore, no overt concord in case or number exists in Ossetic DPs (8b–d).

(8)   a.   atʃi ustur tikis
        this big   cat.NOM
        'this big cat'

    b.   atʃi ustur(*-mɐ) tikis-mɐ
        this big-(ALL)   cat-ALL
        'to this big cat'

    c.   atʃi ustur tikis-tɐ
        this big   cat-PL
        'these big cats'

    d.   atʃi   ustur(*-mɐ)   tikis-tɐ-mɐ
       this   big   cat-PL-ALL
       'to these big cats'

It is worth stressing that although the items in (6) and (7) bear two different case markers, that of the respective morphological case X and the oblique *-i*, the item as a whole only bears a single case normally expressed by X. This is illustrated by the minimal pair in (9), of which the sentence in (9a) repeats (7d). The lexical DP in (9b) only bears the superessive case marker *-bɐl*.

(9)   a.   samel   **tsɐ-bɐl-dɐr-t-i**   fɐ-ssaʁɐs-tɐ   kodta
           Samel   what-SUP-IDF-PL-OBL   PV-thought-PL   did
           'Samel thought about something.'

    b.   samel   **ɐ=dʑubandi-tɐ-bɐl**   fɐ-ssaʁɐs-tɐ   kodta
           Samel   3SG=speech-PL-SUP   PV-thought-PL   did
           'Samel thought about her/his words.'

Therefore, what we are dealing here with is indeed an instance of multiple case exponence in the sense of Harris (2017: 9), and not *Suffixaufnahme* in the sense of Plank (1995). i.e., not the marking of a nominal with several case markers coming from several case assigners. For instance, in the Old Georgian example in (10), the noun *iak'ob* Jacob bears the genitive as the possessor of *saxl* 'house', and the ergative that is assigned to the entire DP 'Jacob's house', possibly copied to the possessor by a case concord mechanism.

(10)   Old Georgian Shanidze (1976: 50)
      saxl-man   iak'ob-is-man
      house-ERG   Jacob-GEN-ERG
      'Jacob's house (erg.)'

To account for the pattern in (6), I will argue that the structure of the respective plural-marked wh-words and wh-based indefinites involves two D heads, each of which is assigned case. The case value is shared between them, similarly to the proposal of Clem & Dawson (2021) for Tiwa. To express the case, each of the D heads projects an Agr head of its own. If those latter heads are close enough to each other, their features undergo dissimilation to avoid haplology, Nevins (2012).

3 Against Post-Syntactic Derivation of ME in Ossetic

In this section, I show that post-syntactic operations proposed in the literature to derive various manifestations of ME, cannot explain the Ossetic facts under discussion no matter what the syntax of the items involved. Specifically, I address fission, phonological reduplication, and enrichment.

3.1 Fission

In the standard toolbox of Distributed Morphology, the default way to address (ostensible) Multiple Exponence of a feature bundle is to make recourse to the operation of fission, see e.g. Noyer (1997); Halle (1997); Arregi & Nevins (2012: 9); McGinnis-Archibald (2016: 406). The operation of fission was designed to handle situations where a feature bundle splits, as schematized in (11), and features are expressed one by one, so that that the new nodes carry differing (sets of) features.

(11)   [α, β] → [α] [β]

Given that for the *dɐr*-series indefinites, two identical copies of the same case exponent may appear, as is illustrated by the partial paradigm in (12), it is hard to assume that what we are dealing with here is the splitting of whatever feature bundles that stand behind the case markers in Ossetic.[5]

(12)   Dative   kɐm-**ɐn**-dɐr-t-**ɐn**/t-**i**
        Allative kɐ-**mɐ**-dɐr-tɐ-**mɐ**/t-**i**

Even if the appearance of the oblique marker *-i* alongside the dative marker could be explained by fission, the presence of two copies of the same case marker cannot.

3.2 Phonological reduplication

A phonological reduplication account of ME was proposed by Harris & Halle (2005: 201) for plural marking in Spanish verb-clitic combinations.[6] It has been applied to a variety of morphological phenomena in Arregi & Nevins (2012: 240). Another variation of this technique was applied by Deal (2016: 330–336) to analyze plural exponence in Nez Perce.

(13)   Spanish Harris & Halle (2005: 195–196); Alcázar & Saltarelli (2010: 2)
        vénda-**n**=lo   vs. vénda-**n**=lo-**n**   or vénda=lo-**n**
        sell.SBJV-3PL=it   sell.SBJV-3PL=it-3PL   sell.SBJV=it-3PL
        'You (pl) sell it!'

This type of analysis is not directly applicable to our data – first, it is not clear how a purely phonological account would treat the emergence of the oblique case marker instead of the

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[5] For the featural representation of the case exponents, see Section 9 below. For the current argument, the precise content of this feature bundle is not important.

[6] Kayne (2010) and Alcázar & Saltarelli (2010) propose an alternative account of the Spanish data. Essentially, they argue for the existence of null auxiliaries whose agreement marker is the "reduplicated" plural marker. The phenomenon is then reduced to multiple agreement.

exponent of the case the nominal stands in. Instead of the actual forms *kɐ-mɐ-t-i* who-ALL-PL-OBL, *kɐ-bel-t-i* who-SUP-PL-OBL, etc. this account would predict the ungrammatical *kɐ-mɐ-tɐ-mɐ who-ALL-PL-ALL, *kɐ-bel-tɐ-bel who-SUP-PL-SUP, etc. Second, even if this dissimilation can somehow be accounted for, it is unclear what would prevent the same reduplication from occurring in lexical nouns resulting in ungrammatical forms such as the would-be allative plural of *bɐχ* 'horse' **bɐχ-mɐ-t-i/t-ɐn* horse-ALL-PL-OBL/PL-ALL, instead of the actual *bɐχ-tɐ-mɐ* horse-PL-ALL.

3.3 Enrichment

To account for certain instances of Multiple Exponence, Müller (2007) proposed the operation of *enrichment*. Essentially, under enrichment, a feature that is to be expressed twice is reduplicated and participates twice in the spellout, Müller (2007: 261). However, by design, the enrichment operation creates portmanteau morphemes – the reduplicated feature is expressed together with the feature that serves as the condition for reduplication (see the examples on pp. 261–264 of Müller's work), whereas the feature expression in Ossetic plural indefinites is strictly separative – clearly distinguishable morphs express case and number. Furthermore, similarly to analyses in the style of Harris & Halle (2005), it is not clear how to ensure that such enrichment will only occur in wh-based items, and fail to do so in lexical nouns.

To recapitulate, standard postsyntactic operations argued to derive Multiple Exponence within the Distributed Morphology framework cannot directly account for the pattern under discussion. That might imply of course that another, yet unobserved post-syntactic operation is implicated here. However, the most theoretically parsimonious conclusion is to seek the reasons for the Ossetic phenomenon in the narrow syntax.

4 Background on Digor Ossetic morphology

Digor and Iron Ossetic are closely related East Iranian languages spoken in the Central Caucasus. They are often called dialects of the same language in the literature. The data in this paper is from Digor, however, a similar phenomenon exists in Iron, and the analysis proposed here is applicable to the Iron facts as well.

4.1 Basics of case and number morphology

Digor morphology is largely agglutinative. Case and number are marked by separate morphemes. In the lexemes relevant for the current discussion, the singular lacks an overt marker. The plural morpheme is *–(t)tɐ-*. The basic allomorphs of the case markers in Digor are shown in **Table 1** below.

Nominative	-∅
Oblique[7]	*-i*
Dative	*-ɐn*
Ablative	*-ɐj*
Allative	*-mɐ*
Superessive	*-bɐl*
Equative	*-aw*

Table 1: The basic allomorphs of case markers.

For the sake of reference, I provide in **Table 2** the case paradigms of lexical nouns. The data in the table show that the case markers mildly depend on whether what they attach to ends in a consonant, the vowel *-ɐ*, or any other vowel. Before vowel-initial case markers, the stem-final *ɐ* disappears. Accordingly, the plural marker *-tɐ-* surfaces as *-t-* before such case markers. On the other hand, on the juncture of any other stem-final vowel and a vowel-initial suffix, the epenthetic glide *-j-* is inserted, as illustrated by the paradigm of *k'ere* 'pie' in **Table 2**.

	Consonant-final singulars	**Non ɐ-final singulars**	**ɐ-final**	
			Plurals	**Singular[8]**
Nominative	*bɐχ* 'horse'	*k'ere* 'pie'	*bɐχ-tɐ* 'horse'	*tun-ɐ* 'ray'
Oblique	*bɐχ-i*	*k'ere-j*	*bɐχ-t-i*	*tun-i*
Dative	*bɐχ-ɐn*	*k'ere-j-ɐn*	*bɐχ-t-ɐn*	*tun-ɐn*
Ablative	*bɐχ-ɐj*	*k'ere-j-ɐj*	*bɐχ-t-ɐj*	*tun-ɐj*
Allative	*bɐχ-mɐ*	*kere-mɐ*	*bɐχ-tɐ-mɐ*	*tun-ɐ-mɐ*
Superessive	*bɐχ-bɐl*	*k'ere-bɐl*	*bɐχ-tɐ-bɐl*	*tun-ɐ-bɐl*
Equative	*bɐχ-aw*	*k'ere-j-aw*	*bɐχ-t-aw*	*tun-aw*

Table 2: Case marking in Digor lexical nouns.

