Hypocoristic truncation in Sardinian

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Abstract: This paper focuses on hypocoristic truncation in Sardinian. Besides disyllabic truncation, hypocoristic truncation in Sardinian also yields trisyllabic truncated forms by means of a process of reduplicative prefixation (e.g., *Totore* ← *Servatore*) and, more interestingly, a process of copy of what is analyzed as an internally layered ternary foot (e.g., *(Va(tore))* ← *Servatore*). In this paper we develop an OT analysis of hypocoristic truncation based on output-output correspondence relations between bases and truncated morphemes that gives further support to internally layered ternary feet in the domain of the phonology-morphology interface.

Keywords: hypocoristic, layered foot, Sardinian, truncation

1 Introduction

Truncation is a prosody-driven morphological process that is assumed to reduce bases to the size of minimal words (Benua 1995). It has generally been assumed that minimal words are equivalent to the size of metrical feet (McCarthy and Prince 1990). This follows from the dominance relations of the Prosodic Hierarchy, according to which a prosodic word immediately dominates a foot (Nespor and Vogel 1986; Selkirk 1981). The standard theory of metrical feet assumes the existence of minimally monosyllabic, but bimoraic feet (e.g., (ˈH)), or maximally disyllabic feet, which can be quantity sensitive (e.g., (ˈLL) for head-initial, trochaic feet, and (LˈL) or (LˈH) for head-final, iambic feet) or quantity insensitive, which can only be trochaic (e.g., (ˈ$\sigma\sigma$)) (Hayes 1995: 71).

Bimoraic and disyllabic truncation processes are widely attested crosslinguistically (for Romance, see Alber 2010; Alber and Arndt-Lappe 2012; Cabré 1994; Cabré and

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Kenstowicz 1995; Colina 1996; Piñeros 2000a, 2000b, 2002; Prieto 1992). Hypocoristic truncation in Sardinian is of special interest because besides disyllabic truncation (e.g., *Mena* ← *Filumena*), it also yields trisyllabic truncated forms (Molinu 2012, 2015, 2018). Trisyllabic truncated forms pose a challenge for foot-based analyses of truncation.

Two types of trisyllabic truncated hypocoristics can be identified in Sardinian: those that derive from reduplicative prefixation (e.g., *Totore* ← *Servatore*) and, more interestingly, those that consist of a (full) copy of the last three syllables of the base, which surface with amphibrach (weak-strong-weak) rhythm (e.g., *Vatore* ← *Servatore*), only if the syllable of the base preceding a pretonic open syllable is closed. The process of trisyllabic truncation is an additional process of hypocoristic formation, in the sense that there are no trisyllabic hypocoristics without a disyllabic counterpart. With respect to reduplicative prefixation, if a disyllabic truncated hypocoristic has a stressed closed syllable, it cannot be preceded by a reduplicative prefix (e.g., **Babaldu* ← *Baldu* ← *Teobaldu* cf. *Memena* ← *Mena* ← *Filumena*).

The theoretical claim of this paper is that feet can be internally layered to include a third unstressed syllable (Martínez-Paricio and Kager 2015, Martínez-Paricio and Torres-Tamarit 2019). By analyzing trisyllabic truncated hypocoristics in terms of internally layered ternary (ILT) feet, the general assumption that truncated forms equal the size of a metrical foot can be maintained. An analysis based on ILT feet also explains the size of the reduplicative morpheme in cases such as *Totore* without the need for morpheme-specific size constraints, along the lines of Generalized Template Theory, according to which the shape of prosodic morphemes and templatic effects follow from independently motivated constraints (McCarthy and Prince 1993, 1994).

The remainder of the paper is as follows. Section 2 describes the methodology used to gather the Sardinian data on hypocoristics. Section 3 describes stress in Sardinian and argues in favor of quantity sensitivity. Section 4 outlines the theoretical framework upon which the analysis of hypocoristic truncation hinges, which depends on foot-based truncation and ILT feet. Section 5 presents an OT analysis of hypocoristic truncation. Finally, Section 6 concludes the paper.

2 Methodology

The data analyzed in this paper were obtained by different means. Most of the data are taken from previous literature (Lepori 1980; Molinu 2012, 2015, 2018; Rubattu 2013; Wagner 1984). Additionally, a questionnaire containing a set of proper names with different lengths (*Frantziscu*, *Caterina*, *Escolàstica*, etc.), different stress patterns (*Eleo**no**ra*, *Do**mì**nigu*) and different syllable structure complexity (*Domìnigu*, *Serva-*

tore, *Frantziscu*, etc.) was designed to collect data from various Campidanian locales in April 2013 (one male speaker from Sìnnia, one male speaker and one female speaker from Seddori, one male speaker from Sestu, and one female speaker from Biddecrèsia). In some cases the subjects proposed several hypocoristic forms for the same proper name (this was the case for *Frantziscu* → *Chicu*, *Ciciu*, *Chiscu*, *Chichinu*), whereas in other cases they did not propose any truncated forms at all for the given proper name. Once the questionnaire was completed, we also asked them to add other hypocoristics commonly used and not elicited by the questionnaire. A total of 143 tokens including first hand and second hand data were obtained. The dataset is freely available in Cabré, Torres-Tamarit and Vanrell (2020). The total number of tokens for each of the three hypocoristic types (disyllabic, trisyllabic and reduplicated) is given in (1).

(1) Distribution of tokens across types

type	tokens
disyll	90
redupl	30
trisyll	23
Total	143

The interviews were conducted by native speakers and the last two authors of the paper were also present during the recording sessions. The language register used by the interviewers was always that of a casual conversation between interlocutors in a relaxed atmosphere. All the speakers were recorded in their homes or public spaces in their villages using a Marantz Professional PMD660 digital recorder and a Rode NTG-2 microphone.

Whenever possible, in order to facilitate the reading and comprehension of the paper, we have offered both the orthographic and phonetic transcription of the Sardinian examples. To this end, the official guidelines for *Limba Sarda Comuna* (Regione Autònoma de Sardigna 2006) and Cardia et al. (2009) have been followed.

3 Stress in Sardinian

Before developing an analysis of hypocoristic truncation in Sardinian, the stress facts of the language need to be understood. So far there is no full-fledged formal analysis of stress assignment in Sardinian, but the most relevant aspects of stress assignment in non-verbal elements were already described in Bolognesi (1998) (see also Pittau 1972, Roca 1999).

3.1 Disyllabic, vowel-final forms

According to Bolognesi (1998), who describes the Sestu Campidanese variety of Sardinian, all disyllabic native words, which constitute 52% of the lexicon, have initial stress (e.g., *domu* [ˈdɔmu] 'house'). Therefore, it seems reasonable to assume that the unmarked metrical foot in Sardinian is trochaic, as is common in Romance.[1]

Bolognesi (1998) further supports this hypothesis by reporting secondary stress in derived nominal elements (e.g., *menduledda* [ˌmenduˈʁɛɖːa] 'almond+dim' cf. *mèndula* [ˈmenduʁa] 'almond'; *marteddeddu* [ˌmarteˈɖːeɖːu] 'hammer+dim' cf. *marteddu* [marˈteɖːu] 'hammer'; *cugurredda* [ˌkuɣurˈrɛɖːa] 'caterpillar+dim' cf. *cugurra* [kuˈɣurra] 'caterpillar'; *piticheddeddeddu* [ˌpitːiˌkːeɖːeˈɖːeɖːu] 'small+dim+dim+dim').[2] For odd-numbered, morphologically complex words longer than three syllables, a secondary stress is reported to fall on the initial syllable of the word, not on the peninitial syllable (e.g., *crojuetedda* [ˌkroʒuɛˈtːɛɖːa] 'lizard+dim', *marigoseddu* [ˌmaɾiɣɔˈzeɖːu] 'bitter+dim', *impresarieddu* [ˌimprezaˈɾjeɖːu] 'kind of fish+dim'). This stress pattern creates an amphibrach (weak-strong-weak) rhythm at the right edge of the word. Amphibrach rhythmic patterns will be relevant in our analysis of trisyllabic hypocoristic truncation. As we will see, the possibility to create a right-aligned ILT foot when the first syllable of the base is heavy and can therefore be parsed into its own foot allows for preserving the last three syllables of the base name (e.g., *(Va(tore))* ← *(Ser)(va(tore))*).

