

The expression of vulgarity, force, severity and size

Phonaesthetic alternations in Reta and in other languages

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Phonaesthemes are a common phenomenon, but they are generally not in paradigmatic opposition like morphemes are (Svantesson 2017: 6). Reta, however, has a phonaesthetic contrast /l/~r/, where /r/-colouring of neutral base words signifies an increase in vulgarity, intensity, size or severity (e.g. *bela* ‘bad’ vs. *bera* ‘terrible’, *-ool* ‘penis’ vs. *-oor* ‘cock’). This paper describes this phenomenon in detail, and provides a discussion as to whether it is best classified as morphological, phonaesthetic, or otherwise. We argue that, although some of the cross-linguistic criteria for phonaesthemes exclude phonaesthetic /r/ from being classified as such, it is not straightforwardly classified as either phonological or morphological. Using Kwon & Round’s (2015) criteria for phonaesthesia and derivational morphology, we compare Reta phonaesthemes to similar phenomena in other languages. We argue that such alternations differ from phonaesthemes and morphology in fundamental ways, and are best construed as a distinct cross-linguistic category.

Keywords: phonaesthemes, sound symbolism, alternation, consonant mutation, Timor-Alor-Pantar languages, Reta, Blagar, derivational morphology, augmentative, foreigner speech, markedness

1. Introduction

Sound symbolism can be defined as a non-arbitrary relation between a given sound and a given meaning (Nuckolls 1999: 228). In recent years there has been an upsurge in interest in such non-arbitrariness, as testified by studies in ideophones (e.g. Imai et al. 2008; Dingemanse 2011, 2012, 2015; Lockwood et al. 2016), phonaesthemes (e.g. McCune 1985, Abelin 1999; Magnus 2001; Wichmann et al.

2010; Kwon 2016; Elsen 2017) and a plethora of experiments showing associations between sound types and various sensory perceptions such as taste and shape (e.g. Köhler 1947; Tarte & Barritt 1971; Ngo et al. 2011; Spence & Gallace 2011; Shrum et al. 2012; Stutts & Torres 2012; Kuehnl & Mantau 2013; Lo et al. 2017). The revival of sound-symbolism as an object of scientific inquiry ultimately rests upon the Firthian theoretical assumption that meaning is found at all levels of linguistic analysis (Firth 1951: 192), which we sympathise with. This paper adds to the growing literature on sound symbolism by presenting and analysing a peculiar type of phonaestheme in Reta.

The term ‘phonaestheme’, first coined by Firth (1930), refers to recurrent pairings of sound and meaning across lexemes, such as English [fl-] ‘moving light’ as in *flash*, *flare* and *flame*, and [ʌmp] ‘clumsy’, as in *clump*, *bump* and *chump* (Bloomfield 1933: 245). The Reta phonaesthemes as described in this paper are clearly sound-symbolic in constituting a recurrent pairing of sound and meaning, but diverge from phonaesthemes such as English *fl-* in displaying a paradigmatic opposition with non-meaning bearing sounds.¹ That is, a subset of the Reta lexicon containing the phoneme /l/ has a counterpart containing /r/, with which it enters into a phonaesthemic rather than a phonemic opposition. Such /r/-colouring has various semantic and pragmatic effects, most of which are to some degree expressive in nature. Some examples are given in (1). As the examples show, /r/-colouring may result in increased vulgarity, severity, intensity, or size.

- (1) -ool ‘penis’ ~ -oor ‘cock, prick’
bela ‘not good, bad, damaged’ ~ *bera* ‘terrible, heavily damaged’
bili ‘pull’ ~ *biri* ‘pull hard, yank’
bugul ‘hole, leak’ ~ *bugur* ‘big hole, big leak, orifice’

This paper describes this phenomenon in detail, hypothesises how it came about, and discusses whether it is best classified as a phonological or morphological phenomenon. Using Kwon & Round’s (2015) criteria for derivational morphology and phonaesthesia, it is concluded that it has traits of both. Based on a typological survey it is argued that, along with similar phenomena in other languages, it is best classified as a phenomenon in its own right, different from non-alternating phonaesthemes like English *fl-*, and different from morphology.

1. Throughout this paper, we refer to phonaesthemes that are in paradigmatic opposition as **phonaesthemic alternations** and to phonaesthemes that are not in paradigmatic opposition, e.g. English *gl-* ‘light, vision’ as **non-alternating phonaesthemes**. The term **phonaesthemic alternations** largely corresponds to what Kwon & Round (2015) and Kwon (2019) call **phonaesthemic paradigms** and **non-paradigmatic phonaesthemes** respectively, but, contrary to their analysis, does not include pairs like *drip~drop* here, for reasons explained in Section 6.

The rest of this article is structured as follows. In Section 2 we provide a brief introduction to Reta. As the topic at hand appears to straddle the border between phonology and morphology, these two domains will be the focus of the section (a grammatical sketch of Reta can be found in Willemsen, *Forthcoming*). Section 3 is devoted to exemplifying the behaviour and form of Reta phonaesthetic alternations. Section 4 hypothesises how this phenomenon may have come about, and argues that the most likely explanation is a historical loss of /r/ and subsequent re-introduction through language contact. In Section 5 we discuss whether this type of alternation is best classified as a phonological, phonaesthetic or morphological process, or neither. In Section 6, data from a number of other languages are presented, which show significant variation but have a number of core traits in common, based on which we conclude that phonaesthetic alternations constitute a cross-linguistic category in their own right. In Section 7, lastly, we summarise our findings.

2. A brief overview of Reta

This section provides a brief introduction to Reta. All Reta data in this section as well as the rest of the paper is based on primary fieldwork by Jeroen Willemsen.

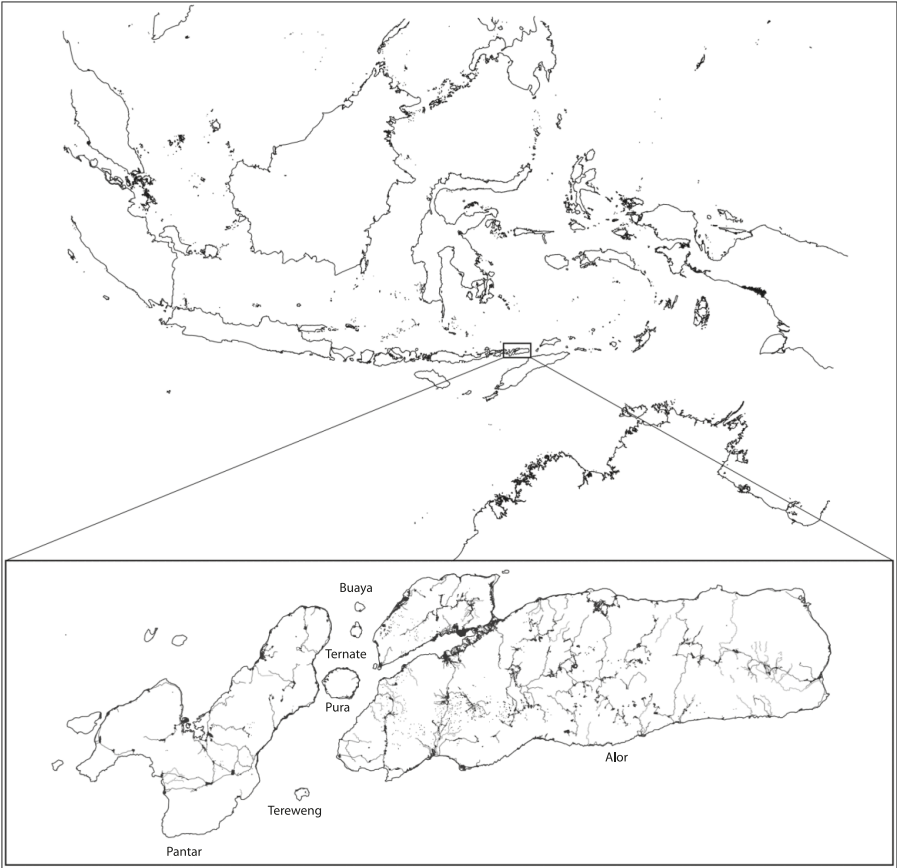
Reta (sometimes spelled Retta, ISO 639-3 code: ret) is a Papuan² language belonging to the Timor-Alor-Pantar language family. The Timor-Alor-Pantar (henceforth TAP) languages are a family comprising some 30 languages, and constitute the westernmost Papuan ‘outliers’ (Schapper 2017: 2). The bulk of the TAP-languages are spoken on the islands of Alor and Pantar and the islets in between them, while three are spoken on the island of Timor, as well as one (Oirata) on the island of Kisar.

Reta is mainly spoken on the islets of Pura and Ternate in the Pantar Strait, as well as in two offshoot settlements on the west coast of Alor (see map below).

As there are various other speaker communities scattered throughout the region, the number of speakers is not straightforwardly established, but a reasonable estimate is between 2,000 and 3,000. Like all other languages spoken on Alor and Pantar, Reta is under serious pressure from Malay.³

2. The term Papuan does not refer to any genealogical affiliation, but rather to any language or language family which is not Austronesian, and which is spoken in an otherwise Austronesian area.

3. The term ‘Malay’ is used here as an umbrella term that includes the national language Bahasa Indonesia and the local dialect of Alor Malay.

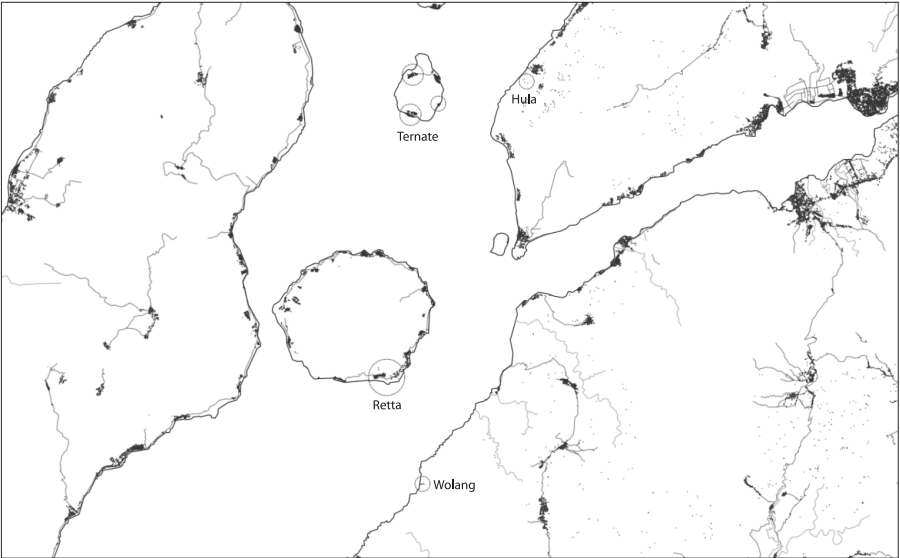


Map 1. The Alor-Pantar archipelago as situated in Indonesia

The dialect on which the current paper is based is spoken on the island of Pura, and shares this island with the Blagar language, which is spoken in all but one village and is the dominant language on the island. According to current analyses, Reta and Blagar together make up the Straits branch of the Alor-Pantar languages (Schapper 2017: 9).⁴ Reta speakers were until recently all bilingual in Blagar (Steinhauer 2010), but due to increased mobilisation this is currently no longer the case. The two languages are however closely related, and there are various traces of contact with Blagar in the Reta lexicon.