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[7] I use the label "oblique" for the accusative, genitive, and inessive, which are syncretic for all lexical nouns. Whenever these cases are not syncretic, I will treat them separately.

[8] In *ɐ*-final singular nouns, *-ɐ* is the singular number exponent, Erschler (2022: 264). In the remaining nouns, the null allomorph of the SG morpheme occurs.

The case and number morphology of lexical nouns will serve us as a baseline in further discussions of the properties of wh-based items.

4.2 Wh-words and wh-based indefinites

To repeat, indefinites in Digor Ossetic are based on wh-stems. They form a number of series, see a description and a discussion of the meanings of cognate indefinites in Iron Ossetic in Haspelmath (1997: 281). The whole inventory of series is illustrated for several wh-words in (14).

(14)

	'who'	'what'	'when'	'what kind of'
bare wh	ka	tʃi	kɐd	kɐtʃi
jes-series	jeʃ-ke	jeʃ-ti	jes-kɐd	jes-kɐtʃi
-*dɐr*-series	ka-dɐr	tʃi-dɐr	kɐd-dɐr	kɐtʃi-dɐr
-*dɐritter*-series	ka-dɐritter	tʃi-dɐritter	kɐd-dɐritter	kɐtʃi-dɐritter
-*fɐndi*-series	ka-fɐndi	tʃi-fɐndi	kɐd-fɐndi	kɐtʃi-fɐndi

I exclude from further consideration indefinites that have full case paradigms but lack plural forms. These comprise the entire *dɐritter* and *fɐndi*-series for all wh-stems, as well as the indefinites of all the series based on the wh-word *tsal* 'how many/much.'

Haspelmath (1997: 281) describes the uses of the two series under discussion in Iron Ossetic in the following manner: the *dɐr*-series is only used in specific functions, while the *jes*-series is used in non-specific functions,[9] questions, irrealis contexts, conditionals, and in indirect negation contexts. Some of these uses are illustrated for Digor Ossetic in (15).

(15) a. *dɐr*-series, a specific unknown context
    soslan **tʃi-dɐr/*jeʃ-ti** ba-χʷardta fal nɐ=zonun tʃi
    Soslan what-IDF/*IDF-what PV-eat.PST.3SG but NEG=I what
    'Soslan ate something, but I do not know what.'

  b. *jes*-series, a non-specific context
    dɐw-mɐ **jeʃ-ti** un-i bɐʃti mɐn-mɐ wa
    you-ALL IDF-what be.INF-OBL instead I-ALL be.SBJV.FUT.3SG
    'Instead of anything being yours, let it better be mine.' (from a recorded narrative)

  c. *jes*-series, a (rhetorical) question
    χʷɐzdɐr tsard-mɐ ɐnɣɐlmɐ kɐsɐm fal=nɐmɐ **jes-kɐd** **jeʃ-ti**
    better life-ALL waiting look.PRS.1PL but=1PL.ALL IDF-when IDF-what
    ra-wadɐj?
    PV-issue.PST.3SG
    'We wait for a better life, but have we ever gotten anything?'
    (from a recorded narrative)

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[9] Such examples as in (7c) above show that these indefinites do not directly map onto the English *some-* and *any-* indefinite series.

Detailed semantics of these indefinites awaits systematic study. Nothing in the account proposed in this paper crucially hinges on it.

5 Case marking of wh-words, wh-based indefinites, and their plural forms

In this section, I systematically lay out the morphological facts to be accounted for in this paper. Digor wh-words and indefinites derived from them divide into two classes: those that exhibit the double case marking sketched in Section 2, and those that behave like lexical nouns, i.e., ones that expone the case only once.

5.1 Items that exhibit double case-marking in the plural

Only two wh-words exhibit a full case paradigm and double case marking in the plural: *ka* 'who' and *ʧi* 'what'. The same is true for the indefinites derived from these wh-words. However, as we will see at the end of this section, a handful of items with very incomplete case paradigms (mostly wh-words) also exhibit this property.

The paradigms[10] of 'who' and 'what' are given in **Table 3**. The internal structure of these word forms is worth commenting upon. Except for the nominative forms *ka* 'who' and *ʧi* 'what' and the oblique form *ke* of 'who', the case forms of the wh-words are built upon the stems that I gloss as non-nominative: *kɐ* for 'who' and *tsɐ* for 'what'. In addition, in the dative, ablative, and inessive case, the suffix *-m-* is attached to the non-nominative stem. The correct synchronic analysis of this suffix is at present unclear,[11] and I agnostically gloss it м in this paper.

As the data in **Table 3** show, the plural forms of these wh-words exhibit double case exponence. The plural suffix *-tɐ-* is attached, as it were, to case-marked stems, and the oblique case marker is attached to it in all cases except the nominative.

	'who'	'who-pl'	'what'	'what-pl'
Nom	ka	ka-tɐ	ʧi	ʧi-tɐ
Acc	ke(< *kɐ-j)	ke-t-i	ʧi	ʧi-tɐ
Gen	ke(< *kɐ-j)	ke-t-i	tsɐ-**j**	tsɐ-**j**-t-**i**
Dat	kɐ-m-**ɐn**	kɐ-m-**ɐn**-t-**i**	tsɐ-m-**ɐn**	tsɐ-m-**ɐn**-t-**i**
Abl	kɐ-m-**ɐj**	kɐ-m-**ɐj**-t-i	tsɐ-m-**ɐj**	tsɐ-m-**ɐj**-t-**i**
Iness	–[12]	–	tsɐ-m-**i**	tsɐ-m-**i**-t-**i**
All	kɐ-**mɐ**	kɐ-**mɐ**-t-i	tsɐ-**mɐ**	tsɐ-**mɐ**-t-**i**
Sup	kɐ-**bɐl**	kɐ-**bɐl**-t-i	tsɐ-**bɐl**	tsɐ-**bɐl**-t-**i**

Table 3: Case marking in Digor Ossetic wh-words.

The case paradigms of the *jes-* and *dɐr*-series indefinites derived from 'who' and 'what' are shown in **Tables 4** and **5**, respectively. In the indefinites derived with the prefix *jes-*, the case and number marking works exactly the same as in the respective bare wh-words, as the rightmost columns of **Tables 4** and **5** show. The true case marker on the wh-stem, say, that of the dative or the ablative case, is accompanied by the oblique marker on the right edge of the word form, while repeating the true case marker is impossible: *jes-kɐ-m-ɐn-t-i* IDF-who-M-**DAT**-PL-**OBL**.

On the other hand, the indefinites formed with the suffix *-dɐr* exhibit interesting differences. First, in these items, the plural marking appears further from the stem than the indefinite suffix *-dɐr*. Second, the outer case marker in the plural may repeat the "true" case marker,[13] as shown in the second columns of **Tables 4** and **5**.

	-dɐr series		*jes-* series	
Nom	ka-dɐr	ka-dɐr-tɐ	jeʃ-ke	jeʃ-ke-tɐ
Obl	ke-dɐr(-i)	ke-dɐr-t-i	jeʃ-ke	jeʃ-ke-t-i
Dat	kɐ-m-**ɐn**-dɐr	kɐ-m-**ɐn**-dɐr-t-**ɐn**/-t-**i**	jes-kɐ-m-**ɐn**	jes-kɐ-m-**ɐn**-t-i
Abl	kɐ-m-**ɐj**-dɐr	kɐ-m-**ɐj**-dɐr-t-**ɐj**/-t-**i**	jes-kɐ-m-**ɐj**	jes-kɐ-m-**ɐj**-t-i
All	kɐ-**mɐ**-dɐr	kɐ-**mɐ**-dɐr-tɐ-**mɐ**/-t-**i**	jes-kɐ-**mɐ**	jes-kɐ-**mɐ**-t-i
Sup	kɐ-**bɐl**-dɐr	kɐ-**bɐl**-dɐr-tɐ-**bɐl**/-t-**i**	jes-kɐ-**bɐl**	jes-kɐ-**bɐl**-t-i

Table 4: Multiple case marking in Digor Ossetic 'who'-based indefinites.

---

[12] The inessive of 'who', *kɐmi*, has been reanalyzed as the wh-word 'where', see the discussion in the end of this section.

[13] The traditional descriptions of Iron Ossetic Axvlediani (1963: 196), Abaev (1964: 29), Bagaev (1965: 257), and Medojty (2003: 145) do not mention this possibility. However, forms with two identical case markers occur in texts and are judged fully grammatical by native speakers. As for the traditional descriptions of Digor, Isaev (1966) does not mention plural forms of indefinites. Takazov (2009: 78) provides relevant paradigms, but does not mention that the plural forms of *dɐr*-series indefinites allow the pattern wh-**CASE**-PL-**OBL**.