3.2 Trisyllabic, vowel-final forms

After disyllabic words, the second largest group of words in the native lexicon of Sardinian corresponds to trisyllabic forms (42% of the lexicon according to Bolognesi 1998), of which 13%, a clear minority, exhibit antepenultimate stress. According to Bolognesi (1998), antepenultimate stress in trisyllabic words is essentially unpredictable and must therefore be assigned idiosyncratically in the lexicon (e.g., *ànima*

1 Independent evidence for trochaic feet comes from copy vowel epenthesis after vowel-final forms which would otherwise display final stress (e.g., the loanwords *caffè* [kaˈfːɛi] 'coffee', *mercè* [mɾaˈtsːɛi] 'you.2sg.formal', *gattò* [gatˈtɔu] 'cake'). In addition, we performed a search of vowel-final words with final stress from Rubattu (2006), which includes both a Campidanese (55,000 entries approx.) and a Logudorese dictionary (73,000 entries approx.). For the Campidanese dictionary, we found a total of 139 words (e.g., *suchefà* 'bean', *gilè* 'vest', *merì* 'noon'), and for Logudorese, a total of 245 words (e.g., *pompè* 'shoe', *tabì* 'silk'). We can therefore confirm that, irrespective of whether epenthesis applies categorically or not in all these forms, final stress in vowel-final words is actually marginal in Sardinian.

2 Secondary stress in Sardinian has not been explored in detail yet. Vanrell et al. (2015) observed initial F0 prominences (a rising movement associated with the first syllable of the prosodic word), but, as opposed to Bolognesi (1998), no evidence for binary rhythm was reported.

[ˈanima] ‘soul’, *ìligi* [ˈiʁiʒi] ‘quercus ilex’, *gèneru* [ˈdʒɛneru] ‘son-in-law’). The presence of an initial closed syllable in three-syllable words does not necessarily attract primary stress (e.g., *marteddu* [marˈteɖːu] ‘hammer’, *cardaxu* [karˈdaʒu] ‘cauldron’, *cannuga* [kanˈnuɣa] ‘instrument made of cane’, but *mèndula* [ˈmenduʁa] ‘almond’, *ùrtimu* [ˈurtimu] ‘last’). No percentages are available to elucidate whether an initial closed syllable in three-syllable words favors antepenultimate stress. Although Bolognesi (1998) argues that forms like *marteddu* [marˈteɖːu] are a proof against quantity sensitivity in stress assignment, trisyllabic forms with an initial closed syllable followed by two open syllables and penultimate stress can be simply analyzed as containing an initial bimoraic foot consisting of one heavy syllable followed by a bimoraic foot consisting of two light syllables, following Bolognesi’s (1998) assumption that syllables are exhaustively parsed into feet in Sardinian: (H)(ˈLL). The reason why stress falls on the penultimate syllable is that the head foot in Sardinian is always the rightmost, and then stress class resolution would be responsible for leaving the first heavy syllable unstressed. Therefore, trisyllabic forms with an initial closed syllable and penultimate stress cannot be taken as evidence in favor of quantity insensitivity: these forms simply surface with the unmarked stress pattern of Sardinian, which is penultimate stress. Most important, however, is that Bolognesi (1998) explicitly says that in the presence of a penultimate closed syllable, antepenultimate stress is categorically banned, as is common in Romance (e.g., *coranta* [kɔˈɾanta] ‘forty’ cf. *[ˈkɔranta]; *molenti* [mɔˈʁɛnti] ‘donkey’ cf. *[ˈmɔʁɛnti]; *burrumballa* [ˌburrumˈballa] ‘mess/confusion’ cf. *[burˈrumballa]).

3.3 Consonant-final forms

The source of word-final consonants in Sardinian according to Bolognesi (1998) consists mainly of inflectional endings: *-s*, which is the plural suffix (e.g., *domus* [ˈdɔmuz(u)] ‘houses’), and also the first plural, second singular and second plural ending of present indicative verbs (e.g., *manducas* [ˈmandukaz(a)] ‘eat.2sg.pres.ind’); and *-t*, the third singular ending of present indicative verbs (e.g., *piaghet* [piˈaɣɛð(ɛ)] likes.3sg.pres.ind’).[3] Besides inflectional *-s* and *-t*, Bolognesi (1998) lists 11 native content words containing a word-final consonant: *caput* ‘head’ (although Rubattu’s dictionary gives *capu* instead of *caput*, without a final *-t*), *tempus* ‘time/weather’, *corpus* ‘body’, *pegus* ‘sheep’, *lunis* ‘Monday’, *martis* ‘Tuesday’, *mèrcuris* ‘Wednesday’, *mellus* ‘better’, *peus* ‘worse’, *forsis* ‘perhaps’, and *antzis* ‘instead’. In phrase-final position,

3 The source of antepenultimate stress in Sardinian is sometimes the result of copy vowel epenthesis to avoid word-final consonants in phrase-final position (see Flack 2009 for phrase-dependent wellformedness effects on syllable structure). As far as we know, both Campidanese and Logudorese exhibit this process.

these words should surface with antepenultimate stress, and even preantepenultimate stress in the case of *mèrcuris*, due to the insertion of an epenthetic copy vowel (e.g., *lunis* [ˈlunizi] 'Monday', *tempus* [ˈtempuzu] 'time/weather'; see Torres-Tamarit, Linke and Vanrell 2017). This set of words with an underlying final consonant might suggest that stress in Sardinian is quantity insensitive, as stress never falls on the final closed syllable. However, drawing such a generalisation from this small set of words is risky. We further performed a search of consonant-final words ending in *-s* from Rubattu (2006) and most of them had no final stress. For Campidanese, words ending in *-as* are the most common (512 words), followed by words ending in *-us* (503 words) and words ending in *-is* (319 words). Words ending in *-es* and *-os* are much less common (11 and 5 words, respectively). For Logudorese, words ending in *-as* are also the most common (445 words), followed by words ending in *-os* (374 words) and *-es* (105 words). Then we also find words ending in *-is* (105 words) and words ending in *-us* (78 words). All these terminal elements seem to be inflectional nominal suffixes, and could therefore be analyzed as extrametrical, without compromising quantity sensitivity.

In order to check the extent to which a final closed syllable might attract stress in Sardinian, we also performed a search of consonant-final words from Rubattu (2006) for both Campidanese and Logudorese in which both monosyllabic words and words ending in *-s* were set apart. As we expected, polylsyllabic consonant-final words are extremely rare. For Campidanese, only 23 polysyllabic consonant-final words were found. Of these, 10 were transcribed as having final stress.[4] In Logudorese, 13 words out of 35 consonant-final words were transcribed as having final stress (some of these words being compounds).[5] Another group of consonant-final words end in *-at* in both varieties (there are no words ending in other vowels followed by *-t* except for *zenit* 'zenith', with penultimate stress). All words ending in *-at* never have final stress and are mostly conjunctions (e.g., Camp. and Log. *ossiat* 'namely', Log. *sincabèsserat* 'if anything'), pronouns (e.g., Log. *calesisiat* 'anyone', Camp. *itasisiat* 'whatever') and adverbs (e.g., Log. *calesicherzat* 'anyway', Camp. *aundisiollat* 'everywhere'). From these findings we conclude that, for some consonant-final words, stress assignment is sensitive to the weight of the final syllable. For other words, the final consonant is extrametrical. In phrase-final position however, we expect these words to surface with an epenthetic copy vowel in Campidanese, which renders final stress non-surface-true, that is, opaque.

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4 e.g., *calmùc* 'Kalmyk', *nicenòn* 'geranium', *ruàn* 'canvas', *armuàr* 'wardrobe', *contuàr* 'shop counter', *fumistèr* 'flue', *Barrabàs* 'Barabbas, Satan', *Bancràs* 'Pancratium', *puès* 'therefore, since', *abadùs* 'both'.

5 e.g., *tosèl* 'canopy', *Lusbèl* 'Lucifer', *Bellèm* 'Bethlehem', *misser* 'honorary title', *assàs* 'very', *atràs* 'behind', *buscapés* 'firecracker', *linghepès* 'flunkey, bootlicker', *puès* 'therefore, since', *trepodrès* 'quail', *barrupès* 'gossipy', *giùs* 'right', *poddighimpiùs* 'finger'.