Apart from a few word lists (Stokhof 1975; Robinson 2010a; Willemsen 2016, 2018), Reta is undocumented. Description and documentation of the language

4. The Straits branch coincides with what Hammarström et al. (2019) call the Blagaric branch.



Map 2. The primary Reta-speaking communities in the Pantar Strait

is currently being carried out (Willemsen, *Forthcoming*), and a full grammatical description is currently in preparation.

Reta has an eight-vowel system consisting of five cardinal short vowels /i ɛ ɑ ɔ u/ and three long vowels /e: a: o:/. Additionally, the vowels /i ɑ u/ may be geminated into /ii ɑɑ uu/ as a result of affixation. The long vowels /e: a: o:/. differ in both length and quality from the short vowels, whereas geminates are simply long realisations of short vowels. Table (1) below displays the vowel inventory, with orthographic conventions in diamond brackets.

Table 1. Reta vowel phonemes

	Front	Back
High	i	u
High-Mid	e: <ee>	o: <oo>
Low-mid	ɛ <e>	ɔ <o>
Low	a: <aa> ɑ <a>	

There are 16 consonant phonemes, comprising a set of (im)plosives /6 p b t d k g ʔ/, two affricates /dʒ bʋ/, two fricatives /s h/, two nasals /m n/, and a set of liquids /l r/. Word-finally and syllable-finally, the class of nasals is collapsed into the archiphoneme /N/ due to a lack of evidence for a specific underlying phoneme, which, in the absence of assimilation with a succeeding consonant, is realised as a

velar nasal. The consonant inventory, including orthographic conventions in diamond brackets, is provided in Table (2).

Table 2. Reta consonant phonemes

	Labial		Alveolar		Velar	Glottal
Plosive	p	b	t	d	k g	ʔ <ʻ>
Implosive	ɓ					
Affricate	ɓv <v>		ɗʒ <j>			
Fricative			s		h	
Nasal	m		n			
Trill			r			
Lateral			l			

Reta is a fairly analytic language, but certainly not devoid of morphology. The great majority of morphology is prefixal, all of which occurs frequently and most of which is productive. There are three sets of nominal prefixes expressing possession, two sets of verbal person prefixes that index direct objects and applied objects, as well as a highly productive applicative proclitic *u=*. It further has a set of five prefixes expressing distance and elevation. Other morphological items are primarily suffixal, such as a deverbalising suffix and a set of denominalising suffixes, none of which are either frequent or productive.

In sum, Reta has 16 consonants and eight vowels. Morphology is limited but pervasive and varies in productivity. The bulk of affixes are prefixes, which either index an object argument on a transitive verb or a possessor on a noun. We now turn to a discussion of phonaesthemes.

3. Phonaesthemic alternations in Reta

3.1 Form and function

As shown in the previous section, Reta has two liquids /r/ and /l/ that are in phonemic opposition. To demonstrate this, a number of minimal pairs are given in (2). In the entire lexicon, which comprises over 4000 lexemes, 31 such minimal pairs have been found. In Section 3 we argue that it is likely that most, if not all synchronic instances of /r/ are ultimately the result of contact, as most instances of proto-Alor-Pantar *r surface as /l/ in Reta.

(2) Phonemic minimal pairs between /r/ and /l/:

sasipal 'lever' ≠ *sasipar* 'k.o. small dog louse'*tiali* 'cover, close' ≠ *-tiari* 'chase, go after'*daalang* 'k.o. small fishnet' ≠ *daarang* 'very tall (people)'

While the forms in (2) which contain /r/ are not recognisably borrowed (although they might ultimately be), there are a number of recent loans from Malay and Alorese that resulted in minimal pairs, such as *laama* 'food plate' ≠ *raama* 'cordial, nice' (< Malay *ramah*) and *laatu* 'k.o. edible seaweed' ≠ *raatu* 'hundred' (< Alorese *ratu*).

In addition to phonemic minimal pairs such as in (2), Reta also has a set of phonaesthetic minimal pairs between /r/ and /l/. A total of 32 such pairs have been attested in the lexicon, the majority of which involve a contrast in which an /r/-coloured word signifies a vulgar, intensified, larger or more severe version of a concept signified by a neutral counterpart with /l/, often highlighting a negative aspect of it. In such pairs, the neutral word with /l/ constitutes the semantically and formally unmarked base form, while the /r/-coloured form constitutes the marked option. This markedness of /r/ is testified by the markedness of the phonaesthetic forms themselves – it is almost always a neutral word with /l/ that is provided as a 'basic' meaning in elicitation – but also by the relative scarcity of /r/ in the lexicon.

A number of such phonaesthetic oppositions are shown in (3)–(6). In most cases the difference is mainly denotational, where /r/-coloured words constitute an intensified or more severe variant. For body parts, however, where /r/-coloured words constitute a vulgar variant, the difference is primarily connotational. States generally see an increase in severity, i.e. the intensity of an undesirable state, even if the base form does not signify anything undesirable, such as *baakal* 'opened, peeled'.⁵ With actions, /r/-coloured counterparts signify a more forceful carrying out of this action, and /r/-colouring of words denoting objects results in a more significant or larger version of this object.

(3) Phonaesthetic minimal pairs with states (severity):

lavak 'broken' ~ *ravak* 'destroyed, collapsed, uprooted'*βela* 'not good, bad, damaged' ~ *βera* 'terrible, heavily damaged'*baakal* 'opened, peeled' ~ *baakar* 'broken open, torn open'*tabula* 'concerned, at a loss' ~ *tabura* 'panic, frenzy, try to survive'*'oolang* 'loudish, busy-sounding' ~ *'oorang* 'loud, thronged, disturbing'

5. The /r/-colouring of one word expressing a state, *dagili* 'strong', results in increased intensity of a desirable state, i.e. *dagiri* 'very strong, strong and healthy'. We thank an anonymous reviewer for pointing this out.

- (4) Phonaesthetic minimal pairs with actions (force):
- | | |
|-------------------------------------------|----------------------------------------------------------------|
| <i>bili</i> 'pull' | ~ <i>biri</i> 'pull hard, yank' |
| <i>hela</i> 'descend' | ~ <i>hera</i> 'drop down, descend hard' |
| <i>taloohang</i> 'fight, seize, compete' | ~ <i>taroohang</i> 'snatch away, rob, violate' |
| <i>abiaala</i> 'peel, skin sth' | ~ <i>abiaara</i> 'peel, skin stg forcibly' |
| <i>koola</i> 'fall down, tumble' | ~ <i>koora</i> 'fall down, tumble hard' |
| <i>haalu</i> 'fall down' | ~ <i>haaru</i> 'fall down hard, crash down' |
| <i>betul</i> 'move a little' | ~ <i>betur</i> 'move with force' |
| <i>loopi</i> 'leaf through, rummage' | ~ <i>roopi</i> 'push, cut away vegetation to walk' |
| <i>palikul</i> 'roll/fold stg, push down' | ~ <i>pariku</i> 'press stg down with force, fell' ⁶ |
- (5) Phonaesthetic minimal pairs with objects (size, significance):
- | | |
|----------------------------------------|-----------------------------------------------------|
| <i>baagul</i> 'small hole, small leak' | ~ <i>baagur</i> 'big hole, big leak, orifice' |
| <i>bugul</i> 'small hole, small leak' | ~ <i>bugur</i> 'big hole, big leak, orifice' |
| <i>aliku</i> 'vein, fibre, sinew' | ~ <i>ariku</i> 'vein or artery visible on the body' |
- (6) Phonaesthetic minimal pairs with body parts (vulgarity):
- | | |
|---------------|----------------------|
| -ool 'penis' | ~ -oor 'cock, prick' |
| -aal 'vagina' | ~ -aar 'cunt' |

Although /r/-colouring clearly has a range of possible effects on meaning, the examples in (3)–(6) can in our view be united into a single meaning “augmented”. This augmentation can be semantic in nature, such as with *betul* ‘move a little’ vs. *betur* ‘move with force’, where the main difference between the two lies in the amount of force used to perform the action, or it may be (largely) pragmatic, such as in -aal ‘vagina’ vs. -aar ‘cunt’, where the referent is identical, but /r/-colouring results in a more vulgar version.⁷ The meanings associated with /r/-colouring in Reta bear a strong resemblance to the meanings associated with augmentatives in other languages, such as increased significance of an object, pejoration and intensity (see e.g. Nichols 1971: 841f. on various West-American languages; Silverstein 1994: 45–6 on Wasco; Rießler 2007: 235–6 on Kildin Saami; Böhmerová 2011 on

6. The discrepancy between these two forms is not a typographical error. Reta does not allow two instances of /r/ in the same phonological words and so /parikur/ is reduced to [pariku].

7. Using -aar ‘cunt’ or -oor ‘cock, prick’ as a swearword in Reta is common, but using -aal ‘vagina’ or -ool ‘penis’ for such purposes will only be met with laughter. It should be noted however that the vulgar forms -aar ‘cunt’ and -oor ‘cock, prick’ are subject to desensitisation to some degree: for most speakers these are very much marked forms, though for some speakers these are more-or-less normal ways of referring to such concepts. There is another historical phonaesthetic pair that is completely desensitised now: *baling* ‘≈ human remains’ vs. *baring* ‘corpse’; *baling* is felt to be archaic and not recognised as a word by many speakers.

Slovak; Mutz 2015:151–2 on some Indo-European languages). It can further be observed that, regarding the four types of sound symbolism proposed by Hinton et al. (1994:2–6), these phonaesthetic alternations appear to be largely **synaesthetic** in nature. That is, they are neither corporeal nor imitative, nor is the relation between sound and meaning purely conventional. We elaborate on this in Section 5.