A remark is in place regarding the morphophonology of the *jes*-series indefinites derived from 'what' presented in **Table 5**. In all of these, the initial affricate of the root is dissimilated from the sibilant of the prefix to produce /t/.

	-dɐr series		*jes-* series	
Nom	tʃi-dɐr	tʃi-dɐr-tɐ	jeʃ-ti	jeʃ-ti-tɐ
Acc	tʃi-dɐr	tʃi-dɐr-tɐ	jeʃ-ti	jeʃ-ti-tɐ
Gen	tsɐj-dɐr	tsɐj-dɐr-t-i	jes-tɐj	jes-tɐj-t-i
Dat	tsɐ-m-**ɐn**-dɐr	tsɐ-m-**ɐn**-dɐr-t-**ɐn**/-t-**i**	jes-tɐ-m-**ɐn**	jes-tɐ-m-**ɐn**-t-i
Abl	tsɐ-m-**ɐj**-dɐr	tsɐ-m-**ɐj**-dɐr-t-**ɐj**/-t-**i**	jes-tɐ-m-**ɐj**	jes-tɐ-m-**ɐj**-t-i
Iness	tsɐ-m-i-dɐr	tsɐ-m-**ɐj**-dɐr-t-i	jes-tɐ-m-i	jes-tɐ-m-i-t-i
All	tsɐ-**mɐ**-dɐr	tsɐ-**mɐ**-dɐr-tɐ-**mɐ**/-t-**i**	jes-tɐ-**mɐ**	jes-tɐ-**mɐ**-t-i
Sup	tsɐ-**bɐl**-dɐr	tsɐ-**bɐl**-dɐr-tɐ-**bɐl**/-t-**i**	jes-tɐ-**bɐl**	jes-tɐ-**bɐl**-t-i

Table 5: Multiple case marking in Digor Ossetic 'what'-based indefinites.

Besides 'who', 'what', and the respective indefinites, a number of other wh-words require double case marking in the plural, but these items only exist in very few morphological cases. These are the allative and ablative case forms of *kɐd* 'when' (16a); the wh-words 'where to' and 'where from' (which lack any other case forms, but bear the allative and the ablative marker, respectively) (16b), and *kɐmi* 'where', which historically is the inessive of *ka* 'who' (16c). All these follow the pattern X-CASE-PL-OBL. The same is true for the indefinites derived from these wh-words (16d). In this dataset, I do not provide separate translations for the respective singular and plural items, as English fails to make this distinction.

(16) a. kɐd 'when'

SG	PL	SG	PL
kɐd-ɐj	?kɐd-ɐj-t-i[14]	kɐd-mɐ	kɐd-mɐ-t-i
when-ABL	when-ABL-PL-OBL	when-ALL	when-ALL-PL-OBL
'since when'		'until when'	

b.

ku-mɐ	ku-mɐ-ti	kutem-ɐj	kutem-ɐj-t-i
where.to	where.to-PL-OBL	where.from	where.from-PL-OBL

c.

kɐ-m-i	kɐ-m-i-t-i	kɐ-m-i-dɐr	kɐ-m-i-dɐr-t-i
who-M-OBL	who-M-OBL-PL-OBL	who-M-OBL-IDF	who-M-OBL-IDF-PL-OBL
'where'		'somewhere'	

d.

kumɐ-dɐr	kumɐ-dɐr-t-i
where.to-IDF	where.to-IDF-PL-OBL
'to somewhere'	

---

[14] Most consultants have rejected this form, and it does not occur in the texts I consulted.

kutem-ɐj-dɐr   kutem-ɐj-dɐr-t-i
where.from-IDF   where.from-IDF-PL-OBL
'from somewhere'

Furthermore, the marking by superessive and the oblique appears in the following two deictic adverbials describing the path by which the movement proceeds: *a-bɐl-t-i* 'along these grounds' and *wo-bɐl-t-i* 'along those grounds'.

The analysis of double case marking to be developed below is fully applicable to these "sporadic" items. However, given that they lack full paradigms, an alternative analysis is possible for them: synchronically, the case-marked form is reanalyzed as a single stem, while the *-i* marker after the plural is that of the locative. (Or, alternatively, *-ti* is an idiosyncratic allomorph of the plural that only occurs in these items.) Such an analysis would be much less natural for 'who' and 'what', which exhibit full case paradigms with predictable morphology and meanings.

5.2 Wh-words and indefinites with single case marking in the plural

Besides *ka* 'who' and *tʃi* 'what', a few more wh-words have full case paradigms and launch the respective series of indefinites that allow plural marking. These are *kɐtʃi, tʃiwavɐr,* and *tsɐχʷɐn,* all meaning 'which/what kind of'. However, neither these wh-words themselves, nor the respective indefinites exhibit double case marking in the plural.

The wh-word *kɐtʃi* shows mildly idiosyncratic case morphology in the singular – namely, it inserts the suffix *-m-* in the dative, ablative, and inessive.[15] However, the plural form of it and the *dɐr*-series indefinite behave as regular lexical nouns, compare the respective columns in **Table 6** and the paradigms of lexical nouns in **Table 2**.

	Sg	Pl	Sg	Pl
Nom	kɐtʃi	kɐtʃi-tɐ	kɐtʃi-dɐr	kɐtʃi-dɐr-tɐ
Obl	kɐtʃi-**j**	kɐtʃi-t-**i**	kɐtʃi-dɐr-**i**	kɐtʃi-dɐr-t-**i**
Dat	kɐtʃi-m-**ɐn**	kɐtʃi-t-**ɐn**	kɐtʃi-dɐr-**ɐn**	kɐtʃi-dɐr-t-**ɐn**
Abl	kɐtʃi-m-**ɐj**	kɐtʃi-t-**ɐj**	kɐtʃi-dɐr-**ɐj**	kɐtʃi-dɐr-t-**ɐj**
Iness	kɐtʃi-m-**i**	kɐtʃitimi/ kɐtʃimiti	kɐtʃi-dɐr-**i**	kɐtʃi-dɐr-t-**i**
All	kɐtʃi-**mɐ**	kɐtʃi-tɐ-**mɐ**	kɐtʃi-dɐr-**mɐ**	kɐtʃi-dɐr-tɐ-**mɐ**
Sup	kɐtʃi-**bɐl**	kɐtʃi-tɐ-**bɐl**	kɐtʃi-dɐr-**bɐl**	kɐtʃi-dɐr-tɐ-**bɐl**

Table 6: Paradigm of *kɐtʃi* 'which' and of *kɐtʃi-dɐr* 'some'.

---

[15] Surprisingly, for the locative plural of *kɐtʃi*, instead of the expected *kɐtʃi-t-i,* two unexpected forms are attested: *kɐtʃim-i-t-i* and *kɐtʃi-t-i-mi*, with some speakers reporting that they use both forms. I putatively suggest that the form *kɐtʃim-i-t-i* is created by analogy with the locative form *kɐmi-ti* discussed in the previous section, while *kɐtʃi-ti-mi* is the result of metathesis in that form. Otherwise, assuming the analysis *kɐtʃi-t-i-m-i* which-PL-OBL-M-OBL, it would be the only lexical item in Digor Ossetic with *-m-* not directly adjacent to the stem.

The remaining two wh-words, *tʃiwavɐr*, and *tsɐχʷɐn*, and the indefinites derived from them behave as consonant-final nouns, see **Table 2** in Section 4.1.

To recapitulate, Digor has two types of wh-words and wh-based indefinites, namely, those that do and those that do not exhibit double case marking in the plural. A viable analysis must predict the difference between the two classes.

6 The structure of indefinites and of their plural forms

To proceed, we need to investigate the internal structure of indefinites and their plural-marked forms in Ossetic. To that end, and in order to explain the contrast in case exponence between lexical plurals and plural indefinites, we need to establish the overall structure of the DP in Ossetic.

6.1 The overall structure of DP in Digor

The basic assumptions I make here are, first, that Ossetic projects the DP, as was shown in Erschler (2019), and, second, that (interpretable) number marking in nominals is associated with the head Num^0, which is situated below D, Ritter (1991; 1992; 1993). I also adopt the standard assumptions of DM regarding the existence of acategorial roots and categorizing functional heads, of which n^0 is most relevant for our current discussion. Furthermore, I assume that case markers in Digor nominals are the spellout of Agr nodes that are right-adjoined to DP.[16] I remain agnostic as to the existence of KP in Ossetic. Indeed, the fact that case marking may occur twice in the same M-word shows that the theory must countenance the existence of case features that are spelled out as case markers alongside case exponents that instantiate the K^0 head.

