The Diversity of Vocative Formation Across Languages*

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Abstract

The present study reviews manifestations of vocatives in a wide range of typologically related and unrelated languages and identifies three major patterns: particles, suffixes and non-concatenative forms such as intonation contours. It is shown that regardless of their shape vocatives systematically encode not-at-issue meaning, particularly the speaker's evaluation of the type of social relationship with the addressee and the perceived physical distance. It is demonstrated that optional vocative markers are most efficiently treated as modifiers of speech acts, whereas mandatory vocative morphemes function as nominal modifiers that mark the noun as incompatible with argument positions and only appropriate for the speech act type address.

Keywords: vocative; allocutive agreement; case; particles; non-concatenative morphology; grammatical tone; intonation; addressee; calls; minor speech acts

Resum. *La diversitat en la formació de vocatius en les llengües*

Aquest estudi presenta un repàs de les manifestacions dels vocatius en un ventall ampli de llengües relacionades i no relacionades i n'identifica tres patrons principals: partícules, sufixos i formes no concatenatives, com contorns entonatius. Es mostra que, independentment de la forma que

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prenguin, els vocatius sistemàticament contenen significat no essencial (*not-at-issue*), particularment l'avaluació per part del parlant del tipus de relació social amb el receptor i la distància física percebuda. Es demostra que és més eficient tractar els marcadors vocatius optatius com a modificadors de l'acte de parla, mentre que els morfemes vocatius obligatoris funcionen com a modificadors nominals que marquen el nom com a incompatible amb posicions argumentals i que només són apropiats per al tipus d'acte de parla que adrecen.

Paraules clau: vocatiu; concordança al·locutiva; cas; partícules; morfologia no concatenativa; to gramatical; entonació, receptor; crides; actes de parla menors

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1. Introduction[1]

Daniel & Spencer (2009: 628-631), Janson (2013: 221-228) and Sóskuthy & Roettger (2020: 141-144), have observed various methods for capturing the attention of potential addressees and involve them into a conversation. On the one hand, these calls may manifest as overt morphemes, such as vocative particles (cf. Portuguese *ó* or Arabic *ya:* Ijọ *àa*, cf. Williamson 1965: 41) or concatenative affixes found in Czech, Greek, Limbu spoken in Nepal (Sino-Tibetan, Himalayan) and Georgian, on the other hand they can be conveyed through prosodic or intonational cues, such as the (L+)H*!H-% vocative chant prevalent in most languages spoken in Europe. The different types of markers are exemplified below for Portuguese (1), Czech (2) and German (3):

(1) MAFALDA: ó Marina
VOCPRTMarina
MARINA: sim$^{L*H-H\%}$
yes E. Portuguese

(2) TOMAS: Barboro.
Barbora.VOCC
BARBORA: jo$^{H\%}$/ ano$^{H\%}$
yes yes Czech

1. The glosses used in this article follow the *Leipzig Glossing Rules*, as can be found at: <https://www.eva.mpg.de/lingua/pdf/Glossing-Rules.pdf> (Last access September 2024). Additionally, the following abbreviations are used: DISCONT discontent, DOM direct object marker, INTM intimate, VOCC vocative case, VOCPRT vocative particle. Moreover, for the sake of clarity, the genealogical classification and the language names follow the ones suggested on *glottolog* 5.1. In some cases, the names as quoted in the original literature had to be substituted accordingly. <https://glottolog.org/> (Last access November 2024).

(3) MOTHER: [fri:. də. ˈri:. kə]
L+ H* !H-%
FRIEDERIKE: [jɑ:. ɑ:] German
L+H* !H-%

Many languages exhibit distinct intonational contours serving similar functions, such as anger calls in Persian (cf. Sadat-Tehrani 2009: 163-169), insisting calls in European Portuguese (cf. Frota 2014: 33-37) or urgent H*L-L% calls in Polish (cf. Arvaniti, Żygis & Jaskuła 2016).

At this juncture, the question arises: are the three distinct forms of address illustrated above—particle, suffix, and intonation contour—to be considered as part of the same phenomenon or something different?

Frequently, the intonational and prosodic features of vocatives are not regarded as morphemes, as demonstrated in a recent study by Dunn (1999: 54-55) and Sóskuthy & Roettger (2020: 141-143, 150-153), who suggest that they are precursors of inflectional morphemes. In their view, genuine vocative morphemes only emerge once the tonal enhancements associated with intonation and prosody are reanalysed and grammaticalised into affixes. Likewise, Sonnenhauser & Noel Aziz Hanna (2013: 4-13) consider morphological marking and prosodic marking as distinct types, implying that the latter is not part of morphology. However, if prosodic vocatives are not considered morphemes, as these authors argue, the question arises: what kind of grammatical entity do they represent?

According to Haspelmath & Sims (2010: 2, 11, 41), morphology is best defined *the study of systematic covariation in the form and meaning of words*. Given that modulation of pitch is a phonological gesture, akin to the closure observed during stop or fricative consonants, any intonation or tone that systematically modifies the meaning of a given word falls under the purview of morphology and must thus be classified as a morpheme.

In the subsequent sections of this study, it is demonstrated in detail that vocative chants, as illustrated in (1-3) share many properties with overtly realized concatenative morphemes. Nevertheless, achieving an entirely unified analysis of the three forms discussed above remains elusive.

The relationship between vocative marking and noun inflection is particularly intriguing. In most traditional linguistic discussions to date, noun inflection primarily serves to express NUMBER, indicate noun class membership (GENDER), or denote syntactic dependency (CASE). However, vocatives behave notably differently from canonical cases, often not expressing any syntactic dependency to such an extent that their classification as a case has been disputed since the early days of Stoic Grammatical Theory (cf. the discussion in Brugmann & Delbrück 1890: 514; Wackernagel 1926: 17-18; Serbat 1996: 87-89; Daniel & Spencer 2009: 633-634; Janson 2013: 220, 231; Noel Aziz Hanna & Sonnenhauser 2013: 293-294; Slocum 2016: 62-63).

Rather, vocative marking systematically conveys other information, such as the social relationship between the speaker and the addressee, as well as the physical distance between them. In this sense, vocative morphemes closely resemble allocu-

tive inflection, which encodes details about the addressee, such as gender or social status, as suggested by Antonov (2015: 56-60, 77-78). In most languages studied thus far, allocutive morphemes primarily appear as affixes on verbs, as seen in Basque, various unrelated languages in the Americas and Beja (Cushitic; North-East Africa). Allocutive marking conveys information that is generally considered atypical for the domain of nominal inflection in the tradition of grammar writing. However, similar types of inflection have been observed on sentential particles, such as Romanian *hai*, as observed by Miyagawa (2022: 112-120) and on greetings, like *ne* in Albanian as pointed out by an anonymous reviewer.

The assumption that vocatives are part of the case paradigm only gained popularity with Latin grammarians. Additionally, vocatives stand out from canonical cases in that they convey not-at-issue content, thus often considered to be expressives conveying the speaker's attitude (cf. Göksel & Pöchtrager 2013: 93, 97; d'Avis & Meibauer 2013: 190).

Thus, despite vocative suffixes undeniably behaving like canonical case suffixes phonologically, forming phonological words with their host nouns, they do not function like canonical suffixes of the nominal domain; instead, they resemble the function of mood or modal inflection affixes known from the verbal domain, which impact illocutionary force. Assessing their semantic contribution, vocative suffixes represent a non-canonical type of noun inflection. Similarly, vocative chants share essential formal properties with tonal inflection and grammatical tone, but semantically encode meanings not common in nominal inflection.

To prevent confusion, it is important to distinguish between two fundamentally different uses of vocatives. As observed by Schegloff (1968: 1080-1081), Zwicky (1974: 787-788), Sonnenhauser & Noel Aziz Hanna (2013: 14-15), d'Avis & Meibauer (2013: 191-197), Stavrou (2013: 305-306) and Slocum (2016: 3-5, 10-12), it is necessary to differentiate between calls and addresses. Calls are used to attract potential speech participants' attention and establish *joint attention* among them, as suggested by Schegloff (1968: 1087-1089), Bruner (1975: 8-11), Carpenter, Nagell & Tomasello (1998: 1-5), Tomasello (2014: 2-3, 43-46), as well as Campell (2018: 115-116, 121-124), thus instantiating a *dialogue game board*, as proposed by Ginzburg (2012: 61-96) and d'Avis & Meibauer (2013: 191-197) that keeps track of their discourse. By nature, calls occur only at the beginning of discourse. In contrast, (non-initial) addresses are typically used when joint attention is already established and the dialogue game board (at least partially) instantiated. Their primary purpose is to reaffirm the undivided attention of the addressee, especially when the speaker intends to communicate something requiring a heightened level of concentration, or a deeper level of intimacy, empathy and emotional connection. Additionally, both calls and addresses may serve to establish or perform a certain social relationship, as proposed by Leech (1999: 108-109). Finally, there are more specific types of addresses, such as the admonishments mentioned earlier.

As elucidated in Section 2.4, there exists a fundamental difference between vocative suffixes and vocative chants. While in many languages the former can function in both calls and addresses, vocative chants cannot serve as non-initial addresses. Depending on the particular languages, some vocative particles can be

used with non-initial addresses, such as Standard Arabic *ya:* (cf. Haddad 2020: 1-3), or yield a marked interpretation in non-initial positions, such as Portuguese *ó* or ruled out altogether as Sardinian [ɔ]. This disparity underscores the presence of different markers in the realm of calls and addresses, posing significant challenges to a unified analysis.

The paper is structured as follows: Section 2 provides a detailed typological overview of the different manifestations of vocatives and their basic properties: particles, suffixes and non-concatenative forms. The substantial part of this section consists of a review of over 150 grammars or specialised studies of vocatives in over 80 single languages supplemented by data from punctual corpus studies, collected occurrences an interaction with informants from various languages, mostly linguistics students from Portuguese, Nigerian and German universities.

2. Realisations of vocatives

This section delves into the three distinct forms through which vocatives may manifest, as documented in the typological surveys conducted by Daniel & Spencer (2009: 628-631), Janson (2013: 221-228) and Sóskuthy & Roettger (2020: 141-144). It illustrates the commonalities and differences among particles, concatenative forms (suffixes), and non-concatenative forms (prosodic patterns, intonational contours), highlighting how each form varies across languages. There are seven relevant parameters of how these markers can vary.

In some languages, different types of vocatives that are expressed by means of distinct forms. For instance, in Central Alaskan Yupik, the suffix *-mi* is used to convey formal vocatives, while vocatives directed at familiar addressees are marked differently depending on the physical distance between the speaker and the addressee. If the addressee is distant, vowel lengthening is employed, whereas truncation is used if the addressee is closer to the speaker (cf. Miyaoka 2012: 794-795, 859-863).

2.1. Parameters of variation

2.1.1. Optionality

Vocative markers differ in terms of whether they are mandatory or optional, cf. García-Fernández (2023: 37-38) for a similar observation. Janson (2013: 224) argues that the successor of Proto-Indo-European **o* appears to be optional in most Indo-European languages. Similarly, Stavrou (2013: 305, 311-314) emphasizes that Greek vocative particles *vre* and *ej* can be omitted. Optionality is also a feature found with vocative suffixes, as evidenced in languages like Croatian (cf. Vrabec 2022: 48-50) and Georgian (cf. Fähnrich 1987: 150; Hewitt 1995: 529).

However, Hill (2022: 8-11) contends that in some cases, such as Romanian, the optionality of vocative markers is only apparent, as different markers convey distinct not-at-issue meanings that express the type of interpersonal relation between the speaker and the addressee. Similarly, García-Fernández (2023: 226) the Asturian particle *á* becomes mandatory in certain prosodic configurations.

2.1.2. Degree of Autonomy

While many elements used to mark vocatives do not occur without a host noun they mark as address, there are others that can occur as free morphemes.

For instance, Hill (2007: 2081, 2022: 2-3, 7, 9) observes that all vocative particles in Romanian such as *măi* can be used without a host noun. The same is true for Greek *vre*, Arabic *ya:* and the prenominal particles in Bulgarian. This raises the question of whether these uses still function as vocative particles, or if they are more appropriately considered as polysemous interjections.

In contrast, some vocative markers cannot occur independently of a host noun as shown by the Old Bulgarian suffix *-le*, the Modern Bulgarian suffix *-be*, the Umbundu prefix *a* (cf. Hill 2007: 2087-2090, 2022: 2-3, 9) and the particle *á* in Asturian (cf. García-Fernández 2023: 64, 225). Precisely speaking all the concatenative vocative markers discussed in Section 2.3 fall into this category.

2.1.3. Position

An important aspect of variation is the functions in which these three markers can occur. As mentioned earlier, vocatives serve two primary functions: as addresses and calls. However, not all markers can be utilised in both functions, and their distribution is also influenced by language-specific and item-specific factors. For instance, as demonstrated in Section 2.3, vocative suffixes of the Latin type can encode both calls and addresses. Similarly, the Arabic particle *ya:* can function as a marker for both addresses and calls, whereas its Portuguese counterpart *ó* is predominantly used for calls rather than non-initial addresses. In contrast, the (L+) H*!H-% vocative chant in Indo-European languages is primarily limited to encoding calls (cf. data from Portuguese Abalada & Cardoso 2015: 344-346).

Some authors point out the parallel behaviour of non-final vocatives and parentheticals Espinal (2013: 310, 315-316), Stavrou (2013: 325-326), Slocum (2016: 159-196) and D'Alessandro & Oostendorp (2016: 69): mid-sentential vocatives are parentheticals, syntactically not integrated. However, taking this perspective, it is not solved yet how some types of vocatives can only occur as calls.

2.1.4. Definiteness

As observed by Fink (1972: 65-67), Bernstein (2008: 1251, 1257-1262) and Hill (2022: 4-5), vocative nouns are most efficiently described as nouns that bear the feature of the 2nd PERSON. As such, genuine vocatives are not compatible with determiners which are considered to be exponents of the feature 3rd PERSON, as confirmed by data from Italian (cf. Longobardi 1994: 626-627 Fn.20), German (cf. Schaden 2010: 179; Göksel & Pöchtrager 2013: 89), Greek (cf. Stavrou 2013: 304), Catalan (cf. Borràs-Comes, Sichel-Bazin & Prieto 2015: 70) and Romanian (cf. Hill 2022: 2, 10-11). In a similar manner, East-Bantu languages to not allow the augment to occur in vocatives, an element which has been associated with definiteness (cf. Ndayiragije, Nikiema & Bhatt 2012: 116-117; Hill 2014: 126-128). Furthermore, Rennison (2013: 80) points out that Mossi (Gur, Atlantic-Congo) has a mandatory prefix *a* for proper names when they occur as arguments and adjuncts but which is dropped when they occur in the vocative.

A similar situation is observed in Tzotzil (Mayan). Cowan (1969: 70-71) notes that contextually identified referents are mandatorily marked by complex determiners. These determiners consist of the marker *ti* that precedes the noun and another marker that follows the noun. Depending on the distance between the speaker and the referent this marker is almost always either realised by the proximal particle *i* or the distal particle *e*. The determiner is optionally used with proper names.

Interestingly, the determiner *ti* is absent from all the vocative nouns mentioned by Cowan (1969: 22, 55). This suggests that it is also an exponent of the 3rd PERSON. Further research on Tzotzil is necessary to confirm this hypothesis. Finally, nouns in Tashlhiyt occur with the so-called initial vowel which can be elided in certain contexts. As Makhad (2024: 501-502) notes, the status of the initial vowel is contested in linguistic research. While some authors argue it is a incorporated determiner, Makhad (2024: 501-502) claims it is part of the stem. Essentially, it is mandatory in vocatives.

The cross-linguistically attested incompatibility of vocatives, as exponents of the 2nd PERSON feature with determiners as exponents of the 3rd PERSON feature is unsurprising if one follows Bobaljik (2008: 206-207) in decomposing the 2nd PERSON as [-SPKR,+ADDR] and the 3rd PERSON as [-SPKR,+ADDR].

Apart from that Chukchi vocatives are incompatible with pronominal suffixes like -eɣəm ‘1S.ABS’, which mark person and number are obligatory for nouns in many other syntactic contexts (cf. Dunn 1999: 318).

This is reminiscent of Kilivali (Austronesian, Oceanic) where kinship terms cannot occur without a following possessive pronoun *bwadu-gu* ‘younger.brother-my’. The possessive pronoun is generally dropped when kinship terms are used as vocatives (cf. Senft 1986: 43-44).

However, some languages, such as French (cf. Longobardi 1994: 626-627 Fn.20; Espinal 2013: 119-120), German (cf. Schaden 2010: 180; Ritter & Wiltschko 2020: 8-9) and Romanian (cf. Hill 2007: 2090; Hill 2022: 2, 10-11) allow nouns in similar functions as vocatives to occur with determiners in very restricted contexts. Rennison (2013: 168) discusses an example for Koromfe (Atlantic-Congo, Gur) which contains a determiner *é a* dɔfrɛ (‘VOCPRT DET God.S’).