It is worth noting that, although different types of lexemes respond to /r/-colouring quite predictably (i.e. vulgarity, severity, force and size or significance according to type), the meaning of any given /r/-coloured word is not always entirely predictable from the meaning of its unmarked counterpart: some phonaesthetic alternations result in a shift in meaning that is somewhat more significant, though the relation between the two respective meanings is clearly non-arbitrary. This is especially obvious for the last two examples in (4), i.e. *roopi* ‘push, cut away vegetation to walk’ and *pariku* ‘press something down with force’. In such cases we must assume a more abstract base meaning. In the case of *loopi* vs. *roopi*, for example, both can be assumed to have some kind of base meaning along the lines of ‘move objects out of one’s way to obtain a goal’, but as the primary reason to do this with force is to clear a path in the jungle, this has also become its primary meaning. It is likely that *palikul* vs. *pariku* was subject to a similar type of semantic shift.

Further, there are a number of other phonaesthetic alternations that result in a meaning markedly different from that of its neutral counterpart. Consider the pairs in (7). Here the /r/-coloured words all select a potential negative aspect of the base word and replace its meaning with it. The result is a different concept: *kavaari* is not a type of grain or cereal, and *taraa* is not a type of bone.⁸ Such meaning shifts are not unlike many pejorative senses associated with augmentation in other languages (Nichols 1971).

- (7) *kavaali* ‘cereals, grains’ ~ *kavaari* ‘rainy, seedy (food)’
talaa ‘bone’ ~ *taraa* ‘bony/skinny (person), leafless (tree)’

Two phonaesthetic words have been attested that are formally different in the sense that they require full reduplication of the root. These are shown in (8). Semantically, these belong to different classes: *jiar~jiar* ‘watery and foul-tasting (food)’ groups with the examples in (7), and *porang~porang* ‘butt-naked’ with those in (3).

8. A potential negative aspect of grains or cereals is to find them in food in quantities too large for enjoyment. In the case of *taraa*, the semantics lie in the fact that something or someone is nothing *but* a frame (bones in the case of humans, a trunk and branches in the case of a tree).

- (8) *jial* 'water' ~ *jiar~jia* 'watery and foul-tasting (food)'
polang 'bare, peeled' ~ *porang~porang* 'butt-naked'

There are two other groups of phonaesthetic pairs which show an interesting semantic opposition. Firstly, three attested phonaesthetic pairs are antonyms. These are displayed in (9). What underlies this is not entirely clear, but it can be observed that all three base words signify a non-gradable concept with a binary opposite. Perhaps as a result of this, their semantics cannot be modified in the same way as other words containing /l/, and the resulting opposition is one of antonymy. It is also possible that these constitute etymological "accidents". However, phonaesthetic alternations have been observed to be subject to considerable semantic extension (Nichols 1971: 828), and, perhaps more importantly, groups of phonaesthetic words are known to attract new members, given that they have enough in common semantically and formally (see e.g. Bolinger 1950).

- (9) *kevel* 'invulnerable' ~ *kever* 'torn and broken, all torn apart'
teleng 'day time' ~ *tereng* 'night time'
tala 'together' ~ *-tara* 'separated'

Lastly, three pairs have been attested where an /r/-coloured counterpart has a meaning similar to that of its base form, but pertains to humans only, and where that of the base form pertains to non-humans only. This type of contrast is likely to be related to the notion of increased significance as displayed in (5), i.e. concepts pertaining to humans are more significant than those pertaining to non-humans.

- (10) *kabula* 'straight (e.g. a pole)' ~ *kabura* 'lie straight (people)'
sola 'creep, slither (animals)' ~ *sora* 'move crawling or sitting down (people)'
-obal 'tail (animals)' ~ *-obar* 'tailbone, lower back (people)'

To sum up, we have seen that Reta, in addition to a regular phonemic contrast between /l/ and /r/, also has a set of phonaesthetic minimal pairs. The base form containing /l/ constitutes the unmarked form, whereas the /r/-coloured counterpart may signify increased intensity, severity, vulgarity, and size or significance. The semantics of most /r/-coloured counterparts can be united into a single abstract meaning "augmented". We have also seen that a number of pairs behave anomalously, either formally because reduplication is required for a phonaesthetic theme to take effect, or semantically, because the meaning distinction is one of either a binary opposition or of a human-nonhuman opposition. It should also be noted that the semantics behind phonaesthetic alternations is not simply one of gradability. Many of the words shown above are not gradable at all, and for those that are, the phonaesthetic opposition is not simply a matter of degree. That is,

a word like *tabura* (< *tabula* ‘concerned, at a loss’) does not simply mean ‘very/more concerned, much/more at a loss’. Rather, the phonaesthetic alternation lifts some kind of conceptual boundary, the result being an increase in severity: ‘panic, frenzy, try to survive’.

3.2 Phonaesthemes outside of alternations

Outside of phonaesthetic alternations, /r/ also functions as a ‘regular’ phonaesthetic, i.e. as a sound generally associated with certain types of meaning in the lexicon without being part of a paradigmatic opposition. It is for example highly overrepresented in words denoting large-sized referents, uncontrollable forces, vulgarities and disagreeable behaviour. An analysis of 100 random native words containing /r/ and /l/ showed that over 25% are associated with such a meaning in words containing /r/, as opposed to 2% for /l/.⁹ It is also frequently found in ideophones denoting such concepts, e.g. *reng~reng* ‘sound of pounding rain’, *darung~darung* ‘sound of a large object falling’, *rik~raak* ‘sound of thunderclaps and lightning bolts’, *bor~bor* ‘feeling horny’ and *ber~baar* ‘act greedy or gluttonously’. In other words, besides its status as a phoneme, /r/ is a ‘regular’ phonaesthetic, as it is a sound directly associated with a certain meaning throughout the lexicon.

4. A tentative explanation for phonaesthetic oppositions in Reta

As phonaesthetic alternations appear to be rare cross-linguistically, and no other TAP-language appears to have such a phenomenon, it is worth asking how they came about in Reta. We argue that it is very likely that phonaesthetic alternations arose out of a (near-)total historical loss of /r/ in Reta, and subsequent re-introduction through contact with Blagar. Reta has relatively few instances of /r/ in the lexicon, and many of the attested instances are readily identified as borrowings, the great majority of them from either Malay, Alorese or Blagar.

In the dominant language Blagar, which historically Reta has been in contact with the most, /r/ is much more prevalent. For instance, a count of instances of /r/ in native Blagaric vocabulary (i.e., Austronesian loans filtered out) in a comparative word list of a Pura variety of Blagar (Klamer 2016) and Reta (Willemsen 2016) yielded 180 instances of /r/ in Blagar compared to 46 in Reta. Furthermore, quite a number of these 46 instances in Reta are in fact loans from Blagar, such

9. Selection was randomised by applying a random number generator to a numbered word list that contained all instances of words with /l/ and /r/ in the corpus.

as *kokor* ‘traditional house, men’s house’. The prevalence of /r/ in Blagar is seen as characteristic by speakers of Reta, and is overemphasised in imitative speech.

It is thus clear that /r/ occurs less often in Reta than it does in Blagar, and that many of the synchronic instances are borrowed from it. We can however also demonstrate that proto-Alor-Pantar (henceforth pAP) *r was (largely) lost in Reta and retained in Blagar – lower-level reconstructions within the AP-languages are currently still lacking, but there are a number of pAP-forms available (Holton et al. 2012; Holton & Robinson 2017), as well as comparative Blagar data for various dialects (Steinhauer & Gomang 2016; Robinson 2010b-g; Klammer 2016). The table below shows the pAP forms that contain *r, and for which there is a Reta and a Blagar reflex available. It shows the Pura dialect of Blagar where there is a form available in it, as it was most likely on Pura itself that Reta speakers were in contact with Blagar.¹⁰

Table 3. Reflexes of pAP *r in Reta and varieties of Blagar

pAP	Reta	Blagar (Pura or otherwise)
*hagur ‘yawn’	<i>agaagul</i>	<i>agur</i> (Warsalelang, Bama)
*lam(ar) ‘walk’	<i>lamal</i>	<i>lamal</i> (Pura), <i>lamar</i> (Nule, Warsalelang, Bama)
*araqu ‘two’	<i>alo</i>	<i>aru</i> (Pura)
*lebur ‘tongue’	<i>-lebul</i>	<i>-elebul</i> / <i>-jabur</i> (Pura), <i>-jebur</i> (other dialects)
*war ‘stone’	<i>vaal</i>	<i>var</i> (Pura)
*dar(a) ‘sing’	<i>daali</i>	<i>dari</i> (Pura)
*sib{a,i}r ‘shark’	<i>hibil</i>	<i>hibir</i> (Pura)
*uari ‘ear’	<i>-veli</i>	<i>-everi</i> (Pura)
*jibar ‘dog’	<i>jobal</i>	<i>jabar</i> (Pura)
*por ‘dry in sun’	<i>puali</i>	<i>poring</i> (Pura)
*pVr ‘scorpion’	<i>pel</i>	<i>pel</i> (Pura), <i>per</i> (other dialects)
*mari ‘bamboo’	<i>maal</i>	<i>mari</i> (Pura)
*tiari(n) ‘close’	<i>tiali</i>	<i>tering</i> (Pura)
*tiara ‘chase’	<i>-tiari</i>	<i>eteri</i> (Pura)
*wur ‘moon’	<i>’uru</i>	<i>uru</i> (Pura)
*purVn ‘spit’	<i>purung</i>	<i>purung</i> (Pura)

10. On Pura itself too, Blagar dialects are heterogeneous, as some of the variants in Steinhauer & Gomang (2016) suggest. Comparative data are however lacking at this stage.

As the table shows, most instances of pAP *r surface as /l/ in Reta, apart from the last three forms *tiara ‘chase’, *wur ‘moon’ and *purVn ‘spit’. By contrast, in Blagar almost all instances of *r were retained, especially in dialects spoken outside of Pura. What characterises the three Reta retentions of pAP *r in terms of environment is not clear at this stage, as they share characteristics with other forms where pAP *r surfaces as /l/ – these forms might be borrowings, though we do not have any evidence for this, and further research will have to shed light on the diachrony of Reta and Blagar phonology. It is worth noting that loss of /r/ does not appear to be peculiar to Reta within the AP-languages: as pointed out by Holton et al. (2012: 108–10), other languages such as Adang, Western Pantar and Nedebang also lack evidence for /r/ as an inherited phoneme, and appear to have acquired /r/ as a synchronic phoneme through borrowing or diffusion. This is likely connected to the loss of /r/ in Reta.

