Limits on Noun-suppletion*

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## 1	Introduction

Suppletion: a single lexical item is associated with two phonologically unrelated forms, the choice of form depending on the morphosyntactic context.

(1)	good – better – best		bad – worse – worst		go – went

Though rare in absolute terms, suppletion is frequently observed across languages (Hippisley *e.a*. 2004).[1]

### 1.1	Suppletion in lexical nouns

Languages can display suppletion for number in lexical nouns; e.g. Ket (the Surrey Suppletion Database and Werner 1997).

(2)	*Regular plural formation in Ket*

	SINGULAR	PLURAL
'mother'	am	ama-ŋ
'knife'	doʔn	doʔna-ŋ
'crow'	kyl	kyle-n

(3)	*Number-driven suppletion in Ket*

	SINGULAR	PLURAL
'tree'	oˑksʼ	aʔq
'child'	dɨˑlʼ	kʌʔt
'man'	kɛʔt	dɛʔ-ŋ

Indeed, it is not too rare to find cases where a (small) group of nouns displays suppletion in the context of number (see Appendix).

In stark contrast, suppletion in the context of case is virtually unattested; indeed, I argue that case-driven root-suppletion is banned bar exceptional circumstances (see section 4).

### 1.2	Suppletion in pronouns

Contrary to lexical nouns, pronouns regularly supplete for number as well as case; e.g. Latvian (Mathaissen 1997).

(4)	*Number driven suppletion in Latvian 2nd person pronoun*

	SINGULAR	PLURAL
NOM	tu	jūs
DAT	tev	jums
ACC	tevi	jūs
LOC	tevī	jūsos

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[1] An important question concerns what does and what does not count as suppletion (Corbett 2007). Here, I take the criterion for noun suppletion to be singular-plural pairs identified as suppletive in prior literature, where these are strongly suppletive, i.e., not plausibly related by (possibly idiosyncratic) phonological (readjustment) rule(s).

(5)   *Case driven suppletion in Latvian 1st person pronoun*

|	SINGULAR	PLURAL
NOM	es	mēs
DAT	man	mums
ACC	mani	mūs
LOC	manī	mūsos

1.3   The structure of nominals

In the following, I offer a structural account to explain the different suppletive behaviour of lexical nouns and pronouns.

Crucially, lexical nouns contain, at a minimum, a root and a category-defining node *n*. In essence, the *n* node will have the effect that the root and case (K) are not sufficiently local.

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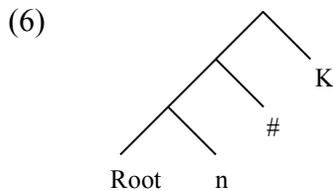
In contrast, it is widely assumed that pronouns have less structure than lexical nouns (Postal 1969, Longobardi 1994, Déchaine & Wiltschko 2002).[2]

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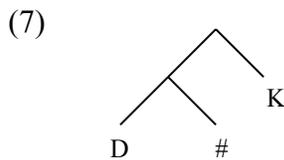
In effect, the absence of the *n* node will mean that K is sufficiently local to potentially govern suppletion.

1.4   Major claims

➔   Suppletion is governed by hierarchical structure and restricted by locality considerations (Bobaljik 2012);

➔   Lexical words have more structure than pronouns, which derives locality differences between the most deeply embedded element and case (K);

➔   Specifically, in lexical nouns, root-suppletion in the context of *number* (#) is a possibility, but root-suppletion in the context of *case* (K) is prohibited by locality;

➔   The lack of a number (#) node opens up the door for case-driven root-suppletion;

➔   Adding structure to lexical nouns blocks root-suppletion by number due to locality;

➔   The domain of accessibility for root-suppletion is the first category-defining node above the root and one node above that.

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[2] In (7) and below "D" is merely used as a label.

2   Distributed Morphology

Distributed Morphology (DM; Halle & Marantz 1993) crucially assumes that syntactic structure is the input to morphology, which then has to provide phonological material (Vocabulary Insertion, VI). Furthermore, VI proceeds cyclically, from the lowest element in the structure outwards (Embick 2010, Bobaljik 2000).