To conclude this section, let us briefly summarize the main features of stress in Sardinian. Feet in this language are trochaic (e.g., head-initial), and final consonants contribute to the weight of the syllable and attract stress (although word-final epenthesis wipes out this effect phrase-finally). Marked, exceptional stress is also possible, and some consonant-final words have penultimate stress; antepenultimate stress is also possible. Inflectional endings always remain unstressed, which could be explained by assuming that the domain for stress is the morphological stem. Finally, we enumerate the arguments in favor of analyzing stress assignment in Sardinian as quantity sensitive. First, despite the rarity of consonant-final words in the language, a considerable number of these words show final stress; interestingly, the majority of consonant-final words with non-final stress can be analyzed as containing an inflectional, terminal element that ends in a consonant, which would not compromise quantity sensitivity. Second, despite the extremely low frequency of closed syllables in the lexicon (Bolognesi 1998 states that about 90% of all syllables in Campidanese Sardinian are open), words longer than two syllables with a penultimate closed syllable never display antepenultimate stress. This suggests that the penultimate closed syllable is heavy and therefore attracts stress; closed syllables in the third-to-last position of a word do not attract primary stress because an unmarked trochee can be built on the last two syllables of the word. A further argument in favor of quantity sensitivity in Sardinian actually comes from the analysis of trisyllabic hypocoristic truncation. All trisyllabic hypocoristics in Sardinian like *Vatore* and *Parrina* derive from bases with an initial closed syllable (e.g., *Servatore*, *Gasparina*). Assuming quantity sensitivity allows for parsing this first syllable into its own bimoraic foot (e.g., *(Ser)vatore*, *(Gas)parina*). This parsing leaves space for building a layered foot on top of the last three syllables (e.g., *(Ser)(va(tore))*, *(Gas)(pa(rina))*). It is this layered foot the one that is preserved in the truncated form (e.g., *(Va(tore))*, *(Pa(rina))*. When the initial syllable of a four-syllable base is open (e.g., *Filumena*), no trisyllabic hypocoristic is attested in Sardinian (e.g., **Lumena*). This is so because the third-to-last syllable is already parsed into an initial bimoraic foot together with the first open syllable of the base (e.g., *(Filu)(mena)*). Trisyllabic patterns of hypocoristic truncation will be explained in detail in §5.

4 Theoretical framework

4.1 The foot-based analysis of truncation

In her analysis of hypocoristic truncation in Japanese, Benua (1995) showed that the size of truncated forms can be easily derived from the constraints responsible for the size of minimal words (McCarthy and Prince 1994), those that consist of only one foot (e.g., bimoraic truncated stems with diminutive suffixation in Japanese: *Mido-čan* ← *Midori*; *Yoko-čan*, *Yoo-čan* ← *Yooko*; *Hana-čan*, *Haa-čan*, *Hač-čan* ← *Hanako*). Miminal words emerge when the three constraints in (2) are all obeyed, which are referred to as prosodic word restrictors.

(2) Prosodic word restrictors

a. PARSE-σ

Assign one violation mark for every unfooted syllable. (McCarthy 2008)

b. FOOT-BINARITY

Assign one violation mark for every foot that does not contain at least two moras or two syllables. (McCarthy 2008)

c. ALL-FEET-LEFT/RIGHT

Assign one violation mark for every syllable intervening between the left/right edge of a foot and the left/right word edge. (Kager 2007, McCarthy 2008)

Only when these three constraints are satisfied does the minimal prosodic word emerge. PARSE-σ ensures that no syllable is left unparsed. For its part, FOOT-BINARITY sees to it that feet are strictly binary. Finally, the alignment constraints ALL-FEET-LEFT/RIGHT guarantee the existence of only one foot, as the presence of more than one foot would correlate with violations of these constraints. When applied to hypocoristic truncation, the size of truncated forms follow from these three independently motivated constraints. A fourth constraint is needed to select the optimal foot form. For Sardinian hypocoristic truncation, this constraint is TROCHEE, formulated in (3).

(3) TROCHEE

Assign one violation mark for every foot whose head is not initial. (McCarthy 2008)

Foot-based truncated forms satisfy all the previously mentioned constraints but violate a lower-ranked faithfulness constraint MAX-BT, formulated in (4).

(4) MAX-BT

Assign one violation mark for every syllable in the base that does not have a correspondent in the truncated form. (This constraint counts syllables and not segments for ease of exposition.) (McCarthy 2008)

The constraint MAX-BT is an output-output correspondence faithfulness constraint that maximizes the number of segments in correspondence between a fully prosodified base and the output of the truncated morpheme. In tableau (5) we illustrate how the constraints introduced so far interact to derive foot-sized truncation. The input consists of a string of four syllables parsed into two trochaic feet the second of which is the head of the prosodic word. The winning candidate is (5a), a head-initial disyllabic foot, which only violates MAX-BT but satisfies the three prosodic word restrictor constraints PARSE-σ, FOOT-BINARITY and ALL-FEET-RIGHT, plus the foot form constraint TROCHEE. Only ALL-FEET-RIGHT is included in the tableau. From this tableau, two ranking arguments are demonstrated: both PARSE-σ and ALL-FEET-RIGHT dominate MAX-BT. The constraints FOOT-BINARITY and TROCHEE are undominated and do not dominate any other constraint.

(5) Foot-sized truncation

(ˌσσ)(ˈσσ)	PARSE-σ	FOOT-BIN	ALL-FEET-R	TROCHEE	MAX-BT
a. ☞ (ˈσσ)					**
b. (σˈσ)				*W	**
c. (ˌσσ)(ˈσσ)			*W*		L
d. (ˈσ)		*W			***W
e. σ(ˈσσ)	*W				*L
f. σσ(ˈσσ)	*W*				L

One last relevant aspect to take into account in deriving truncation is determining which portion of the base is preserved in the truncated form. This is generally achieved by ANCHOR constraints, which demand that segments standing in input-output correspondence preserve alignment with respect to designated edges of prosodic constituents. To give an example, in his analysis of Spanish hypocoristic truncation, Piñeros (2000a) makes use of the constraint ANCHOR(BT)Left to derive left-anchored truncation (e.g., *Fernan* ← *Fernando*), formulated in (6).

(6) ANCHOR(BT)Left
Any element at the left periphery of SF (source form) has a correspondent at the left periphery of TF (truncated form). (Piñeros 2000a)

For a different pattern of hypocoristic truncation in Spanish in which the preserved portion of the base is the foot (e.g., *Mando* ← *Armando*), Piñeros (2000a) makes use not of an ANCHOR constraint, but rather an anti-deletion faithfulness constraint MAX relativized to refer to the head of the prosodic word, that is, the main-stressed foot. This constraint is formulated in (7).[6]

6 Alber and Arndt-Lappe (2012) discuss whether ANCHOR constraints are better formulated as alignment constraints or faithfulness constraints. They argue that ANCHOR-STRESS, analogous to

(7) HEAD(PWd)MAX
Every element contained in the head of the PWd (e.g., the main-stressed foot) of SF must have a correspondent in TF. (Piñeros 2000a)

We will see that the relevant constraint responsible for selecting which portion of the base is preserved in the truncated form in Sardinian is HEAD(PWd)MAX. In §4.2 we briefly introduce the theory of ILT feet on which the analysis of hypocoristic truncation in Sardinian crucially depends.

4.2 Internally layered ternary feet

Contrary to standard assumptions in metrical theory that posit that feet are maximally disyllabic, we present additional evidence for ILT feet (Martínez-Paricio 2013, Martínez-Paricio and Kager 2015), a metrical configuration in which a foot is immediately dominated by another foot. This structure does not constitute an independent primitive category in the prosodic hierarchy, but is rather a grammatical byproduct that arises from language-particular constraint rankings.

Recent studies in metrical theory have shown that reference to ILT feet facilitates a more restrictive account of a wide range of phonological phenomena. For languages with ternary rhythmic stress, it can be proposed that ternary rhythm arises whenever the word contains an ILT foot (Martínez-Paricio and Kager 2015). Also, ILT feet have been shown to facilitate a simpler and more unified account of a wide range of foot-conditioned segmental and tonal distributions (e.g., specific cases of vowel reduction, vowel lengthening, strengthening and weakening of consonants, particular tonal distributions, and tone spreading domains; see Bennett 2012, 2013; Breteler 2017; Breteler and Kager 2017; Caballero 2008, 2011; Davis and Cho 2003; Harris 2013; Iosad 2016; Jensen 2000; Kager 2012; Martínez-Paricio 2012, inter alia). The most important prediction of these analyses is that beyond the traditional strength dichotomy between a foot head (the strong branch of a foot) and a foot dependent (the weak branch of a foot), a model with ILT feet predicts further subtle strength contrasts between two distinct foot dependents.

Based on the theory of prosodic recursion by Itô and Mester (2007, 2013), we assume that each projection of a foot can be defined as minimal (a foot that does not

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HEAD(PWd)MAX in Piñeros (2000a), is better formulated as a faithfulness constraint rather than as an alignment constraint because ANCHOR-STRESS shows no alignment effects, as opposed to, for instance, ANCHOR-LEFT. We also adopt this view and consider that HEAD(PWd)MAX is a faithfulness constraint in which the head of the PWd must have a correspondent in the truncated form as the head of the PWd. See also McCarthy (2000) for a discussion of ANCHOR constraints.

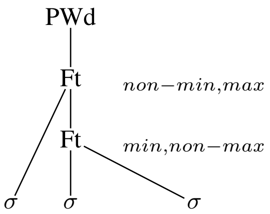

Fig. 1: ILT foot

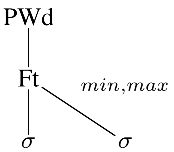

Fig. 2: Disyllabic foot

dominate another foot) or non-minimal (a foot that dominates another foot), maximal (a foot that is not dominated by another foot) or non-maximal (a foot that is dominated by another foot). These authors' and our proposal is that grammars can make direct reference to these labels, which follow from dominance relations. We represent in figure (1) the shape of an ILT foot, and in figure (2), a disyllabic, non-ILT foot.