Similar patterns are attested for Yorùbá, where vocative nouns may take a demonstrative adjective Abraham (1958: 169-170), demonstrative adjective.

(4) ìwọ ọkùnrin yìí!
you man DEM
‘You man!’ Yorùbá

Similar vocative forms that contain demonstrative pronouns are observed for Nivkh (cf. example 23 taken from Gruzdeva 1998: 20 discussed in Section 2.3) and for Central Alaskan Yupik (cf. Miyaoka 2012: 860-861). Some of these uses are clearly different from canonical vocatives as they are incompatible with vocative particles (cf. Espinal 2013: 123). Likewise, the case of Romanian does not necessarily contradict Bernstein’s (2008) analysis. Romanian has an enclitic

determiner that can occur between the vocative noun and the vocative suffix *băiat-ul-e* 'boy-DET-VOC'. The same type of determiner can occur in Bulgarian vocatives (cf. Girvin 2013: 168; Hill 2014: 56). However, Hill (2022: 11) provides evidence that the determiner grammaticalized further into a bound vocative particle. Her proposal is plausible, as it would amount to a reanalysis of a D-element to category higher up the functional spine of the nominal domain (Voc^0), in line with the theory outlined in Roberts & Roussou (2003). Floricic & Molinu (2018: 273) provide more examples from Sardinian vocatives that include determiner, which require further investigation.

2.1.5. Various types of not-at-issue content

Another dimension of variation lies in the semantic properties of vocative markers, which are not equivalent in their interpretation, showcasing a broad diversity in their individual meanings. Portner (2007b: 412-416) was the first to note that vocatives encode not-at-issue meaning, observing that vocative nouns like *John* in *John, your dinner is ready!* convey the not-at-issue proposition 'I hereby request John's attention'.

However, vocatives contribute much richer descriptive or expressive not-at-issue content, including statements about the physical and social distance between the speaker and the addressee, as well as the speaker's emotive attitudes. This has been noted by Zwicky (1974: 796-797), Dascălu (1985: 317), Serbat (1996: 101-102). The dimensions physical distance and social relations are discussed separately Sections 2.1.6 and 2.1.7.

As Ladd (1978: 520-524) observed, certain vocative markers, such as the (L+) H*!H-% vocative chant in most European languages reference mutually shared expectations between the speaker and the addressee, often hinting an expected outcome or 'routine'. In contrast, García-Fernández (2023: 219) notes that H+L*L% vocative tunes in Asturian signal that some of the speaker's expectation was violated. The author explicitly considers this semantic dimension as not-at-issue.

In their ability to reference the speech participant's expectations, vocatives resemble exclamatives, which typically convey that the speaker's expectations have been exceeded or violated, as demonstrated by Michaelis & Lambrecht (1996: 220, 238-244) and Zanuttini & Portner (2003: 49-56). Another dimension of not-at-issue meaning and expectations concerns the commitments the speaker intends to make in the discourse. As observed by Condoravdi & Jeong (2018: 218-220, 222), vocative chants that accompany imperatives in English signal that the speaker is not committing to any new involvement in the addressee's affairs.

These parallels between vocatives an exclamatives are particularly intriguing as many forms to mark vocatives nouns ressemble the forms to mark exclamative nouns, as note by Svennung (1958) and Hill (2007: 2078, 2080, 2086-2090, 2092-2098). Furthermore, in many languages, particles that can co-occur with vocative nouns, are also employed to mark exclamatives, as illustrated in Section 2.2.

Beyond the well-known vocative chant, various language-specific varieties of addresses and calls exist. As Moutaouakil (1989: 139-141) and Al-Bataineh (2020: Sec. 2) observed, Arabic employs two different vocative particles occurring in three

constructions: vocatives of hailing, entreaty, and lamentation. In contrast, German utilizes three different intonation contours with distinct semantic functions: routine calls L+H*!H-%, warnings L+H L-H%, and urgent calls L+HL-% (cf. Quiroz & Żygis 2017). Similarly, Greek exhibits questioning calls L* H-H%, suspicious calling contours L*L-H%, requesting calls with boundary tone H-L%, stylised calls with boundary tone !H-!H%, and polite stylized calls with boundary tone !H-H% (cf. Arvaniti & Baltazani 2007: 95-98). Persian, too, employs different contours to convey subtle semantic contrasts such as anger, surprise, or a neutrality (cf. Sadat-Tehrani 2009: 162-189).

Finally, Rufumbira (Nordeast Savanna Bantu) has distinct prenominal particles for unmarked vocatives (*yee we*) and advices (*waa*/*mwa*), as observed by Sauder (2016: 161-162).

2.1.6. Physical distance

Languages like European Portuguese have separate vocatives for different physical distances; for instance, the common European (L+)H*H!-% vocative chant, being a distal marker is felicitous for longer-distance calls, while the vocative particle *ó* can also act as proximal vocative and be used to attract the attention of an addressee located nearby. In a similar fashion, Miyaoka (2012: 859-863) pointed out that Central Alaskan Yupik utilises different strategies for proximal and distal vocatives: Whereas the former are expressed by means of truncation, the latter are expressed by means of vowel lengthening.

Likewise, Painter (1975: 19-20) observed that Gua (Atlantic-Congo, Kwa, Nyo) uses separate vocative particles for mid distance *yèéée̋* and long distance *xùúúù* calls. Consider Floricic & Molinu (2018: 273-274) for more examples. By using a distal vocative marker, the speaker conveys that they are not sure whether they have the attention of the speaker.

2.1.7. Specification of the addressee

There are various strategies to specify the addressee in vocatives. In the simplest case, this can be number marking as it is the case with post-nominal vocative particles *-ee* '-VOC.S' and *-ke* '-VOC.P' in Dinka (Nilotic), as illustrated by Nebel (1948: 102) and Hualapai (cf. Watahomigie, Bender, and Yamamoto 1982: 71-75). Other vocative markers are specified for gender including Romanian *bă*(*i*) is indicating masculine gender of the addressee and *fă*(*i*) feminine gender (cf. Hill 2007: 2080, 2022: 8).

A large number of languages employ distinct vocative markers that specify the way the speaker classifies the relationship towards the speaker, which can be formal, less formal, familiar or honorific. As pointed out by Zwicky (1974) and Floricic & Molinu (2018: 273-274), these features play a dominant role.

For example, in Attic Greek (spoken in the region of Athens between 500-300 BC), the particle *o* was mandatory in formal polite speech, while in Portuguese, *ó*, and in Modern Greek, *vre*, signal a greater degree of familiarity between speaker and addressee, as pointed out by Schwyzer (1950: 60-61). In a similar manner, the L+H*!H-L% vocative chant in European Languages

expresses some degree of familiarity between speaker and addressee (cf. Sadat-Tehrani 2009: 176-177; Borràs-Comes, Sichel-Bazin & Prieto 2015: 78-80). In Mari (Uralic), the vocative marker *-j* can only be attached to a few kinship terms Bradley & Luutonen (2023: 534).

In more recent work, these diverging uses of vocatives are considered as instance of allocutive agreement, whose function it is to mark biological traits such as age, sex of the addressee or their perceived position in the social hierarchy. (cf. Slocum 2016: 131-158, Hill 2022: 2-3, Miyagawa 2022: 32-33, 64-67, 112-120).

In many instances, describing the precise semantic contribution of these types of calls and addresses proves exceedingly challenging. With their ineffability and nuanced evaluation concerning the speaker's attitudes and other properties, many vocative markers resemble encoders of expressive not-at-issue meaning, akin to exclamations like *damn!*, related miratives e.g. *wow!* or emotives e.g. *unfortunately*, (cf. Potts 2005: 155-158 and Rett 2021: 192).

As demonstrated in Section 3, a strong affinity exists between vocatives and expressives, as previously noted by scholars like Portner (2007a), d'Avis & Meibauer (2013: 205-212) and Sonnenhauser & Noel Aziz Hanna (2013: 14-15).

Further dimensions of variation revolve around whether the marker is obligatory or not, and whether it precedes or follows the noun if realised as a segment, as is the case with particles and affixes. It is shown that languages featuring more than one type of vocative marker can combine them as long as their meanings are compatible.

2.2. Vocative particles

Vocative particles are the most widespread form of marking addresses and calls. They documented across many unrelated language families, among the strategies to mark vocatives they are the most common. They have been identified in earlier stages of Indo-European languages, leading scholars like Mallory & Adams (2006: 359-360), and Janson (2013: 224) to propose the existence of a prenominal vocative particle **o* for Proto-Indo-European, which appears to be optional in most studied languages. These particles often share homophony with interjections expressing surprise or grief/exclamative particles, a trait extending to many descendant languages, including European Portuguese (cf. Abreu de Carvalho 2013: 53), Romanian (cf. Hill 2007: 2080-2082), Modern Greek (cf. Stavrou 2013: 311-315), Atlantic-Congo languages such as Yorùbá (cf. Akinlabí & Liberman 2000: 43-44; Ọláwálé 2022: 2) and Aymara spoken in Bolivia (cf. Marcapaillo Achu 2009: 144-145). Due to their ineffable expressive meanings, distinguishing these markers can be challenging. Additionally, some expressions can function as both interjections and vocative particles, such as English *hey*, or Viennese German *heast* or European Portuguese *ó*. However, there are also elements that function exclusively in one of these roles, supporting the distinction of vocative particles and exclamative particles as separate entities. This is evidenced by Modern Greek *e*, which only can act as a vocative marker, and *ax* which serves solely as an interjection or exclamative particle (cf. Stavrou 2013: 311-315).

Most vocative particles discussed here exhibit a high degree of optionality. For instance, in many present-day Indo-European languages, the successor of Proto-Indo-European **o* appears to be optional (cf. Janson 2013: 224). The same holds true for Arabic *ya:* and *wa:* (Moutaouakil 1989: 144-147; Haddad 2020: 1-3), Portuguese *ó* (cf. Abreu de Carvalho 2013: 52-54)

Lezgian (Nakho-Daghestanian) *ja* (cf. Haspelmath 1993: 249) or postnominal Ijọ (spoken in Niger-Delta) *àa* (cf. Williamson 1965: 41) and prenominal Eton (Bantu A-B10-B20-B30) *a* (cf. Van de Velde 2008: 209-210).

While the use of the vocative particle *o* was optional in many documented Ancient Greek texts, it became mandatory in formal polite speech in Attic Greek and Ionic Greek of Herodote (cf. Wackernagel 1926: 310-312; Schwyzer 1950: 60-61 and Serbat 1996: 100-101). In contrast, the particle *o* occurs far less frequently in Latin, although it is prominent in the works of Virgilus (cf. Serbat 1996: 100-101). Wackernagel (1926: 312) further concludes that they seem to be influenced by Greek and an attempt to imitate Greek poetry.

Modern Greek counterparts like *more*, *re*, *vre* convey affection towards intimate addressees but are impolite towards strangers, as demonstrated by Holton, Mackridge & Philippaki-Warburton (2012: 351-352) and Daniel & Spencer (2009: 631). Similarly, Hill (2014: 53-55, 2017: 338, 341-342) shows that the Romanian counterpart *bre* exhibits similar behaviour. However, Hill (2017: 338) notes that both Romanian *bre* and Greek *vre* are optional even when expressing intimacy.

Yet, Hill (2014: 44-46) shows that there are many languages in which vocative particles are mandatory in addresses and calls. These particles include prenominal Irish and Scots Gaelic *a-* (cf. MacKinnon 1971: 171-174), postnominal Arabic *-umma* and particles in some Atlantic-Congo languages, such as the Baoulé (Kwa) suffix *-è* (cf. Noel Aziz Hanna & Sonnenhauser 2013: 284), Umbundu *a-* (Central Western Bantu), in some Dravidian languages such as Telugu *o* as well as Toda *-(y)as* and in Maori (Austronesian, Oceanic) *e*, which is obligatory with names with two morae or less (cf. Bauer, Parker & Evans 1993: 301-302).[2]

Turning to the placement of particles, Janson (2013: 225) observes that they occur most commonly in prenominal position, possibly influenced by a bias in the languages studied, many of which are of Indo-European descent, which inherited the placement from Proto-Indo-European **o*, as seen in the Portuguese counterparts *ó/ou/oula/a uós* (cf. de Barros 1540: 10-17) or with some phonological change in Sardinian ɔ (cf. Floricic & Molinu 2018: 273, 278), Asturian *á* (cf. García-Fernández 2023: 63-65, 225-227), Catalan *eh*/*ey* (cf. Espinal 2013: 111-114, 127-128) and Scots Gaelic *a* (cf. MacKinnon 1971: 171-174; Daniel & Spencer 2009: 630-631). Prenominal vocative particles are also favoured in many Austronesian languages such as Maori (Austronesian), using the particle *e* (cf.

2. In addition to the markers mentioned here, Hill (2014: 44-46) includes Tswana *-a* among the vocative particles which are obligatory. However, the source on which she relies on, Cole (1967: 397), illustrates that most nouns are unmarked when used as address and calls. Only certain kinship terms occur with the stemfinal vocative particle *-a*, as Cole remarks: "In the case of certain kinship terms indicating a possessor in the 1st person singular, a distinction is regularly made between the noun and the corresponding vocative interjective".

Bauer, Parker & Kareongawai Evans 1993: 301-302) or *nah* and *hai* in Indonesian (cf. Sneddon 1996: 364-365). A similar prenominal cognate *e* appears in many other Austronesian languages of the Oceanic branch (cf. Daniel & Spencer 2009: 630). Other languages with prenonimal vocative particles are the Berber languages (Afro-Asiatic) Tarifiyt with its marker *a* (cf. Mourigh & Kossmann 2019: 190) and Tashlhiyt with its marker *wa* (cf. Makhad 2024: 502-503), both reminiscent of Arabic *ya:*.

Grout (1859: 78-79) observes that Zulu (South Bantu) speakers employ a prenominal *e* to mark vocatives. Another Bantu language that utilises a prenominal particle is Rufumbira (Northeast Savanna Bantu) spoken in Southern Uganda (cf. Sauder 2016: 161-162). The prenominal particle *yee* is often followed by second person pronoun singular pronoun *we*.

Postnominal and stemfinal particles more common all across the African phyla, including Atlantic-Congo languages like Kissi (Mel) with stemfinal *-wéì* (cf. Childs 1995: 144-145, 311), Mani (Mel) *-yò*/*-yè* (cf. Childs 2011), Baoulé with stemfinal *-è*, Twi with mid-toned *-ē* (cf. Christaller 1875: 36-37, 94), postnominal *yèé*, *yèéé̀è*, *xùúúù* in Gwa (Kwa, cf. Painter 1975: 19-20), *-(l)ée* in Ewe (Kwa, cf. Ameka 1998: 198-199), *ò* in Yorùbá (Western Benue, cf. Akinlabí & Liberman 2000: 43-44), *-ó* in ɓaka (Ubangi, cf. Djoupee 2017: 107, 236) and suffix *-o* in Gyele (Bantu A-B10-B20-B30, Grimm 2021: 240, 249) both spoken in Southern Cameroon and Tswana (Southern-Bantu) *-a* and in other West African languages such as Ijọ with *àa*. Similarly, Somali (Afro-Asiatic, Cushitic) has postnominal particles, which need not occur strictly adjacent to the noun, but which allow non-nominal material to occur in between (cf. Saeed 2007: 552-553).[3] Apart from that, Nebel (1948: 102) notes that distal vocatives in Dinka are marked by a suffix that inflects for number *Dut-ee* 'Dut-VOC.S', *wɛɛt-ke* 'you boys.VOC.P'. Finally, postnominal vocative particles are attested in Naro (Khoe-Kwadi). The marker *è* can be attached to proper names, pronouns/person-number-gender markers and full NPs (cf. Visser 2013: Sec. 3.2.5.1.10). Apart from African languages, some Nuclear Trans New Guinea Languages have a strong preference for postnominal markers, including Amele *e*/*o* (cf. Roberts 1987: 1984) and Kobon *e*/*o*/*me*/*rö* (cf. Davies 1981: 123-124).

Stemfinal vocative particles are also attested in Hualapai (Cochimi-Yuman, Northern Arizona), such as (*y*)*-é* and *-*(*w*)*ó* (cf. Watahomigie, Bender & Yamamoto 1982: 71-75) and in Lao (Tai-Kadai) with *ʔe:j* (cf. Enfield 2007: 69-70). An interesting case is postnominal *ay* in Coastal Marind (Anim) spoken in Papua New Guinea, which is also used as a question tag and a polar question marker (cf. Olsson 2021: 137-138, 143).

Daniel & Spencer (2009: 630-631) and Janson (2013: 225) point out that in certain languages, the vocative particles can occur in both positions prenominally and postnominally such as the Albanian particle *o* (cf. Buchholz & Fiedler 1987: 215) and the Korean particle *ya* (cf. Lee 1989: 69).

3. Saeed (2007: 552-553) himself uses the term case suffixes, but as they do not fall under the strict adjacency requirement, they are considered to be more of the type particle here.