It is thus clear that (i) /r/ is on the whole much more prevalent in Blagar than it is in Reta, (ii) a number of synchronic instances of Reta /r/ are borrowings from Blagar, and (iii) pAP *r was (largely) lost in Reta. We can add to this the fact that the prevalence of /r/ in Blagar is seen as characteristic and harsh-sounding by speakers of Reta, and is mockingly over-emphasised in imitative foreigner speech. What this suggests is that /r/ as a phonaestheme is the result of re-introduction through copying a ‘Blagar-style’ of speaking based on the observation that Reta /l/ corresponds to Blagar /r/, and that alternations based on extant Reta words with /l/ were created as a result.¹¹

It is also possible that Reta borrowed one or more Blagar cognates that only differed from a given Reta form in displaying /r/ rather than /l/. New /r/-coloured words may subsequently have been formed through extension by analogy based on one or more borrowed Blagar forms. For those words that are in phonaesthetic opposition, only two such forms currently exist however: Reta *-aal* ‘vagina’ ~ *-aar* ‘cunt’, cf. Blagar *-ar* ‘vagina’, and Reta *baling* ‘human remains (archaic)’ ~ *baring* ‘corpse’, cf. Blagar *baring* ‘corpse’. It is highly unlikely that all /r/-coloured words were directly borrowed.

Whether /r/-coloured words entered Reta through imitative foreigner speech or through the borrowing of a number of specific forms, they clearly constitute a class of words in which the semantic markedness is matched by formal markedness, i.e. they constitute a case of diagrammatic iconicity, the relationship between their parts approximating the relationship between the things they refer to

11. Similar processes have been noted for the Nootka language, where cognate phonemes that were already changed in the recipient language were introduced via mocking-type speech imitative of that of other tribes (see Sapir 1958 [1915]: 192–5; Jacobsen 1969: 150–1), which will be elaborated on in Section 6 below.

(Haiman 2006). Such lexical patterns were shown in Klammer (2002) to be semantically motivated: semantically complex words (/r/-coloured words in the case of Reta) tend to violate relatively more structural constraints, and may form classes that share formal traits by virtue of sharing certain semantic features. What this implies for Reta is that a class of /r/-coloured words was formed and attracted new members based on a diagrammatic relation between a formal opposition /l/~r/ on the one hand, and a semantic opposition 'neutral' ~ 'augmented' on the other (also see Bolinger 1950 on the semantic motivation of lexical patterning in English).

5. Is it phonology, morphology, both, or neither?

Phonaesthemes are sounds, but also constitute form-meaning pairings, or signs. In other words, they are phonological elements that take on a meaning-bearing function (Nuckolls 1999: 228). This begs the question whether they are best classified as an instance of phonology, morphology, both, or neither. As phonaesthemes do carry meaning and are typically concatenative, they are commonly regarded as having more in common with morphology than with phonology (Svantesson 2017: 6). On the other hand, morphological operations tend to occur on some kind of recurring residue, which phonaesthemes do not. For these reasons, phonaesthemes have also been termed "sub-morphemes" (Blust 1988) or "root-forming morphemes" (Bloomfield 1933). In this section, we compare Reta phonaesthemic alternations with non-alternating phonaesthemes such as English *gl-* 'light, vision' and argue that current criteria for classification of form-meaning pairings as either phonaesthemes or morphemes (i) reveal little difference with non-alternating phonaesthemes, and (ii) do little to distinguish between these alternations and derivational morphology.¹²

The following three sections provide a comparison of Reta phonaesthemic alternations with morphology, phonaesthesia and phonology. Based on Kwon & Round's (2015) criteria for morphology and phonaesthesia, it is argued that neither domain provides a satisfactory answer to what category these alternations belong, and that they constitute a cross-linguistic category in themselves. This is backed up by a typological survey in Section 6.

12. We use the term 'morphological operation' like Kwon & Round (2015) do, namely in the sense of Anderson (1992), where it includes both agglutinative and non-concatenative processes such as replacement and subtraction.

5.1 Morphology

In order to provide a discussion of the way Reta phonaesthetic alternations should be classified, a comparison with derivational morphology is in order. After all, Section 3 showed various meaning patterns not too far-removed from those expressed by some derivational operations, like augmentatives. A useful tool for doing so is offered by Kwon & Round (2015), who provide a discussion of the differences between phonaesthemes and derivational morphology based on the methodological framework of Canonical Typology (Corbett 2007, 2010).¹³ They first compare phonaesthemes to Corbett's (2010:142–6) five criteria for derivational morphology, which are laid out directly below.

1. Canonical derived words consist of a base and at least one derivational marker, each of which can be substituted to yield another derived word.
2. The meaning of a canonical derived word can be computed regularly from the meaning of the base and the additional meaning of the derivation.
3. The form of a canonical derived word is transparent: its structure, consisting of a base and derivational marker(s), is evident.
4. A derived word has a separate lexical index.
5. A derived word includes an additional semantic predicate in comparison with its base.

As Kwon & Round (2015:12) point out, canonical phonaesthemes adhere to criterion 3 and 5. A word like *glow*, for instance, is clearly segmentable into (i) its phonaestheme *gl-* and (ii) its residue *-ow*, and combining these clearly adds a semantic predicate. Based on criteria 1 and 2, canonical phonaesthemes diverge from derivational morphology because their residues do not have any meaning and do not occur in other forms. Using *glow* as an example again, the residue *-ow* is in itself meaningless and is not found with the same meaning in any other forms than *glow*. Criterion 4, they argue, is inapplicable, since neither component of a canonical phonaesthetic word has a lexical index from which the index of a phonaesthetic word might differ (e.g. neither *gl-* nor *-ow* has a lexical index that might differ from *glow* as a compound of these elements).

It is immediately clear that, based on these criteria, the Reta /r/~l/ opposition leans more towards derivational morphology than phonaesthemes like English *gl-* do. On the other hand, things are less clear for some criteria, much of

13. Canonical Typology is a methodological framework used for comparative purposes based on logically motivated archetypes (Bond 2019: 409). Archetypes constitute the clearest and most indisputable examples of a certain phenomenon, and are not based on any type of exemplar or prototype. Such an archetype, called a canon, is often not a particularly frequent type of example, and may even be non-existent (Corbett 2010:141).

which has to do with what is considered to be the base. To take the opposition between *belā* ‘not good, bad, damaged’ ~ *berā* ‘terrible, heavily damaged’ as an example, there are two theoretically possible bases: either one considers *belā* to be the base and *berā* the derived form based on a consonant mutation, or one could consider an abstract form like *be{R,L}a* to be the base, with an empty slot that can be filled with either /r/ or /l/. Opinions undoubtedly vary about this, but we opt for the former option here: *belā* ‘not good, bad, damaged’ is an unmarked, fully functioning lexeme that can be phonaesthemically derived through an operation /l/ > /r/. More importantly, however, /l/ is an unmarked phoneme that does not add any type of semantic predicate to a putative abstract root like *be{R,L}a* – words containing /l/ are semantically and phonaesthemically neutral. That is, unlike /r/, /l/ is not a phonaestheme but simply a phoneme, and postulating insertion of /l/ in an empty slot is unnecessarily complicating.

Taking the unmarked form with /l/ as the base, Reta phonaesthemes adhere to criterion 1. A word like *belā* ‘bad, damaged’ constitutes a neutral base form, and an operation /l/ > /r/ marks it as augmented. They adhere to criterion 2 only to some extent, as /r/-coloured forms have various semantic properties (e.g. intensity, severity, vulgarity, see Section 3). While we do argue that most instances of Reta phonaesthemes can be united into a single meaning, it has been pointed out that the average phonaestheme is semantically notoriously unpredictable as compared to the average morpheme (McGregor 1996: 353). As for criterion 3, a mutation like /l/ > /r/ is not particularly non-transparent, but arguably it is less transparent than a typical agglutinative operation, if only slightly. Considering the unmarked form to be the base form allows both the phonaesthemic and the non-phonaesthemic variant of a word to have a lexical entry: i.e. both *belā* and *berā* have their own entry, and Reta phonaesthemes adhere to criterion 4. They also clearly adhere to criterion 5, as the mutation /r/ > /l/ adds a semantic predicate to a non-phonaesthemic base. In sum, assuming the unmarked form with /l/ is the base, Reta phonaesthemes adhere to all criteria for derivational morphology, albeit to a somewhat lesser degree in a few cases.

5.2 Phonaesthesia

As phonaesthemes display various traits other than those typical of the criteria mentioned in the previous section, Kwon & Round (2015: 13–21) also establish seven canonical criteria that are diagnostic of phonaesthemes in particular, and compare these with canonical derivational morphology. As we will see, none of their seven criteria unequivocally set Reta phonaesthemic alternations apart from derivational morphology.

Firstly, canonical phonaesthemes occur on a large number of lexical stems rather than a small number. This makes sense, because only through regular recurrence can a certain sound or sound sequence be associated with a given meaning. The examples they provide are English *cl-* ‘denoting sound’ and *spr-* ‘spread’, both taken from Marchand (1969: 406, 410). These display a difference in canonicity in terms of the number of roots they occur in, *cl-* in this respect being more canonical in this respect:

- (11) *cl-* ‘denoting sound’: *cluck, click, clap, clack, clash, clutter, clang, clang, clank, clamber, clamour, clam, clump, clip*
- (12) *spr-* ‘spread’: *sprout, spread, spring, sprawl, sprinkle*

Canonical morphological operations also occur on a large number of lexemes. Reta phonaesthemes are canonical in this regard too, as they occur on 32 attested lexemes, outnumbering regular phonemic contrasts, both between /r/ and /l/ and between other phonemes, as well as most other instances of derivational affixation in the language. This criterion therefore does not distinguish either Reta phonaesthemes or other phonaesthemes from morphology.

Large number of lexemes:

Phonaesthemes ✓ Reta /r/ ✓ Morphology ✓

Secondly, phonaesthemes canonically occur on a variety of parts of speech rather than a few (although phonaesthemes, given their iconic nature, are more likely to occur on ideophones, see e.g. McGregor 1996: 359 and references therein). The English phonaestheme *gl-*, for example, occurs on nouns (e.g. *glass, glimmer, glimpse*) and verbs (e.g. *gleam, glisten, glow*). Reta phonaesthemic alternations do not occur on all parts-of-speech, but they are attested on all types of content words, such as nouns (e.g. *-oor* ‘cock’ < *-ool* ‘penis’), stative verbs (e.g. *bera* ‘terrible’ < *bela* ‘not good, bad, damaged’), active verbs (e.g. *hera* ‘drop down’ < *hela* ‘descend’) and adverbs (e.g. *tereng* ‘night time’ < *teleng* ‘day time’). Canonically, morphological operations also occur on a variety of parts-of-speech. Reta phonaesthemic alternations thus pair with both morphological operations and other phonaesthemes according to this criterion.