5 Hypocoristic truncation

5.1 Data

Disyllabic truncation is the most common pattern of hypocoristic truncation in Sardinian (90 tokens in our dataset, as shown in 1). Most disyllabic truncated hypocoristics correspond to a copy of the main foot found in penultimately stressed bases. These bases with penultimate stress are analyzed as containing a disyllabic trochaic foot aligned with the right edge of the word (e.g., 8a. *Filumena*, (LL)(ˈLL)), an ILT foot in bases ending in a sequence of a heavy syllable followed by a light syllable (e.g., 8d. *Frantziscu*, (H)((ˈH)L)), or an ILT foot in bases ending in a sequence of three light syllables not preceded by a heavy syllable (e.g., 8e. *Simone*, (L(ˈLL))). In most disyllabic truncated hypocoristics there is a total identity between the main foot in the base and the whole truncated form, except for bases that consist exclusively of an ILT foot (e.g., 8e. *Simone*, (L(ˈLL))), in which case only the minimal foot is preserved in the truncated form (e.g., *Mone*, (ˈLL)); if the maximal foot was preserved, the output of truncation would be identical to the base, that is, an instance of vacuous truncation. Some examples of disyllabic truncated hypocoristics appear in (8). In all of them, foot boundaries are indicated by parentheses and the stressed vowel is marked with an acute accent. Note that metrification is exhaustive and that one base is diminutivized (*Isperantzina*).

(8) Disyllabic truncated hypocoristics

a. *(Filu)(ména)*	→	*(Ména)*	('LL)	f. *(Rosa)(lía)*	→	*(Lía)*
b. *(Pas)(cáli)*	→	*(Cáli)*	('LL)	g. *A(gus)(tínu)*	→	*(Tínu)*
c. *(Cos)(tan)(tínu)*	→	*(Tínu)*	('LL)	h. *(Is)pe(ran)(tzína)*	→	*(Tzína)*
d. *(Fran)((tzís)cu)*	→	*((Chís)cu)*	(('H)L)	i. *(Teo)((bál)du)*	→	*((Bál)du)*
e. *(Si(móne))*	→	*(Móne)*	('LL)	j. *(Mi(chéli))*	→	*(Chéli)*

Besides disyllabic hypocoristic truncation, Sardinian displays another process of hypocoristic formation that yields truncated forms that exceed the size of a disyllabic foot. These truncated forms consist of exactly three light syllables, which we interpret as an ILT foot consisting of a minimal, trochaic foot to which an immediately preceding unstressed syllable is adjoined to a maximal foot (e.g., (L('LL))). Trisyllabic truncated hypocoristics in Sardinian are of two types depending on the mechanism used to retrieve the immediately preceding unstressed syllable. One type of trisyllabic hypocoristic truncation is simply a copy of the head foot already present in the base, which is an ILT foot, as shown in (9). For a complete list of cases (23 tokens in our dataset), we refer the reader to Cabré, Torres-Tamarit and Vanrell (2020). Note however that some of the trisyllabic truncated forms are variants that derive from the same base.

(9) Trisyllabic truncated hypocoristics I, (L('LL))

(Ser)(va(tóre))	→	*(Va(tóre))*	*(Ber)(tu(méu))*	→	*(Tu(méu))*
(Gas)(pa(rína))	→	*(Pa(rrína))*	*(Mar)(ghe(ríta))*	→	*(Ghi(ríta))*

Interestingly, in bases containing an initial sequence of two light syllables, which we analyze as being parsed into a foot due to exhaustive parsing, trisyllabic truncation is unattested (10).[7]

(10) Impossible trisyllabic truncated hypocoristics

(Filu)(ména)	→	**(Lu(ména))*	*(Disi)(dóro)*	→	**(Si(dóro))*
(Miche)(línu)	→	**(Che(línu))*	*(Sera)(fínu)*	→	**(Ra(fínu))*

A few other cases of trisyllabic truncated hypocoristics have been attested that incorporate into the ILT foot a third-to-last closed syllable (e.g., *Gantine* ← *Costantinu*

7 The status of ungrammaticality that we attribute to these forms is based on their absence from our dataset. We have further asked one native speaker of Sardinian about these forms and he does not accept them as possible hypocoristics. Our dataset includes however three trisyllabic truncated forms that derive from LLLL bases: *Bonedda* ← *Bonariedda*, *Carina* ← *Catarina* and *Malena* ← *Madalena*. We do not consider these forms to be counterexamples to our claim that (LL)(LL) bases cannot be truncated into trisyllabic forms. This is because the truncation mechanism used to derive these three forms is different. They display two anchoring targets: the initial syllable and the head foot of the base. In all the other forms in our dataset there is only one anchoring target: the head foot of the base. We do not analyze these cases in section 5.3 because of their marginal status.

and *Bus.tia.nu* ← *Se.bas.tia.nu*, and other versions of the same form like *Bostanu* and *Sostianu*). In other cases, the pretonic closed syllable in the base corresponds to an open syllable in the truncated hypocoristic (e.g., *Tzicana* ← *Frantziscana*, *Ba.cia.nu* ← *Se.bas.tia.nu*, and other versions of the same form like *Betanu*, *Bitau*, *Bucianu*, *Cotzianu* and *Pitanu*). These latter cases show the preference in Sardinian for ILT feet consisting of strictly three moras. A few of these examples appear in (11).

(11) Trisyllabic truncated hypocoristics II, (L('LL))

(Cos)(tan)(tínu)	→	***(Gan(tíne))***
(Fran)(tzis)(cána)	→	***(Tzi(cána))***
Se(bas)(tiánu)	→	***(Be(tánu))***

The other type of trisyllabic truncated hypocoristic undergoes a process of augmentation by means of reduplicative prefixation (30 tokens in our dataset). The reduplicative prefix in the truncated hypocoristic is identical to the immediately following stressed syllable, as illustrated in (12), and allows an ILT foot to be built.

(12) Trisyllabic truncated hypocoristics with a reduplicative prefix, (L('LL))

(Filu)(ména)	→	***(Me(ména))***	***(Lui)(gínu)***	→	***(Gi(gínu))***
(Ser)(va(tóre))	→	***(To(tóre))***	***(Pas)(cáli)***	→	***(Ca(cáli))***

The process of reduplicative prefixation always applies to a pre-existing disyllabic truncated form and, like diminutivisation, is an additional process of hypocoristic formation. Only disyllabic truncated hypocoristics can undergo reduplicative prefixation since hypothetical reduplicated hypocoristics such as **Sasara* (derived from a base *Sara*) are unattested. We also need to bear in mind that disyllabic bases cannot be truncated unless a diminutive suffix has been added. In such cases, the process of reduplicative prefixation can also take place (e.g., *Luigi* → *Luiginu* → *Ginu* → *Giginu*). Finally, forms in which the reduplicative prefix copies a CVC stressed syllable, simplifying it to CV or not (e.g., **Ba(l)baldu* ← *Baldu* ← *Teobaldu*) are also unattested. As we will see, this restriction follows from parsing HL-final sequences like the one in *Teobaldu* into an ILT foot, (('H)L).

All patterns of hypocoristic truncation in Sardinian are summarized in (13).

(13) Summary of hypocoristic types

	Disyllabic	**Trisyllabic**
binary foot	**('LL)** ***(Mena)***	
ILT foot	**(('H)L)** ***((Bal)du)***	**(L('LL))** ***(Va(tore)), (To(tore))***

5.2 The metrification of bases

In order to explain both disyllabic and trisyllabic truncation as preservation of the head of the prosodic word, a maximal foot, the metrification of the bases in (8), (9) and (11) needs to be derived. Before this however, we will show how ILT feet with amphibrach (weak-strong-weak) rhythm and disyllabic ILT feet with trochaic (strong-weak) rhythm derive from constraint ranking. Two types of constraints that regulate the location of head and dependents within a foot are needed (Martínez-Paricio and Kager 2015: 473). The first type is classical foot form constraints like TROCHEE, defined in (3), and IAMB, which assigns one violation mark for every foot whose head is not final, the opposite of TROCHEE. In addition to these two constraints, however, a pair of constraints that regulate the position of the adjunct within the ILT foot are needed. The left and right versions of this pair of constraints are defined in (14). These constraints are categorical (e.g., one violation mark is maximally assigned per locus of violation) and also conform with vertical locality, a condition posited by Martínez-Paricio and Kager (2015) to restrict the types of prosodic categories that can occupy each of the three categories in what they call non-intervention alignment constraints. These constraints obey vertical locality because the locus of alignment (a minimal foot) and the separator category (a parsed syllable) are immediately dominated by the domain constituent (a maximal foot), and the separator category (a syllable) and the domain category (a foot) are adjacent in the prosodic hierarchy.