For a lexical DP, the overall structure will be then as shown in (17). The word order illustrated in (17a) is obligatory. I do not assume a consistently head-final DP, as is done for instance, for Turkish in von Heusinger and Kornfilt (2017: 7), because no plausible candidates exist for a non-null DP-final D^0. Furthermore, if D^0 is taken to be final in the DP, to account for the obligatory order possessor-demonstrative-NP, we will have to posit a null head Dem^0, whose specifier is the demonstrative. While logically this is possible, I do not know of any evidence in favor of the specifier status (and, necessarily, the XP rather than X^0 status) of demonstratives in Ossetic.

---

[16] It is perhaps more common to assume that Agr nodes are projected by heads rather than adjoin to phrases, Embick (2000); Embick & Noyer (2001); Halle & Matushansky (2006); Kramer (2010); Norris (2014); and the general discussion in Norris (2022). However, to account for Ossetic facts, it is more natural to assume that the Agr node is adjoined to the DP as a whole. Hanink (2018) and Adamson (2019) have put forth proposals that, to account for the German adjectival inflection, the theory must countenance adjunction of Agr nodes to XPs (although their proposals vary as to the nature of the phrase implicated in the phenomenon under discussion). I thank Mark Norris for the latter two references.

(17) a. soslan-i   atʃi ustur bɐχ-t-ɐn
          Soslan-OBL this big   horse-PL-DAT
          'for these big horses of Soslan's'

  b.
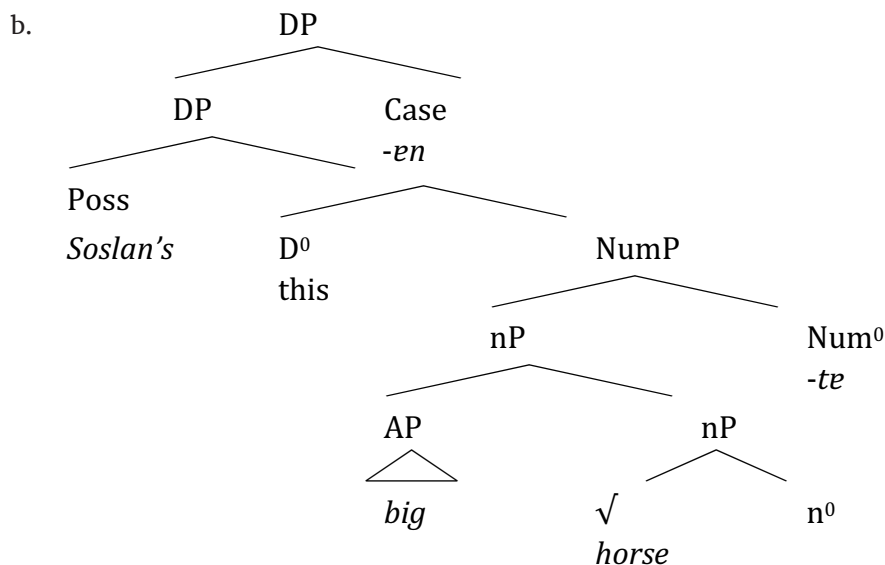
Alternatively, one could assume a systematically head-initial structure, as has been done, for instance, for Hungarian in Dékány (2021). However, that would involve significant revisions to the overall structure. For one thing, under such assumptions it is impossible to identify the morphological marker of plurality *-tɐ* with the spellout of Num^0 (see a discussion of this point for Hungarian in Saab & Lipták (2016: 8), and in Cinque (2010) in a more general setting). This would require us to specify a morphological mechanism by which the plural marker is spelled out in the right position. However, as long as the existence of plural marking correlates with the presence of NumP in the structure, the proposal below can be modified to handle a consistently head-initial structure, at the price of certain complications.

Now, with this overall structure of the DP in mind, I will first address the structure of wh-stems and their plural forms, and then proceed to analyze derived indefinites.
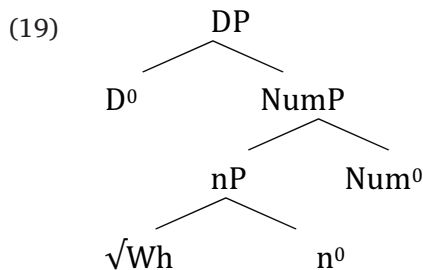
6.2 Wh-stems and their plural forms

In this section, I argue that the wh-items under discussion differ in their size as syntactic objects. While *ka* 'who' and *tʃi* 'what' are DPs (which can be taken to only consist of a D), the other three wh-words, *kɐtʃi*, *tʃiwavɐr*, and *tsɐχʷɐn* 'which, what kind of' are (at most) nPs.

The reason to treat *kɐtʃi*, *tʃiwavɐr*, and *tsɐχʷɐn* 'which, what kind of' as "small nominals," in terms of Pereltsvaig (2006), rather than D's is the following. These wh-words, and DPs where

they appear as modifiers, can take the definiteness marker *i*, which I assume to be one of the forms of D in Digor.

(18) a. du = ʃi   **i**   kɐtʃi-t-ɐj   dɐ ?
          you = 3PL.ABL DEF which-PL-ABL be.PRS.2SG
          'From which of them are you?' (lit. 'You, of them, from which ones are?')
          Ik'ati 2011: 16

   b. dɐ = χaχur-t-ɐj   fɐsdwar-mɐ **i** kɐtʃi-j   fe-nt'uχston?
       2SG = denunciation-PL-ABL outside-ALL DEF which-OBL PV-throw.PST.1SG
       'Which of your denunciations did I throw out?' Ik'ati 2011: 168

   c. wɐd = wɐbɐl   i   kɐtʃi bindʑɐ fe-χχʷɐstɐj?
       then = 2PL.SUP DEF which fly   PV-bite.PST.3SG
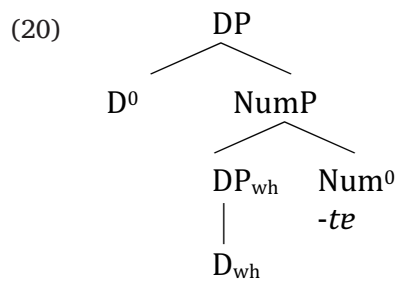   'What kind of a fly has bitten you?' Ik'ati 2011: 48

Accordingly, I assume that the structure of *kɐtʃi*, *tʃiwavɐr*, and *tsɐχʷɐn* 'which, what kind of' is essentially identical to that of lexical nouns. That is, a bare wh-word will consist of a wh-root and a categorizing head, n^0. In the plural, Num^0 is merged (19).

(19)

```
                      DP
                  ╱        ╲
               D⁰          NumP
                         ╱       ╲
                      nP          Num⁰
                    ╱    ╲
                 √Wh      n⁰
```

The case marking pattern in these items is then predicted to be the same as in lexical nouns, which, as we have seen, is borne out (modulo the allomorphy that the case exponents of *kɐtʃi* show in the dative, ablative, and inessive).

On the other hand, the wh-words 'who' and 'what' are incompatible with deictics, and therefore have to be full DPs. If they had a full articulate structure as in (19), we again would predict the case marking in the plural to be the same as for lexical nouns, contrary to the facts. Accordingly, we conclude that they must consist of a bare D, similarly to the proposal of Moskal (2015) for personal pronouns.

Now, to obtain the plural marking, the wh-words that consist of a bare D must merge an extra NumP on top of the DP. I disregard the possibility that extra functional material is merged between D and NumP, because there do not seem to be any indications for its existence. Given that the entire plural-marked wh-word has the distribution of a DP, I assume that an extra D is merged atop of NumP.

(20)

```
                    DP
                   /  \
                D⁰    NumP
                      /  \
                  DP_wh   Num⁰
                    |     -tɐ
                  D_wh
```

Direct evidence in favor of the higher D-layer comes from the interaction between such plurals and the comitative prefix *ɐd-*, which was shown to c-select for NumP by Erschler (2019), and to be incompatible with DPs. This prefix is indeed incompatible with plural indefinites, as is illustrated for the plural form of 'who' in (21a). To express the respective meaning, the postposition χɐtstsɐ 'with', which selects for DPs, has to be used (21b).

(21) a. *ɐd ka-tɐ/   ke-t-i   ɐrba-tsudtɐ?
          with who.NOM-PL who.OBL-PL-OBL   PV-arrive.PST.2SG
          'With whom (= what people) did you arrive?' (intended)

      b. ke-t-i   χɐtstsɐ ɐrba-tsudtɐ?
          who.OBL-PL-OBL   with   PV-arrive.PST.2SG
          'With whom (= what people) did you arrive?'