Variety of parts-of-speech:

Phonaesthemes ✓ Reta /r/ ✓ Morphology ✓

Thirdly, phonaesthemes are canonically image-iconic in the sense that they display a resemblance between the signifier and the signified. Kwon & Round provide examples from Oswalt (1994: 295, 300, 303–4), such as *-ng* ‘resonant sounds’

(e.g. *bong, clang, ding, twang, boing*) and *-ck* ‘abruptly terminating sounds’ (e.g. *whack, thwack, tick*).¹⁴

Note that the statement that phonaesthemes are canonically image-iconic as Kwon & Round present it, namely that phonaesthemes mimic the acoustic properties of their denotata, essentially amounts to saying that phonaesthemes are canonically onomatopoeic. If image-iconicity is interpreted as an acoustic resemblance between sound and signified, sounds themselves can only resemble other sounds. But if sounds must be image-iconic in order to be iconic at all, any type of iconic sound symbolism would be restricted to onomatopoeias. This is in our view difficult to defend, as iconic relations between single sounds and other kinds of sensory imagery have been demonstrated by numerous experimental studies.¹⁵ Furthermore, size symbolism, such as the cross-linguistic association of high front vowels with small objects, arguably goes beyond mimicry as well (Hinton et al. 1994: 4–5; also see McGregor 1996 on the iconic motivation of single-segment phonaesthemes in Gooniyandi).

As Marchand (1969: 398) points out, sounds are often clearly iconic, but it is often difficult or even impossible to establish in what way. And although cases have been made for /r/ to be intrinsically perceived as harsh (Fónagy 1963: 70; Whissel 1999, 2000), its cross-linguistic commonness (Moran & McCloy 2019) also suggests it is a relatively unmarked phoneme. However, there is no reason to assume iconicity of a certain sound cannot be language-specific (Hinton et al. 1994: 7). Kuehnl & Mantau (2013), for instance, replicating a study by Shrum et al. (2012) regarding preferred brand names, found that plosives were found to be more charitable sounds than fricatives in English and German, but not in other languages, and that it was mainly speakers of English who preferred front vowels over back vowels. Further, what is considered to be a strong cross-linguistic phonaesthetic tendency, namely the association of high vowels with smallness and open vowels with largeness, is in fact reversed in Korean (Kim 1977).

As /r/ was largely (if not entirely) re-introduced into Reta by means of contact and was obviously used to create phonaesthetic words, it is likely that an iconic

14. As one reviewer rightly pointed out, diagrammatic iconicity in the sense of Haiman (2006) is also relevant to the phenomenon at hand. Here, however, we discuss iconicity as it is used in Kwon & Round (2015). The issue of diagrammatic iconicity is a systemic one, and, while we briefly touch upon this towards the end of Section 4, we mainly leave this matter open here.

15. See for instance Stutts & Torres (2012) and Ngo et al. (2011) on the relation between vowel roundedness and taste, Köhler (1947) on the relation between vowel roundedness and curvedness of shapes, Spence & Gallace (2011) on the relation between vowel roundedness and various types of food, Kuehnl & Mantau (2013) on the relation between vowel frontness and preferred brand names, on the relation between vowel roundedness, and Tarte & Barritt (1971) on the relation between vowel openness and table size.

relation of /r/ with some kind of harshness, vulgarity, etc. may be language-specific to some degree. Furthermore, the borrowing of sounds for iconic purposes is not unique to Reta (see e.g. Mannheim 1991, who argues that in Southern Peruvian Quechua, ejectives and aspirated sounds were borrowed from Jaqi/Aru languages and came to signify various processes of air expulsion).

While it must be kept in mind that the symbolic relation between /r/ and harshness, vulgarity, etc. could simply be a by-product of a (historical) attitude towards a dominant language and/or its speaker community, a case can be made for /r/ bearing an image-iconic relationship to certain types of meanings. In onset and coda, it is generally realised as a sharp trill (medially it may be realised as a single tap) which may be iconic for sharp and uncontrollable sounds. This is borne out by the fact that /r/ occurs frequently in ideophones denoting such sounds, e.g. *reng~reng* 'sound of pounding rain' *darung~darung* 'sound of a large object falling' and *rik~raak* 'sound of thunderclaps and lightning bolts'. Moreover, /r/ is often emphasised significantly in such constructions to add to its iconic effect. It is quite likely that other meanings associated with /r/, such as relentless action, uncontrollable behaviour, large quantities and indelicate acts (e.g. *sere bere* 'steal relentlessly', *bor~bor* 'feeling horny', *ber~baar* 'greedy or gluttonous behaviour'), are metaphorical extensions of this iconicity, and that the use /r/ as a phonaestheme is tightly linked to it.

Thus, while not immediately clear from its use as a phonaestheme, and allowing for a layer of arbitrariness, /r/ appears to be image-iconic to some extent. As Kwon & Round take morphology to be non-image iconic as well,¹⁶ Reta phonaesthetic alternations pair with phonaesthemes rather than with morphology.

Image-iconicity:

Phonaesthemes ✓ Reta /r/ ✓ Morphology ✗

The fourth and fifth criterion Kwon & Round (2015) propose are the pairing of form with one meaning and the mapping of meaning with one form. The examples they provide are from Marchand (1969: 408, 416) and include *tr-* 'tread' (e.g. *tread*, *tramp*, *trample*, *trip*, *trudge*, *trot*) as an example of a phonaestheme with a single meaning per form, and *sl-*, which is associated with various meanings such as 'falling or sliding movement' (e.g. *slide*, *slither*), 'a falling blow' (e.g. *slay*, *slash*) or 'slimy/slushy matter' (e.g. *slush*, *slop*) as an example of a phonaestheme with multiple meanings per form. An example of two phonaesthemes with the same

16. Morphology itself can also be iconic, but only insofar as the iconicity does not depend on the choice of sounds, which would render the iconicity phonological. Reduplication is a prime example of iconically motivated morphology.

meaning would be *cl-* and *gr-*, which are both associated with the meaning ‘grasp’ (e.g. *clutch*, *cling*, *grasp*, *grip*).

It is unclear whether morphological operations actually display a higher degree of allophony than phonaesthemes, but impressionistically this is the case (this has also been claimed by McGregor 1996: 353). As for polysemy, i.e. the mapping of one form onto multiple meanings, it is not obvious that morphological operations differ from phonaesthemes in any way. As Kwon & Round (2015: 20) point out, this is ultimately an empirical question that would require a corpus-based investigation. To this we might add that it is also a theoretical question, i.e. whether morphemes have a single underlying, or formal meaning from which contextual meaning is derived, depends on one’s theoretical assumptions (see McGregor 1990: 449f. and references therein).

As for Reta phonaesthemes, these clearly have a single form /r/, and at first glance a number of different meanings are associated with this phonaestheme. However, when we compare Reta /r/ to e.g. English *sl-* which signifies a number of unrelated meanings, Reta /r/ signifies meanings that are much more easily united into a single meaning “augmented”.

One meaning per form:

Phonaesthemes ✓¹⁷ Reta /r/ ✓ Morphology (✓)

One form per meaning:

Phonaesthemes ✓ Reta /r/ ✓ Morphology (X)

The sixth criterion Kwon & Round posit is the occurrence of canonical phonaesthemes with non-occurring residues. The phonaestheme *gl-* in *glow*, for instance, has as its residue *-ow*, which does not occur elsewhere in the lexicon with the same meaning. They also argue that the residue *drXp*, which is the residue for words like *drip* and *drop*, is a non-recurring residue as well. Note that this is a different analysis from what we posited for an opposition like *bela* ‘not good, bad, damaged’ vs. *bera* ‘terrible, heavily damaged’, where we consider the former to be the base form and the latter a phonaesthemically derived form. Crucially, however, both *i* and *o* in words like *drip* and *drop* are phonaesthemes (signalling smallness and largeness respectively), suggesting the base form is indeed *drXp*. For *bela* vs. *bera*, however, /l/ is not a meaning-bearing unit and *bela* is clearly the unmarked base form. We argue therefore that Reta phonaesthemes do have a recurring base. For this criterion they thus pair with canonical derivational morphology, and, as we

17. McGregor (1996: 353) in fact points out that phonaesthemes are typically associated with a variety of meanings.

argue in the next section, is the more favourable analysis for all other languages with phonaesthetic alternations.

Non-recurring residues:

Phonaesthemes ✓ Reta /r/ ✗ Morphology ✗

The seventh and last criterion Kwon & Round posit is the agglutinative combination of a phonaestheme with its base.¹⁸ Most English phonaesthemes are canonical in this respect, such as *glow*, where *gl-* combines agglutinatively with its residue *-ow*. Less canonical English examples are words like *drip* and *drop*, where the phonaesthemes *i* and *o* are infixal. As we argued above, Reta /r/ is not infixal, as /l/ is the unmarked form. However, if anything, this makes Reta /r/ less agglutinative in being a replacive phonaestheme rather than an infixal one. This is the criterion where Reta /r/ most clearly diverges from canonical derivational morphology, and we elaborate on this in Section 6.

Combines agglutinatively:

Phonaesthemes ✓ Reta /r/ ✗ Morphology ✓

Table (4) below lays out the properties of Reta /r/ as compared to canonical phonaesthemes and derivational morphology. Impressionistically, Reta /r/ is torn between phonaesthemes and derivational morphology, although some criteria are arguably more diagnostic than others. Firstly, for the first two criteria, phonaesthemes and morphology behave alike, and elements that are non-canonical with respect to these criteria might be phonaesthemes as well as morphemes. Reta /r/ is arguably partly image-iconic, just like many phonaesthemes. While not highly diagnostic, this criterion pairs Reta /r/ with phonaesthemes. As discussed above, there is probably little difference to be found between the polysemy as displayed by morphology on the one hand, and phonaesthemes on the other. This criterion therefore makes little distinction between these phenomena, and Reta /r/ pairs with both. Morphological items do appear to differ from canonical phonaesthemes in displaying less allomorphy.

The two most salient criteria pertaining to Reta /r/ vs. canonical phonaesthemes and morphology are (i) the combination with recurring residues, and (ii) agglutinative combination with a base. Assuming the unmarked form containing /l/ is the base, Reta /r/ pairs with morphology in having a recurring base. Agglutinative combination of an *-eme* with a base does little to distinguish between phonaesthemes and morphology in general, and Reta /r/ clearly deviates from

18. Our impression is that, cross-linguistically, derivational morphology actually tends to be less agglutinative than the average phonaestheme, though not to such a degree that it warrants a different analysis here.

both. Especially the sixth criterion is of importance here, as it offers by far the clearest distinction between phonaesthemes and morphology, and, as argued by Kwon & Round (2015: 21), the only truly diagnostic criterion.