(14) Alignment constraints on the position of the adjunct within ILT feet (Martínez-Paricio and Kager 2015)

a. ALIGN-R(Ft$_{min}$, σ, Ft$_{max}$)
For every minimal foot Ft$_{min}$, assign one violation mark if some footed syllable intervenes between Ft$_{min}$ and the right edge of its containing Ft$_{max}$. (This constraint favors $(\sigma(\sigma\sigma))$ over $((\sigma\sigma)\sigma)$, and $(\sigma(\sigma))$ over $((\sigma)\sigma)$.)

b. ALIGN-L(Ft$_{min}$, σ, Ft$_{max}$)
For every minimal foot Ft$_{min}$, assign one violation mark if some footed syllable intervenes between Ft$_{min}$ and the left edge of its containing Ft$_{max}$. (This constraint favors $((\sigma\sigma)\sigma)$ over $(\sigma(\sigma\sigma))$, and $((\sigma)\sigma)$ over $(\sigma(\sigma))$.)

We claim that a final sequence of three L syllables in Sardinian, when the sequence is not preceded by another L syllable, is parsed into an ILT foot with a left adjunct and a minimal trochaic foot (e.g., $(\sigma({}^{\text{'}}\sigma\sigma))$). A left adjunct emerges when ALIGN-R(Ft$_{min}$, σ, Ft$_{max}$) dominates ALIGN-L(Ft$_{min}$, σ, Ft$_{max}$); initial stress within the minimal foot is derived by the ranking TROCHEE $\gg$ IAMB. Tableau (15) illustrates these rankings.

(15) ILT amphibrach foot (e.g., *(Si(**mone**)))*

LLL	AL-R(Ft$_{min}$, σ, Ft$_{max}$	TROCHEE	AL-L(Ft$_{min}$, σ, Ft$_{max}$	IAMB
a. ☞ (L(ˈLL))			*	*
b. (L(LˈL))		*W	*	L
c. ((ˈLL)L)	*W		L	*
d. ((LˈL)L)	*W	*W	L	L

In the following tableaux, only candidates satisfying TROCHEE and FOOT-BINARITY (the constraint against degenerate feet) will be considered. We further assume that all ILT feet violate the constraint NO-RECURSION, formulated in (16).

(16) NO-RECURSION

Assign one violation mark for each additional parse of an element into the same category. (Itô and Mester 2009)

As shown in (8d, i), we claim that a final sequence of a heavy and a light syllable are parsed into an ILT foot (e.g., *(Fran)((**tzis**)cu)*, *(Teo)((**bal**)du)*). We will see that the whole ILT foot, which is the head foot, is preserved in truncated hypocoristics (e.g., *((**Chis**)cu)*, *((**Bal**)du)*). An alternative parsing with an uneven trochaic foot (ˈHL), however, would violate the Iambic/Trochaic Law (I/TL) of Hayes (1995), formulated in (17). In the definition of this constraint we only refer to trochaic feet.

(17) I/TL

Assign one violation mark for every disyllabic trochaic foot with unequal weight. (McCarthy 2008)

The tableau in (19) illustrates the ranking necessary to obtain a final HL sequence parsed into an ILT foot (e.g., ((ˈH)L)). First, exhaustive parsing derives from ranking PARSE-σ above ALL-FEET$_{max}$-RIGHT, as can be observed from comparing candidate (c) with candidate (a), the winning candidate. Leaving the last L syllable unparsed (candidate c) is therefore not a viable option. In our analysis, the constraints ALL-FEET$_{max}$-RIGHT and ALL-FEET$_{max}$-LEFT refer to maximal feet, that is, to both binary feet and the maximal foot in ILT feet. Non-maximal, embedded feet, however, are not targeted by these constraints. The new definition for these constraints is formulated in (18).

(18) ALL-FEET$_{max}$-LEFT/RIGHT

Assign one violation mark for every syllable intervening between the left/right edge of a maximal foot and the left/right word edge. (Based on Kager 2007, McCarthy 2008)

The final L syllable in a sequence of HL syllables can be either adjoined via recursion to its preceding H syllable to create an ILT foot (candidate a), be parsed together with the H syllable in a disyllabic, uneven trochee, or be left unparsed. Candidate (c) containing (ˈH)L is less harmonic than candidate (a) containing ((ˈH)L), the optimal candidate, due to its violations of the high-ranked constraint PARSE-σ. Candidate (b) is ruled out because it violates I/TL. Therefore, we claim that in Sardinian trochaic feet with unequal weight are avoided in favor of ILT feet. Building an ILT foot however incurs a violation of ALIGN-R(Ft$_{min}$,σ,Ft$_{max}$), because the dependent of the maximal foot within the ILT foot is at the right. The constraint PARSE-σ dominates ALL-FEET$_{max}$-RIGHT, ALIGN-R(Ft$_{min}$, σ, Ft$_{max}$) and NON-RECURSIVITY, and I/TL dominates ALIGN-R(Ft$_{min}$, σ, Ft$_{max}$) and NON-RECURSIVITY.

(19) LLHL → (LL)((ˈH)L) (e.g., *(Teo)((**bal**)du)*)

LLHL	PARSE-σ	I/TL	ALL-FEET$_{max}$-R	ALL-FEET$_{max}$-L	AL-R(Ft$_{min}$, σ, Ft$_{max}$)	NO-REC
a. ☞ (LL)((ˈH)L)			**	**	*	*
b. (LL)(ˈHL)		*W	**	**	L	L
c. LL(ˈH)L	*W**		*L	**	L	L

The ranking of the two alignment constraints ALL-FEET$_{max}$-RIGHT and ALL-FEET$_{max}$-LEFT is unknown. In fact, the two possible rankings ALL-FEET$_{max}$-RIGHT ≫ ALL-FEET$_{max}$-LEFT and ALL-FEET$_{max}$-LEFT ≫ ALL-FEET$_{max}$-RIGHT lead to contradictory ranking arguments. A LHL base is metrified as L((ˈH)L) (e.g., *Ma((**tir**)de)*), not as *(L(ˈH))L (e.g., **(Ma(**tir**))de*). This is so because *Ma((**tir**)de)* truncates to *((**Tir**)de)*, not to **(Ma(**tir**))*. In order to get the actual output, ALL-FEET$_{max}$-RIGHT must dominate ALL-FEET$_{max}$-LEFT, as illustrated in the tableau in (20a). However, a HLLL base must be metrified as (H)(L(ˈLL)) (e.g., *(Ser)(va(**to**re))*), not as *((H)L)(ˈLL) (e.g., **((Ser)va)(**to**re)*), which requires the opposite ranking, as illustrated in (20b).

(20) Contradictory rankings

a. LHL → L((ˈH)L) (e.g., *Ma((**tir**)de)*)

HLLL	ALL-FEET$_{max}$-R	ALL-FEET$_{max}$-L
a. ☞ L((ˈH)L)		*
b. (L(ˈH))L	*W	L

b. HLLL → (H)(L(ˈLL)) (e.g., *(Ser)(va(**to**re)))*)

HLLL	ALL-FEET$_{max}$-L	ALL-FEET$_{max}$-R
a. ☞ (H)(L(ˈLL))	*	***
b. ((H)L)(ˈLL)	**W	**L

A third constraint is needed to resolve this contradictory ranking: ALL-FEET $_{non-min}$-RIGHT, formulated in (21). This constraint makes reference to non-minimal feet, that is, ILT feet. As shown in (22), ALL-FEET$_{non-min}$-RIGHT must be ranked above both ALL-FEET$_{max}$-RIGHT and ALL-FEET$_{max}$-LEFT. Which one of the two dominated constraints is dominated by ALL-FEET$_{non-min}$-RIGHT cannot be discovered: ALL-FEET$_{non-min}$-RIGHT dominates either one or the other. Although according to the tableau in (22b) there is an L dominated by a W, meaning that ALL-FEET$_{non-min}$-RIGHT dominates ALL-FEET$_{max}$-RIGHT, if the order between the two lower-ranked constraints were switched, then ALL-FEET$_{max}$-LEFT would be the constraint dominated by ALL-FEET$_{non-min}$-RIGHT in (22a). What is important here is that ALL-FEET$_{non-min}$-RIGHT is unviolated in Sardinian, and its unviolability derives the metrifications in (22) necessary to derive the truncated forms *((**Tir**)de)* and *(Va(**to**re))*, which preserve the head foot of the base (see the next subsection). Take into account that the winning candidate in (22a) also violates ALIGN-Right(Ft$_{min}$, σ, Ft$_{max}$), and as a consequence ALL-FEET$_{non-min}$-RIGHT dominates ALIGN-Right(Ft$_{min}$, σ, Ft$_{max}$) (not included in the tableau but illustrated in 26). Also, the losing candidate in (22a) violates ALL-FEET$_{non-min}$-RIGHT, a constraint satisfied by the winner. Therefore, ALL-FEET$_{non-min}$-RIGHT dominates ALL-FEET$_{non-min}$-LEFT, violated by the winner (not included in the tableau but illustrated in 26).