Furthermore, languages like Ewe exhibit various types of vocative particles, some preceding the noun such as *ô*, and others that follow the noun such as -(*l*)*ée* (cf. Ameka 1998: 198-200).

The primary dimension of variation here lies in the pragmatic function of the vocative phrase, whether it solely serves as a call, solely as an (non-initial) address or as both. However, most grammars and language specific studies do not explicitly distinguish between these two functions. Therefore, the classifications shown here are sometimes reconstructed based on the examples provided by the authors.

Certain particles like Arabic *ya*: and *wa*: can fulfil both functions, as demonstrated by Moutaouakil (1989: 141-142, 147, 150-151) and Haddad (2020: 1-3):

(5) [$_{VOC}$ya: ħabi:b-i:] l-yo:m l-ʒumʔa w-iħna: mawʔad-na:
VOCPRT love-my the-day the-Friday and-we appointment-our
l-sabt![4]
the-Saturday
'Darling, today is Friday, and our appointment is on Saturday.' Arabic

(6) ʔalla:h yirħam-ak w-ysaħ-ak w-ʒaʔal maθwa:-k
God have.mercy.on-you and-forgive-you and-make resting.place-your
l-ʒanna [$_{VOC}$ya: ru:ħ-i:][5]
the-paradise VOCPRT soul-my
'May God have mercy on you and forgive you and make the heavens your final resting place, my soul.' Arabic

Similarly, MacKinnon (1971: 171-174) offers examples of Scots Gaelic vocative phrases containing the particle *a* that occur in non-initial positions.

(7) Ciamar a tha thu [$_{VOC}$ a Mhórag].
how PRT be.2S 2S.S VOCPRT VOC.Morag
'How are you, Morag?' SCC. Gaelic

Cole (1967: 396) explicitly states that Tswana kinship terms marked with the vocative suffix *-a* can function as both calls and addresses, although he does not provide illustrative data, just as the prenominal particle *a* in Umbundu (cf. Hill 2007: 2085). Ancient Greek *o* behaves alike. Plato's Symposium contains numerous instances of vocative phrases with the prefixed particle *o* that clearly qualify as non-initial addresses. The same is true of Romanian *măi* (cf. Hill 2007: 2085). In contrast, the Sardinian particle ɔ is banned from non-initial addresses (cf. Floricic & Molinu 2018: 278). Likewise, the Austrian particle like 2nd PERSON pronoun *du* is exempt from this environment too (cf. Wiltschko 2014: 244-245).

In many other languages, vocative particles primarily serve to mark calls, as observed in European Portuguese. In the *DiLeB* corpus (*Discurso Informal de*

4. As quoted in Haddad (2020:2), = ex (3), <https://twitter.com/3nzi26/status/1251191884984262660>.
5. As quoted in Haddad (2020: 2), = ex (4), <https://twitter.com/rahmeyf/status/1251092658371661824>.

Lisboa e Braga), non-initial vocative phrases with *ó* occur clearly less frequently than discourse-initial ones.[6] Among the 16 occurrences there are only three that clearly occur as parentheticals or in non-initial position. Abreu de Carvalho (2013: 53) discusses some examples where the vocative particle marks a noun in non-initial positions (8-9).

(8) Dás -me isso, por favor?… Anda lá (ó) querida.[7]
give me that please come.IMP there VOCPRT darling
'Can you give me that, please? …come on, darling!' E. Portuguese

(9) O que pensa disto ó D. Zulmira?[8]
DET what think of.this VOCPRT madam Zulmira
'What do you think about this ó Mrs. Zulmira.' E. Portuguese

However, the postponement of the noun alters the interpretation. If the address *ó querida* occurs utterance-finally, such as in example (8), it has an offensive undertone, which disappears as soon as the particle is omitted. The presence of the particle conveys a certain degree of resentment on the part of the speaker, as if they harbour the impression that the hearer did not properly listen or respond to some earlier request or wish of the speaker. This semantic effect of postponed vocative phrases could be explained by assuming that *ó* marks only calls and expresses that the speaker perceives a lack of requested degree of attention. Although the interpretation of (9) is less marked, the utterance is most felicitous in a context where Dona Zulmira was not fully engaged or involved in the last turns of the conversation. Similarly, vocatives preceded by the particle ɔ are significantly more marked if not excluded in Sardinian, as observed by Floricic & Molinu (2018: 278).

(10) a. (ɔ) ˈʒwa/ a tti βɔttɔ aʒuˈarɛ[9]
VOCPRT Ciuanne.VOC DOM 2S.O can-PRS.1S help-INF
'Ciuanne, can I help you?' Sardinian

b. ti βɔttɔ aʒuˈarɛ (??ɔ) ˈʒwa
2S.O can-PRS.1S help-INF VOCPRT Ciuanne.VOC
'Can I help you, Ciuanne?' Sardinian

Apart from that, the high-toned vocative particle *ó* in Karbi (Sino-Tibetan, Himalayan) is clearly dispreferred in vocatives used as addresses (cf. Konnerth 2022: 570-571).

6. The *DiLeB*-corpus (*Discurso Informal de Lisboa e Braga*) is an online corpus of informal conversations with speakers from Lisbon and Braga in sociolinguistic interviews from the last decade of the 20th century. <http://teitok.clul.ul.pt/dileb/index.php?action=home>
7. As quoted in Abreu de Carvalho (2013: 53) = ex (10.a).
8. As quoted in Abreu de Carvalho (2013: 53) = ex (11.b).
9. As quoted in Floricic & Molinu (2018: 278) = ex. (8c,e).

Many languages seem to favour vocative particles that exclusively mark calls such as *hey* in English (cf. Zwicky 1974: 797 and Portner 2007a: 410-411), or intimate *heast*, informal *heans* and informal *ge* in Viennese German, which derive from inflect forms of the verbs 'hear' (2S and formal address 3P) and 'go' (IMP). Similarly, Modern Greek *e* and Asturian *á* are restricted to utterance-initial calls (cf. Stavrou 2013: 312 and García-Fernández 2023: 64).

NPs resist incorporation in the intonation phrase ι associated with the preceding sentence as soon as they contain one of these particles, contrary to what non-initial addresses would normally do, as demonstrated by Beckman & Pierrehumbert (1986: 293-298) and Gussenhoven (2004: 291-294).

(11) a. {Heast (Herbert)}$_{\iota}$, {hoit de Gosch'n!}$_{\iota}$
VOCPRT Herbert hold the mouth
'Hey Herbert, shut up!'

b. {Hoit de Gosch'n, heast (*Herbert)}$_{\iota}$
hold the mouth VOCPRT Herbert
Intended: 'Shut up, hey Herbert!'

c. {Hoit de Gosch'n, Herbert!}$_{\iota}$
hold the mouth Herbert
'Shut up, Herbert!'

(12) a. {Ge Schatzi}$_{\iota}$, {des woa do ned aso gmant!}$_{\iota}$
VOCPRT darling this was PRT NEG so mean-PPP
'Oh darling, I didn't mean it that way!'

b. {Des woa do ned aso gmant, (*ge (Schatzi))}$_{\iota}$
this was PRT NEG so mean-PPP VOCPRT darling
Intended: 'I didn't mean it that way, oh darling!'

c. {Des woa do ned aso gmant, Schatzi!}$_{\iota}$
this was PRT NEG so mean-PPP darling
'I didn't mean it that way, oh darling!'

Lee (1989: 69) and Sohn (1999: 341-344) point out that Korean (*y*)*a*, *i*, *i*(*si*)*e* are utilised to attract the attention of the addressee, with all the examples they discuss involving the utterance-initial uses of the vocative phrase. Likewise, many other grammars predominantly feature the utterance-initial uses of the vocative phrases, suggesting their primary function as markers of calls. This is evident in the treatment of the particles -*é* and -(*w*)*ó* in the grammar of Hualapai (cf. Watahomigie, Bender & Yamamoto 1982: 71-75), the particle *ʔêːj* in the grammar of Lao (cf. Enfield 2007: 69-70) or *a* in the grammar of Eton (cf. Van de Velde 2008: 209-210).

Determining the function of non-final utterances can be challenging due to the lack of a broader context. For example, the data discussed in Bauer, Parker & Kareongawai Evans (1993: 301-302) contains numerous examples of utterance-final vocatives, but these may well originate from the beginning of the discourse.

(13) Whakarongo mai, e te rata.[10]
listen hither VOC the doctor
'Listen, doctor!' Maori

As previously mentioned, calls and addresses contribute various dimensions of not-at-issue meaning. Through the use of specific vocative markers, the speaker makes a claim of how they perceive their relationship with the addressee. Firstly, this may pertain to physical distance. Zulu speakers employ the vocative particle *e*, when they want to express that they perceive the addressee to be nearby, and they use *we* when the addressee is perceived to be in a farther distance (cf. Grout 1859: 78-79). Likewise, the particle *-o* in Gyele combines with a low tone if it marks a proximal vocative and with a high tone when it marks a distal vocative (cf. Grimm 2021: 240, 249).

A similar contrast is evident with Gwa, where *yèéé̀è* is utilised for mid range calls and *xùúúù* for long range calls (cf. Painter 1975: 19-20) and with Hualapalai (*y*)*é* for mid-range and (*w*)*ó*, for utterance situations where the addressee is not within sight (cf. Watahomigie, Bender & Yamamoto 1982: 71-74). Additionally, Ameka (1998: 198-199) observes that the Ewe vocative suffix -(*l*)*éé* is most suitable when used over larger distance or when the addressee is out of sight. Interestingly, when a vocative occurs embedded under a predicate of saying, it must be the verb *gbóli* 'shout' if the particle is present and the verb *yó* 'call' if the particle is absent.

Similarly in Portuguese, *ó* is the most natural choice if the speaker wants to express that they consider the potential addressee to be nearby or at a moderate distance. An example of this distinction was witnessed at the dentist, where the dentist and his assistant stood back to back. The interaction would have been quite unusual if the participants had used the L+H* !H-L% contour instead of the particle *ó*, which is reserved for long-distance calls.

(14) a. Doutor Luis: ó Cristina
VOCPRT Cristina

b. Assistant: ó doutor
VOCPRT doctor E. Portuguese

A second dimension involves the speaker's evaluation of the social relationship between themselves and the addressee. By their very nature, humans have a need to belong to a group, and most languages have developed various linguistic means to express and perform the relationship between the speaker and the addressee.

There is a tendency for any linguistic means used to address a speech participant to acquire not-at-issue content that specifies the social relationship between the speaker and the addressee, including names, personal pronouns, greetings, and vocatives. Ackermann (2023: 171-173) presents a similar rationale. In many

10. As quoted in Bauer, Parker & Kareongawai Evans (1993: 302) = ex (1309).

German speaking countries, the use of the first name suggests that the speaker entertains an intimate relationship with the referent bearing that name. This can be further emphasised by the use of hypocoristics such as *Andi* for *Andrea* or *Andreas*, *Fini* for *Josephine*, *Kalle* for *Karl* and *Woiferl* for *Wolfgang*. In Russian the sequence of first name and patronymic signals a formal relationship such as *Dmitri Fyodorovich*. Many European languages as well as Yorùbá (Atlantic-Congo) distinguish between address pronouns used in intimate and more formal utterance situations. The formal version is often expressed by plural like French *vous* or third person as like European Portuguese *o senhor*/*a professora*. Thomason (1990) and Fintel (2008: 23-24) suggest that these self-assessments of the social relationships encoded by the speaker are best treated as not-at-issue meaning in forms of presuppositions. Similarly, the use of the greetings *hallo* 'hello' and *tschüss* 'bye' implies an intimate relationship in Austria, indicated the use of the 2s pronoun *du*, whereas in Germany these greetings leave that relationship unspecified.

Regarding vocative particles, many languages use them to convey the speaker's assessment of the relationship they have with the addressee. As demonstrated by Lee (1989: 69) and Sohn (1999: 341-343), the Korean particle (*y*)*a* is used to address a child or someone known to the speaker since childhood, while its counterpart *i*/o (after vowel) is employed to address an adolescent, and the hyperdeferential particle *i*(*si*)*e* can only be used for gods or deceased lovers. Somali employs distinct suffixes to mark honorific (feminine *-èey*/*-àay*/*-òoy*, masculine *òw*) and neutral vocatives (*-yahay* and *-yohow*), as shown by Saeed (2007: 548-549, 552-553).

In numerous languages, vocative particles express varying degrees of intimacy. Kissi *-wéì* is primarily used to call small children (cf. Childs 1995: 145). The use of Portuguese *ó* indicates that the speaker assesses the relationship with the addressee as somewhat intimate. Holton, Mackridge & Philippaki-Warburton (2012: 351-352) and Daniel & Spencer (2009: 631) demonstrate that Modern Greek has a series of vocative particles that convey varying degrees of affection towards an intimate addressee, but which can be considered as impolite when used with strangers. These markers include *more*, *vre* signalling polite informality and *re* used for condensing informality (cf. Stavrou 2013: 313; Hill 2014: 53-55, 2017: 338, 341-342). As Hill further demonstrates, Romanian has direct counterparts *măi* for more polite informality, *băi* for condensing informality and a further marker *bre* for lesser specified degree of informality. Additionally, Romanian utilises the vocative particle *fă* to mark female singular addressees; the Bulgarian counterpart is *ma* used for the same purpose (cf. Hill 2014: 54). Formality with Romanian calls and addresses is expressed by absence any vocative markers. In Mari, the vocative marker *-j* only attaches to nominative forms of kinship terms, which is the least marked form typically equalling to the stem (cf. Riese, Bradley & Yefremova 2022: 66-67; Bradley Luutonen 2023: 534).

In a similar fashion, Viennese German presents several distinctions of informality: *heast* can be used among friends but may carry some aggressive undertones, whereas *heans* conveys a certain degree of intimacy but is typically used for individuals who are neither family members nor close friends, but rather acquaintances

in the neighbourhood. In contrast, the Attic Greek vocative particle *o* was utilized as a marker of formal polite speech (cf. Schwyzer 1950: 60-61). Similarly, Makhad (2024: 502) notes that Tashlhiyt has distinct vocative particles for addressees older than the speaker which exhibit a gender distiction, (*da*)*dda* being the masculine form, and *taba* the feminine.

Ameka (1998: 199-200) observes that a speaker using the vocative suffix *-oo* in Ewe expresses good intentions towards the addressee. Additionally, Ameka discusses a range of other particles with similar functions, some of which can combine with utterances that are syntactically more complex than vocatives.

In contrast to that, Classical Nahuatl (Uto-Aztecan), a language spoken in 17th century Mexico, has particles that encode the sex of the speaker. The vocative form *-é* attracts word stress and can only be used by male speakers, while female speakers employ non-concatenative strategies to mark vocatives, shifting stress to the final syllable of the word (cf. Richard Andrews 2003: 41-42, 147-148 and Launey & Mackay 2011: 81-82).

Finally, there are two phonological dimensions at play. Firstly, the independence of the marker: some vocative markers constitute independent phonological words, such as *hey*, which qualify as particles in the conventional understanding, while others discussed here cliticise into the phonological word associated with the host noun.

Secondly, the type of vowel in the nucleus of the marker is significant. Sóskuthy & Roettger (2020: 151) make the noteworthy observation that a large number of particles and clitics involve mid or low vowels, enhancing the tune-bearing quality of the phonological string.

2.3. Concatenative forms

In contrast to the particles discussed in the previous section, the concatenative affixes featured here, are necessarily bound morphemes and cannot, under any circumstances, occur independently. Given the often limited descriptions in the consulted resources, it is not possible to draw a distinction between the various types of vocative markers examined here. Most studies do not specify whether these markers are free or bound morphemes nor do they provide clear phonological criteria that distinguish a suffix from a post-nominal particle (e.g., phonological wordhood). In many languages it is even far from to decide whether a phonological wordhood boundary intervenes between a marker or not. This is the case with the Portuguese particle *ó* (Marina Vigário personal communication). In fact, some of the markers discussed here may be more appropriately classified along the lines of the particles in the previous section, and vice versa.

As demonstrated by Dryer (2005: 210-211) and Spencer (2009: 185-186), the vast majority of languages considered to have case paradigms realise their case morphemes as suffixes (431 out of the 480 languages in Dryer's sample), while only few languages are known that have case prefixes (35), or which mark case systematically through non-concatenative means, such as tone alternations (4). This data has led many researchers to assume that vocative suffixes are treated as

case markers as well, in case the relevant language has case paradigms for nouns. However, we remain agnostic on this issue for the time being.