Table 4. Reta /r/ as compared to canonical phonaesthemes and morphology

	Phonaesthemes	Reta /r/	Derivation
1. Large number of lexemes:	✓	✓	✓
2. Variety of parts-of-speech:	✓	✓	✓
3. Image-iconicity:	✓	(✓)	✗
4. One meaning per form:	✓	✓	(✓)
5. One form per meaning:	✓	✓	(✗)
6. Non-recurring residues:	✓	✗	✗
7. Combines agglutinatively:	✓	✗	✓

While indeed pointing out a number of interesting differences, the criteria in Table (4) above do little to unequivocally distinguish Reta /r/ from the domain of morphology. Firstly, these criteria are of course canonical, meaning a phenomenon that diverges from a certain characteristic is not necessarily disqualified from classification as either phonaesthesia or morphology. Secondly, where such a criterion does draw a sharp line between two phenomena, namely in the recurrence vs. non-recurrence of residues, Reta /r/, contrary to other phonaesthemes, pairs with morphology. To complicate matters, in Section 4 it was argued that the /r/~l/ alternation was most likely ultimately the result of a sound change (i.e. a sound change causing loss of /r/, and subsequent re-borrowing). Arguably, therefore, it best to take into account the domain of phonology as well: as we will see below, Reta phonaesthetic alternations clearly side with phonology formally.

5.3 Phonology

A criterion that should draw the clearest distinction between phonology on the one hand, and phonaesthemes and morphology on the other is the fact both phonaesthemes and morphological operations are form-meaning pairings, or signs. Any type of morphological operation is by definition meaningful,¹⁹ and phonaesthemes too are meaning-bearing units. Phonological items however, be

19. One reviewer pointed out that meaningless morphological operations are in fact quite common in the world's languages. This is not the forum for a thorough discussion, but it is worth pointing out that we assume any difference in linguistic form to be associated with a difference in meaning, see e.g. Goldberg (1995: 6–7; 2006: 95) on the Principle of No Synonymy.

they phonemes, suprasegmental qualities, or some type of process, are not. Reta /r/ is clearly a form-meaning pairing, and is thus distinct from phonology in this sense. This criterion can be elaborated on by taking into account the potential productivity of such form-meaning pairings: morphology may be productive, but canonical phonaesthemes, although they may be prevalent in the lexicon, may not. Reta /r/ as a phonaestheme is not productive, and this therefore does little to differentiate between Reta /r/ and either phonaesthemes or morphology. However, as we will see in Section 6, there are in fact languages that display fully productive phonaesthemic alternations.

It is thus clear that Reta /r/, like other phonaesthemes and morphology, is distinct from phonology in constituting a form-meaning pairing, and similar to morphology in having a recurring residue. The question then arises whether there is any unequivocal difference between morphology and Reta /r/ at all. After all, consonant mutation as (part of) a morphological operation is widespread in the world's languages. And although it is infrequently the case that a consonant mutation is solely responsible for a change in meaning, it does occur.²⁰

To provide some concrete examples, in Bemba palatalisation and spirantisation are used to form causatives (Kula 2000:147). In Arabic too, a single consonant may be mutated to create causatives, and in Abui, another TAP-language, verb stems may be alternated as a means of aspect inflection (Kratochvíl 2007:210–17). An example from each language is given below.

BEMBA (ZAMBIA, NIGER-CONGO)

- (13) *koma* 'deaf' ~ *komya* 'cause to be deaf'

(Kula 2000:174)

ARABIC (ARAB STATES, SEMITIC)

- (14) *ḍakara* 'remembered' ~ *ḍakkara* 'reminded'

(Burridge & Stebbins 2016:114)

ABUI (INDONESIA, TIMOR-ALOR-PANTAR)

- (15) *batek* 'strike' ~ *batet* 'strike (completive)'

(Kratochvíl 2007:210)

Crucially, however, such mutations always target a specific environment. In Bemba, it is consistently a stem-final consonant which is targeted (Kula 2000:174–6). In Arabic, it is consistently the second radical of a consonantal

20. See Merrill (2018) for a useful typological overview of consonant mutation in 30 languages. As he shows, the position of the mutated consonant is almost always predictable and most commonly occurs initially.

frame that is targeted (Yonatan Ungermann Goldshtein, p.c.), and in Abui it is consistently the final consonant of the root that is targeted (Kratochvíl 2007: 210).

In Reta phonaesthetic alternations, however, any /l/, be it word-initial, intervocalic or word-final, may be targeted, as shown in the examples in (16). This is formally clearly akin to a sound change much more than derivational morphology. However, as we will see in the next section, Reta is clearly not unique in this respect, as various other languages display similar phenomena.

- (16) Intervocalic: *bili* ‘pull’ ~ *biri* ‘yank’
 Final: *-aal* ‘vagina’ ~ *-aar* ‘cunt’
 Initial: *lavak* ‘broken’ ~ *ravak* ‘destroyed’

To sum up, Reta phonaesthetic alternations are not clearly distinguished from derivational morphology according to Kwon & Round’s (2015) criteria, primarily because the only criterion that makes a clear distinction between these has them pair with derivational morphology. Taking into account the segments that may be targeted in these alternations, however, shows that they are formally akin to a phonological process, which is a trait that sets them apart from morphology quite clearly, because morphological operations have a specific target in the word. As we show in the next section, there are more languages for which this is the case. Some of these differ from the phonaesthetic alternations described here in significant ways, but, as we argue, they have enough in common formally to consider them phenomena in their own right, distinct from non-alternating phonaesthemes such as English *gl-*, and distinct from derivational morphology.

6. Phonaesthetic alternations are not phonaesthemes

The types of phonaesthetic alternations discussed above are cross-linguistically not particularly widespread, but not non-existent outside of Reta either. In Chuckchee (Russia, Chukotka-Kamchatkan), for example, /l/ may sometimes be substituted for /tɕ/ (Bogoras 1992: 646, 834–7), in some cases with a diminutive effect, and in some cases with different semantic effects, e.g. *qulile?erkin* ‘he cries’ ~ *qutciŋe?erkin* ‘he shouts, makes a noise’. Note how, similarly to Reta phonaesthetic alternations, this is a phonological-based operation in that both instances of /l/ in the word are substituted, regardless of their position in the word. In Basque (France and Spain, isolate), dentals are productively palatalised to form diminutives, e.g. *onon* ‘sweets’ ~ *oŋoŋ* ‘sweets (diminutive, babyish)’, and depalatalisation of some palatal consonants may be used to form augmentatives (Lafitte 1944: 147–9). Georgian has phonaesthetic alternations in which various consonants may become hushing or hissing affricates (Neisser 1953: 39–45).

This section provides a brief overview of phonaesthetic alternations in other languages. Based on the data presented, we argue that phonaesthetic alternations are a different phenomenon from non-alternating phonaesthemes such as English *gl*, and, contrary to Kwon & Round's (2015) analysis, should not be analysed in the same fashion. The languages discussed below are Korean, Diegueño, Wishram and Nootka. As we will see, these all show crucial parallels to Reta phonaesthetic alternations that are not found in non-alternating phonaesthemes: they all show alternations that target segments regardless of their position, they all operate on a neutral base form, and they all show semantic oppositions that can be analysed as diminutive or augmentative. For at least one of these languages, Nootka, the emergence of phonaesthetic alternations has also been attributed to some kind of mimicry speech.

6.1 A cross-linguistic overview of phonaesthetic consonant alternations

Let us begin our discussion with Korean (Koreanic, Korea). Korean has a rich inventory of sound-symbolic units, which includes large sets of ideophones, diminutive vowel alternations, and, especially relevant here, a three-way opposition between plain, aspirated and tense consonants. (Tense consonants are strongly fortis and glottalised.)

These consonants are phonemically contrastive, but are also part of phonaesthetic consonant alternations (Sohn 1994: 496f.; 1999: 98–102). In the class of Korean ideophones, comprising a set of some 4,000 items, the aspirated and tense counterparts of the plain consonants /p b/, /t d/, /c ɟ/ and /k g/ are associated with higher intensity, as well as tenser, tighter, smaller and more solid actions. A phonaesthetic alternation like *cwul*~*chwul* ~ *chwul*~*chwul* ~ *ccwul*~*ccwul* 'trickling, flowing persistently', for instance, signifies an increasingly smaller quantity of liquid and a faster flow. An alternation like *ping*~*ping* ~ *phing*~*phing* ~ *pping*~*pping* 'round and round (spinning, turning, whirling)' signifies an increasingly faster and tighter turning motion. In addition to these consonants, /s/, which cannot be aspirated, has a tense counterpart as well. Additional examples are provided in (17).

- (17) *celpek*~*celpek* ~ *chelphek*~*chelphek* ~ *ccelppek*~*ccelppek* 'splashing'
ppancak~*ppancak* ~ *ppanccak*~*ppanccak* 'glittering'
napwul~*napwul* ~ *naphwul*~*naphwul* 'flapping'

In Korean, such alternations behave similarly to Reta /r/~l/ alternations, in that consonants may be targeted in any position. As the examples above show, we find symbolic aspiration and tensing in initial and intervocalic position. We do not find them in syllable-final or word-final position, though this is due to a

phonological rule: aspirated and tense consonants never occur in such positions in Korean (Sohn 1994: 439).

While the majority of such forms exhibit the full three-way opposition between plain, aspirated and tense consonants, not all of them do. What can be considered the most neutral and unmarked set, i.e. those that are plain (Kim 1977: 73–4; Yu Cho 2006: 64–6; Martin 1962), does not occur in all oppositions. However, in a three-way opposition, variants are marked or unmarked relative to each other: aspirated consonants are marked as compared to plain consonants, and tense consonants are marked as compared to aspirated ones.

Phonaesthetic alternations are also widespread in the languages of western North-America. Nichols (1971) discusses alternations that signal diminutivity or augmentativity in western North-American languages. The alternations may relate to size only, but may also involve semantic extensions to contrasts like bright-dark, light-heavy, quick-slow, near-far, as well as endearing and pejorative connotations. Most shifts involve either hardness of pronunciation or a shift in frequency. Diminutives are generally associated with pronunciations requiring a reduced oral cavity (e.g. higher frequencies, palatalisation, more closed consonants). Given the prevalence of such phonaesthetic alternations in the region, Nichols (1971: 839–41) also points out that it is unlikely that each of these languages developed it internally: rather, this is an areal feature. It is however not equally productive in all languages: they range from vestigial, occurring on only a few words (e.g. Southern Sierra Miwok and Coos), to unproductive but lexically well-preserved, to highly productive. Three such languages, Diegueño, Wishram and Nootka, are elaborated on below.

In Diegueño (Yuman, United States of America), words may occur in minimal sets that have a meaning difference pertaining to size (Langdon 1970; 1971). Formally, they typically differ only in a single consonantal feature, which, as in Reta, may be affected anywhere in the root. It only occurs with coronal consonants, which in Diegueño comprise the dentals, alveolars and laterals. There are various such consonantal alternations, e.g. /ɾ/-/r/, /l/-/ɾ/ and /n/-/ɳ/ among others, but it is particularly pervasive with /ʈ/-/l/ and /ʈi/-/li/, which are used for diminutive symbolism. Outside of phonaesthetic alternations, these two contrasts are the only part of the phonemic system where voicing is contrastive, and the phonaesthetic alternation between these is fairly productive (Langdon 1970: 101–2; 1971: 153).