2.1   Suppletion in DM

Suppletion is contextual allomorphy: a feature (set) has a context-free default exponent, but in a more specific context a different exponent takes precedence (Bobaljik 2012).

(8) $\sqrt{\text{GOOD}} \Leftrightarrow \text{be(tt)} /\_ \text{ COMPARATIVE}$
(9) $\sqrt{\text{GOOD}} \Leftrightarrow \text{good}$

Crucially, *per* the Elsewhere principle (Kiparsky 1973) the more specific VI rule (8) will be preferred over the less specific VI rule (9).

2.2   Cyclic locality

DM assumes that accessibility of structure is domain-dependent (Embick 2010, Bobaljik 2012). Certain nodes in the structure function as domain delimiters and morphological processes are confined to operate within this domain (the *cyclicity hypothesis*).

An implementation of domains (and their delimiters) would be phases (and phaseheads) (Chomsky 2000, 2001). A phasal head induces the spellout (here: VI) of the terminal nodes of its sister and, as such, freezes it for further interaction.

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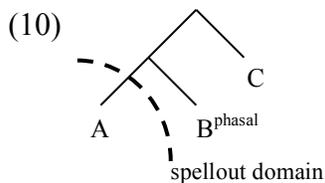
Phasal head B will trigger the spellout of its sister: A. On the assumption that spellout freezes a string, C and A cannot interact across B (Embick 2010, Bobaljik 2012; see Scheer 2010 for an overview).

3   The structure of nominals

The canonical structure of nouns in DM contains a *root*, which is unspecified for features traditionally associated with nouns (such as person, number, case, etc.). Next, the root then combines with a category-defining node *n*:

(11)

Furthermore, I assume a projection where number (#) is hosted (with Ritter 1991, and many others).[3] Furthermore, in accordance with Greenberg's (1963) universal, case (K) is assumed to be located higher.

(12) <u>Universal 39</u> (Greenberg 1963: 95): Where morphemes of both number and case are present and both follow or both precede the noun base, the expression of number almost always comes between the noun base and the expression of case.

(13) ev   -ler -de   *Turkish*   (14) balk'an -r -i   *Lezgian*
      house -PL -LOC   horse   -PL -OBL

(15) *Abstract structure of lexical nouns*   (16) *Abstract structure of pronouns*
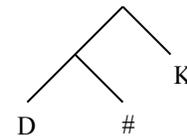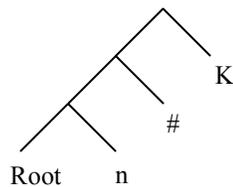
3.1   Accessibility

Embick (2010) suggests that in morphology category-defining nodes function as phase initiators (phase-inducing nodes are in bold).

(17)

However, if that were the case, no allomorphy would ever cross a category-defining node, since the root would always be closed off (Embick 2010).

Clearly, this is not correct, as evidenced in the case of number-driven (nominal) root-suppletion, comparative-driven (adjectival) root-suppletion, past-tense-driven (verbal) root-suppletion, etc.

(18)

(19) go – wen-t
      spell – spell-t   (*cf.* tell – tol-d)
      dream – dream-t   (*cf.* gleam – gleam-ed)

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[3] For expository reasons I represent this node as number (#); I leave open the question whether there is a single projection that hosts all φ-features or whether there is more structure.

(20)   ***Accessibility*** *domain*: For vocabulary insertion at the root, accessible nodes are: the first category-defining node above the root and one node above that.
(where accessibility means that it can condition suppletion)

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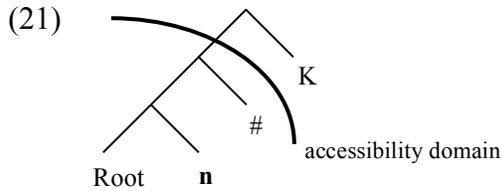
This definition of accessibility turns out to have the right properties to capture the facts. Later on, I return to discussion of accessibility domains where I briefly discuss similarities with the (syntactic) subjacency condition (Chomsky 1973) and an alternative that focuses on (only) the *first* category-defining node failing to be a domain delimiter (see section 7).