As shown by Daniel & Spencer (2009: 627-628, 629-630), concatenative case-like vocative forms documented in many Indo-European languages, but also in Khanti and Mansi (Uralic), in Georgian (Kartvelian, cf. Abuladze & Ludden 2013), Limbu (Sino-Tibetan, cf. van Driem 1987: 47-48), in Nez Perce (Sahaptian) spoken on the Pacific West Coast (cf. Aoki 1970: 79) and in a couple of genetically unrelated languages spoken in Eastern Siberia and Kamchatka, such as Ket (Yeniseian, cf. Georg 2007: 115-117; Vajda 2007: 1281-1283), Udihe (Tungusic, cf. Nikolaeva & Tolskaya 2001: 469-473) and Itelmen (Chukotko-Kamchatkan, cf. Georg & Volodin 1999: 72-73). In Dumi, another Sino-Tibetan, Himalayan language, which has case suffixes, there are only two kinship terms that are found with separate vocative forms (cf. van Driem 1993: 67-68). Compared to the vocative particles discussed in the previous section, these forms are far less frequently attested and their classification is more controversial.

As suggested by Brugmann & Delbrück (1890: 538-545), Mallory & Adams (2006: 56-59), and Hill (2014: 4), these vocative suffixes were already present in Proto-Indo-European. Noel Aziz Hanna & Sonnenhauser (2013: 292-293) demonstrate that these suffixes are still in use to varying degrees in most Indo-European languages in Eastern Europe, such as in the Baltic languages (Latvian, Lithuanian), various Slavic languages (Polish, Upper Sorbian, Czech, Ukrainian, Croatian, Serbian, Bulgarian, Macedonian) and Modern Greek. They are also still used in the Indo-Iranian branch including Urdu (cf. Schmidt 1999: 11-12), where it is becoming rare, and Hindi (cf. Agnihotri 2007: 50-55); and traces can still be found in Persian, too (cf. Yousef & Torabi 2018: 46). Some of these languages the use of the suffix is no longer mandatory when addressing a speech participant, including languages like Polish or Romanian. In most of these languages, the masculine noun classes are more likely to have distinct vocative forms than the feminine ones, which appears to be a trait inherited from Proto-Indo-European. At that stage, only the so-called *ō*-stems used for agentive nouns had a distinct vocative form, lacking a final consonant *-e* compared to the nominative form *-os* (cf. Mallory & Adams 2006: 56-59). The *ō*-stems where the nounclass which were the base for the later development of what is known as masculine nouns today. See Loewe (1923a/b) for a detailed discussion of the historical development of the vocative suffix across all Indo-European languages.

It is also ancient Indo-European languages with their rich case morphology which motivated the idea of a separate case *vocative* (cf. Wackernagel 1926: 17-18 and Slocum 2016: 62-64). Among their current descendants of Proto-Indo-European, Czech has the most solid and well-preserved use of vocative morphology. Almost all masculine and most feminine nouns have distinct vocative forms, even inanimate referents that can be jokingly addressed with these forms. The vocative form of female names ending with *-a* is *-o*, as illustrated in example (16). The Latin vocative suffix functions similarly, as shown in example (17). Other languages considered to have vocative case include Georgian (18), Ket (19), Udihe (20), Itelmen (21) and Limbu (22).

(15) [$_{VOC}$ kýri-e] eléeson.
Lord-VOC have.mercy-AOR.IMP
'Lord have mercy upon us.' Middle Greek

(16) Modlila jsi se dnes večer [$_{VOC}$ Desdemono]?[11]
pray.PST.F be.2S REFL today evening Desdemona.VOC
'Have you prayed to-night, Desdemona?' Czech

(17) et tamen peccabam, [$_{VOC}$ domine deus].[12]
And yet sin-PST.1S Lord.VOC god.NOM/VOC
'So I did sin, Lord God.' Latin

(18) mo-di ak [$_{VOC}$ mamida], rat'om m-e-malebi?[13]
PREV-2S.IMP.come here aunt.VOC why 1IO-R-hide.2S
'Come here, aunt [addressing nephew or niece], why are you hiding from me?' Georgian

(19) [$_{VOC}$ sel-ó] ákus-diŋta ku8-den.[14]
reindeer-VOC what-ADESSn 2-weep
'Reindeer, why are you weeping?' Ket

(20) Min-e-we belesi-je [$_{VOC}$ xunazi-ei][15]
me-0-AC help-IMP.2s sister-VOC
'Help me, sister.' Udihe

(21) Me^{ʔ}xnu t-kerine-win kəzza [$_{VOC}$ isx-e]?[16]
maybe 1s.s-hurt-2S.PT PP.2S father-VOC
'I hurt you maybe, dad?!' Itelmen

(22) kɔŋ-haʔ hɛnaŋ mɛ-sot-paʔ Kɔtna kɔtna phɛr-amm-ɛʔ,
this-P why NS.AS-misbehave-IMPF here here come-2S-IMP
[$_{VOC}$ hɛndzaʔ-s-e]![17]
child-NON_S-VOC
'Why are they misbehaving [again]?' Come here, children! Limbu

However, there are significant differences between Udihe, Georgian, and Limbu on the one hand, and Indo-European languages on the other. The former languag-

11. William Shakespeare *Othello* V, 2, Czech translation by Josef Václav Sládek, <https://web2.mlp.cz/koweb/00/04/63/45/05/othello.pdf> (Last access, November 2024).
12. Augustinus, *Confessiones* I.10.16, as cited in Serbat (1996: 93).
13. As quoted in Abuladze & Ludden (2013: 33) = ex. (15).
14. As quoted in Georg (2007: 116) = ex. (74).
15. As cited in Nikolaeva & Tolskaya (2001: 471) = ex (917a).
16. As quoted in Georg & Volodin (1999: 73) = ex. (16).
17. As quoted in van Driem (1987: 47) = ex. (76).

es have only one major declension class with case suffixes that remain identical for any noun, with minor variations mostly accounted for by phonological rules. Georgian has seven cases to which the vocative suffix *-o* is traditionally counted (cf. Fähnrich 1987: 47-62; Hewitt 1995: 33-41), Limbu has eleven cases, including the vocative (cf. van Driem 1987: 33-52), Aoki (1970: 71-80) assumes that Nez Perce has five different cases among which he counts vocative.[18] Udihe has ten distinct cases, but the vocative *-i* suffix is explicitly not even counted amongst them by Nikolaeva & Tolskaya (2001: 106, 340-341, 470); they regard the marker as an extra-clausal element.[19] This contrasts with Daniel & Spencer (2009: 630), who consider that particular *-i*-suffix in Udihe a marginal case form. In contrast, Indo-European languages may have several declension classes. For instance, Czech has nine major declension classes, most of them have a distinct form for the vocative with one of the suffixes *-e*, *-i* or *-o*. Neuter nouns and feminine nouns of the *e*-class have vocative forms identical to the nominative (cf. Naughton & Kunes 2021: 34-35). In contrast, Latin has five major declension classes, but only masculine nouns from the second declension class have vocative forms (ending with *-o*) distinct from the nominative forms (ending with *-us*). Ancient Greek has three large declension classes, but only the masculine nouns from the first and second class exhibit different suffixes for nominative and vocative case. As illustrated by Stavrou (2013: 302-302), in Modern Greek only masculine *o*-stems exhibit a distinct vocative form.

Similarly, Ket, a language with twelve cases, has two similar declension classes: one for masculine nouns and another for feminine and neuter nouns. The former take the suffix *-ó* in vocative case, while the latter take the suffix *-á* or *-ɜ́*. These vocative suffixes stand out because they always attract stress (cf. Georg 2007: 102-104, 115-117; Vajda 2007: 1281-1286). A particularity of Ket vocatives is that they have distinct proximal and distal forms for the feminine noun class.

Given the diversity of vocative morphemes held to be case markers, once again the question arises which diagnostics can determine whether these elements are case suffixes rather than enclitic particles, as discussed in Section 2.2. There are at least two approaches to this question. Some authors tacitly assume that once a language has nouns or other nominal elements with case paradigms involving well-defined cases such as nominative and accusative or absolutive and ergative any vocative suffix is automatically classified as case (cf. van Driem 1987: 33-52; Fähnrich 1987: 47-62, 150; or Hewitt 1995: 33-41). This perspective is mostly held by authors examining vocatives through the Indo-European lens. Other authors consider the possibility that languages with case may have additional suffixes or enclitics of another type, which can encode calls and addresses but do not belong to the case paradigm, such as Nikolaeva & Tolskaya (2001: 106, 340-341, 470) for Udihe.

18. Precisely speaking, Aoki (1970: 71-80) does not call these suffixes ‘case’ but ‘substantive suffixes’. However, the fact that one of these suffixes is referred to as ‘nominative’ suggests that the author has something like case in mind.
19. Actually, there is a mysterious discrepancy between the number of cases they specify which is ten, but in their enumerations they only mention nine.

Gruzdeva (1998: 18-22) argues that Nivkh spoken in far eastern Siberia has up to eight distinct cases, but the vocative suffixes *-a*/*-aj* and *-o*/*-ǵo* are not counted among them, (cf. 23). In addition to that, Nedjalkov & Otaina (2013: 55) observe that these markers only occur with nouns that end with consonants, providing more support for Gruzdeva's classification. Similarly, Fortescue (1984: 205-209, 225) argues that West-Greenlandic (Eskimo-Aleut) has eight cases but also a range of other suffixes, including enclitic suffixes with non-local semantic function, to which he counts the vocative markers in West-Greenlandic (cf. 24).

(23) Ty n'ivɣ-a t'a ykyn-doχ t'axta-ja.[20]
DEM man-VOC NEG elder.brother-DAT/ADD be.angry-IMP
'This man, don't be angry at [your] elder brother.' Nivkh

(24) ajuqi=aa.[21]
catechist=VOC
'Hey, catechist!' West-Greenlandic

Dench (1994: 59-60, 63-94, 100-103, 107-112) describes Martuthunira (Pama-Nyungan), spoken in Australia, as a language with a particularly rich and complex system of case marking. However, the author does not explicitly mention which of the about 20 relational suffixes he classifies as case; there are at least five suffixes explicitly referred to as case. Despite this large and diverse number of (potential) case suffixes, Dench (1994: 187-188) groups the vocative enclitic *-yi* among the word class of interjections.

In a similar vein, Merlan (1989: 56-57) observes that Mangarrayi (Mangarrayi-Maran), also spoken in Australia, has up to eight cases for animate masculine and feminine nouns and ten for inanimate neuter nouns. Crucially, the vocative is absent from these lists. Despite the fact that Merlan (1989: 71, 77) discusses the vocative in the section on non-local case functions, she explicitly excludes the vocative suffix *-y* from case inflection.

Finally, Lugbara (Sudanic) is considered to have four cases marked by post positions. Although the vocative is expressed through a post nominal particle, it is not explicitly counted among the cases (cf. Crazzolara 1960: 20-24, 140).

(25) mvá là! É f`ɛ mà adri dánï![22]
kid VOCPRT 2S.S give.IMP HORT be
'Hey Kid! Let it be!/Stop it!' Lugbara

Approaches of the first type are more speculative and face some challenges. Under such approaches, the decision of whether or not vocative markers are case suffixes ultimately hinges on whether the languages in focus have a case paradigm.

20. As cited in Gruzdeva (1998: 20) = ex. (19).
21. As quoted in Fortescue (1984: 225).
22. As quoted in Crazzolara (1960: 140).

The nature of the suffix and its relation to the nominal base it is attached to are not considered as relevant.

However, the untested classification of vocative suffixes as case markers in languages with case should be reconsidered for several reasons. Firstly, vocative case is less frequently mentioned in grammatical descriptions than other types of case, such as nominative, accusative, dative, genitive, instrumental, locative, or ablative, especially outside Indo-European languages. This is evident from the fact that many languages with rich case systems do not have separate vocative suffixes at all, such as many Uralic languages including Hungarian with 21 productive case forms and six less productive ones (cf. Tompa 1968: 192-210), Finnish with 15 (cf. Karlsson 2018: 36-39), Mari with nine (cf. Riese, Bradley & Yefremova 2022: 66-67), Tundra Nenets with seven (cf. Nikolaeva 2014: 60-66) and North Sámi with seven case forms (cf. Valijärvi & Kahn 2017: 51-59). Distinct vocative case forms are also absent from Kayardild (Tangkic) spoken in Australia with thirteen case forms (cf. Evans 1995: 123-160), Wambaya (Mirndi, Australia) with thirteen case forms (cf. Nordlinger 1998: 82) and Dyirbal (Pama-Nyungan) with nine cases (cf. Dixon 1973: 42-43). While Chukchi spoken in North East Siberia has a complex system of grammatical, spacial and accompaniment cases comprising 13 cases marked mostly by suffixes or circumfixes (cf. Dunn 1999: 95-117), Kolyma Yukaghir (North-East Siberia) expresses its nine case-forms with suffixes (cf. Maslova 2003: 3-4, 88-116), Central Alaskan Yupik (Eskimo-Aleut) has seven cases mostly manifesting through suffixes (cf. Miyaoka 2012: 732-858). Finally, many Turkic languages such as Turkic and Kazakh have six case forms each (cf. Kornfilt 1997: 212; Göksel & Kerslake 2005: 70, 173-182; Muhamedowa 2016: 224-230). Most of these languages leave vocatives unmarked (e.g. Yukaghir cf. Maslova 2003: 90). Some languages borrow existing case-markers to convey the vocative function, for instance Central Alaskan Yupik uses the locative case suffix *-mi* to express formal vocatives. Other languages use alternative marking strategies, such as stress-shift in Turkish (cf. Göksel & Kerslake 2005: 70), final vowel lengthening for Central Alaskan Yupik distal informal vocatives (cf. Woodbury 1987: 726-728 and Miyaoka 2012: 859-863) and in Chukchi (cf. Dunn 1999: 54-55).

Secondly, there are languages without case that nevertheless have vocative suffixes, Baoulé (cf. Noel Aziz Hanna & Sonnenhauser 2013: 284), Ijọ (cf. Williamson 1965: 41), and Tswana (cf. Cole 1967: 396-399), which thus are commonly regarded as enclitic particles. Moreover, in Classical Nahuatl, case manifests only on pronouns but not on nouns (cf. Richard Andrews 2003: 41-42, 148, Launey & Mackay 2011: 81-82), yet it has a well-developed system of vocative enclitics. A particularly interesting case is Bulgarian, which lost all case forms but retained a rich and complicated system of vocative forms (cf. Daniel & Spencer 2009: 327; Girvin 2013: 157-160).

Thirdly, in some languages, vocative forms involve irregularities not found with other case forms. For instance, Ket vocative suffixes always attract a "strong dynamic accent" absent from other case suffixes (cf. Georg 2007: 102-104, 115-117). A similar stress shift is attested with vocative suffixes in Classical Nahuatl

(cf. Richard Andrews 2003: 41-42, 147-148). Tsukida (2005: 301) points out that Seediq marks nominative case by means of a prenominal case marker *ka*, whereas some nouns have a distinct oblique case suffix *-an*. In contrast, vocative is marked by subtraction of all syllables but the final one. In a similar vein, Nebel (1948: 5-6, 35-37) notes that Dinka (Nilotic) marks case through non-concatenative processes such as vowel lengthening for the object case and vowel substitution for the locative case. In contrast, Dinka vocatives are expressed through a suffix (cf. Nebel 1948: 102). Spencer (2009: 186) observes that vocative 'case' is generally particularly prone to unusual marking.

Fourthly, in some languages such as Romanian, Bulgarian and Nez Perce even vocative affixes convey not-at-issue meaning, in particular classifying the relationship towards the speaker and the referent. This is not observed with other case suffixes.

Fifthly, as shown in Section 1, vocative markers differ syntactically from prototypical case suffixes in that they do not encode syntactic dependency from any head. Moreover, they encode meanings and functions that extend beyond the semantics of prototypical case markers. Georg & Volodin (1999: 72-73) explicitly mention that the Itelmen *-e*/*-a* suffix does not share many properties with the other case suffixes in that language.

Sixthly, there is no clear boundary between concatenative and non-concatenative strategies to mark of vocatives. For instance, the vocative noun with the suffix *-i* in Udihe is always accompanied by a higher pitch with respect to other elements in the same utterance. Likewise, the marker *-e* for long distance calls is pronounced with a rising intonation (cf. Nikolaeva & Tolskaya 2001: 470). Similar suprasegmental processes are attested for Ket and Classical Nahuatl, as mentioned above and for Chukchi (cf. Dunn 1999: 54-55). Truncation is observed in Russian (cf. Daniel & Spencer 2009: 628) and Catalan (cf. Kuen 1934: 55-56; Palomba 1955: 150-152). The situation is more complicated in Central Alaskan Yupik, which has different types of vocatives which are expressed through distinct concatenative and non-concatenative strategies, whereby the formal vocative is expressed through the locative case marker *-mi* (cf. Miyaoka 2012: 732-858, 859-863).

Finally, there is an ongoing controversy about whether vocative suffixes in languages with case paradigms automatically qualify as case suffixes, see also Sonnenhauser & Noel Aziz Hanna (2013: 4-7) for similar rationale. Some authors clearly oppose this approach (cf. Fortescue 1984: 205-209, 225 for West Greenlandic; Merlan 1989: 77 for Mangarray; Gruzdeva 1998: 18-22 for Nivkh; and Nikolaeva & Tolskaya 2001: 106, 340-341, 470 for Udihe; and Dindelegan 2013: 261, 272-273), while others at least question its accuracy (cf. Georg & Volodin 1999: 72-73).