To recapitulate, I have argued in this section that the presence of double case marking in the plural forms of wh-words correlates with the size of these words – those that are inherently DPs get it, while those that are lesser in size, behave as regular nouns.
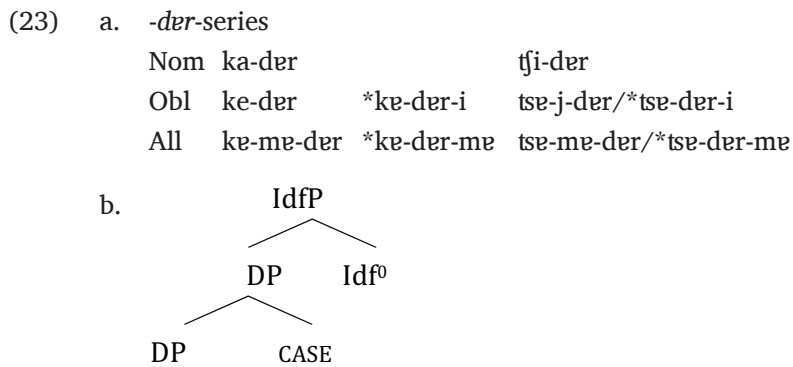
6.3 The structure of indefinites

The indefinites under discussion are derived from the wh-stems by the prefix *jes-* and the suffix *-dɐr*. We need to determine the position of these indefinite-forming affixes in the syntactic structure. Although wh-based indefinites, i.e. indefinites formed by a wh-stem and a dedicated affix, are fairly common cross-linguistically, Haspelmath (1997), their internal structure has not been systematically examined in the DM literature. In this section, I argue that the Ossetic indefinite affixes head a projection that takes DP as a complement.
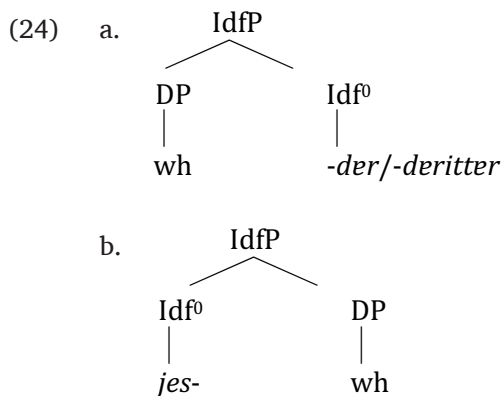
A priori, an indefinite-forming affix may be either a separate head on the spine (22a) or an adjunct to the DP or an NP (22b), see a recent discussion of heads vs. modifiers in morphology in Gouskova & Bobaljik (2022) and references there. In these trees, I address indefinite suffixes; to treat the indefinite prefix *jes-*, obvious changes need to be made to the two trees.

(22) a.

```
            IdfP
           /    \
      DP/NP     Idf⁰
```

b.

```
           DP/NP
          /     \
      DP/NP     Idf⁰
```
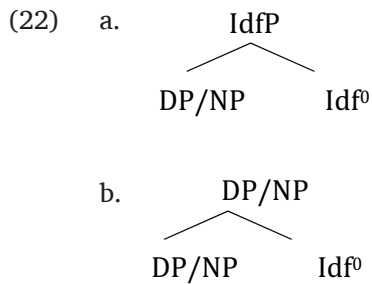
For a DP-sized wh-stem, these options can be told apart by the behavior of case markers. In the series marked with a suffix, case marking appears closer to the stem than the indefinite suffix, as is illustrated by the partial paradigms in (23a–b). Given that we have taken the case morphemes to correspond to an Agr node adjoined to DP, see the discussion in Section 6.1, it is natural to conclude that the indefinite suffix is the head of a higher projection (23c).

(23) a. *-dɐr*-series

Nom	ka-dɐr		tʃi-dɐr
Obl	ke-dɐr	*kɐ-dɐr-i	tsɐ-j-dɐr/*tsɐ-dɐr-i
All	kɐ-mɐ-dɐr	*kɐ-dɐr-mɐ	tsɐ-mɐ-dɐr/*tsɐ-dɐr-mɐ

b.

```
            IdfP
           /    \
         DP     Idf⁰
        /  \
      DP   CASE
```

Accordingly, I conclude that the structure of singular DP-based indefinites is as shown in (24).[17]

(24) a.

```
            IdfP
           /    \
         DP     Idf⁰
         |       |
         wh    -der/-deritter
```

b.

```
            IdfP
           /    \
        Idf⁰     DP
         |       |
        jes-     wh
```

---

[17] An anonymous reviewer raises the possibility that the syntactic positions of *jes-* and *dɐr-* are non-identical, which could explain their different linear positions. While this indeed is a logical possibility, I am not aware of any evidence that will allow us to identify these positions. I must leave the matter for further research.

An objection may be raised to the idea that what is essentially a nominal might have additional structure above the level of DP. However, the same theoretical move has been argued to be necessary, for instance, in Hungarian, to accommodate dative possessors and associative plural markers, see Dékány (2021: 199, 219) and references there to the earlier literature. Importantly, IdfP in Ossetic (as well as the projections above the DP in Hungarian) are transparent for case assignment to, and phi-feature agreement with, the DP.

For NP-based indefinites, on the other hand, assuming the indefinite-forming affixes to be heads or modifiers does not lead to different empirical predictions. The only crucial condition is that the D head is merged to them after the indefinite affix. Assuming that the behavior of these affixes is uniform, it is natural to conjecture that they are always heads. However, as Gouskova & Bobaljik (2022) show, what looks like one and the same suffix may be a head in some environments and a modifier in others. I leave a systematic investigation of the head vs. modifier status of the indefinite-forming affixes for further research.
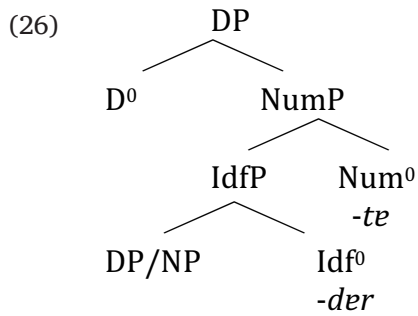
6.4 Plural-marked indefinites

It remains to address the structure of the plural forms of the indefinites under discussion. Recall the order of morphemes in the non-nominative forms of the relevant indefinites of both types (25), where it is illustrated for the superessive case. A plausible structure of plural indefinites must account for this ordering.

(25)   Double-marking, DP-based indefinites
    a.   IDF-wh-CASE-PL-OBL
        jes-kɐ-**bɐl**-t-**i**
        IDF-wh-SUP-PL-OBL

    b.   wh-CASE-PL-IDF-CASE/-OBL
        kɐ-**bɐl**-dɐr-tɐ-**bɐl** / kɐ-**bɐl**-dɐr-t-**i**
        wh-**SUP**-PL-IDF-SUP/ wh-**SUP**-PL-IDF -OBL
        Single marking, nP-based indefinites

    c.   IDF-wh-PL-CASE
        jes-kɐtʃi-tɐ-bɐl
        IDF-wh-PL-SUP

    d.   wh-IDF-PL-CASE
        kɐtʃi-dɐr-tɐ-bɐl
        wh-IDF-PL-SUP

To account for both types of indefinites, it is enough to assume that Num^0 uniformly merges after Idf^0, no matter whether it is a DP-sized wh-word or an NP-sized one. The same considerations as in the case of bare wh-items show that the NumP projects a DP, as illustrated for *-dɐr* in (26). For

more proposals arguing in favor of multilayered DPs, see Clem & Dawson (2021) for Tiwa and Hankamer & Mikkelsen (2021) for Danish.
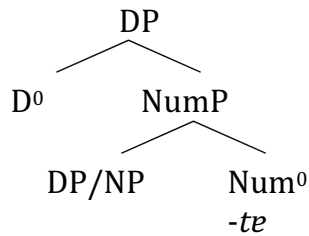
(26)

```
                    DP
                 ╱      ╲
              D⁰          NumP
                       ╱        ╲
                    IdfP          Num⁰
                  ╱      ╲         -te
              DP/NP       Idf⁰
                          -der
```

Adjuncts may be hosted between NumP and the higher D (27). The quantifier *bere* 'many' requires plural marking on the DP in Digor and therefore it must be situated above the NumP.

(27) fe-ʁuston   bere enaχur ʧi-der-te
       PV-hear.PST.1SG many strange what-IDF-PL
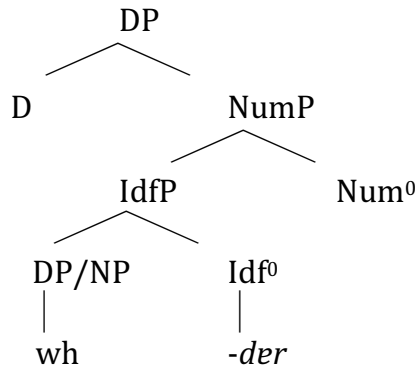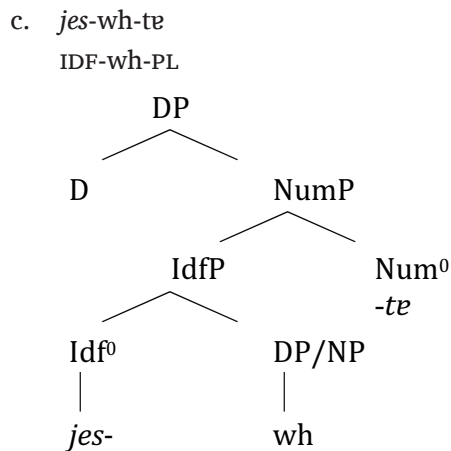   'I heard many strange things.'   Sk'odtati 2012: 192

To recapitulate, the structure of plurals I have argued for here is shown in (28).