The examples in (18) show these alternations in two roots. The base forms for these phonaesthetic alternations are the forms with /ʈ/ and /ʈi/, the forms with /l/ and /li/ being diminutive derived forms. As the examples show, laterals in word-initial, intervocalic and final position may all be targeted, and, as in Reta and Korean, all that are present in a given form are targeted. This does not pertain

to roots only: in (19) an example is given of a prefixed word *tələwik* ‘crooked, bent’. This word has a prefix *t-l*, which appears to be combination of a causative prefix and a prefix denoting an object has become out of shape (Langdon 1970: 83, 86, 94). As the example shows, here it is a lateral in the prefix that is targeted, demonstrating that Diegueño phonaesthetic alternations occur regardless of environment.

- (18) *ʔəsəlʔ* ‘my hand, arm’ ~ *ʔəsəlʔ* ‘my little hand, arm’
lapələp ‘flat’ ~ *lapələp* ‘small and flat’
- (19) *tələwik* ‘crooked, bent’ ~ *tələwik* ‘crooked, bent (small)’

What is of particular interest about Diegueño consonant alternations is the fact that they show a high degree of productivity. Productivity is something generally associated with morphological operations and not with phonaesthemes. However, as the examples above show, consonants may be targeted regardless of their position in the root. It is thus not a morphological operation either, and is similar to the phonaesthetic alternations in Reta and Korean. The source of these alternations is unclear, but it is claimed in Langdon (1971: 165–70) that some of them can be re-constructed for proto-Yuman.

Wishram (Chinookan, United States) also has diminutive phonaesthetic alternations (see Sapir 1911). In such alternations, lenis plosives and affricates become fortis, fortis plosives become ejectives, post-velar plosives become velar, and hushing affricates and fricatives are realised in a hissing manner. The reverse is true for augmentative phonaesthetic alternations, except that velar plosives do not become post-velar (Sapir 1911: 638). The augmentative forms of /ts/ and /tɕ/ are [dz] and [dʒ], which otherwise occur neither phonemically nor allophonically in Wishram (Sapir 1958 [1915]: footnote 17). An example is provided in (20).²¹

- (20) *itɕ'iau* ‘snake’ ~ *itɕ'iau* ‘small snake’ ~ *idziau* ‘big snake’

Wishram phonaesthetic alternations may also target either the root, or a specific affix. In (21), either the verb stem *-tɕim* may be subject to diminutive phonaesthetic alternation, which would imply that the verb object, i.e. the person struck, is small. Should the verbal prefix *gəl-* (which according to Sapir signifies intent to hit) be subject to such an alternation, the instrument is interpreted as small. The last example shows that both are possible as well.

21. The phonemic transcriptions for these two examples are based on Nichols’ (1971: fn2) phonetic key.

- (21) a. *inigəltɕim* ‘I hit him with it’
 b. *inigəłtsim* ‘I hit him (a child perhaps) with it’
 c. *inikəłtɕim* ‘I hit him with it (something small)’
 d. *inikəłtsim* ‘I hit him (a child) with it (something small)’

What is of particular interest about these alternations is the fact that two of the resulting phones, [dz] and [dʒ], do not otherwise occur in the language, which, as Nichols (1971: 839) points out, makes internal development of such alternations unlikely. It is also striking that in Wishram, both roots and affixes may be targeted individually.

In Nootka (Wakashan, Canada), consonantal play is often used to imply some marked characteristic of the person addressed or spoken about. Several different classes can be distinguished, namely children, unusually fat or heavy people, unusually short adults, people suffering from some eye defect, hunchbacks, lame people, left-handed people and circumcised males (Sapir 1958 [1915]: 180–1). We briefly discuss some of these below.

When addressing or speaking about unusually short people, a diminutive suffix is used, and all sibilant consonants, including the final consonant of the diminutive suffix *-ʔis*, become palatalised (22).²²

- (22) *híntʔíftʰweʔinʲ* ‘he comes, they say’
híntʔíftʰʲweʔinʲ ‘he, little man, comes, they say’

When addressing or speaking about people with some kind of eye defect, the diminutive suffix is used as well, but the sound alternations are /s ʃ/ > /ʃ/, /ts tʃ/ > /tʃ/, /ʃtʰ/ > /tʃʰ/ > /tʃʰ/, including the final consonant of the diminutive suffix, which changes to /ʃ/ (Sapir 1958 [1915]: 182).

When addressing or speaking about hunchbacks, the diminutive suffix is used as well, and /s/-sounds and /ʃ/-sounds become “peculiar thickish *c*-sounds [=ʃ, authors], pronounced with the lower jaw held in front of the upper lip” (Sapir 1958 [1915]: 183), including the final consonant of the diminutive suffix. Such sounds are not normally part of the phonology of Nootka (Carlson et al. 2001: 276). In addressing or referring to lame people, left-handed people and circumcised males, terms are subject to insertion of otherwise meaningless phonological elements. Lame-people speech, for example, is characterised by insertion of /tʃ/.

22. The phonemic transcriptions are based on Sapir’s (1958 [1915]: 195–6) phonetic key in combination with Carlson et al.’s (2001) phonological description. The sound /ɕ/ is not mentioned in the latter as it is non-phonemic (Nichols 1971: 845). Whether it occurs allophonically or is simply non-existent in the language is unclear.

What is of particular interest about Nootka phonaesthemic alternations, apart from the systematisation of such a multitude of symbolisms, is their likely source. Firstly, Sapir (1958 [1915]:189–91) notes that there are various types of speech defects that have become socialised in and outside of Nootka communities. Some community members reportedly have difficulty articulating against the hard palate, whereby /ts/ and /tʃ/-become a dental /t/, and /s/, /ʃ/ and /tʃ/ all become interdental fricatives. People with this sort of defect are imitated when spoken to. Another common speech defect is one where /s/ and /ʃ/ are merged into [ɕ], which is also imitated. In this case it is particularly striking that this is exactly the type of phonaesthemic alternation used to address or speak about unusually short people. While it is not obvious what the exact relation between a particular bodily appearance and a certain way of speaking is, it is not difficult to imagine the socialisation of speech defects being a source of systematised consonantal play.

Another factor Sapir (1958 [1915]:192–5) mentions might lie beneath the emergence of consonantal play in the case of Nootka is the imitation of foreigner speech. As he points out, this is typically imitation of a dialect or language divergent enough to be perceived as humorous or otherwise impressive, but not so divergent that there is no perceived parallel with one's own language. Indeed, various Indian tribes use an imitative way of speaking that highlights (perceived) peculiarities in the speech of other tribes, which may include a prevalence of a particular type of sound. One particular tribe's speech is said to be characterised by a high presence of /tʃ/- sounds. They are often imitated in a jesting manner by insertion of /tʃ/, which, outside of its jesting function, is meaningless. It is also striking that this insertion is the same as in the lame-people speech mentioned above.

The fact that phonaesthemic alternations may ultimately be based on imitative speech, be it of a mocking, jesting or endearing kind, is in fact not far-fetched. Jacobsen (1969:150–1) attributes the existence of Nootka doublets between [χ χʷ] on the one hand, and /h/ on the other, to dialect borrowing from neighbouring languages such as Makah and Nitinat: these languages are said to have retained the proto-forms [χ χʷ], whereas in Nootka these would already have changed to /h/. In such doublets, a word containing borrowed [χ χʷ] will often have a pejorative aura about them, and may signify things like dirtiness, disarray, damage or disease. This is obviously reminiscent of the mocking-type speech Reta speakers use to imitate Blagar speakers as a source of phonaesthesia.

To summarise, the phonaesthemic alternations in the sample of languages discussed in this section show crucial parallels with those in Reta, all of which are absent in non-alternating phonaesthemes. They all operate on an unmarked base form, all target every relevant consonant regardless of its position, and all display meaning oppositions analysable as diminutive or augmentative. That is not

to say that there is no variation: while most languages exhibit two-way oppositions, three-way oppositions also exist, as we saw with Korean. The majority of languages alternate between phonaesthemes that are also phonemes, though as we saw with Wishram, sounds that are otherwise not part of the phonological system may also be used, and in Nootka, borrowed sounds appear to have been used. Most languages appear to target whole words, although in at least one language, Nootka, roots and affixes may be targeted individually.

Something most languages with phonaesthetic consonant alternations also appear to have in common is that most of them do not make use of a contrast that is also part of a general morphophonemic operation. In the languages Nichols (1971) discusses, no language appears to have phonaesthetic alternations that are also part of a phonological rule, with the exception of a single language called Karok. In Reta, there is no such process either, although a number of compounds such as *vaarabuka* ‘a stone as big as a hill’ (< *vaal* ‘stone’ and *abuka* ‘hill’) betray a historical shift from *r to /l/ that did not apply in all environments. In Korean there is a morphophonemic rule that tenses the consonants /p/, /t/, /c/ and /k/ when they appear after /p/, /t/, /c/, /k/ or /s/ (Sohn 1994: 472–3), though not in the types of words that are normally subject to phonaesthetic alternations like in (17) above.

Having exemplified some cross-linguistic similarities between phonaesthetic alternations, we now turn to a proposal for such phonaesthetic alternations as a category in itself, distinct from both non-alternating phonaesthemes such as English *gl-*, and distinct from derivational morphology.

6.2 A proposal for the classification of phonaesthetic alternations

Phonaesthemes such as English *gl-*, i.e. non-alternating phonaesthemes, are part of a network of associations of sound and meaning throughout the lexicon. The phonaestheme *gl-* in *glow*, for instance, is a meaning-bearing unit that combines with a residue *-ow*, together with which it comprises another sign, the word *glow*. Crucially, *glow* is not the result of any kind of operation on a base form, and we agree with Kwon & Round (2015) that such non-alternating phonaesthemes are characterised by a non-recurring residue, distinguishing it from morphology. As they also show, however, some phonaesthetic words like *drip* and *drop* contain a recurring residue *drXp*, which they call multivalent residues. Crucially, however, they treat Korean alternations in a similar fashion: a pair like *peng-peng* ~ *pheng-pheng* ‘a neutral/stronger and more violent motion of circling’ is argued to have a multi-valent residue *Xeng-Xeng*, which may combine with either *p* or *ph*.