3.2   Root-suppletion in lexical nouns

Now, given the accessibility definition above, number can govern suppletion of the root. However, K is too far removed at the point that the root is subject to VI.

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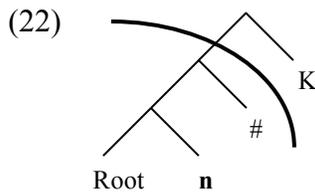
Concretely, consider again the number-suppletive forms in Ket:

(23)   *Number-driven suppletion in Ket*

	SINGULAR	PLURAL
'tree'	:oks'	aʔq
'child'	dyl'	kat
'man'	kɛʔt	dɛʔ-ŋ

The VI entries for *child* in Ket would correspond to the following:

(24)   √CHILD ⟺ kat /_ PLURAL
(25)   √CHILD ⟺ dyl'

A hypothetical VI entry making reference to case is inaccessible due to locality.

(26)   √CHILD ⟺ gu: /_ K   *(inaccessible)*

While number-driven root-suppletion is possible, case-driven root-suppletion in excluded due to cyclic locality.

3.3   Suppletion in pronouns

Given that pronouns crucially lack a category-defining node, no domain is created low in the structure and both number and case can govern suppletion.

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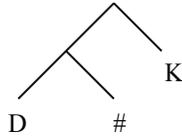
Concretely, consider again Latvian 2nd person pronouns, which supplete for number.

(28)   *Number driven suppletion in Latvian 2nd person pronoun*

	SINGULAR	PLURAL
NOM	tu	jūs
DAT	tev	jums
ACC	tevi	jūs
LOC	tevī	jūsos

The 2nd person VI entries would correspond to the following:

(29)   [2] ⇔ jū /_ PLURAL
(30)   [2] ⇔ te(v)

More interestingly, German 1st person pronouns supplete for case and number.

(31)   *Case driven suppletion in German 1st person pronoun*

	SINGULAR	PLURAL
NOM	ich	wir
DAT	mir	uns
ACC	mich	uns

The (singular) 1st person VI entries would correspond to the following:

(32)   [1] ⇔ mi /_ K
(33)   [1] ⇔ ich

Crucially, in the case of pronouns VI entries that make reference to case are accessible.

Given that there are no cyclic domains formed low in the structure for pronouns, both number-driven as well as case-driven suppletion is possible.

3.4   A note on portmanteaux

A note on fusion is in order (Halle & Marantz 1993, Radkevich 2010, *i.a.*). Consider languages in which number and case are fused into a single morpheme (a 'portmanteau').

(34)   *Fusion of number and case in Serbo-Croatian*

		SINGULAR	PLURAL
'arm'	NOM	ruk-a	ruk-e
	ACC	ruk-u	ruk-e

If we assume that portmanteaux result from pre-VI fusion of morphosyntactic nodes, we might predict that in these contexts case should be able to influence root-suppletion.

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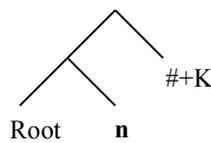
However, this is not attested; in languages that display root-suppletion in the context of a portmanteau number and case morpheme, suppletion is driven by number and not case:

(36)   *Root-suppletion in Serbo-Croatian*

		SINGULAR	PLURAL
'man'	NOM	čovek	ljud-i
	ACC	čovek-a	ljud-e

However, VI occurs bottom-up, starting at the root. As such, VI of the root crucially must occur before number and case form a portmanteau.

(37)
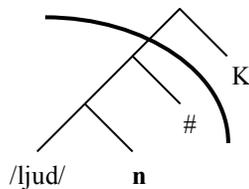
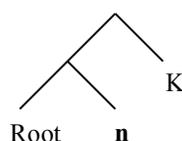## 4   Numberless nouns

An interesting prediction from the definition of accessibility domains here (repeated from 20) is that in case the number (#) node is missing we predict that case-driven root-suppletion should become possible.

(38)   *Accessibility domain*: For vocabulary insertion at the root, accessible nodes are: the first category-defining node above the root and one node above that.