So far, there are few approaches demonstrating significant parallels between case suffixes and vocative suffixes beyond the fact that both are suffixes, such as their ordering with respect to other suffixes or suprasegmental prosodic behaviour.

Regarding the dimensions of variation, the same factors may play a role as with particles. In terms of optionality, there are languages where the suffixes are obligatory in addresses and calls, such as Czech and Modern Greek (cf. Hill 2014: 55-56;

Hill 2017: 342), and others where they have become optional, such as Polish (cf. Bielec 2012: 148-151, often with an archaic flavour), Croatian (cf. Vrabec 2022: 48-50), Georgian (cf. Fähnrich 1987: 150; Hewitt 1995: 529) and Romanian (cf. Hill 2014: 55-56; Hill 2017: 342). Unlike in Czech and Modern Greek, where the suffix does not carry any not-at-issue meaning, the Romanian vocative *-e* conveys a certain degree of informality and intimacy, in order to express formality the unmarked nominative form has to be used, which often is marked by a determiner instead (cf. Dindelegan 2013: 272-273; Hill 2014: 55). Bulgarian exhibits a mixed system: while the suffix *-e* is mandatory for common nouns of certain masculine declension classes, the realisation of the *-o*-suffix has become optional for feminine nouns.

In terms of the functions that vocative markers may serve, vocative particles and vocative suffixes exhibit different preferences. Whereas particles are often restricted to call functions, as shown in 2.3, the majority of the suffixes reviewed here are also attested in address functions. As Slocum (2016: 6-7) notes, Georgian vocative suffixes act both as markers for calls and addresses. Most of the examples (16-23) illustrate that the relevant vocative suffix also occurs in non-initial positions.

Turning to the semantics and pragmatics, it is shown here that the same factors may play a role as with particles. Merlan (1989: 77) demonstrates that the Mangarray vocative suffix *-y* is primarily used when the addressee is considered to be at a greater distance. In a similar fashion, Udihe speakers employ the suffix *-e* to address speech participants who are farther away (cf. Nikolaeva & Tolskaya 2001: 470). Likewise, Georg (2007: 115) observes that some speakers of Ket use different suffixes for female addressee depending whether she is considered nearby (*-á*) or at distance (*-ə́*).

Additionally, vocative suffixes may convey information about the social relationship between the speaker and the addressee. As Aoki (1970: 79) points out, Nez Perce has two types of vocative suffixes: *-e* is used to address junior relatives and *-eʔ* is used to address senior relatives. These markers are attached to kinship terms. In Nez Perce, male and female speaker choose different lexemes to express the same kinship relation. As Nikolaeva & Tolskaya (2001: 470-472) point out, the vocative suffix *-i* in Udihe is the unmarked form of address to relatives, while the nominative is rarely used in such contexts. In contrast, Central Alaskan Yupik borrow the suffix *-mi* marking the locative case to express formal vocatives (cf. Miyaoka 2012: 794-795).

In contrast, the use of the vocative in Polish sounds more formal and old-fashioned, particularly with the feminine suffix *-o*. The specification of the relationship between the speaker and the addressee depends on the type of noun phrase and the type of suffix in Bulgarian. For common nouns such as *profesor-e* 'professor-VOC' *tsar-yu* 'king'-VOC and *babo* 'grandmother.VOC' the vocative form is mandatory. Conversely, the form *-o* is considered informal, suggesting a very affectionate and intimate relationship with the addressee. Therefore, this form is perceived as rude in case the addressee does not share the same assessment of the relationship (cf. Girvin 2013: 169-174). As a consequence, it is often avoided and replaced by the

unmarked (nominative) form. In contrast, the mere nominative forms are considered formal, intimate relationships are encoded through the formation of hypocoristics. As previously mentioned, the Romanian *-e* suffix signals informality, too.

In Greek and Czech vocative suffixes remain underspecified with respect to the degree of intimacy because the suffixes are mandatory in any context. Therefore, Czech developed separate vocative forms suffixes to express intimate relationships. The unmarked vocative form of the hypocoristic *Bara* (from *Barbora*) is *Baro* 'Bara.VOC', while the intimate form *Baru* 'Bara.VOC.INTM'. Additionally, Czech has a further suffix that signals discontent form the speaker's side towards the addressee, which can be utilised in combinations with vocatives too, as in *Baru-no* 'Bara-DISCONT.VOC'.

Similarly, Georgian has a distinct marker *-il-* that only occurs in combination with the vocative marker *-o* and which conveys affectionate diminutive meaning, such as *ded-il+o*! 'mother;INTM-VOC!', as shown by Hewitt (1995: 102).

In some languages more than one constituent can bear the vocative ending in a single utterance. Stavrou (2013: 309) notes that an exclamative noun and a vocative noun can be marked for the vocative at the same time, but the exclamative must precede the vocative. Similarly, reverse role vocatives in Romanian can contain two instances of the vocative ending, shown in Section 2.5.

Summing up, it is very difficult to draw a clear boundary between particles and (case-like) suffixes. Rather than viewing them as distinct types of marking, they are two opposite poles on a continuum. Prototypical particles tend to convey more specific information about the type of social relationship between the speaker and the addressee and about the physical distance. Furthermore, many particles are restricted to the function of calls. In contrast, prototypical vocative suffixes are compatible with the address function and can be completely neutral regarding social and physical distance. However, most vocative markers reviewed in the last two sections fall somewhere in between these two poles.

Finally, lots of evidence was presented here which suggests that vocative suffixes are a phenomenon independent from canonical case.

2.4. Non-concatenative vocatives

The most common case of combining two morphemes are the concatenative processes. This is the combination of two morphemes which are represented by two separate strings of phonological segments. However in rarer cases, one of the morphemes may not be represented by such a phonological string. Haspelmath & Sims (2010: 34-38) distinguish four cases of non-concatenative processes: (i) base-modification, (ii) subtraction, (iii) reduplication and (iv) conversion. As shown here, addresses and calls can be encoded by the first three types of non-concatenative processes.

Furthermore, these different strategies of vocative marking described here often occur in combination and thus they are difficult to separate at times, such as stress shift and vowel lengthening or ablaut and truncation in Wakashan (cf. Jacobsen 1994: 24).

2.4.1. Base modification: Vowel lengthening

By far the most relevant type non-concatenative process in the formation of vocatives is base-modification. In its simplest form it comes as lengthening of vowel segments. A detailed discussion is provided by Floricic & Molinu (2018: 274-275) and García-Fernández (2023: 47). An illustrative example can be seen in Chuckchi vocatives. As Dunn (1999: 54-55) notes, Chukchi vocatives are formed through the lengthening of the final vowel. In some cases, the formation of vocatives involves modification of the vowel quality as well. In case the final vowel is an epenthetic [ə] it will be substituted by [o], in case it is non-epenthetic [ə] it is replaced by its original full vowel. If the final segment is a vowel already, the glide *j* is attached. Interestingly, this pattern is not limited to vocatives but it can be applied to other sentence types as well. It is very common for exclamatives and imperatives (cf. Dunn 1999: 87, 90).

In a similar vein, Central Alaskan Yupik has specific informal distal vocatives that only occur with names and kinship terms and that are encoded by lengthening of the final vowels, as demonstrated by Woodbury (1987: 726-728) and Miyaoka (2012: 859-863). In case the final vowel is the schwa [ə] it is substituted by the full vowel [iː].

Woollams (2013: 537) finds that vocatives which are expressed through stress shift that may include lengthening of the vowel in the final syllable are also found in Karo Batak (Austronesian, Malayo-Polynesian) spoken in Northern Sumatra, as illustrated in the example *ˈnandé* ‘mother’ and *nanˈdé*: ‘mother.VOC’. Jacobsen (1994: 34-35) reports similar phenomena for several indigeneous languages spoken in North America including Southern Sierra Miwok (Miwok-Costanoan), Mohawk (Iroquoian), Chipewyan (Althabaskan-Eyak-Tlingit) spoken in Canada.

In many languages vowel lengthening appears to be a result of suffixed particles assimilating with the noun. Nedjalkov & Otaina (2013: 55) observe that vocative marking in the Amur Dialect of Nivkh depends on the phonological structure of the noun. Nouns ending on a consonant take the suffix *-a*, nouns ending on vowels are marked by lengthening of the final vowel. Thereby the word stress is shifted from the first syllable of the noun where it is canonically located to the final syllable. This is reminiscent of the situation of Malayalam, where nouns that end on a vowel undergo vowel lengthening and nouns ending on many types of consonant receive the particle *-aa* (cf. Asher & Kumari 2013: 223-224). A similar pattern can be seen in the pitch-accent language Hidatsa (Siouan). As Davis & Tsujimura (2014: 216-217) report, vocatives are marked by lengthening of the final vowel which bears a falling tone. This is often achieved by an extra vowel that contains a low tone.

2.4.2. Base modification: Ablaut

Jacobsen (1994) discusses the formation of vocatives in Makah, Nitinat and Nuu-chah-nulth (Wakashan), noting that it systematically involves substitution of a vowel of the nominal stem. This is illustrated below with an example from Makah *ʔušaχ·uda* ‘child’, where the final vowel changes from *a* to *e* and from Nuu-chah-nulth *ʔa·si·qso* ‘niece’, where the final vowel changes from *u* to *o*. Other patterns involve changes from *i* to *e*. In either case the resulting vowel is a mid vowel.

(26) ʔušaχ·ude[23]
child.VOC
'Child.' Makah

(27) ʔa·si·qso·[24]
child.VOC
'Niece.' Nuu-Chah-Nulth

In many cases, such as with many kinship terms, it is the vowel in the nucleus of the first syllable that undergoes the change, and these terms are subject to truncation (cf. Jacobsen 1994: 27). Interestingly, the same ablaut pattern that concern the first or last vowel in the verb is observed by (imperative) verbs when they are a called out in Makah, Nitinat and Nuu-chah-nulth (cf. Jacobsen 1994: 28, 29, 31, 34).

2.4.3. Base modification: Tonal inflection

The phenomenon of marking grammatical functions by means of modifications of pitch, also known as grammatical tone or tonal inflection is a phenomenon found in many Atlantic-Congo languages and Oto-Manguean languages in Central America (cf. Welmers 1973: 132-33; Palancar & Léonard 2016; and Rolle 2018: 3-6, 19, 53-54). It also exists to a more restricted extent in Indo-European languages such as marking the difference between nominative and dative for a couple of masculine nouns in the Ripuarian variety of West Middle German (cf. Gussenhoven & Peters 2004: 255-256) and to mark Gender distinction in Limburgian Dutch attributive adjectives (cf. Van Oostendorp 2005: 108).

Some Nilotic languages exhibit case-marking through tone modification. Turkana, for instance, is regarded as a language with six distinct cases encoded through a complex system of tonal inflection (cf. Dimmendaal 1983: 66-67, 259-268). Each case is expressed through different tonal patterns applied to the segmental string. Depending on the syllabic structure of the noun, the vocative is represented by the patterns LHL ° or L(L…) HLH ° each ending on devoiced vowels. Similarly, Shilluk has a marginally developed case system, as demonstrated by Remijsen & Ayoker (2018: 33-34, 69) in which only postverbal subject pronouns receive case marking in form of a falling tone. Nouns that are marked as vocatives receive a high target tone at their right boundary.

Similarly, Saeed (2007: 548-549, 552-553) notes that Somali (Afro-Asiatic, Cushitic) has four cases that are marked with grammatical tone, including a separate pattern for the vocative for many noun classes.

In other tone languages, vocatives are marked by smaller changes of lexical tones, such as in Ngiti (Central-Sudanic), where a floating high tone is added to the tone of the final syllable, which may cause a tonal assimilation triggering a change from low to low-mid, as in *iyamà* 'mother' *iyamà*+H 'mother.VOC' *iyama* (cf. Kutsch Lojenga 1994: 166-167; Daniel & Spencer 2009: 629).

23. As quoted in Jacobsen (1994: 27) =ex. (28).
24. As quoted in Jacobsen (1994: 29) =ex. (53).

Tonal inflection is also found in Sino-Tibetian languages including Karbi (Himalayan) spoken in Nord-East India. As an argument of a verb the kinship term *phù* 'grandfather' and *phì* 'grandmother' are low-toned. Once used as a call or an address, the noun bears a mid tone (cf. Konnerth 2022: 570-571).

(36) arjū-mē-pìk phū[25]
listen-be.good-very grandfather:VOC
'Very nice to hear, grandfather!' Karbi

2.4.4. Base modification: Vocative chants

Vocative chants can be considered a complex form of base modification, involving both pitch modification, as seen in tonal inflection, and lengthening simultaneously. The (L+)H*!H-% vocative chant attested in most European languages features a downstep following the nuclear stress which typically occurs on the first post-nuclear stress. These post-nuclear syllables are often lengthened, sometimes to such an extent that even short vowels are realised as long—something that cannot occur in canonical speech acts, like assertions or questions. This is observed with English and Bengali vocative chants (cf. Ladd 1978: 518 and Hayes & Lahiri 1992: 78, 81-83). Additionally, the chant is characterised by a plateau beginning with the downstep. As shown below, this chant shares the same semantic and pragmatic functions as the vocative markers discusses earlier.

The (L+)H*!H-% vocative chant, first was documented in great detail for Germanic languages such as English (cf. Pike 1945: 71-72; Liberman 1975: 30-32; Ladd 1978; Beckman & Pierrehumbert 1986: 276-280 and Pierrehumbert & Hirschberg 1990: 299-300), German (cf. Gibbon 1976: 274-287), and Dutch (cf. Gussenhoven 1993; Gussenhoven 2005). Furthermore, it has been observed in all Romance languages (cf. Frota & Prieto 2015) and many Slavic languages such as Serbo-Croatian (cf. Godjevac 2005), Polish (cf. Arvaniti, Żygis & Jaskuła 2016), Czech (cf. Pešková 2019: 1932-1933; Pešková forthcoming) and Bulgarian (cf. Grünke et al. 2023). Moreover, the contour is documented in Greek (cf. Arvaniti & Baltazani 2007: 95-98) and Indo-Aryan languages such as Bengali (cf. Hayes & Lahiri 1992) and Persian (cf. Sadat-Tehrani 2009: 162-189). Finally, this vocative chant is even attested in languages outside the Indo-European phyla, such as Hungarian (cf. Varga 2008) and Turkish (cf. Göksel & Pöchtrager 2013: 95-99), and outside Europe in some varieties of Arabic, including Lebanese Arabic (cf. Chahal & Hellmuth 2014: 377-379, 386), Moroccan Arabic (Nabila Louriz, personal communication), but it was not found in Egyptian Arabic.

As their name suggests, vocative chants can exclusively function as calls and never as non-initial addresses (cf. Abalada & Cardoso 2015: 344-346, and for similar observation: Schegloff 1968: 1080-1081). In contrast, non-initial addresses are often prosodic clitics. As such they are no longer independent prosodic phrases an integrate into the preceding intonation phrase *ι*, as demonstrated by Beckman & Pierrehumbert (1986: 293-298) and Gussenhoven (2004: 291-294). As a conse-

25. As quoted in Konnerth (2022: 571) = ex. (951).

quence they will bear the contour of the preceding utterance and there will be no intonation break, as illustrated shortly.

Like vocative particles and suffixes, vocative chants systematically encode physical distance and social relationships. Their felicitous use requires a certain physical distance between speaker and hearer, or more precisely, when the speaker is unsure if they have the addressee's attention (cf. Liberman 1975: 30-32; Gibbon 1976: 274-287; Ladd 1978; Dascălu 1985: 318-320; Borràs-Comes, Sichel-Bazin & Prieto 2015: 72-78; Zhang 2018a: 2). The perceived distance between speaker and addressee may vary between different vocative markers. As previously illustrated in example (14) in Section 2.2, the Portuguese particle *ó* is compatible with a proximal interpretation. When the speaker is unsure whether the addressee noticed the call introduced with the particle *ó*, they may choose the L+H*!H-L% contour as a more impactful device, as in the conversation witnessed in Amadora:

(28) OLD LADY: ó Junior![26]
VOC Junior
DOG: [*ignoring the old lady*]
OLD LADY: Junior$^{L+H*\ !H-\%}$
junior

In a similar manner, Borràs-Comes, Sichel-Bazin & Prieto (2015: 71-75) note that the Catalan L+H*!H-L% contour exhibits a certain "insistent nature", often employed when other types of calls have not been successful. Furthermore, these vocative chants presuppose a degree of familiarity between the speaker and the addressee (cf. Sadat-Tehrani 2009: 176-177; Borràs-Comes, Sichel-Bazin & Prieto 2015: 78-80). Additionally, the (L+)H*!H-% vocative chant implies an expected or a desired outcome or "routine" that has previously been publicly shared (cf. Ladd 1978: 520-524; Peters 2018: 99). This outcome does not have to be very probable as long as it was the wish of the speaker. It also indicates no new speaker commitment involving them in the addressee's affairs (cf. Condoravdi & Jeong 2018: 218-220, 222). All these dimensions of not-at-issue meaning are conveyed by the contour itself. This is evident from the fact that these contours can be whistled without requiring segmental phonological material, as observed by Abe (1962: 520). An instance of a such a whistle was documented in the center of Lisbon in 2020. In a similar manner, Seeliger (2024) notes that the German contour L*+H L-% can be applied to a meaningless string of phonological segments but still conveys a rude meaning.