(28) a. bare wh-words

```
                 DP
              ╱      ╲
          D⁰          NumP
                   ╱        ╲
               DP/NP          Num⁰
                               -te
```

   b. *der*-series indefinites

```
                 DP
              ╱      ╲
           D            NumP
                     ╱        ╲
                  IdfP          Num⁰
                ╱      ╲
            DP/NP       Idf⁰
              │           │
             wh          -der
```

c. *jes*-wh-tɐ

    IDF-wh-PL

```
                        DP
                       /  \
                      D    NumP
                          /    \
                       IdfP     Num⁰
                      /   \      -te
                   Idf⁰    DP/NP
                    |        |
                   jes-      wh
```

Under the assumption that we have made that the case marker morpheme is a DP-adjunct, and assuming that both D heads receive a case value, we predict that in the plurals derived from D-sized wh-words, the case marker will appear twice, immediately to the right of each copy of D, given that each DP layer will have an Agr node adjoined to it. In this respect, my analysis of this instance of Multiple Exponence is similar to that of Marušič & Žaucer (2012) who argue that an Agr node can be inserted several times, leading to multiple exponence. On the other hand, in the plurals derived from nP-sized wh-words, case marking will only occur once.

The questions that remain unanswered so far are, first, how case is assigned to the internal DP and, second, what is responsible for the appearance of the oblique case marker, instead of the one corresponding to the expected specific case value, on the ambient DP (25a–b).

7 Narrow-syntax-based analyses of ME

With the internal structure of the items under discussions at hand, we are now in the position to determine whether our phenomenon is amenable to the existing analyses that treat some instances of ME as a direct outcome of processes taking place in narrow syntax. I argue that neither of two such proposals is applicable to our situations.

Baker and Willie (2010) analyze multiple exponence of agreement in Ibibio. They build upon the proposal of Pesetsky & Torrego (2007) to argue that, in Ibibio, the (multiple) goals that have to agree in phi-features with the subject first form a feature sharing chain between themselves, and then, when the highest functional head participating in the dependency agrees with the subject in its specifier, all the lower goals participating in the chain have their features checked.

However, in our case, D heads presumably serve as agreement goals, and by default do not enter in the Agree relationship with each other.
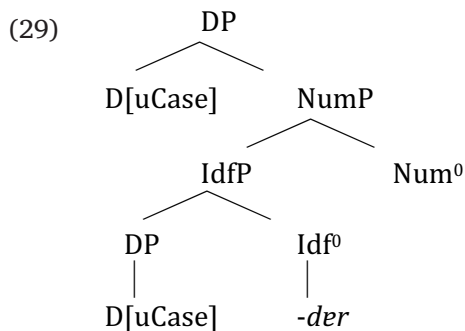
Oxford (2017) analyzes the multiple exponence of verb agreement markers in some Algonquian languages. He uses the well-established fact that in Algonquian languages, the verb

includes T and C heads, both of which may, or have to, undergo agreement with the subject. He proposes that, in a given language, certain goals may be able to agree with a probe which already underwent agreement with a different goal. This refines a proposal of Baker (2008), who had conjectured that such an ability (the Activity Condition) is a macroparameter, i.e. has to hold (or not to hold) for all the goals in a given language. On the proposal of Oxford (2017), in the Algonquian languages, if the respective T and C heads are able to agree with the same goal, double exponence emerges.
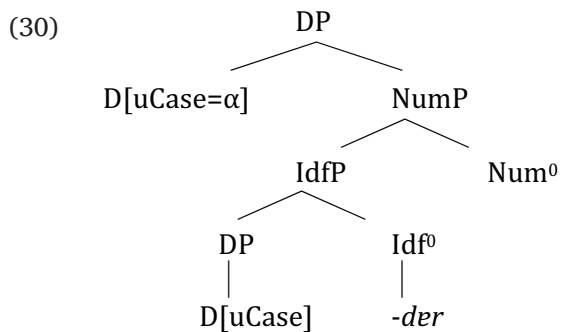
The analysis of Oxford (2017) cannot be extended to our case for the same reason as that of Baker & Willie (2010) cannot. The two D heads in the spine of our nominals (28) provide two goals, rather than two probes. For locality reasons, a probe will only agree with the nearest goal, that is, the higher D head. Accordingly, the valuation of the case feature on the lower D head will be blocked.

8 Case Assignment and Feature Transmission in structures with two D heads

I adopt the standard assumption that D heads are merged with their unvalued uninterpretable case feature, and for the derivation to converge, this feature must be valued. Accordingly, given the findings of Section 6.4, the plural form of an indefinite formed from a D-sized wh-word (i.e. of 'who' or 'what'), or the plural form of such a wh-word itself, has two D heads with unvalued case features. I illustrate it in (29) for the plural of a *der*-series indefinite.

(29)

```
            DP
          /    \
    D[uCase]    NumP
              /    \
           IdfP     Num⁰
          /    \
        DP      Idf⁰
        |        |
    D[uCase]    -der
```

I remain agnostic as to the mechanism by which a DP as a whole gets its case valued. It can be achieved by agreement with an appropriate functional head, Chomsky (1981; 2000; 2001), or by a case-assigning algorithm ("dependent case theory"), Yip et al. (1987), Marantz (1991), Levin & Preminger (2015), Levin (2017), or perhaps by both, Baker & Vinokurova (2010). The resulting morphology does not depend on it. What is crucial, however, is that no matter what mechanism of case assignment is at work, only the case of the higher D head will be valued, given the standard locality assumptions. The case feature of the lower D will remain unvalued, and that would prevent the derivation from converging.

(30)

```
                    DP
              ┌──────┴──────┐
        D[uCase=α]        NumP
                     ┌──────┴──────┐
                   IdfP          Num⁰
               ┌────┴────┐
              DP       Idf⁰
               │         │
           D[uCase]     -der
```

Accordingly, a mechanism must exist that values the case feature of the lower D. The logically possible ways to achieve this are (A) to make the same mechanism assign it to the lower D as to the higher D, (B) to assign the default case to it; and (C) to copy the feature values from the higher D as a last-resort operation.

Option (A) clearly violates the standard locality assumptions. Option (B) is empirically inadequate, as it predicts that the case value on the lower D will not depend on the case assigned to the entire DP, which is patently false – it is precisely the lower, i.e. the innermost, D that exhibits the case assigned to the DP as a whole, e.g. the dative and the allative, respectively, in (31a–b).

(31)   Dative   kɐm-**ɐn**-t-i   kɐm-**ɐn**-dɐr-t-**ɐn**/-**i**
        Allative kɐ-**mɐ**-t-i   kɐ-**mɐ**-dɐr-tɐ-**mɐ**/-**i**

Accordingly, we must make recourse to option (C), last-resort feature copying. A similar proposal has been made for the layered DP in Tiwa by Clem & Dawson (2021).

Independent evidence in favor of case transmission by feature copying between D heads comes from the case marking of appositives with pronouns, i.e., expressions of the type *we linguists*. In such appositives, both parts must be case-marked (32).

(32)   **mɐn-mɐ/*ɐz**   **istorik-mɐ**   jew farsta   jes
        I.NNOM-ALL/I.NOM historian-ALL one question exists
        'I an historian have a question.'

Such appositives form single DPs in Ossetic, as can be seen from their interaction with Wackernagel enclitics. DPs in Digor are impenetrable for 2P clitics, which otherwise are placed after the first word of the clause, (Erschler 2010: 7). Accordingly, impenetrability for clitics can be used as a DP-hood test. This is what obtains for appositives.

(33)   a.   **mɐn-mɐ**   **istorik-mɐ**=babɐj=dɐmɐ   jew farsta   jes
             I.NNOM-ALL historian-ALL=again=2SG.ALL one question exists
             'I an historian again have a question to you.'

b. ***mɐn-mɐ** = babɐj = dɐmɐ   **istorik-mɐ** jew farsta jes
     I.NNOM-ALL = again = 2SG.ALL historian-ALL one question exists
     'I an historian again have a question to you.' (intended)

Accordingly, the structure of such an appositive must be as shown in (34), *cf.* a similar structure proposed for multiple definiteness marking in Greek in (Lekakou & Szendrői 2012: 114) and a proposal with a more fine-grained syntactic structure of determiners in (Kyriakaki 2020: 126).[18]

(34) $[_{DP} [_{DP}$ ɐz] $[_{DP}$ istorik]]
           I   historian

The case-marking facts in (32) then receive a natural interpretation if one makes use of the feature transmission operation.