(39)

4.1 Archi's *father*

Archi (a Northeast Caucasian language spoken in southern Daghestan) displays 'regular' suppletive nouns that show suppletion for number (Hippisley *e.a.* 2004; Archi Dictionary).

(40) *Number-driven root-suppletion in Archi*

		SINGULAR	PLURAL
'man'	ABS	bošór	kłelé
	ERG	bošór-mu	kłelé-maj
'shephard'	ABS	úłdu	ł:ʷat
	ERG	úł-li	ł:ʷa-čaj
'corner of a sack'	ABS	bič'ní	boždó
	ERG	bič'ní-li	boždó-rčaj
'woman'	ABS	ł:onnól	χom
	ERG	ł:anná	χam-aj
'cow'	ABS	χˤon	buc:'i
	ERG	χˤiní	búc:'i-li
'pier of a bridge'	ABS	biqˤ'ní	boʁdó
	ERG	biqˤ'ní-li	boʁdó- rčaj

The form for *father* suppletes for case.

(41) *Case-driven root-suppletion in Archi*

		SINGULAR	PLURAL
'father'	ABS	ábt:u	--
	ERG	úmmu	--

Crucially, it is a *singulare tantum* and does not have a corresponding plural. Indeed, on the assumption that Archi's *father* lacks a number node we predict that case-driven root-suppletion is possible, since the (ergative) case node is sufficiently local to the root.[4]

(42)

[ERG]

√FATHER   **n**

The VI entries for Archi's *father* would correspond to the following:

(43)   √FATHER ⟺ ummu /_ K
(44)   √FATHER ⟺ abt:u

The VI entry that makes reference to K is accessible due to the lack of a number node.

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[4] As to singular nature of the *singulare tantum*, I assume that default agreement is required (Preminger 2011). Furthermore, it has been suggested that absent features would be realised by the unmarked value (e.g. Smith 2012), and Bale, Gagnon and Khanjian (2011) argue that singular is the *morphologically* unmarked value for number.

4.2   Lezgian *water* and *son*

In Lezgian (a Northeast Caucasian language spoken in southern Dagestan and northern Azerbaijan) two nouns display suppletion in the context of case (Haspelmath 1993, p.c.).

(45)   *Case-driven root-suppletion in Lezgian*

		SINGULAR	PLURAL
'water'	ABS	jad	jat-ar
	OBL	c-i	jat-ar-i
'son'	ABS	xwa	ruxwa-jar
	OBL	xc-i	ruxwa-jr-i

I argue that in the singular Lezgian 'water' and 'son' lack a number projection, resulting in the accessibility of (oblique) case within the accessibility domain.

(46)
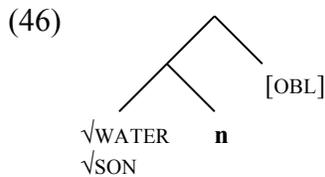
First consider plural formation in Lezgian.

(47)   *Plural formation in Lezgian*

	ABS PL	OBL PL
'horse'	balk'an-ar	balk'án-r-i
'father'	buba-jar	bubá-jr-i
'mountain'	dağ-lar	dağ-lár-i

(48)   buba   -jr   -i
        father -PL   -OBL

Next consider the allomorphs for the singular oblique.[5]

(49a)   -d-i   (49b)   -a
        -Un-i   -rA
        -Ad-i   -A
        -C-i[6]   -U
                                -u

The forms in (49a) decompose into an exponent for [SG] and an exponent for [OBL].

(50)   fíl   -d -i   (51)   kam   -un   -i
        elephant -SG -OBL   trap   -SG   -OBL

(52)   nek' -ed -i   (53)   par   -c   -i
        milk -SG -OBL   load   -SG   -OBL

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[5] Haspelmath (1993) assumes fused [SG-OBL] morphemes.
[6] -*Ci* covers -*ci, -c'i, -či, -č'i* and -*ži*, which result from Affricate Assimilation (Haspelmath 1993).

The remaining allomorphs (49b), I argue, result from phonological considerations to resolve vowel hiatus by deleting the high vowel /i/, which gives the illusion of the absence of an oblique suffix.