We question the validity of this similar treatment of non-alternating phonaesthemes with a recurring residue on the one hand, and phonaesthetic alternations

on the other. As Kwon & Round (2015: 6, 16) themselves point out, the respective phonaesthemes in *drip* and *drop*, i.e. *i* ‘higher pitched’ and *o* ‘lower pitched’, carry meaning. But they also show that plain consonants in ideophones like *peng-peng* ‘a (neutral) motion of circling’ are semantically neutral, similarly to Reta base forms, and those of the other languages discussed in Section 6.1. This is in our view a crucial difference. No derivational operation has taken place on either *drip* or *drop*, and neither is a marked option as compared to the other. This contrasts with phonaesthetic alternations such as occur in Reta, Korean and other languages, where a phonaesthetic alternation is the result of an operation on a base word. This is the reason both *drip* and *drop* are phonaesthetically marked (and hence neither is a base form), and it also the reason why a Reta phonaesthetic pair like *hela* ‘descend’ vs. *hera* ‘drop down’ does indeed contain a base form and a phonaesthetically derived form.

Our proposal is to treat non-alternating phonaesthemes and phonaesthetic alternations as distinct categories. As the former have already been shown to constitute meaning-bearing sounds without a recurring residue, the question arises what defines phonaesthetic alternations. Based on the discussion in the previous subsection, what they all have in common can be captured in the following definition:

Phonaesthetic alternations are a regular, phonological-based operation that takes place on all relevant segments of a given form, the underived form being neutral and unmarked relative to the derived form.²³

Importantly, both non-alternating phonaesthemes and phonaesthetic alternations are then distinguished from derivational morphology in their own way: non-alternating phonaesthemes are distinguished through non-recurrence of their residue, and phonaesthetic alternations through their phonological-based targeting of all relevant segments within a given base form. Such a definition also sets phonaesthetic alternations apart from consonant mutations, which target specific phonological segments based on their position in the root (Merrill 2018: Chapter 2).

We are aware of one other article dealing with the similarities and differences between phonaesthetic alternations, non-alternating phonaesthemes and derivational morphology, namely Kwon (2019). Using the framework of Canonical

23. They constitute a phonological-based operation on all relevant segments in a form because they are all formally akin to regular sound changes, they are defined as operating on forms rather than words because phonaesthetic alternations have been observed to target affixes, and a base form is unmarked and neutral as compared to a derived form to account for three-way oppositions such as in Korean, which show degrees of markedness.

Typology, she compares non-alternating phonaesthemes such as English *gl-* with Korean phonaesthetic alternations, which she terms ‘non-paradigmatic phonaesthemes’ and ‘paradigmatic phonaesthemes’ respectively, as well as derivational morphology. She does so based on the same criteria as laid out in Section 5, and concludes that non-alternating phonaesthemes are only differentiated from phonaesthetic alternations in terms of the restriction of one meaning per form.

She bases this claim on the fact that non-alternating phonaesthemes like English *gl-* ‘light, vision’ generally have a single concrete meaning, while Korean phonaesthetic alternations are associated with several meanings, namely intensive-neutral, e.g. *sakak* ‘crunching’ ~ *s’akak* ‘crunching strongly’, light-deep, e.g. *palkah-* ‘light red’ ~ *p’alkah-* ‘deep red’, as well as neutral-pejorative contrasts such as *sacang* ‘boss’ ~ *s’acang* ‘(derogatory)’. It is of course significant that phonaesthetic alternations are semantically relatively variable, but we would argue that this type of semantic variability is exactly what is common to derivational morphology as well, hence we analyse phonaesthetic alternations as functionally similar to derivation. In the case of Korean, as in Reta and the other languages discussed in Section 6.1, phonaesthetic alternations can be analysed as augmentatives: augmentative forms are often used as pejoratives, intensifiers and other related categories (e.g. Nichols 1971: 841f.; Silverstein 1994: 45–6; Rießler 2007: 235–6; Böhmerová 2011; Mutz 2015: 151–2). Indeed, as Nichols (1971: 826) points out, the diminutive-augmentative dichotomy is associated with semantic oppositions such as bright-dark, light-heavy, quick-slow, near-far, and endearing-pejorative as well.

The fact that phonaesthetic alternations have a broader meaning associated with them than non-alternating phonaesthemes is not simply an observation, but also a logical consequence of their ontology: non-alternating phonaesthemes are part of a network of associations between sounds and meaning in the lexicon (Bolinger 1950; Firth 1964: 185), typically a restricted set of lexemes with semantic commonalities, and are therefore almost by definition associated with a specific meaning. Phonaesthetic alternations, on the other hand, which are processes, are associated with some semantic variability, as one would indeed expect from morphological derivation (Aikhenvald 2007: 36).

Kwon (2019: 95) also compares both non-alternating phonaesthemes and phonaesthetic alternations to derivational morphology based on the five criteria laid out in Section 5. She concludes that both are distinguished from derivational morphology based on the criterion of ‘many-to-many substitutability’, i.e. a canonical derived word consists of a base form and a derivational marker, each of which can be substituted for something else. To take *peng-peng* ~ *pheng-pheng* ‘a neutral/stronger and more violent motion of circling’ as an example, such an alternation is considered to be unlike derivational morphology because

the multi-valent residue *Xeng-Xeng* does not occur in other forms outside the phonaesthetic paradigm. Assuming, for the sake of argument, that *Xeng-Xeng* is indeed a multi-valent residue, while arguably less **canonically** derivational, such an analysis does little to fully distinguish it from derivational morphology: after all, bound roots that combine with a small paradigm of derivational markers are cross-linguistically not uncommon. By contrast, assuming that the opposition *peng-peng* > *pheng-pheng* is the result of an operation on a phonologically and semantically neutral base form *peng-peng*, there is no need to assume a multi-valent residue, and phonaesthetic alternations are in fact neatly distinguished from non-alternating phonaesthemes in being part of a paradigmatic opposition.

Before moving on to the conclusion, it is worth addressing briefly how an opposition like *drip~drop* would be analysed according to our definitions. Kwon & Round (2015: 7) acknowledge that there are multiple ways of analysing this, but ultimately treat this type of opposition as a multi-valent residue *drXp* that combines with a paradigm of phonaesthemes comprising *i* and *o*, in the same way as Korean *peng-peng* ~ *pheng-pheng* is analysed as a multi-valent residue *Xeng-Xeng* that combines with a paradigm of phonaesthemes comprising *p* and *ph*. Recall however that our analysis of phonaesthetic alternations is partly couched in the fact that the corresponding phoneme in a neutral word is **not** a phonaestheme, e.g. in a Reta opposition like *-ool* ‘penis’ ~ *-oor* ‘cock, prick’, /l/ is not a meaning-bearing unit, and nothing about the presence of /l/ suggests anything like politeness or softness, hence the alternation is an operation on a neutral base form. This is arguably not the case for *drip~drop*, since both contain a phonaestheme; *i* being associated with lightness and smallness, and *o* being associated with heaviness and largeness. As a result, neither can be said to be a neutral base form, and we would not opt to treat such an opposition as an alternation. Rather, this opposition is the result of two different associations between sound and meaning in the lexicon occurring on the same residue. It is therefore not surprising that examples such as *drip~drop* are few in the English lexicon, as Kwon & Round (2015: 7) indeed admit. If it were a process, like for example Korean alternations, we would expect such oppositions to recur more frequently, as is indeed the case for Korean vowel alternations (Kwon 2019: 87).

To sum up, we proposed a distinction between non-alternating phonaesthemes and phonaesthetic alternations based on cross-linguistic data, and argue that both are distinct from derivational morphology. Rather than canonicity as a basis, we propose a number of defining traits that distinguish these from each other and from derivational morphology in a more rigid fashion. These are reiterated below and captured in Table (5) below.

NON-ALTERNATING PHONAESTHEMES are direct associations between sound and meaning that re-occur throughout the lexicon. They are distinguished from both phonaesthetic alternations and derivational morphology in being non-paradigmatic and in having a non-recurring residue.

PHONAESTHEMIC ALTERNATIONS are regular, phonological-based operations that take place on all relevant segments of a given form, the underived form being neutral and unmarked relative to the derived form. They are distinguished from non-alternating phonaesthemes in being paradigmatic, and from derivational morphology through their phonological-based targeting of all relevant segments in a given base form.

Table 5. Proposed distinctions

	Paradigmatic	Phonological-based
Non-alternating phonaesthemes	X	✓
Phonaesthetic alternations	✓	✓
Derivational morphology	✓	X

7. Conclusion

This paper aims to contribute to the growing body of literature on non-arbitrary relations between sound and meaning in language. It does so by presenting data from Reta, a Timor-Alor-Pantar language spoken in Eastern Indonesia, showing alternations between words with neutral /l/ and phonaesthetic /r/, in which /r/-coloured words constitute a harsher, more severe, more intense or larger version of a base form, which we analyse as augmented. Some pairs are shown to be formally deviant in requiring reduplication in order for /r/-colouring to take effect, or semantically deviant in creating human/non-human distinctions or antonyms. Based on the scarcity of /r/ in the native lexicon relative to the more dominant language Blagar, as well as a merger of pAP *r and *l, it is argued that /r/ was most likely (partly) lost in Reta, and re-introduced as a marked phonaesthetic variant of /l/ through imitative foreigner speech.

With regard to the treatment and classification of such alternations in morphological theory as compared to derivational morphology, it was shown that current criteria do little to distinguish these: the only criterion unequivocally setting such alternations apart from derivation is the non-recurrence of their residue, and since Reta phonaesthetic alternations operate on a neutral base form, this criterion pairs them with derivation. Since derivational operations may consist of a single consonant mutation, the difference with phonaesthetic

alternations is not immediately obvious, but it was argued that the difference between derivational morphology and phonaesthetic alternations is that the former, when it indeed consists of a single consonant mutation, will occur in a particular position in the root, whereas the latter will target any relevant segment. That is, phonaesthetic alternations are formally phonological-based in targeting individual phonological segments regardless of their position.

Lastly, it was argued that a cross-linguistic distinction should be made between non-alternating phonaesthemes and phonaesthetic alternations. Non-alternating phonaesthemes are indeed characterised by a non-recurring residue, setting them apart from morphology. Phonaesthetic alternations operate on a neutral base form, however, and we argue that the notion of a residue is uncalled for in such cases, as the targeted phoneme, i.e. /l/ in the case of Reta, is in itself meaningless. We strengthened this argument by providing a sample of phonaesthetic alternations in other languages. These languages show considerable variation with regard to the semantics of such alternations, the number of oppositions, the phonemic status of the alternants, and the targeting of either the root, an affix or an entire stem. However, all languages have in common the pattern we argue is typical for phonaesthetic alternations, setting them apart from morphology as well as non-alternating phonaesthemes: all relevant consonants are targeted by a phonological-based operation on a neutral base form.

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