(35)

DP[Case=α]

DP[Case=α]   DP[Case=α]
I   historian

The procedure of feature transmission proposed here might look suspiciously similar to concord, which, as we have seen in (17), is absent in Ossetic. However, the proposal does not overgenerate, because only DPs are taken to be able to receive case and to sprout the respective Agr nodes. Modifiers within a DP do not contain D heads and accordingly cannot participate in feature transmission.

As a locality condition on this kind of feature transmission, I assume that it cannot cross category-defining heads. This is consistent with the proposal of Marantz (2007) that such heads are phasal. Evidence in favor of this locality condition comes from the case marking of nominals involving several category-defining heads. The Ossetic languages cannot form denominal verbs synthetically, so manifestations of locality with category-defining heads other than n^0 are hard to come by. There is no reason, however, to assume that last-resort feature transmission is an Ossetic-specific operation, so it is legitimate to look for such examples from other languages.

As one piece of evidence, consider the behavior of the German verbs *duz-en* 'to address someone by Du' and *siez-en* 'to address someone by Sie', which are formed on the basis of the respective pronouns. I assume German personal pronouns to instantiate, or at least to include, D^0. These depronominal verbs can be nominalized in their turn: *(das) Du-z-en* 'addressing by Du',

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[18] Jenks & Konate (2022: 13) argue that in the English *we students*, the pronoun occupies Spec DP. However, in Digor Ossetic, such a structure would be hard to reconcile with other ordering and case-marking facts. The initial constituent in a DP is an (oblique-marked) possessor (i), and it is natural to conclude that it occupies Spec DP, where it is assigned the genitive (spelled out as the syncretic oblique).

(i) a. <soslan-i> atʃi <*soslan-i> ustur bɐχ-ɐn
         Soslan-OBL this Soslan-OBL   big   horse-DAT
         'for this big horse of Soslan's'

(das) Sie-z-en 'addressing by Sie'. As nouns, these can be assigned case. However, the case cannot percolate to the embedded pronoun.

(36) German

    Wie läuft das hier mit dem **Du-z-en/*Dir-z-en** eigentlich?

    how goes it here with DEF.DAT you.NOM-V-NMZ/*you-DAT-V-NMZ properly

    'How does it work here with addressing people by 'Du'?'[19]

The absence of case percolation into the nominalisation is exactly what the proposed condition predicts. A category changing head intervenes between the two instances of D, as shown in (37), and case transmission becomes impossible. I assume that the embedded pronoun *Du* receives the default case.

(37)

no feature sharing   *Du*
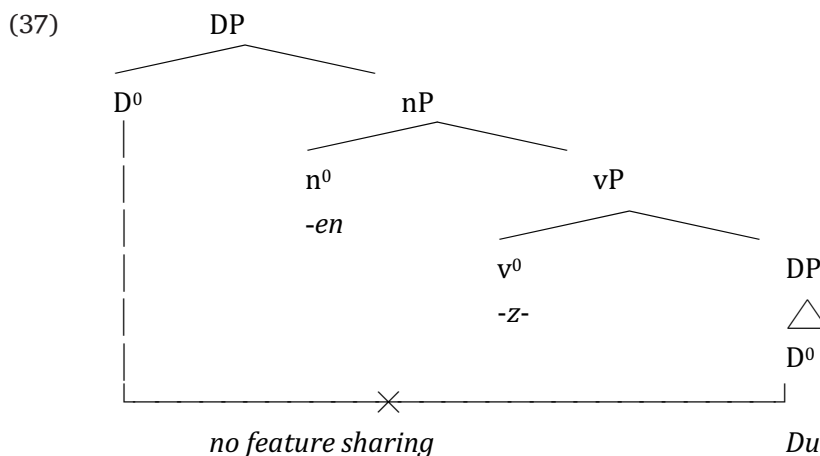
Furthermore, the German *das Ich* 'ego' must involve an n^0 layer atop of the DP corresponding to *ich* 'I'. This is necessary to ensure that it has a noun-like distribution and be able to host gender, see Kramer (2015: 37) for the latter point. Given that the n-layer is impenetrable for case transmission, the noun becomes indeclinable, unlike the underlying pronoun. The case inflection patterns of the pronoun and the derived noun are compared in (38).

(38) German

    Nominative   ich   das Ich

    Accusative   mich   das Ich

    Dative   mir   dem Ich

Similarly, the Russian depronominal noun *ja* 'true self', from *ja* 'I', is indeclinable, unlike the underlying pronoun. Again, the structure of this noun presumably is $[_{DP}\ D^0\ [_{nP}\ n^0\ [_{DP}\ ja]]]$.

    To recapitulate the discussion of this section, I have argued in favor of the existence of a last-resort operation, feature transmission, that, modulo appropriate locality conditions, allows

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[19] karrierebibel.de/duzen-siezen/, accessed on November 15, 2016. I thank Hagen Blix for a discussion of the German facts.

a lower head with an unvalued feature F to have the feature valued against a higher head of the same type. In our case, the heads are D. The existence of this operation will explain the double exponence of case on plural indefinites. What remains unexplained so far, is the fact that the outer case marker can be the oblique instead of that of the expected specific case value.
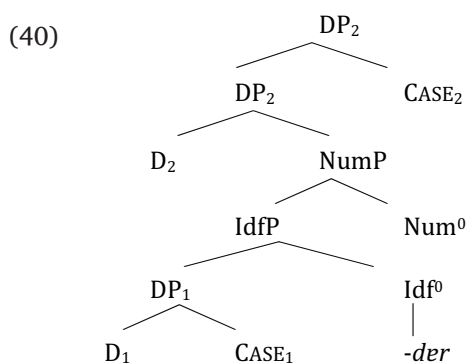
9 Dissimilation of case exponents

In this section, I address the spellout process that results in non-identical case exponents appearing in the plurals. This is obligatory for bare wh-words and *jes*-series indefinites, where only the plural marker *-tɐ-* intervenes between the two case markers, and optional for *dɐr*-series indefinites, where two morphs, the plural *-tɐ-* and the indefinite *-dɐr-* intervene between them, as illustrated in (39).

(39)   Dative   (jes)-kɐm-**ɐn**-t-**i**   kɐm-**ɐn**-dɐr-t-**i** (/-t-ɐn)
          Allative   (jes)-kɐ-**mɐ**-t-**i**   kɐ-**mɐ**-dɐr-t-**i** (/-tɐ-mɐ)

I argue that the oblique case marker is inserted here to avoid haplology between the two case exponents. I propose that the oblique marker *-i* serves as the default non-nominative case marker. More specific exponents are prevented from being inserted by means of feature deletion. The difference between bare wh-words and *jes*-indefinites, on the one hand, and *-dɐr*-indefinites on the other hand, lays in the fact that *-dɐr* is a suffix, which creates a longer distance between the two case exponents. That allows case dissimilation in *dɐr*-series indefinites to be optional.[20]

To lay out the analysis in full detail, consider the tree for a plural indefinite with the Agr nodes corresponding to the case markers (40). For the sake of concreteness, I show the tree for wh-*dɐr*-PL, the picture for the wh-PL and *jes*-wh-PL is fully identical, up to the position of the adjoint indefinite marker (28).

(40)

$$
\begin{array}{c}
\text{DP}_2 \\
\diagup \qquad \diagdown \\
\text{DP}_2 \qquad\qquad \text{CASE}_2 \\
\diagup \quad \diagdown \\
\text{D}_2 \qquad \text{NumP} \\
\diagup \quad \diagdown \\
\text{IdfP} \qquad \text{Num}^0 \\
\diagup \quad \diagdown \\
\text{DP}_1 \qquad \text{Idf}^0 \\
\diagup \diagdown \qquad | \\
\text{D}_1 \quad \text{CASE}_1 \qquad \textit{-dɐr}
\end{array}
$$

---

[20] Optional dissimilation is attested cross-linguistically in phonology and morphology. For case studies of optional dissimilation in phonology see e.g. Stanton (2020: 15–16) about Sundanese (Austronesian) and McFarland (2009: 35) about Filomeno Mata Totonac (Totonacan). For a discussion of optional morphological dissimilation in Hakka (Sinitic), see Tseng (2008: 123).

A priori, the following causes may lead to the non-identity of the exponents of $CASE_1$ and $CASE_2$ nodes. First, the case features assigned to D_1 and D_2 in narrow syntax may be non-identical. Otherwise, some dissimilation process must be implicated that leads to the spellout of the oblique in $CASE_2$. This dissimilation might be purely phonological, i.e. it might be driven by the need to prevent identical syllable rhymes from appearing too close to each other. The remaining alternative is that dissimilation occurs at some stage of morphological derivation.

I will first consider and reject the possibility that the non-identity of the exponents of $CASE_1$ and $CASE_2$ is determined in narrow syntax or in late-stage phonology, and then will make use of the approach of Nevins (2012) to dissimilation in morphology.

The possibility that D_1 and D_2 are assigned non-identical features in syntax can be rejected outright. Indeed, case is assigned in syntax to the entire nominal, i.e. to DP_2. On the other hand, this case value is expressed on the inner head, D_1 as is illustrated in (39). Accordingly, what we are dealing with here is some kind of dissimilation.