(54)   -SG -OBL
       -a   -i   (> -a)
       -rA -i   (> -rA)
       -A   -i   (> -A)
       -U   -i   (> -U)
       -u   -i   (> -u)

(55)   apaj   -a -i   >   apaja   (56)   lam   -ra -i   >   lamra
       father-in-law -SG -OBL   donkey   -SG -OBL

(57)   luw   -a -i   >   luwá   (58)   čarx   -u -i   >   čarxú
       wing   -SG -OBL   rock   -SG -OBL

Returning to the forms displaying case-driven root-suppletion, these lack an exponent for [SG] and vowel hiatus resolution does not apply, allowing the oblique suffix to surface.

(59)   *Case-driven root-suppletion in Lezgian*

		SINGULAR	PLURAL
'water'	ABS	jad	jat-ar
	OBL	c-i	jat-ar-i
'son'	ABS	xwa	ruxwa-jar
	OBL	xc-i	ruxwa-jr-i

(60)   c   -i   (61)   xc   -i
       water -OBL   son   -OBL

(62)

(63)   √WATER ⇔ c / _ K   (64)   √SON ⇔ xc / _ K
       √WATER ⇔ jad   √SON ⇔ xwa

However, in the plural the overt plural morpheme prevents (oblique) K from being accessible to affect root-suppletion: *jat-ar-i* 'water-PL-OBL' rather than **c-ar-i*.

(65)

4.3   Archi's *child*

Another item in Archi displays case-driven root-suppletion: *child*.

(66)   *Case-driven root-suppletion in Archi II*

		SINGULAR	PLURAL
'child'	ABS	lo	ló-bur
	ERG	lahá	ló-bur-čaj

Again, the overt plural morpheme (*-bur*) prevents (ergative) K from being accessible to affect root-suppletion: *ló-bur-čaj* rather than ***lahá-bur-čaj*** (67).

As in the analysis of Lezgian, the ergative singular lacks a number projection, allowing case-driven root-suppletion (68).

(67)   (68)
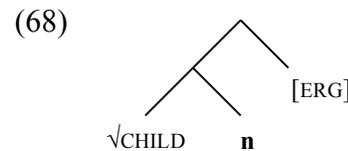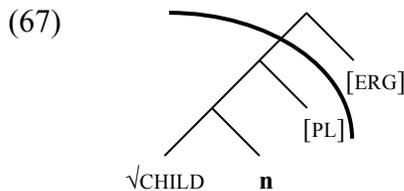
(69)   √CHILD ⇔ laha /_ K
         √CHILD ⇔ lo

The lack of a number (#) node opens up the door for case-driven root-suppletion, as predicted under the definition of accessibility domains here.

5   Diminutive nouns

Another interesting prediction from the definition of accessibility domains here (repeated from 20) is that in case there is a node intervening between *n* and number (#) we predict that number-driven root-suppletion should be blocked.

(70)   *Accessibility domain*: For vocabulary insertion at the root, accessible nodes are:
         the first category-defining node above the root and one node above that.

In Slavic languages, the diminutive is located closer to the root than number and predicted to prevent number-driven root-suppletion.[7]

(71)

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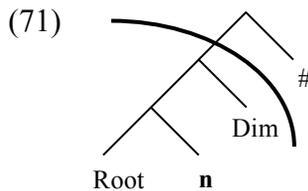
[7] The 'number' exponent also incorporates case information (a number-case portmanteau).

(72)   *Diminutive blocking number-driven root-suppletion in Serbo-Croatian*

	SINGULAR	PLURAL
'man'	čovek	ljud-i
'man-DIM'	čoveč-ić	*ljud-ić-i

mali ljudi 'small people'
(*čovečić-i* marginally accepted)

(73)   *Diminutive blocking number-driven root-suppletion in Polish*

	SINGULAR	PLURAL
'man'	człowiek	ludz-ie
'man-DIM'	człowiecz-ek	*ludz-ik-i

człowiecz-k-i (not common but accepted)

Polish does have a form *ludz-ik-i*, but it refers to figurines, and has a corresponding singular *ludz-ik* 'figurine-DIM'.