In some languages, the (L+)H*!H-% vocative chant is not limited to nouns but can also be applied to more complex utterances such as declarative clauses, imperatives and interrogatives. This has been demonstrated in empirical studies by on German (cf. Gibbon 1976: 274-287), English (cf. Ladd 1978: 520-525) and Romanian (cf. Dascălu 1985: 318). Another detailed acoustic analysis of vocative chants extending over declarative sentences in Hungarian was provided by Varga (2008: 480). Jeong & Condoravdi (2017, 2018) conducted a large-scale perception

26. Interaction heard in the streets of Amadora in April 2023.

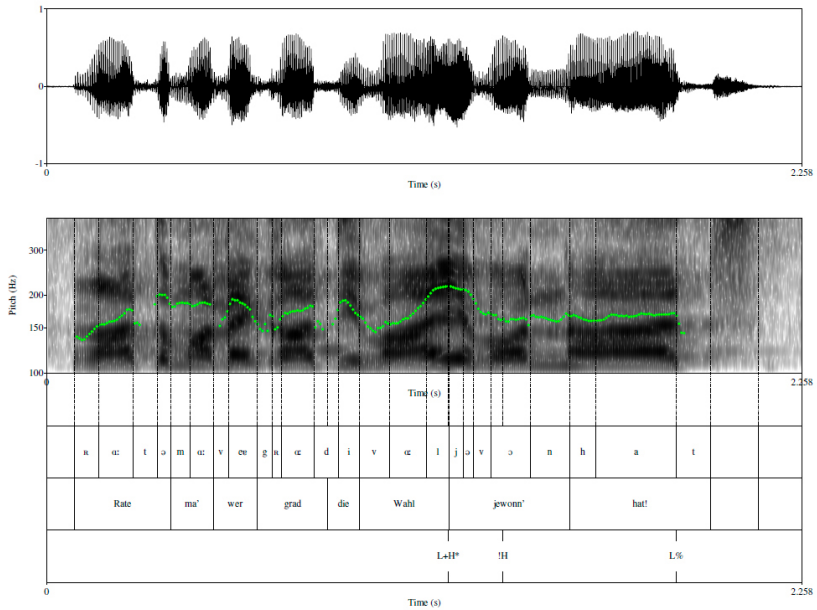

Figure 1. Sentential L+H* !H-L% vocative chants with imperatives in German

experiment involving 8,400 native speaker of American English in which shows that participants strongly prefer the (L+)H*!H-% vocative chant over the more common H*L-L% intonation for certain types of imperatives.

A natural occurrence of the vocative chant in Berlin German is documented in (29) and its prosodic annotation is illustrated in Figure 1.

(29) Ey Bowie!! Lange nich jesehn und doch wiedakannt, wa?
hey Bowie long NEG see.PPP and yet recognize.PPP QTAG

{$_{\iota}$ Rate ma wer grad die Wahl^{L+H*} jewonn'$^{!H-}$ hat$^{L\%}$}!![27]
guess.IMP PAR who just the elections win.PPP has
'Hey Bowie! Long time no see. Guess who just won the elections!!'

The example discussed here is taken from a reading of a cartoon in which Angela Merkel sees David Bowie from a distance in the street. Although the vocative chant is not the initial utterance, it is still part of the first turn, during which the conversation has not yet been established. The nuclear stress falls on *Wahl*, and the first post-nuclear stress is assigned to the syllable [vɔn] in *jewonn'*. From this syllable,

27. *DIE ÄRZTE lesen für Berliner Liveclubs aus FILs „Didi & Stulle".* <https://youtu.be/bbCGqFa-No-Q, 32:40-50s> (last access June 25, 2024).

the plateau begins, with many of the post-nuclear syllables lenghtened compared to positions in declarative clauses, as illustrated in Figure 1.

Another instance of a sentential vocative chant can be seen in example (30) taken from the movie Pirates of the Caribbean. In this scene, the pirates Pintel and Ragetti are raiding a building where they suspect Governor Swann's daughter, Elizabeth, is hiding. While searching for her, Pintel shouts the vocative chant illustrated below.

(30) {$_{\iota}$ We know you are here^{L+H*}, poppet!$^{!HL\%}$ }[28]

In this vocative chant, the nuclear stress falls on *here*, with the post-nuclear stress on the first syllable of *poppet*. The latter element is a non-initial address which acts as a prosodic clitic of the type mentioned earlier which has been incorporated into the vocative chant. Another example from European Portuguese is given below, in which a man was ringing the bell of a door.

(31) {$_{\iota}$sou eu$^{L+H*\ !H-L\%}$ }[29]
be.PRS.1S 1S.S
'It's me!' E. Portuguese

Similar contours to attract the attention of a potential addressee are found in other languages as well. Von Prince (2015: 38-39) discusses a vocative chant in Daakaka (Austronesian, Oceanic) which ends with an extremely high pitch combined with an optional enclitic particle *-o*. Once again, this contour conveys not-at-issue meaning, signalling a physical distance between speaker and addressee while also expressing a sense of familiarity between them. Typically, this call is performed by adult women looking for a child. The modified pitch used alongside the expressive address particle *-e* in Udihe, described Nikolaeva & Tolskaya (2001: 470-472), may also qualifies as vocative chant. Apart from that, vocative chants are attested in Wolof, a toneless Atlantic-Congo language. Wolof vocative chants are characterised by lengthened final syllable that bears a sustained high tone (cf. Rialland & Robert 2001: 915). If the pitch-range is enlarged, the vocative chant may signal a warning intended to stop the addressee from doing what they are doing.

Interestingly, vocative chants are also found in tone languages where the intonation contour appears to "override" the default lexical tones of the words. These languages include Thai (Tai-Kadai, cf. Luksaneeyanawin 1983; Luksaneeyanawin 1998), and Tianjin Mandarin (Sino-Tibetian, cf. Zhang 2018b; Zhang 2018a). Mani, a language with two lexical tones (H,L) has a vocative chant in which the last syllable is lengthened and associated with a final sustained high tone (cf. Childs 2011: 44, 51). In a similar vein, Yorùbá (Atlantic-Congo) has a vocative chant which manifests as a register raise and lengthening of the last syllable (cf. Ọláwálé 2022: 4-5). In Yorùbá, the vocative chant is also applied to other types of utterances

28. *Pirates in the Caribbean: The curse of the black pearl*. 32:00. As the scene contains background music, a clean illustration of the intonation contour is not readily available.
29. Conversation heard on September 4, 2024, in Lado do Castelo.

directed at addressees out of sight. For example, the acknowledgement of accurate greeting *òo* which is pronounced as *óó*, once the addressee is farther away (cf. Manfredi 2003) and imperatives like *wá* 'come!' are similarly upstepped.

In addition to the vocative chants described above, some languages have specialized intonation contours for particular types of addresses and calls. Arvaniti & Baltazani (2007: 90, 95-98) observe that Modern Greek has distinct patterns for suspicious, requesting and questioning calling contours. Göksel & Pöchtrager (2013: 95-99) note that German and Turkish use specific contours to express surprise towards an addressee. Féry (1993: 91-93, 96), Quiroz & Żygis (2017) and Maché (2020) illustrate that German utilises a distinct contour, L*+H L-H%, to admonish the addressee. Similarly the Bulgarian L+H* L-% in Bulgarian serves a similar purpose (cf. Grünke et al. 2023: 16, 19). Likewise, Asturian includes a separate H+L*L%-contour indicating a mismatch between the speaker's and the addressee's belief space, which can signal either the speaker's surprise or act as a critique of the addressee (cf. García-Fernández 2023).

So-called urgent calls are attested in many languages, such as Polish Arvaniti, Żygis & Jaskuła (2016: 353) and most Romance languages (cf. Frota & Prieto 2015). Additionally, Persian features a surprise and an angry calling contour (cf. Sadat-Tehrani 2009: 162-189). In a similar vein, Beckman & Pierrehumbert (1986: 276-280) discuss a variety of intonation contours in English.

There is a tendency that most of these contours are more compatible with, or even restricted to, the utterance-initial call function. This may be due to the fact that non-initial addresses are primarily prosodic clitics that integrate into the preceding intonation phrase *ι* (cf. Beckman & Pierrehumbert 1986: 293-298 and Gussenhoven 2004: 291-294). But this remains to be shown in a separate study.

All the materialisations of calls as tones or intonation contours are reminiscent of tonal inflection (cf. Palancar & Léonard 2016) or replacive grammatical tone, as described by Welmers (1973: 132-33) and Rolle (2018: 3-6, 19, 53-54). In his study of Turkana, for instance, Dimmendaal (1983: 66-67, 259-268) explicitly classifies the tonal pattern used as vocative as instance of tonal inflection.

2.4.5. Base modification: Stress-shift

In some other languages, vocatives are marked by stress shift such as in Turkish. As Göksel & Kerslake (2005: 27) explain, in the common case, the root typically bears stress on the final syllable, as in *kadín* 'woman', when used as a vocative, the stress shifts to the penultimate syllable as in kádin 'hey woman!'. A similar, though optional, stress modification is found in Uzbek, another Turkic language (cf. Noel Aziz Hanna & Sonnenhauser 2013: 284). Another pattern of stress shift can be observed in Persian. In canonical contexts the word stress occurs at the final syllable, vocative nouns however receive stress on the initial syllable (cf. Yousef & Torabi 2018: 45).

In a similar fashion, Gruzdeva (1998: 12) and Nedjalkov & Otaina (2013: 55) show that Nivkh is a language with word-initial stress uses a vocative suffix that attracts the stress. A similar situation is found in Nahuatl, where the post nominal particle *é* always attracts the word stress (cf. Richard Andrews 2003: 39).

2.4.6. Truncation

As shown by Vanrell & Cabré (2011), D'Alessandro & Oostendorp (2016: 63-65, 72-78), Floricic & Molinu (2018: 272-278) truncation is a fairly common strategy of vocative marking across languages. It is attested in Central and South-Italian dialects, the Aleghrese variety of Catalan spoken in the North West of Sardinia, Indonesian (Austronesian, Malayo-Chamic), Yapese (Austronesian, Oceanic) and Central Alaskan Yupik (Eskimo-Aleut).

In a similar manner, the so-called neo-vocative in Russian found with names and certain kinship terms is characterised by an elision of the endings *-a* and *-ya* (cf. Daniel & Spencer 2009: 628; Janson 2013: 226).

Truncation can sometimes be confused with regular concatenative formation of vocatives in cases where the suffix of the nominative form is longer than the vocative form such as in Greek *Kyri-os* 'lord-NOM' vs. *Kyri-e* 'lord-VOC', leaving the original bound stem *kyri-* unaffected. Genuine truncation also applies to to monomorphemic stems.

Truncation is sensitive to the prosodic structure of the base with which it is combined, see D'Alessandro & Oostendorp (2016: 72, 77-78) and García-Fernández (2023: 45-47) for a similar reasoning. It typically occurs after a certain number of syllables, and the point of reference can either be one of the boundaries of the stem or the stress. As a result, truncation modifies the prosody of the base. As such, truncation is also a morphological exponent for a deictic feature, as shown by D'Alessandro & Oostendorp (2016: 65). For instance, in Central and South-Italian dialects, vocative formation is achieved through truncation following the stressed syllable, which is usually the penultimate syllable.

(32) A {ω Mariacarmela Dell'Arciˈpre'}, vi' qqua![30]
VOCPRT Mariacarmela Dell'Arciˈprete-VOC come-IMP here
'Mariacarmela come here!' Southern Italian

As noted by Floricic & Molinu (2018: 272-278), Sardinian also employs truncated vocatives. These are used in both calls and non-initial addresses (cf. 10b), and they are compatible with definite articles.[31]

Similarly, as Miyaoka (2012: 859-863) observes, proximal informal vocatives in Central Alaskan Yupik are expressed through truncation. Kinship terms and names have truncated vocatives, as seen with the proper name *Angalgaq* /aŋˊa l/ or /aŋ/. Truncated vocative forms are also attested with certain demonstrative pronouns, such as *u-suuq* 'this-EX.VOC.S = you' and *ing-suu-q* 'you(sg.) over there' yielding the forms /us/ and /iŋɨs/.

Jacobsen (1994: 24) observes that Makah and other Wakashan languages have certain kinship terms that form vocatives through truncation after the syllable onset of the second syllable, yielding CV.Cø structures. Additionally, the vowel undergoes the ablaut pattern described in Section as seen in *ʔabeʔisqu* 'mother' *ʔeb*.

30. As quoted in D'Alessandro & Oostendorp (2016: 63) = ex. (9a).
31. Referring to Floricic's earlier work, Slocum (2016: 10-11) asserts that Sardinian truncated vocatives cannot be used as non-initial addresses. However this appears to be a misunderstanding.

In contrast, Tsukida (2005: 301) notes that Seediq (Austronesian) has special vocative forms for names and certain kinship terms, which consist just of the last syllable of the stem, for instance the vocative for the name *Masaw* is *Saw*. These forms can also be used as non-initial addresses.

(33) ga=su huya hug, saw?[32]
DIST.PRG=2S.SBJV <AV>do:what Q Masaw:VOC
'What are you doing, Masaw?' Seediq

(34) 'imah qesiya yi.[33]
AV.drink water old:lady:VOC
'Drink water old lady.' Seediq

In contrast, truncation in other Austronesian languages including Kilivali (Oceanic) affects the final syllable. Names can optionally be truncated in various ways, e.g. *Luluvasigweguyau* → *Luluvasi* or *Lulu* and *Igogosa* → *Gogo* or *Igo* (cf. Senft 1986: 130-131).

Truncation and subtractive processes area also reported in tonal languages, including Bantu languages. In Eton (Bantu A-B10-B20-B30) spoken in Cameroon the final vowel is elided, as pointed out by Van de Velde (2008: 209-210).

A similar process can be observed in many East-Bantu languages including Rufumbira (Northeast Savanna Bantu). In Bantu languages of this particular type, nouns are obligatorily marked with an additional augment that precedes the class marker, as seen in *u-mu-gore* 'AUG-CL1-woman', where class marker 1 refers to singular human nouns (cf. Sauder 2016: 10-11). Katamba (2003: 107) notes that the augment in Bantu languages has been assigned similar functions similar to determiners in the literature. As Sauder (2016: 161-162) demonstrates, the initial augment is omitted when a noun is used in the vocative, which is reminiscent of the ban on definite articles with vocatives discussed in Section 2.1.4. Ndayiragije, Nikiema & Bhatt (2012: 116-117) and Hill (2014: 126-128) make analogous observations for Rundi, another Northeast Savanna Bantu languages. This phenomenon is also attested in Zulu (Southern-Bantu, cf. Grout 1859: 78-79) and in Herero (Central Western-Bantu, cf. Möhlig, Marten & Kavari 2002: 32-33; Elderkin 2003: 605-606). However, this type of truncation differs significantly form those previously discussed, as it occurs at morpheme boundaries and appears to be more strongly motivated by morpho-syntactic factors, such as the specification for 3rd PERSON.

2.4.7. Reduplication

Moreover, some types of address are expressed through reduplication. Yorùbá has an address form in which the name is reduplicated, with the second instance appearing downstepped, as in *momie* ꜜ*momie* or *Bọ́sẹ* ꜜ*Bọ́sẹ*. This address is typically used utterance-initially and signals some affection or playful admonishment.

32. As quoted in Tsukida (2005: 301) = ex. (64).
33. As quoted in Tsukida (2005: 301) = ex. (65).

To conclude, it has been shown here that in many languages vocatives are marked through non-concatenative processes. Just as with particles and suffixes, non-concatenative forms systematically encode dimensions of not-at-issue meaning, most importantly the physical distance and the specification of the social relationship between speaker and hearer. This applies to intonation contours as well, and insofar they are to be subsumed under non-concatenative morphological processes. However, due to their prosodic prominence, vocatives marked by intonation contours have a strong preference to occur discourse- or utterance-initially.

As observed by D'Alessandro & Oostendorp (2016), there is a general tendency that vocatives are marked by morphological processes that are not found in the core grammar, including as modification of pitch or prosody, and truncation.

2.4.8. Suppletion

Some languages exhibit suppletive vocative forms of kinship terms, such as Kulina (Arawakan) spoken in the border region of Perú and Brazil. The referential use of noun the 'daughter' is *bedi* when the possessor is a 3rd PERSON, *ehedeni* when the possessor is a 1st or 2nd PERSON but *asi* when used as a vocative (cf. Dienst 2014: 53-60). A similar contrast is found with vocative for pets in this language (cf. Dienst 2014: 275-276). Similarly, Zwicky (1974: 789-791) observes that there are nouns in English which only can be used as vocatives such as *ma'am* or endearment terms such as *Zumpfibärli* in German.