Furthermore, the dissimilation cannot be merely phonological. First of all, it is highly implausible that a purely phonological process exists that would create /i/ out of a diverse assortment of segmental sequences, which the Digor case markers are, as was shown in **Table 1** above. Second, linearly close sequences of segments that are identical to the case markers are in principle tolerated, as illustrated in (41) for the dative *-ɐn* and the ablative *-ɐj*.

(41)   a.   The dative *-ɐn* and ablative *-ɐj* vs. */ɐn/* and */ɐj/* as a part of a root

       *kɐm-**ɐn**-t-**ɐn**   vs.   bad**ɐn**-t-**ɐn**

       who-DAT-PL-DAT   stool-PL-DAT

    b.   The ablative *-ɐj* and */ɐj/* as part of the root

       *kɐm-**ɐj**-t-**ɐj**   vs.   z**ɐj**-t-**ɐj**

       who-ABL-PL-ABL   avalanche-PL-ABL

Therefore, we must conclude that dissimilation occurs in morphology. Now, as Nevins (2012: 87–88) has argued, dissimilation of non-adjacent exponents must be brought about by feature deletion.[21] Observe that, in our settings, the dissimilating case markers are separated at least by the plural marker, and, in *dɐr*-series indefinites, also by the indefinite marker (39). Accordingly, the items undergoing dissimilation are non-adjacent, and some feature deletion must occur.

To provide an appropriate feature representation of the case markers in Digor, I will, first of all, adopt the proposal to distinguish the abstract case and the morphological case that gets exponed, following McFadden (2004: 10–13); Legate (2008: 95); and the ensuing literature.

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[21] For worked out examples of morphological dissimilation through feature deletion, see the case studies in Nevins (2012), as well as Oxford (2017: 716), who treats in this way the haplological dissimilation of linearly non-adjacent multiple agreement markers in Ojibwe (Algonquian).

In view of this, I assume that nominative forms lack morphological case features altogether. Furthermore, it is natural to consider the exponent /i/ as the default (non-nominative) case exponent, because it fulfills the functions of the accusative, the genitive and the inessive marker in the majority of the paradigms. For the rest of the cases, I assume that the featural representation is [NNOM, CASE], with CASE running over DAT, ABL, etc.

Accordingly, with both AGR nodes in (40) having the featural representation [NNOM, X], the case-specific feature X is then deleted from the outer case feature bundle, and the vocabulary item (VI) with the representation [NNom], that is, /i/, is inserted.

As for the directionality of dissimilation, it is not clear that a principled explanation is possible of why it is the outer case node that undergoes feature deletion. As Nevins (2012: 88) notes, cross-linguistic variation obtains in this respect. If dissimilation was obtained by allomorph choice rather than by feature deletion, and if Vocabulary Insertion proceeded from the bottom to the top of the tree simultaneously with, or prior to, linearization (Bobaljik 2000; Embick 2010: 42; Schreiner 2021: 19–20), the fact that it is the outer exponent that dissimilates would receive a natural explanation. However, as we have seen, the more plausible dissimilation mechanism here is feature deletion, and, furthermore, a number of counterarguments have been raised against pre-linearization VI insertion (Arregi & Nevins 2012: 238; Merchant 2015: 276–281; Haugen & Siddiqi 2016: 369). Accordingly, the direction of dissimilation has to be taken to be a language-specific, or perhaps even language and feature-specific, parameter.

10 Cross-linguistic picture

Plural-marked wh-words are not particularly uncommon cross-linguistically. However, the Ossetic-type double case marking system appears to be rarely if at all attested elsewhere. Typically, the plural forms of wh-words only bear one case marker (42). Indeed, as we have seen, even within Digor, not all wh-words exhibit double marking. The analysis proposed in this paper allows us to hypothesize why such a system is so rare.

(42)   a.   Karachay-Balkar (Turkic, the North Caucasus)
            kim   kim-le   kim-**den**   kim-le-**den**
            who.NOM who-PL who-ABL   who-PL-ABL

       b.   Georgian (South Caucasian, Georgia) Tschenkéli (1958: 196)
            ra   ra-eb-i   ra-**m**   ra-eb-**ma**
            what.ABS what-PL-ABS what-ERG   what-PL-ERG

       c.   Kurag Agul (Northeast Caucasian, Russia) Magometov (1970: 114–115)
            fi   fi-p:ur   fit:-**i**   fi-p:ur-**i**
            what.ABS what-PL.ABS what-ERG   what-PL-ERG

d. Finnish (Uralic, Finland) Karlsson (1999: 140)

kuka	ke-t-kä	ke-**tä**	ke-i-**tä**
who.NOM	who-PL-NOM	who-PART	who-PL-PART

Indeed, the analysis developed here predicts that for a wh-item to exhibit double case exponence in the plural, the following very specific combination of circumstances needs to obtain. First, the structure must contain two D heads on the spine of a single M-word. Second, the lower instance of D within this item has to be unable to be spelled out with a default case value, but rather must have its case properly valued. Third, even if these conditions are fulfilled, one of the resulting case exponents should not be deleted to avoid haplology. Probably, even more processes may conspire to conceal the double case marking on the PF. It is not particularly surprising therefore that systematic double case exponence of the kind attested in Ossetic is a typological rarity.

An additional reason for the rarity of such systems may be diachronic, see Harris (2008; 2010) for a discussion of how diachronic processes can lead to the emergence of typologically rare structures. Specifically in the case under discussion in this paper, an additional factor might be at play. Haspelmath (1993) proposed that a diachronic tendency exists that he called "externalization of inflection". If a situation arises when inflectional markers appear word-internally, it is diachronically unstable, and the inflectional markers tend to "migrate" to the edge of the word. This tendency, if real, would also contribute to the rarity of the double case marking pattern discussed here – it is then predicted to be diachronically unstable,[22] see the general observation about diachronic instability as a factor contributing to the typological rarity of some patterns in Greenberg (1978: 75).

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[22] One of the reviewers, Ronald Kim, raises the question of the diachronic scenario that brought about the double case marking pattern in Ossetic Specifically, he proposes that the external oblique marking could be a survival of the stage when the oblique suffix fulfilled the functions of other non-nominative cases that grammaticalized later from postpositions. While this proposal is highly plausible, to properly address this issue, we need to have at our disposal accounts of the diachrony of the case system and of indefinites in Ossetic. Furthermore, a conjecture needs to be made about the relative timing of these developments. While the grammaticalization of the case system in Ossetic has been the subject of systematic research (e.g., Kim 2003; Cheung 2008; Thordarson 2009), this is not the case, to the best of my knowledge, for the grammaticalization of indefinites.

Diachronically, *jes-* and its Iron regular cognate *iʃ-* evidently go back to the existential form of the copula, *jes/iʃ,* see (32) for a sentential example. It stands to reason to assume that the *jes*-series are a result of univerbation of *jes wh* 'there exists an X', reflecting a stage when bare wh-words could be used as non-interrogative indefinites. It is unsurprising that *jes*-indefinites pattern together with bare wh-words.

On the other hand, the suffix *-dɐr* is transparently cognate to the scalar marker, the enclitic *=dɐr.*, see (7c) for an example of its use. This enclitic, however, only combines with lexical DPs and follows number and case markers.

(i)

bɐχ-tɐ=dɐr /	*bɐχ=dɐr-tɐ	bɐχ-tɐ-bɐl=dɐr	/*bɐχ=dɐr-tɐ-bɐl
horse-PL=EMP	*horse=EMP-PL	horse-PL-SUP=EMP	*horse=EMP-PL-SUP

Accordingly, a much more complicated grammaticalization process must have taken place in this case. Reconstructing this process goes well beyond the scope of this purely synchronically oriented paper.

11 Conclusion

In this paper, I have proposed a Distributed Morphology analysis of double case exponence in certain wh-words and wh-based indefinites in Digor Ossetic. This analysis supports the intuition that Multiple Exponence is not a single phenomenon, but can be brought about by a variety of morphosyntactic mechanisms.

Admittedly, the specific phenomenon addressed here is very rare. However, careful examination of typological *rara* has played a significant role in the development of linguistic theory. By its existence, a *rarum* reveals a grammatical mechanism that usually remains inoperative or hidden.

The phenomena that are brought to light by the Ossetic double case marking are, first, the possibility for a single nominal to involve several D heads, and, second, a mechanism of feature sharing between such heads.

However, the question always remains of why a given phenomenon is rare in the first place. It follows from the analysis proposed here that to observe this type of multiple case marking, several independent conditions must hold: the presence of two D heads within one nominal, the necessity of feature sharing between them, and lack of dissimilation processes radical enough to fully obliterate one of the case markers. The likelihood that all these conditions will be simultaneously fulfilled is not particularly high.

Acknowledgements

Competing interests

The author has no competing interests to declare.

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