In Russian, some speakers use a periphrastic construction (as in Serbo-Croatian), and others opt for the regular non-suppletive root in the diminutive plural (as in Polish).

When an element intervenes between *n* and number, number-driven root-suppletion is blocked, as predicted by the definition of accessibility domains here.

6   Comparison with other theories of locality

The 'special status' of the first category-defining node has been a problem for theories of DM since they lack proper motivation for its failure to induce a spellout domain.

Embick (2010) incorporates this observation into his theory of spellout. Simplifying, he assumes that a phasal head causes spell-out (VI) of its complement, but only freezes (renders inaccessible) the complement of the next lower phasal head.

(74)
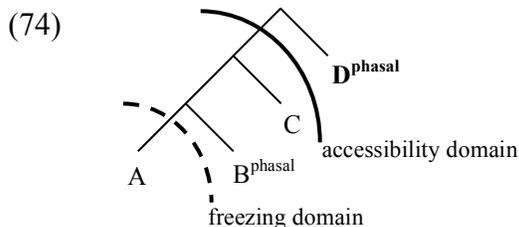
Applied to the case at hand, aside from category-defining nodes, let's assume that the highest node of an extended projection (Grimshaw 2005) also functions as a phasal head (see also Den Dikken 2007, Wurmbrand 2012, Bošković to appear).

(75)
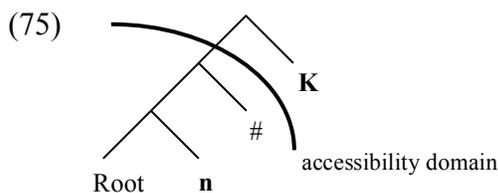
When K is merged, this triggers spellout (VI) of the root, *n* and number (#). This allows for number-driven for root-suppletion, but K is not accessible to govern suppletion.
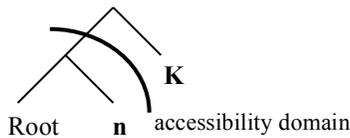
In pronouns, K is the only phasal head present in the structure and, as such, it does not trigger spellout, thus allowing for both number-driven and case-driven suppletion.

(76)
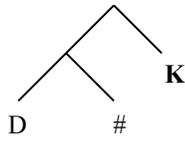
However, Embick's theory of spellout cannot accommodate examples of case-driven root-suppletion (section 4) since pruning of number has no effect on locality domains.
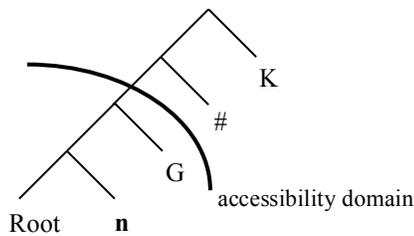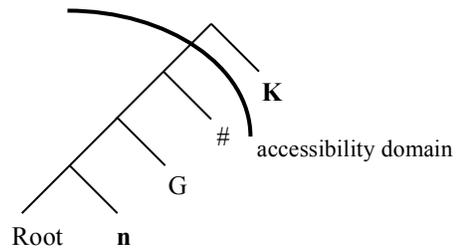
(77)

In contrast, in the proposal here the lack of a number node allows K to be sufficiently local to the root to drive suppletion.

In addition, the two approaches to accessibility make different predictions when a non-phasal node G intervenes between the category-defining node *n* and number (#).

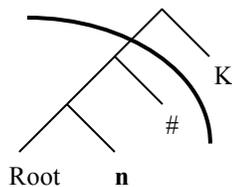(78)   (79)

Specifically, the current approach predicts that G would be only accessible node to influence the root (78), while Embick allows both G and # to be accessible (79).

7   The accessibility domain

(80)   *Accessibility domain*: For vocabulary insertion at the root, accessible nodes are: the first category-defining node above the root and one node above that.

(81)

Chomsky (1973) proposed the (syntactic) subjacency condition, which states that one can establish a relation across one single bounding node but not across two (or more).

(82)   *Morphological subjacency*: an element can establish a relation across one
        bounding node, but not across two (or more).

According to (82), the root has access to the number node across the phasal category-
defining node, thus deriving the correct generalisation identified in this paper.