2.5. Reverse role vocatives

As pointed out by Rieschild (1998), Abuladze & Ludden (2013: 32-35), Hill (2014: 108-110, 2017: 336, 346-348, 2022: 12-19) and Corr (2022a), some languages spoken in Western Asia (including Arabic, Georgian and Persian), Southern Italy and the Balkans feature an additional strategy to express kinship ranks between the speaker and the addressee: the so-called reverse role vocatives.

As Hill (2022: 13) points out, Romanian vocative phrases can contain two nouns with distinct functions, as illustrated in (35). The vocative noun (*Dane*, 'Dan-VOC') refers to the addressee, while the kinship noun (*mamă* 'mother') qualifying the kinship rank the speaker holds in relation to the addressee. The number of possible kinship terms is limited and subject to cross-linguistic variation. In Romanian, only the nouns *mamă* 'mother' and *tată* 'father' can act as kinship noun, as illustrated in the examples below (35-36).

(35) [$_{\iota/\Phi}$ DAN-e mamă]^{H*LL} fii atent![34]
Dan-VOC mother be-IMP.2S careful
'Be careful, Dan!' (I am addressing you as your mother) Romanian

34. As quoted in Hill (2022: 13) = ex. (15a).

(36) ? [$_{\text{I/Φ}}$ Dănuț mămico] vino la masă.[35]
Dan.DIM mom.DIM.DET.VOC come-2S. to table
Intended: 'Dan come to table' (Your loving mother is telling you that)
Romanian

As Hill (2022: 14) notes, reverse role vocatives are subject to strict requirements. Vocative nouns and kinship nouns form prosodic constituents provided the vocative noun precedes the kinship noun and no other element intervenes between them. Within that constituent, it is the vocative noun that bears nuclear stress. In Romanian the vocative noun may carry a vocative suffix, and under special conditions the kinship noun can also take a vocative endings—especially particular if it appears with a diminutive suffix, as in *mămică* 'mother.DIM'. Some speakers even use the vocative suffix on both nouns simultaneously (cf. Hill 2022: 15-16, 18). Similarly, in Georgian, in absence of a vocative noun, the kinship noun can bear the suffix as illustrated in example (18) in Section 2.3. According to Hill (2022: 3, 13) the main function of reverse role vocatives is to specify the social relationship towards the addressee and establishing the speaker's superior social rank.

Comparable strategies are found in other languages. In Classical Nahuatl, for instance, only male speaker can use the particle *-é*, whereas woman shift the word stress to the penultimate syllable. (cf. Richard Andrews 2003: 41-42, 147-148 and Launey & Mackay 2011: 81-82). Similarly, in Nez Perce, male and female speaker use distinct lexemes to express the identical kinship relationship (cf. Aoki 1970: 79).

2.6. Combinations

As is shown here, many languages permit the combination of two or more strategies for marking vocatives, such as particles and vocative chants, or particles and affixes. The combination of two different markers is particularly interesting when they involve diverging semantic specifications, such as distance.

A common phenomenon is the combination of particles and suffixes, found in many Balkan languages including Romanian, Bulgarian and Greek (cf. Hill 2007: 2087, 2014: 55-56, 60, 2017: 338; Holton, Mackridge & Philippaki-Warburton 2012: 35 and Stavrou 2013: 311-315). As Hill (2022: 8-12) shows, this combination allows the speaker to express varying degrees of informality. (cf. 37-38). This pattern is also observed in Bulgarian (cf. 39-40) and Modern Greek (41).

(37) măi Radule.[36]
VOCPRT Radu.DET.VOCC
'Hey Radu!' Romanian

35. As quoted in Hill (2022: 15) = ex. (18d).
36. As quoted in Hill (2014: 55) = ex. (9.b).

(38) [$_{VOC}$ măi nimicule], o să rămâi fără chiloți.[37]
VOCPRT nothing.DET.VOCC FUT.2S to stay without underwear
'You good-for-nothing, you'll lose your underwear.' Romanian

(39) [$_{VOC}$ Bre, Stojane], mlat Stojane.[38]
VOCPRT Stojan-VOCC young Stojan-VOCC
'Hey, Stojan, young Stojan!' Bulgarian

(40) Ivan-e-be.[39]
Ivan-VOCC-VOCPRT
'Ivan!' Bulgarian

(41) Sópa [$_{VOC}$ re Giánni].[40]
be.quiet.IMP VOCPRT Giannis.VOC
'Be quiet, Giannis!' Greek

A similar phenomenon occurs in Modern Celtic languages such as Irish (cf. Stenson 2020: 274-275) and Scots Gaelic (MacKinnon 1971: 171-174). In these languages, calls and addresses are marked using the prenominal particle *a* along with nouns that take the genitive form. Additionally, the initial consonant of the noun is aspirated, as in Irish *Séamas a Shéamais* 'VOCPRT:Séamas.GEN'.

Some languages that mark vocatives through truncation permit the presence of vocative particles. This behaviour is observed in Bantu languages, such as Zulu (42-43) and Eton (cf. Van de Velde 2008: 209-210 for discussion). For instance, the unmarked forms of the nouns in Zulu *inkosi* 'king' and *Ufaku* (a name) have the following vocative forms:

(42) E Nkosi.[41]
VOCPRT.PROX VOCC:King
'Hey King!' Zulu

(43) We Faku.[42]
VOCPRT.DIST VOCC:Ufaku
'Hey Ufaku!' Zulu

The combination of truncated vocatives and particles is also attested in Sardinian (cf. Floricic & Molinu 2018: 273). In Persian, vocatives marked through stress shift are frequently accompanied by the pre-nominal particle *ey* (cf. Yousef & Torabi 2018: 45).

37. As quoted in Hill (2014: 60) = ex. (13).
38. As quoted in Girvin (2013: 160) = ex. (4.a).
39. As quoted in Hill (2014: 56) = ex. (10d).
40. As quoted in Holton, Mackridge & Philippaki-Warburton (2012: 35).
41. As quoted in Grout (1859: 79).
42. As quoted in Grout (1859: 79).

An intriguing case is the combination of particles and the vocative chant. As discussed in Section 2.2, Portuguese *ó* is typically used in utterance situations where the addressee is perceived to be nearby, whereas the vocative chant is not. However, these two markers may co-occur, as in the following utterance heard in the district of Lado do Castelo in Lisbon:

(44) FEMALE VOICE: ó João!$^{\text{L+H* !H-\%}}$[43]
VOCPRT João

In this particular case, it becomes clear that the particle *ó* must be underspecified regarding the perceived physical distance between the speaker and the addressee, as it is compatible with the vocative chant typically used for greater distances. A contrasting example can be found in Asturian vocative chants. As García-Fernández (2023: 145-166) notes, Asturian has two distinct calling contours: L+H*L% and H+L*L%. The latter signals that the propositional content of the following utterance is unexpected for the speaker, resembling an exclamative. Furthermore, H+L*L% vocative chants require the use of the prenominal vocative particle *á* for phonological segments capable of carrying the trailing tone, whenever the following noun has an initial stress. In a different case, Ọláwalé (2022: 4-5) observes that distal vocatives in Yorùbá are marked by a chant involving a raised register and a lengthening of the final syllables, often accompanied by the vocative particle *ò*. In Romanian, some native speakers reject the combination of the vocative chant with vocative particle *măi*, much like the incompatibility of the Viennese particle *heast* with the vocative chant.

As Vanrell & Cabré (2011: 7-10), D'Alessandro & Oostendorp (2016: 75-76) and Vanrell, Ballone, et al. (2015: 340-344) demonstrate, truncated vocatives can be combined with vocative chants in Sardinian. As previously discussed in Section 2.4, many languages combine multiple non-concatenative strategies simultaneously to mark vocatives. In Somali, vocatives are marked by tonal modification, occasionally with suffixes further specifying the social relations between speaker and addressee (cf. Saeed 2007: 548-549, 552-553).

Languages that use multiple patterns for vocative marking, such as Romanian, Persian, and Greek, are particularly noteworthy for future studies. These languages employ a mix of suffixes, particles, and various types of vocative chants.

3. Concluding remarks

As shown in the preceding sections, there is wide variety of strategies for overtly realising calls and addresses. While some languages employ separate particles to mark vocative nouns, others use case-like suffixes and still others utilise various types of non-concatenative processes, including prosodic and intonational marking. This diversity of strategies in expressing discourse functions is not limited to vocative marking. It is also observed in the marking of polar questions: some

43. Interaction heard in the streets of Lado do Castelo/Lisbon in July 2023.

languages rely on question particles (e.g. Mandarin or Yorùbá), whereas others use distinct intonation contours (e.g. German or Russian). For a more detailed discussion, see Torreira, Roberts & Hammarström (2014). This diversity of strategies is also evident in the expression of epistemic obviousness and epistemic uncertainty in Romance languages. As Prieto & Roseano (2021) illustrate, Catalan uses intonation contours to express these discourse functions, whereas speakers of Friulian prefer to use discourse particles to express the same meaning.

After reviewing the three different strategies to express the pragmatic functions of calls and addresses, it becomes evident that they share some essential properties. They tend to systematically encode not-at-issue meaning, particularly the speaker's assessment of the social relationship and the physical distance, thereby confirming Leech's (1999: 108-109) assumption that vocatives are used to establish and perform social relationships. However, it is difficult to draw clear boundaries between the different types of vocative markers; rather, they form a continuum. The results are summarised in the Tables 2-5, where a blank space indicates that a feature is underspecified and a question mark means that the grammar did not make any explicit statement about the relevant property.

There is solid typological evidence for five key findings that warrant further exploration in future research. Firstly, as observed in previous studies (cf. Spencer 2009: 186 and Floricic & Molinu 2018: 273-278), the marking of calls and addresses is particularly prone to atypical morphological strategies. These strategies may involve morphological processes not used for other grammatical function or the combination of several concatenative and/or non-concatenative processes. Secondly, systematic parallels exist between vocatives and exclamatives. Since vocatives are often marked in an exceptional manner, this relationship merits special attention. On the one hand, vocatives and exclamatives exploit of identical forms of marking, as demonstrated by Svennung (1958) and Hill (2007: 2078, 2080-2082, 2086-2090, 2092-2098) for Romanian, Abreu de Carvalho (2013: 53) for European Portuguese, Stavrou (2013: 311-315) for Modern Greek, Akinlabí & Liberman (2000: 43-44) and Ọláwálé (2022: 2) for Yorùbá, Dunn (1999: 87, 90) for Chukchi and Miyaoka (2012: 794-798) for Central Alaskan Yupik. On the other hand, both vocatives and exclamatives reference a salient expectation within the shared belief space of the speaker and the addressee. This is a well-known property of exclamatives (cf. Michaelis & Lambrecht 1996: 220, 238-244 and Zanuttini & Portner 2003: 49-56), but it is relevant for certain uses of vocatives as well, including the (L+)H*!H-% vocative chant in most European languages (cf. Ladd 1978: 520-524), which indicates the fulfilment of a speaker's expectation was fulfilled and the H+L*L% in Asturian (cf. García-Fernández 2023: 145-166), where a speaker's expectation is violated. Vocatives and exclamatives share an essential semantic property: Both evoke a salient expectation with a given probability estimation in the minds of the speech participants which is left for the addressee to assess in the utterance situation. With exclamatives the expectation does not align with the information provided by the utterance situation; similarly, for certain vocatives (e.g. the Asturian H+L*L% chant) it does not align either, while in others (e.g. (L+)H*!H-% chants), it does.

The third key finding is that, at least in some contexts, calls and addresses function as independent speech acts or sentence types. This is most clearly demonstrated by their ability to form adjacency pairs with response particles, as shown by Levinson (1983: 71, 281, 308-312), following Schegloff (1972: 357-359); Asher & Kumari (2013: 186) and Borràs-Comes, Sichel-Bazin & Prieto (2015: 70), and as illustrated in example (1)-(3) in section 1.

Fourthly, despite different morphological realisations, vocative marker in many languages can be applied not only to nouns and kinship terms but also to more complex types of utterances such as imperatives, exclamatives and declarative clauses. This is true of the (L+) H*!H-L% vocative chant in certain European languages including German (cf. Gibbon 1976: 274-287), English (cf. Ladd 1978: 520-525; Jeong & Condoravdi 2017, 2018) and Hungarian (cf. Varga 2008: 480); the lengthening of the final vowel, which is also found with exclamatives and imperatives in Chukchi (cf. Dunn 1999: 54-55, 87, 90), the identical ablaut pattern affecting the (first or) last vowel in imperative verb when called out in Makah, Nitinat and Nuu-chah-nulth (cf. Jacobsen 1994: 28, 29, 31, 34). Other examples include truncation, which also applies to imperatives in Sardinian and Catalan (cf. Floricic & Molinu 2012, 2018: 272, 276); phonologically similar suffixes for vocatives and imperatives that cause stress shift in Nivkh (cf. Gruzdeva 1998: 12); and the use of particles such as Yorùbá *ò* frequently found with declarative clauses and imperatives (cf. Brown 2010: 10-12) and, as illustrated in example (45), Gyele *o* can attach at the end of imperatives (cf. Grimm 2021: 249). The distal particle *e* in Tzotzil is another candidate that appears to exhibit such a behaviour (cf. Cowan 1969: 21-22). In a similar manner the distal vocative marker *-ó* is attached to the final syllable of the utterance in Hualapai, whenever the addressee is out of sight, (cf. example Watahomigie, Bender & Yamamoto 1982: 74-75). An equivalent distal vocative marker is found in Kobon, as illustrated in the dialogue below between two parties that are out of sight (cf. Davies 1981: 6, 123-124). Likewise, the vocative particles *e*/*o* can turn sentential utterances into calls in Amele (cf. Roberts 1987: 272).

(45) mùdì kí tàtɔ wúó[44]
CL1-person NEG scream there-VOC-DIST
'Nobody scream over there!' Gyele

(46) a. A: Ban a g-an o. Ban a g-an o.
who QUOT do-PST.2S VOC-DIST who QUOT do-PST.2S VOC-DIST
Ban a g-an o.[45]
who QUOT do-PST.2S VOC-DIST
b. B: Augi o. Augi o. Augi o.
Augi VOC-DIST Augi VOC-DIST Augi VOC-DIST
A 'Who did you say [has died]?'
B: Augi. Kobon

44. As quoted in Grimm (2021: 249) = ex. (13).
45. As quoted in Davies (1981: 6) = ex. (11c).

(46) Nya jìdó! Ge mi-ya:m-ay-ng-yó?[46]
my mother.VOC.DIST how 2-go-FUT-2-Q.VOC.DIST
'My mother! (I can't see you, but I know you are somewhere out there) Where are you going?' Hualapai

A similar vocative marker is found in Ngardi (Pama-Nyungan). As Ennever (2021: 627) observes, the clitic *=wu* is used to attract the attention of a potential addressee. In his grammar, there are dozens of examples that occur at the end of a complex utterances, however it does not contain a single instance with a noun referring to the addressee. This is also reminiscent of Early New High German alarm calls *Feind=io* 'enemy=PRT' or *Mord=io* 'murder=PRT' which consist of a noun and the marker *=io* signalling that the utterance is directed at addressee at distance, as illustrated in the *Deutsches Wörterbuch* edited by the Grimm brothers.

Fifthly, Bernstein's (2008: 1251, 1257-1262) and Hill's (cf. 2014: 126-128, 2022: 4-5) observation according to which vocative nouns are systematically incompatible with determiners can be extended to many other typologically unrelated languages as well. This is unsurprising if one follows the assumption that determiners are exponent of the person feature [-SPKR,-ADDR], while vocative nouns bear the feature [-SPKR,+ADDR], in Bobaljik's (2008) terms.

In addition, several tendencies regarding the formation of vocatives have been observed in the sample of languages investigated here: (i) The vast majority of examples in the grammars reviewed here feature vocatives that appear at the beginning of an utterance, rather than in mid-utterance or utterance-final positions. However, Cowan (1969: 22) explicitly stresses that vocatives in Tzotzil have a strong preference to occur clause finally—this could be a side effect of the rather rare verb-object-subject order in main clauses. (ii) The most common strategy of marking vocatives is the use of particles. (iii) Most vocative particles are optional since they tend to carry more specific not-at-issue meanings. (iv) Particles are more commonly used to convey the social superiority of the speaker rather than that of the addressee. However, contrary to Hill's (2022: 4, 12) generalisation, this correlation is not an absolute, as demonstrated by the use of vocative particles in Attic Greek (cf. Schwyzer 1950: 60-61), Somali (cf. Saeed 2007: 548-549, 552-553), Tashlhiyt (cf. Makhad 2024: 502) and Central Alaskan Yupik (cf. Miyaoka 2012: 794-795). This tendency may be motivated by extra-linguistic factors, given that subordinates are less likely to find themselves in situations where they need to attract the attention of their superiors than the reverse. (v) Particles are more commonly used for calls than for addresses. (vi) Suffixes are less like to carry not-at-issue meaning, suggesting a stronger degree of grammaticalization and integration. (vii) Mandatory vocative markers tend to bear little or no specific not-at-issue meaning. (viii) Intonation contours are only attested in the call function. (ix) Non-initial addresses are often realised as prosodic clitics.