(21) ALL-FEET$_{non-min}$-RIGHT

Assign one violation mark for every syllable intervening between the right edge of a non-minimal foot and the right word edge. (Based on Kager 2007, McCarthy 2008.)

(22) The effect of ALL-FEET$_{non-min}$-RIGHT

a. LHL → L((ˈH)L) (e.g., *Ma((**tir**)de)*)

LHL	ALL-FEET$_{non-min}$-R	ALL-FEET$_{max}$-R	ALL-FEET$_{max}$-L
a. ☞ L((ˈH)L)			*
b. (L(ˈH))L	*W	*W	L

b. HLLL → (H)(L(ˈLL)) (e.g., *(Ser)(va(**to**re))*)

HLLL	ALL-FEET$_{non-min}$-R	ALL-FEET$_{max}$-R	ALL-FEET$_{max}$-L
a. ☞ (H)(L(ˈLL))		***	*
b. ((H)L)(ˈLL)	*W*	**L	**W

We now analyze inputs consisting of a final sequence of LLLL syllables. It was shown in (19) that PARSE-σ dominates ALL-FEET$_{max}$-RIGHT. The constraint PARSE-σ also dominates ALL-FEET$_{max}$-LEFT, as shown in tableau (23) for LLLL inputs. LLLL inputs are exhaustively metrified as (LL)(ˈLL) (e.g., *(Filu)(**me**na)*, *(Isi)(**do**ro)*) instead of L(L(ˈLL)), with an initial unparsed syllable and a final ILT foot. Therefore, ILT feet are avoided if binary parsing achieves exhaustive parsing of syllables into feet.

(23) LLLL → (LL)(ˈLL) (e.g., *(Filu)(**me**na)*)

LLLL	PARSE-σ	ALL-FEET$_{max}$-R	ALL-FEET$_{max}$-L	NO-REC
a. ☞ (LL)(ˈLL)		**	**	
b. L(L(ˈLL))	*W	L	*L	*W
c. (L(ˈLL))L	*W	*W	L	*W

Finally, ILT feet are also avoided in HLL inputs, which are metrified as (H)(ˈLL) (e.g., *(Pas)(**ca**li)*, *(Al)(**fre**du)*), and not (H(ˈLL)), in which the H syllable is the dependent of a maximal foot, or ((H)L)(ˈL), which would violate FOOT-BINARITY due to the final degenerate foot (a candidate not included in the following tableau). The constraint responsible for discarding (H(ˈLL)) is WSP (from the Weight to Stress Principle of Prince 1990), defined in (24). The constraint WSP prevents heavy syllables from occupying a foot dependent position.

(24) WSP

Assign one violation mark for every heavy syllable in a dependent foot position. (Based on McCarthy 2008.)

The tableau in (25) shows that WSP dominates both ALL-FEET$_{max}$-RIGHT and ALL-FEET$_{max}$-LEFT. Thus, ILT feet with heavy dependents are avoided despite misalignment of feet.

(25) HLL → (H)('LL) (e.g., *(Pas)(**cali**)*)

HLL	WSP	ALL-FEET$_{max}$-R	ALL-FEET$_{max}$-L	NO-REC
a. ☞ (H)('LL)		**	*	
b. (H('LL))	*W	L	L	*W

The constraint rankings established so far are listed in (26). FOOT-BINARITY, against monomoraic feet, and ALIGN-HEAD-RIGHT, against left-aligned head feet (the head foot in Sardinian is always the rightmost), were not included in any tableaux and are therefore not included in this list.

(26) List of ranking arguments I

AL-R(Ft$_{min}$,σ,Ft$_{max}$)	$\gg$	AL-L(Ft$_{min}$,σ,Ft$_{max}$)	(15)
TROCHEE	$\gg$	IAMB	(15)
PARSE-σ	$\gg$	ALL-FEET$_{max}$-R	(19)
	$\gg$	AL-R(Ft$_{min}$,σ,Ft$_{max}$)	(19)
	$\gg$	NON-REC	(19)
	$\gg$	ALL-FEET$_{max}$-L	(23)
I/TL	$\gg$	AL-R(Ft$_{min}$,σ,Ft$_{max}$)	(19)
	$\gg$	NON-REC	(19)
ALL-FEET$_{non-min}$-R	$\gg$	or ALL-FEET$_{max}$-R	(22)
	$\gg$	or ALL-FEET$_{max}$-L	(22)
	$\gg$	ALL-FEET$_{non-min}$-L	(paragraph before 21)
	$\gg$	AL-R(Ft$_{min}$,σ,Ft$_{max}$)	(paragraph before 21)
WSP	$\gg$	ALL-FEET$_{max}$-R	(25)
	$\gg$	ALL-FEET$_{max}$-L	(25)

5.3 Analysis of truncation

The metrifications that derive from the grammar in (26) are the input to the process of hypocoristic truncation. As we explained in §4.1, hypocoristic truncation in Sardinian preserves the rightmost foot, that is, the head of the prosodic word. The constraint responsible for this is the output-output faithfulness constraint HEAD(PWd)MAX, defined in (7) and repeated in (27). This constraint demands maximization of the prosodic word head of the base (or source form, SF) in the truncated form.

(27) HEAD(PWd)MAX
Every element contained in the head of the PWd (e.g., the main-stressed foot) of SF must have a correspondent in TF. (Piñeros 2000a)

The tableaux in (28) illustrate the contrast shown in (9) and (10) between how (LL)(ˈLL) bases (e.g., *(Filu)(**me**na)*) and (H)(L(ˈLL)) bases (e.g., *(Ser)(va(**to**re))*) truncate. Recall from (10) that only the latter can yield a trisyllabic truncated form (e.g., *(Va(**to**re))*), but not the former (e.g., **(Lu(**me**na))*). This is so because the last three syllables in the base *(Ser)(va(**to**re))* are parsed into the head foot, as opposed to *(Filu)(**me**na)*, in which the head foot only contains the last two syllables of the base and excludes the pretonic syllable. Building an ILT foot at the right word edge is only possible if the syllable preceding the final sequence of LLL syllables is heavy, parsable into its own foot. The undominated position of HEAD(PWd)MAX favors preservation of the main-stressed foot of the base in the truncated form. The main-stressed foot in the input is always maximal: disyllabic in (LL)(ˈLL) bases but internally layered in (H)(L(ˈLL)) bases. In tableau (28a) we see that the constraint HEAD(PWd)MAX forces the preservation of the main-stressed ILT foot of the base in the truncated form. Candidate (b), with a binary foot, fatally violates this constraint because it does not preserve the prosodic word's head totally. One violation is assigned for the maximal foot's dependent syllable in the base that has no correspondent in the truncated form. Therefore, HEAD(PWd)MAX dominates NO-RECURSION. In other words, ILT feet are allowed in truncated forms as a response to maximally preserve the head foot of the base, which is also an ILT foot. The winning candidate also violates MAX-BT once, because it does not preserve the first syllable of the base. The only candidate that satisfies MAX-BT is candidate (c), with no truncation. This candidate, however, fatally violates ALL-FEET$_{max}$-RIGHT and ALL-FEET$_{max}$-LEFT because it contains more than one foot. Recall that these alignment constraints are size restrictor constraints, together with PARSE-σ and FOOT-BINARITY (§4), and are thus responsible for the monopodal candidate to be the optimal one. In tableau (28b) we see that candidate (a), with a binary foot, wins the competition because it satisfies all constraints except for the dominated constraint MAX-BT. Candidate (b), referring to the unattested form **(Lu(**me**na))*, performs better on MAX-BT than candidate (a) because it preserves one more syllable from the base. It also satisfies HEAD(PWd)MAX because it preserves all syllables located in the head foot. However, it fatally violates NO-RECURSION, which dominates MAX-BT. Although NO-RECURSION is dominated by HEAD(PWd)MAX (see tableau 28a), NO-RECURSION decides between candidates (a) and (b) in (28b) because both candidates satisfy HEAD(PWd)MAX. Candidate (b) in (28b), with an ILT foot, preserves the last two syllables of the base, which are parsed into the main-stressed foot, and this perfectly satisfies HEAD(PWd)MAX. However, candidate (b) gratuitously violates NO-RECURSION with no improvement of any other higher-ranked constraint. Therefore, ILT feet are avoided as long as all segments of the main-stressed foot of the base are preserved. This is a crucial point in our analysis. In fact, this is a case of the emergence of the unmarked, in which a disyllabic foot is preferred over an ILT foot if a higher-ranked constraint, HEAD(PWd)MAX in this case, is not active. HEAD(PWd)MAX demands not to copy the main-stressed foot of the base onto the truncated form, but rather to preserve all of its segments; it is an output-output MAX constraint prohibiting deletion between the base and the truncated form.