Crucially, appealing to morphological subjacency does not assign any special status to
the *first* category-defining node but rather to all category-defining nodes in a structure.

An alternative to morphological subjacency that privileges the *first* category-defining
node draws on *domain suspension* (Bobaljik & Wurmbrand in press). Specifically, in
certain contexts cyclic domains are suspended (Bobaljik & Wurmbrand in press):

(83)   In the following configuration (linear order irrelevant), where the projection of Y
        would normally close off a domain, formation of such a domain is suspended just
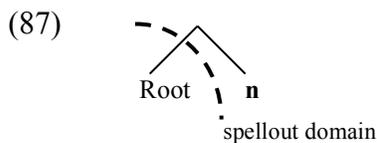   in case Y depends on X for its interpretation.
        $[X [_Y{}^n Y]]$

(84)   If X is a cyclic head, then Y^n is a Spell-Out Domain, unless Y depends on X for
        its interpretation.

(85)

        spellout domain
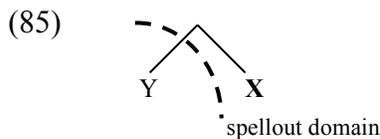
(86) $Y \Leftrightarrow \dots /\_ \mathbf{X}$

Specifically, we could suggest that a 'pure' root is semantically deficient (cf. Marantz
2007, Ramchand 2008), and cannot be spelled out, resulting in suspension of the domain.
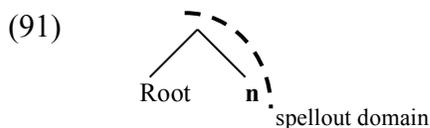
(87)

        spellout domain

(88) $*\sqrt{\text{ROOT}} \Leftrightarrow \dots$

(89) $\sqrt{\text{ROOT}} \Leftrightarrow \dots/\_ x$ (where *x* is a category head)

Furthermore, I suggest that the resolution to domain suspension is target-driven.

(90)   *(phase-)target-driven resolution:* The suspended domain is closed off at the point
        that you resolve the deficiency which caused the suspension in the first place.

(91)

        spellout domain

Finally, VI must be sensitive to 'one-node-up' outside of the spellout domain, irrespective of the (non-)phasal status of that node.

(92)
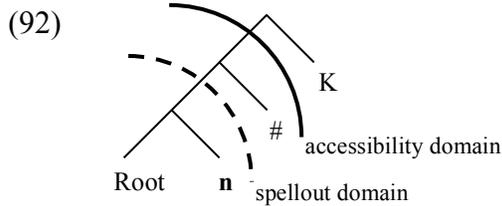
The crucial distinction between morphological subjacency and the 'one-node-up' approach is that the former generalises the property of 'skipping' one phasal node, whereas the latter approach limits 'skipping' to the *first* category-defining node.

8 Conclusion

→ Suppletion is governed by hierarchical structure and restricted by locality considerations (Bobaljik 2012);

→ Lexical words have more structure than pronouns, which derives locality differences between the most deeply embedded element and case (K);

→ Specifically, in lexical nouns, root-suppletion in the context of *number* (#) is a possibility, but root-suppletion in the context of *case* (K) is prohibited by locality;

→ The lack of a number (#) node opens up the door for case-driven root-suppletion;

→ Adding structure to lexical nouns blocks root-suppletion by number due to locality;

→ The domain of accessibility for root-suppletion is the first category-defining node above the root and one node above that.

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Appendix: Languages that display root-suppletion in the context of number

language	family
!Xóõ	Khoisan
Afrikaans	Indo-European
Arapesh	Torricelli
Archi	North Caucasian
Eastern Pomo	Pomoan
Hebrew	Afro-Asiatic
Hua	Trans-New Guinea
Ket	Yenisei Ostyak (or *isolate*)
Komi	Uralic
Lango	Nilo-Saharan(?)
Lavukaleve	Central Solomons
Russian	Indo-European
Tariana	Arawak
Tiwi	*isolate*
Turkana	Nilo-Saharan
Xakass	Altaic
Yimas	Sepik-Ramu
Zulu	Niger-Congo