46. As quoted in Watahomigie, Bender & Yamamoto (1982: 74-75) = ex. (63).

Table 1. Vocative particles in European languages

Language	Item	Optionality	Autonomy	Position	Address	Call	Distance	Social relation	Source
Portuguese	*ó*	✓	—	pre-N	(✓)	✓		intimate	Abreu de Carvalho (2013: 52-54)
Asturian	*á*	✓/—	—	pre-N	—	✓	?	?	García-Fernández (2023: 63-65, 225-227)
Catalan	*eh*	✓	✓	pre-N	?	✓	?	?	Espinal (2013: 111-114, 127-128)
	ey	✓	✓	pre-N	?	✓	?	?	
Sardinian	ɔ	✓	—	pre-N	—	✓		?intimate	Floricic & Molinu (2018: 273)
Scots Gaelic	*a*	?	?	pre-N	✓	✓	?	?formal	MacKinnon (1971: 171-174)
Irish	*a*	?	?	pre-N	✓	✓	?	?	Stenson (2020: 274-275)
English	*hey*	✓	✓	pre-N	—	✓		informal	
Viennese German	*heast*	✓	✓	pre-N	—	✓		intimate	
	heans	✓	✓	pre-N	—	✓		informal	
	ge	✓	✓	pre-N	—	✓		informal	
Albanian	*o*	?	?	flexible	?	?	?	?	Buchholz & Fiedler (1987: 215)
Old Bulgarian	*-le/le*	✓	-—	post-N	?	✓	?	?	Hill (2007: 2087-2090)
Bulgarian	*be*	✓	-—	post-N	?	✓	?	?	Hill (2007: 2087-2090, 2022: 7)
Romanian	*bre*	✓	✓	pre-N	?	✓	?	informal	Hill (2007: 2080, 2085, 2014: 53-55, 2017: 338, 341-342, 2022: 7-8)
	bă(i)	✓	✓	pre-N	?	✓	?	inf. M.	
	fă(i)	✓	✓	pre-N	?	✓	?	inf. F.	
Greek, Attic	*o*	—	?	pre-N	✓	✓	?	formal	Wackernagel (1926: 311-312), Schwyzer (1950: 60-61)
Modern Greek	*vre*	✓	✓	pre-N	✓	✓	?	informal	Holton, Mackridge & Philippaki-Warburton (2012: 35), Stavrou (2013: 311-315), Hill (2022: 7, 9)
	o	✓	✓	pre-N	✓	✓	?	?	
	e	✓	—	pre-N	—	✓	?	?	
Persian	*ey*	✓	?	pre-N	✓	—	?	archaic	Yousef and Torabi (2018: 45)

Table 2. Vocative particles in Asian, Oceanic and American languages

Language	Item	Optionality	Autonomy	Position	Address	Call	Distance	Social relation	Source
Mari	*-j*	✓	—	post-N	?	✓	?	intimate	Riese, Bradley & Yefremova (2022: 66-67), Bradley & Luutonen (2023: 534, 537, 557)
Lezgian	*ja*	✓	?	pre-N	✓	✓	?	?	Haspelmath (1993: 83, 249)
Arabic	*ya:*	✓	✓	flexible	✓	✓	?	?	Moutaouakil (1989: 139-152), Haddad (2020:??1-3), Hill (2022: 9)
Nivkh AD/ESD	*-a/-aj*	?	?	post-N	?	✓	?	?	Gruzdeva (1998: 18-22)
Nivkh AD	*-o/-ǵo*	?	?	post-N	?	✓	?	?	Gruzdeva (1998: 18-22)
Korean	(*y*)*a*	?	?	flexible	?	✓	?	children	Lee (1989: 69), Sohn (1999: 341-344)
	i/o	?	?	flexible	?	✓	?	adolescent	Sohn (1999: 341-344)
Dumi	*e:*	✓	?	pre-N	?	✓	?	?	Van Driem (1993: 67-68)
Karbi	*ó*	✓	?	pre-N	(—)	✓	?	?	Konnerth (2022: 570-571)
Lao	*ʔe:j*	?	?	post-N	?	✓	?	?	Enfield (2007: 69-70)
Indonesian	*nah*	✓	?	pre-N	?	✓	?	?	Sneddon (1996: 364-365)
	hai	✓	?	pre-N	?	✓	?	?	
Maori	*e*	—	?	pre-N	?	✓	?	?	Bauer, Parker & Kareongawai Evans (1993: 301-302)
	wa:	✓		flexible	✓	✓	?	?	
Amele	*o*	✓	?	flexible	?	✓	?	?	Roberts (1987: 1984)
Kobon	*o*	✓	?	post-N	?	✓	distal	?	Davies (1981: 6, 123-124)
	e/me/rö	✓	?	post-N	✓	✓	?	?	
Coastal Marind	*ay*	?	✓	post-N	?	✓	prox	?	Olsson (2021: 137-138, 143)
	aw	✓	✓	pre-N	?	✓	prox	?	
Hualapalai	*é*	?	?	post-N		✓	prox	?	Watahomigie, Bender & Yamamoto (1982: 71-75)
	(*y*)*é*	?	?	post-N	?	✓	prox	?	
	(*w*)*ó*	?	?	post-N	—	✓	dist	?	
Cl. Nahuatl	*-é*	?	?	post-N	?	✓	?	M. SPKR	Richard Andrews (2003: 41-42, 147-148)
Aymara	*-ya*	✓	?	post-N	?	✓	?	(intimate)	Marcapaillo Achu (2009: 144-147)

Table 3. Vocative particles in African languages

Language	Item	Optionality	Autonomy	Position	Address	Call	Distance	Social relation	Source
Kissi	*-wéì*	✓	?	post-N	?	✓	?	?intimate	Childs (1995: 144-145, 311)
Mani	*-yò/yè*	✓	?	post-N	?	✓	?	?	Childs (2011: 106)
Koromfe	*é*	✓	?	pre-N	?	✓	?	?	Rennison (2013: 168)
Baoulé	*-à*	—	?	post-N	?	✓	?	?	Noel Aziz Hanna & Sonnenhauser (2013: 284)
Twi	*-ē*	—	?	post-N	?	✓	dist	?	Christaller (1875: 36-37, 94)
Ewe	*ée*	✓	?	post-N	?	✓	dist	?	Ameka (1998: 198-199)
Gwa	*yèé*	?	?	?	?	✓	prox	?	Painter (1975: 19-20)
	yèéèè	?	?	?	?	✓	dist	?	
	xùúùù	?	?	?	?	✓	dist	?	
Yorùbá	*ò*	✓	✓	post-N	?	✓	?	?	Akinlabí & Liberman (2000: 43-44), Ọláwalé (2022: 2-3)
Ijọ	-àa	✓	?	post-N	?	✓	?	?	Williamson (1965: 41)
Eton	*á*	✓	?	pre-N	?	✓	?	?	Van de Velde (2008: 209-210)
Gyele	-ò	✓	?	post-N	?	✓	prox	?	Grimm (2021: 249)
	-ó	✓	?	post-N	?	✓	dist	?	
ɓaka	-ó	?	?	post-N	?	✓	?	?	Djoupee (2017: 107, 236)
Umbundu	*á-/′*	—	—	pre-N	✓	✓	?	?	Schadeberg (1990: 29, 32, 55), Hill (2007: 2085, 2087-2090)
Rufumbira	*yee* (*we*)	?	?	pre-N	✓	✓	?	?	Sauder (2016: 161-162)
Tswana	*-a*	?	?	post-N	✓	✓	?	intimate	Cole (1967: 396-399)
Zulu	*e*		?	pre-N	?	✓	prox	intimate	Grout (1859: 78-79)
	we	✓	?	pre-N	?	✓	dist	?	
	au	✓	?	pre-N	?	✓	?	solemn	
Naro	*-è*	?	?	post-N	?	✓	?	?	Visser (2013: sec. 3.2.5.1.10)
Lugbara	*la/là*	✓	?	post-N	?	✓	?	?	Crazzolara (1960: 140)
Dinka	*-ee*	✓	—	post-N	?	✓	dist	singular	Nebel (1948: 102)
	-ke	✓	—	post-N	?	✓	dist	plural	
Tarifiyt	*a-*	?	?	pre-N	?	✓	?	?	Mourigh & Kossmann (2019: 190)
Tashlhiyt	*wa-*	?	?	pre-N	?	✓	?	?	Makhad (2024: 502- 503)
	taba	?	?	pre-N	?	✓	?	hon.F	
	(*da*)*dda*	?	?	pre-N	?	✓	?	hon.M	
Somali	*-èey/-àay/ -òoy*	✓	—	post-N	?	✓	dist	hon. F.	Saeed (2007: 548-549, 552-553)
	-òw	✓	—	post-N	?	✓	?	hon. M.	
	-yahay	✓	—	post-N	?	✓	?	inf. F.	
	-yohow	✓	—	post-N	?	✓	?	inf. M.	

Table 4. Vocative suffixes

Language	Item	Optionality	Position	Address	Call	Distance	Social Relation	Source
Czech		—	stemfinal	✓	✓			
Polish		✓	stemfinal	✓	✓	?	formal	Bielec (2012: 148-151)
Croatian		✓	stemfinal	✓	✓	?	?	Vrabec (2022: 48-50)
Romanian	*-e*	✓	stemfinal	✓	✓	?	informal	Hill (2014: 55-56), Hill (2017: 342)
Bulgarian	*-o*	✓	stemfinal	✓	✓	?	intimate	Girvin (2013: 169-174)
	-e	✓	stemfinal	✓	✓	?	intimate	Hill (2007: 2103)
Modern Greek		—	stemfinal	✓	✓	?	?	Hill (2017: 342)
Lithuanian		?✓	stemfinal	✓	✓	?	?	Ramonienė (2019: 23-25)
Urdu		?	stemfinal	✓	✓	?	?	Schmidt (1999: 11-12)
Hindi		?	stemfinal	✓	✓	?	?	Agnihotri (2007: 50-55)
Georgian	*-o*	✓/--	stemfinal	✓	✓			Abuladze & Ludden (2013)
Limbu	*-e*	?✓	stemfinal	✓	✓	?	?	van Driem (1987: 47-48)
Dumi		?✓	stemfinal	✓	✓	?	?	van Driem (1993: 67-68)
Ket	*-á/-ó*	✓	stemfinal	?	✓	prox	?	Georg (2007: 115-116)
	-ɔ́ /-ó	✓	stemfinal	?	✓	distal	?	
Udihe	*-i*	✓	stemfinal	✓	✓	?	intimate	Nikolaeva & Tolskaya (2001: 470-472)
	-e	✓	stemfinal	✓	✓	distal	?	
Itelmen	*-e/-a*	✓	stemfinal	✓	✓		?	Georg & Volodin (1999: 72-73)
Martuthunira	*-yi*	?	stemfinal	?	✓	?	?	Dench (1994: 187-188)
Mangarrayi	*-y*	✓	stemfinal	?	✓	?distal	?	Merlan (1989: 56-57, 77)
Nez Perce	*-e*	?	stemfinal	?	✓	?	intimate-jun	Aoki (1970: 71-80)
	-eʔ	?	stemfinal	?	✓	?	intimate-sen	
Central Alaskan Yupik	*-mi*	?	stemfinal	?	✓	?	formal	Miyaoka (2012: 794-798)

Table 5. Non-concatenative vocative forms

Language	Type	Optionality	Address	Call	Distance	Social relation	Source
Karo Batak	vowel length.	?	?	✓	?	?	Woollams (2013: 537)
Chuchki	vowel length.	?	?	✓	?	?	Dunn (1999: 54-55)
Central Alaskan Yupik	vowel length.		?	✓	dist	intimate	Woodbury (1987: 726-728) and Miyaoka (2012: 859-863)
Chipewyan	vowel length.	?	?	✓	?	?	Jacobsen (1994: 34-35)
Sierra Miwok	vowel length.	?	?	✓	?	?	Jacobsen (1994: 34-35)
Mohawk	vowel length.	?	?	✓	?	?	Jacobsen (1994: 34-35)
Hidatsa	vowel length.	?	?	✓	?	?	Davis & Tsujimura (2014: 216-217)
Wakashan	ablaut *u>o, i>e*	?	?	✓	?	?	Jacobsen (1994: 24-33)
Turkana	tonal infl.	?	?	✓	?	?	Dimmendaal (1983: 66-67, 259-268)
Shilluk	tonal infl. H	?	?	✓	?	?	Remijsen & Ayoker (2018: 33-34, 69)
Ngiti	tonal infl. H	?	?	✓	?	?	Kutsch Lojenga (1994: 166-167)
Somali	tonal infl.	?	?	✓	?	?	Saeed (2007: 548-553)
Karbi	tonal infl.	?	✓	✓	?	?	Konnerth (2022: 570-571)
Indo-European, Hungarian, Turkish	L+H*!H%	✓	—	✓	dist	intimate	
German	L*+H L-H%	✓	—	✓		intimate	
Wolof	final H%	✓	—	✓	dist		Rialland & Robert (2001: 915)
Mani	final H%	✓	—	✓	dist		Childs (2011: 50-51)
Yorùbá	register rise	✓	—	✓	dist		Ọláwalé (2022: 4-5)
Thai	leveling of H,M,L		—	✓			Luksaneeyanawin (1983: 338-362, 1998: 394-395)
Mandarin	final L%		—	✓			Zhang (2018, 2018)
Daakaka	vocative chant	?	?	✓	?	intimate	von Prince (2015)
Persian	stress-shift	?	?	✓	?	?	Yousef & Torabi (2018: 45)
Turkish	stress-shift	?	?	✓	?	?	Göksel & Kerslake (2005: 27)
Uzbek	stress-shift	?	?	✓	?	?	Noel Aziz Hanna & Sonnenhauser (2013: 284)
Nivkh	stress-shift	?	?	✓	?	?	Gruzdeva (1998: 12), Nedjalkov & Otaina (2013: 55)
Nahuatl	stress-shift	?	?	✓	?	?	Richard Andrews (2003: 39)
Sardinian	truncation	?		✓	?	?	Floricic & Molinu (2018)
Central Alaskan Yupik	truncation	?	?	✓	?prox	intimate	Woodbury (1985), Miyaoka (2012: 859-863)
Seediq	truncation	?	?	✓		intimate	Tsukida (2005: 301)
Kilivila	truncation	?	?	✓	?	?	Senft (1986: 130-131)
Yapese	truncation	?	?	✓	?	?	D'Alessandro & Oostendorp (2016: 64-65)
Indonesian	truncation	?	?	✓	?	?	D'Alessandro & Oostendorp (2016: 64-65)

As illustrated in the previous sections, vocatives exhibit a wide range of forms and functions, ranging from particles that are free morphemes and that potentially can function as independent utterances with independent illocutionary force to tonal or subtractive morphemes that cannot occur without a phonological host providing segmental material.

Given this vast diversity, attempting to develop a rigid, unified analysis of vocatives seem unlikely to succeed. However, all vocative markers share a common feature: they either express the speaker's uncertainty about whether they have the addressee's attention (call function) or serve to reaffirm the addressee's full attention (non-initial address function). These functions can occur independently as utterances (e.g. Schegloff 1972: 357-359; Levinson 1983: 71, 281, 308-312), or adding not-at-issue content to an already existing utterance (e.g. Portner 2007b: 412-416), thereby effectively acting as some type of modifier in the sense of Pollard & Sag (1994: 34, 56), that combines with a syntactic constituent inheriting its syntactic category features while altering its semantic content.

There is widespread agreement among contemporary syntacticians that vocative nouns form a part of constituent larger than DPs, mostly named Vocative Phrase or VocP (cf. Hill 2022; Ritter & Wiltschko 2020; Espinal 2013; Stavrou 2013 and Corr 2022b). This analysis is supported by the data discussed in this paper. Semantically vocatives have been less thoroughly studied, but significant contributions include work authored by Portner (2007b), Jeong & Condoravdi (2017) and García-Fernández (2023). What remains to be further explored is how elements used to mark calls and addresses are applied to more complex utterances, as attested cross-linguistically.

Returning to the initial question of whether vocative formation should fall under the field of inflection or derivation, the present study cannot provide a definitive answer. This is because there is often insufficient evidence to determine whether the marker and the vocative noun form two independent phonological words or a single unit. In some cases with particles, however, the data suggest that the marker functions as an independent unit. It is likely that vocative marking shows a wide range of diversity across languages, regarding the question whether the markers behave like inflectional or derivational affixes.

For greater cross-linguistic comparability, future studies are strongly encouraged to include the seven parameters outlined in Section 2.1 and determine their specification for each individual marker.

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