(28) Truncation tableaux

a. (H)(L('LL)) → (L('LL)) (e.g., *(Va(**to**re))* ← *(Ser)(va(**to**re))*)

	(H)(L('LL))	HD(PWd)MAX	ALL-FT$_{max}$-R	ALL-FT$_{max}$-L	NO-REC	MAX-BT
a. ☞	(L('LL))				*	*
b.	('LL)	*W			L	**W
c.	(H)(L('LL))		*W**	*W	*	L

b. (LL)('LL) → ('LL) (e.g., *(**Me**na)* ← *(Filu)(**me**na)*)

	(LL)('LL)	HD(PWd)MAX	ALL-FT$_{max}$-R	ALL-FT$_{max}$-L	NO-REC	MAX-BT
a. ☞	('LL)					**
b.	(L('LL))				*W	*L
c.	(LL)('LL)		*W*	*W*		L

It is important to note that a form like *(Ser)(va(**to**re))* can also be truncated as *(**To**re)*, with preservation of the minimal disyllabic foot, instead of the whole ILT foot. In order for *(**To**re)* to win the competition (candidate b in 28a), NO-RECURSION should dominate HEAD(PWd)MAX, all the rest being equal. The fact that it is the minimal foot that is still preserved in a form like *(**To**re)*, instead of, for instance, the initial non-head foot (e.g., **(**Ser**)*), still depends on HEAD(PWd)MAX, despite being dominated (as shown in candidate c in 29). In order to explain this case of optionality between the two forms, *(Va(**to**re))* and *(**To**re)*, we claim that HEAD(PWd)MAX and NO-RECURSION are partially ordered in the grammar, and that every time EVAL applies, a total ranking between the two constraints is imposed: HEAD(PWd)MAX ≫ NO-RECURSION or NO-RECURSION ≫ HEAD(PWd)MAX. The ranking NO-RECURSION

$\gg$ HEAD(PWd)MAX is shown in (29).[8] This very same ranking is the one responsible for truncation in cases such as *(**Mo**ne)* ← *(Si(**mo**ne))*, which are derived from trisyllabic bases parsed into just one ILT foot.[9]

(29) (H)(L('LL)) → ('LL) (e.g., *(**To**re))* ← *(Ser)(va(**to**re)))*)

(H)(L('LL))	NO-REC	ALL-FT$_{max}$-R	ALL-FT$_{max}$-L	HD(PWd)MAX	MAX-BT
a. (L('LL))	*W			L	*L
b. ☞ ('LL)				*	**
c. ('H)				**W*	***W

Finally, we briefly discuss how bases with antepenultimate stress are truncated in Sardinian. Antepenultimate stress in Sardinian is marked, and it can also be derived by assuming an ILT foot with dactylic rhythm (strong-weak-weak) (e.g., *Do((mìni)gu)*, *(Esco)((làsti)ca)*). Interestingly, the dactylic ILT foot is very rarely preserved as such in hypocoristic truncation in Sardinian (e.g., only one form, *((Mìni)gu)*, derived from *Do((mìni)gu)*, has been found in all sources (Rubattu 2013)). Instead, disyllabic trochaic forms are attested (e.g., *(**Mi**gu)* and *(**Mi**mu)* ← *Do((**mì**ni)gu)*, *(**La**ta)* ← *(Esco)((**làs**ti)ca)*). Disyllabic outputs result from ranking ALIGN-Right(Ft_{min},σ,Ft_{max}), against right adjuncts in ILT feet, above HEAD(PWd)MAX. These truncated forms further demonstrate that right-anchoring also plays a role in hypocoristic truncation in Sardinian (e.g., the unattested forms **(**Mi**ni)* and **(**La**ti)* perform worse than the actual

8 An anonymous reviewer suggests a plausible interpretation of the facts according to which disyllabic forms like *(**To**re)* are an instance of a further process of truncation of the trisyllabic forms. This process would take the minimal, non-maximal foot of the trisyllabic form as a separate faithfulness site.

9 The *Vatore*-type trisyllabic pattern in Sardinian resembles another pattern found in Catalan hypocoristic truncation (Cabré and Kenstowicz 1995) that produces LH disyllabic truncated forms with final stress only if the syllable of the base preceding the pretonic open syllable is closed: *Se**rrat*** (also ***Rat***) ← *Montse**rrat***, *To**meu*** (also ***Meu***) ← *Barto**meu***, but **A**quim*** ← *Joa**quim***, **Sa**bel*** ← *Isa**bel***. An analysis similar to Sardinian could be posited for Catalan: *To**meu*** is possible because the base is metrified as *(Bar)(to(**meu**))*, with the initial heavy syllable parsed into its own foot, but **Sa**bel*** is unattested because the pretonic syllable in the truncated form is parsed into a separate foot in the base that does not contain the stressed syllable: *(Isa)(**bel**)*.

forms *(**Mi**gu)* and *(**La**ta)* with respect to the constraint ANCHOR(BT)Right, see 6).[10] The tableau in (30) illustrates this ranking.

(30) L((ˈLL)L) → (ˈLL) (e.g., (**Mi**gu) ← *Do((**mì**ni)gu)*)

Do((**mì**ni)gu)	AL-R(Ft$_{min}$,σ,Ft$_{max}$)	ANCHOR(BT)R	HD(PWd)MAX
a. ☞ (**Mi**gu)			*
b. (**Mi**ni)		*W	*
c. ((**Mì**ni)gu)	*W		L

To conclude this subsection, we need to refer to the few trisyllabic hypocoristic forms that contains an initial closed syllable (e.g., *(Gan(**ti**ne))*, see 11). We have shown that inputs ending in a sequence of HLL syllables are parsed as (H)(ˈLL). *(Gan(**ti**ne))* is clearly an exceptional form. The form *(Tzi(**ca**na))*, which derives from *Frantziscana*, has actually no initial closed syllable in the truncated form because it does not copy the coda consonant from the base. Forms like *(Gan(**ti**ne))* could be accounted for with some type of exceptionality mark or mechanism, whether it is a lexically indexed constraint or input specification in order to turn the coda consonant into a non-moraic segment in the truncated form.

We list in (31) the ranking arguments introduced in this section.

(31) List of ranking arguments II

HD(PWd)MAX	≫	NO-REC	(28)
Non-Rec	≫	HD(PWd)MAX	(29)
HD(PWd)MAX	≫	MAX-BT	(28)
or ALL-FEET$_{max}$-R	≫	MAX-BT	(28)
or ALL-FEET$_{max}$-L	≫	MAX-BT	(28)
AL-R(Ft$_{min}$,σ,Ft$_{max}$)	≫	HD(PWd)MAX	(30)

5.4 Analysis of reduplicative prefixation

Once ILT feet are assumed, the second type of trisyllabic truncated hypocoristics in Sardinian, those that derive from reduplicative prefixation (e.g., *(To(**to**re))*), easily follow. We claim that reduplicative prefixation is only possible when a truncated base corresponds to a (ˈLL) disyllabic foot. This is so because only in this case can the disyllabic foot be expanded to include a pretonic syllable and build an ILT foot. The ILT

10 A form like **(Nigu)* is also ruled out because the head syllable of the head foot of the base is not preserved as such in the truncated form; a constraint like ANCHOR-STRESS, as defined by Alber and Arndt-Lappe (2012), would discard such a candidate.

foot serves as an upper-bound prosodic category in reduplicative prefixation, and this is why reduplicative prefixation is not attested in ((ˈH)L) truncated bases, which already contain an ILT foot (e.g., **Na(l)((**nal**)du)*).

Prefixing reduplication, as opposed to suffixing reduplication, is predicted from ranking BR-ANCHORLEFT above BR-ANCHORRIGHT (Alderete and MacMillan 2015). These two constraints are defined in (32).

(32) BR-ANCHOR (Alderete and MacMillan 2015)

a. BR-ANCHORLEFT
The left peripheral element in the reduplicant has a correspondent in the left peripheral element in the base.

b. BR-ANCHORRIGHT
The right peripheral element in the reduplicant has a correspondent in the right peripheral element in the base.

Furthermore, the reduplicant in Sardinian hypocoristics corresponds to a contiguous substring of the base, and therefore a constraint like BR-CONTIGUITY is needed, formulated in (33).

(33) BR-CONTIGUITY
The reduplicant corresponds to a contiguous substring of the base. (McCarthy and Prince 1999)

Finally, a faithfulness constraint BR-MAX is required, which is violated when segments in the base have no correspondents in the reduplicant, defined in (34).

(34) BR-MAX
Base segments must have correspondents in the reduplicant. (Alderete and MacMillan 2015)

The evaluation of an input /*(**To**re)*, RED/ is illustrated in (35). Candidate (c), with a perfect copy of the base, incurs two fatal violations of ALL-FEET$_{max}$-RIGHT and two violations of ALL-FEET$_{max}$-LEFT. These constraints must therefore dominate BR-MAX. In candidate (b), the reduplicant is not parsed into any foot. This again produces the misalignment of the main foot with the left edge of the word. Candidate (b) shows that ALL-FEET$_{max}$-LEFT dominates NO-RECURSION. The winning candidate is the one that satisfies ALL-FEET$_{max}$-LEFT at the expense of violating NO-RECURSION and BR-MAX. The constraints BR-ANCHORLEFT, favoring prefixing reduplication, and BR-CONTIGUITY, favoring contiguous copying, are undominated.

(35) *(**To**re)*, RED → *(To(**to**re))*

*(**To**re)*, RED	BR-AnchL	BR-Cont	All-Feet$_{max}$-R	All-Feet$_{max}$-L	No-Rec	BR-Max
a. ☞ *(To(**to**re))*					*	**
b. *To(**to**re)*				*W	L	**
c. *(Tore)(**to**re)*			*W*	*W*	L	L
d. *(Te(**to**re))*		*W			*	**
e. *(To(**re**re))*	*W				*	**

The same constraint hierarchy excludes reduplicative prefixation from bases like *((**Mun**)du)*, derived from *Re((**mun**)du)*, which already contain a disyllabic ILT foot. This is a welcome prediction of our analysis because such bases never show reduplicative prefixation. As we have stated before, in our analysis ILT feet act as an upper-bound prosodic category for augmentation. If a reduplicative prefix attaches to a base containing an ILT foot, the reduplicate should either be parsed into its own foot (**(Mun)((**mun**)du)* or **(Mun)((**mun**)du)*) or be left unparsed (**Mu((**mun**)du)* or **Mun((**mun**)du)*). All possible parsings of these forms are discarded because of their fatal violations of size restrictor constraints, as shown in (36).

(36) *((**Mun**)du)*, RED → *((**Mun**)du)*

*((**Mun**)du)*, RED	Parse-σ	Foot-Bin	All-Feet$_{max}$-R
a. ☞ *((**Mun**)du)*			
b. *(Mun)((**Mun**)du)*			*W*
c. *(Mu)((**Mun**)du)*		*W	*W*
d. *Mun((**Mun**)du)*	*W		

5.5 An alternative analysis with binary feet and unparsed syllables

In this final section we discuss an alternative analysis of trisyllabic truncation in terms of binary feet and unparsed syllables. Felíu (2001) developed such an analysis for a specific process of trisyllabic truncation in Spanish nominals (e.g., *prole**ta*** ← *prole**ta**rio* 'proletarian'; see also Torres-Tamarit 2021). As we will see, an analysis that allows for unparsed syllables cannot explain why a form like **Mun((**mun**)du)* is unattested in Sardinian.

In her analysis, Felíu (2001) breaks up the constraint PARSE-SYLLABLE into two constraints: a weak version of PARSE-SYLLABLE, which is only violated by a pair of adjacent unfooted syllables, and *FOOTLESS, violated by any unparsed syllable (that is, standard PARSE-SYLLABLE). The ranking PARSE-SYLLABLE(weak version) ≫ MAX-BT ≫ *FOOTLESS derives trisyllabic truncated forms, as illustrated in (37).

(37) *pro(**le**ta) ← prole(**ta**rio)* 'proletarian'

proletario	PARSE-SYLL(WV)	MAX-BT	*FOOTLESS
a. ☞ *pro(leta)*		*	*
b. *(prole)*		*W*	L
c. *prole(tario)*	*W	L	**W

This analysis relies on the special parsing constraint PARSE-SYLLABLE(weak version), which has the same effects of the rhythm constraint *LAPSE, against pairs of adjacent unstressed syllables. In our opinion, a drawback of any rhythm-based analysis of truncation is that other types of rhythm constraints that have been proposed in the literature predict unattested patterns. For example, there is extensive literature that argues for rhythm constraints like *EXTENDEDLAPSE (Gordon 2002) or *LONGLAPSE (Kager 2007), which penalize every unstressed syllable that is not adjacent to a stressed syllable or the word edge, that is, a sequence of three unstressed syllables. If a constraint like *LONGLAPSE were ranked above MAX-BT and alignment, a five-syllable input /$\sigma\sigma\sigma\sigma\sigma$/ would be mapped onto a truncated form with just four syllables [$\sigma\sigma$('$\sigma\sigma$)], as illustrated in (38).

(38) $\sigma\sigma\sigma\sigma\sigma \rightarrow \sigma\sigma('\sigma\sigma)$

$\sigma\sigma\sigma\sigma\sigma$	*LONGLAPSE	MAX-BT	*FOOTLESS
a. ☞ $\sigma\sigma('\sigma\sigma)$		*	**
b. $('\sigma\sigma)$		**W*	L
c. $\sigma\sigma\sigma('\sigma\sigma)$	*W		***W

Four-syllable truncated forms are predicted under a rhythm-based analysis using a constraint like *LONGLAPSE above MAX-BT but they seem not to exist in any language.[11] Furthermore, an analysis with binary feet and unparsed syllables could not explain why reduplicative forms like **Mu(n)**mundu** are banned in Sardinian. Molinu (2012, 2015, 2018), in her analysis of hypocoristic truncation in Sardinian, also assumes that the reduplicated syllable is unparsed and directly attached to the prosodic word node. Again, this does not explain why forms like **Mu(n)**mundu** are unattested in Sardinian. The only way to avoid such a reduplicated form would be to impose a maximal size of three moras to the whole truncate form, something like PWd=3μ, but such a size constraint seems completely ad hoc. The same would hold for an alternative analysis using flat ternary feet, which would make no prediction regarding those unattested forms, except if feet were restricted to have maximally three moras, against the general consensus on the universal character of the constraint FOOT-BINARITY. ILT feet in Sardinian are also maximally trimoraic, but this follows from the satisfaction of independently needed constraints: FOOT-BINARITY is obeyed in the non-maximal foot, and WSP prohibits a H syllable to be parsed as the dependent of the non-minimal foot.

6 Conclusion

In this paper we have developed an OT analysis of hypocoristic truncation in Sardinian based on output-output correspondence relations between bases and truncated morphemes in the spirit of Benua (1995) and the latest work on hypocoristic truncation by Alber (2010) and Alber and Arndt-Lappe (2012) (see also Piñeros 2000a, 2000b, 2002 for Spanish, and Cabré 1993, 1998; Cabré and Kenstowicz 1995 for Catalan). We have assumed, like in previous work, that truncation is driven by constraints that regulate which portion of the base is preserved in the truncated form, size restrictor constraints, and faithfulness constraints targeting correspondence relations.

Most importantly, we have presented data on trisyllabic hypocoristics, which are the result of two different processes of truncation. There is one pattern of reduplication in which the first syllable of a disyllabic truncated form is reduplicated, yielding a trisyllabic hypocoristic with amphibrach rhythm, and a second pattern of trisyllabic truncation that incorporates an initial unstressed syllable, a syllable which is in corre-

11 Four-syllable truncated forms are in fact attested in Spanish, for instance, but have been analyzed as truncate-based morphological compounds (*Marijose* ← *María José*, *Maritere* ← *María Teresa*, Martínez-Paricio and Torres-Tamarit 2019, Torres-Tamarit 2021). Japanese also has both trimoraic and four-mora truncated forms (*arumi* ← *aruminyuumu* ‘aluminium’, *kosume* ← *kosumechikku* ‘cosmetics’, *terebi* ← *terebijo*N ‘television’; *irasuto* ← *irasutoreesho*N ‘illustration’, *asupara* ← *asuparagasu* ‘asparagus’, *furasuto* ← *furasutoreesho*N ‘frustration’, Itô 1990). The four-mora cases have been analyzed by Itô (1990) as prosodic compounds whose members are strictly bimoraic, and the trimoraic cases have been analyzed as bimoraic stems that take an optional suffix to create words.

spondence with the syllable preceding stress in the base. We have developed an analysis of trisyllabic truncated hypocoristics based on layered feet (Martínez-Paricio and Kager 2015; Martínez-Paricio and Torres-Tamarit 2019). Our claim is that only by assuming layered feet can we maintain the general assumption that truncated forms equal the size of a metrical foot. The theoretical contribution of this paper has been to give additional support for minimal recursion of feet from the domain of the phonology-morphology interface.

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