

## An Acoustic Analysis of Tonal Contrasts in Maram

This study offers an extensive acoustic and computational examination of the tonal system of Maram, an under-documented Tibeto-Burman language spoken in Northeast India. Maram exhibits a five-way contrast comprising three-level tones, including High (H), Mid (M), and Low (L), and two contour tones, such as Mid-Rising (MR) and Low-Rising (LR). This is the first instrumental study that provides a detailed analysis of tone in this language.

The acoustic analysis is based on normalized fundamental frequency ( $f_0$ ) trajectories extracted at 10% intervals across the syllable. To quantify pitch height and directionality, each average contour was modeled using a linear function,  $f_0(\text{time}) = m \cdot \text{time} + c$ , where the slope ( $m$ ) represents the degree of tonal movement and the intercept ( $c$ ) encodes initial pitch height. The resulting trends reveal clear and interpretable separation across tonal categories. The High tone shows a modestly positive slope (+0.07) with a distinctly high onset (203.88 Hz,  $R^2 = 0.98$ ), indicating a mostly level tone with slight upward drift. The Mid and Low tones exhibit mildly falling trajectories ( $-0.08$  and  $-0.06$ ) with well-separated intercepts of 162.97 Hz and 136.51 Hz, respectively. This provides quantitative evidence for the gradient yet stable distinctions among level tones. The contour tones show sharply rising profiles, with MR presenting a slope of +0.35 and LR a slope of +0.31, accompanied by onset values that situate them, both phonetically and functionally, between their level-tone counterparts. These findings confirm that the tonal categories traditionally described for Maram have clear mathematical signatures, underscoring the language's tonal complexities (see Figure 1).

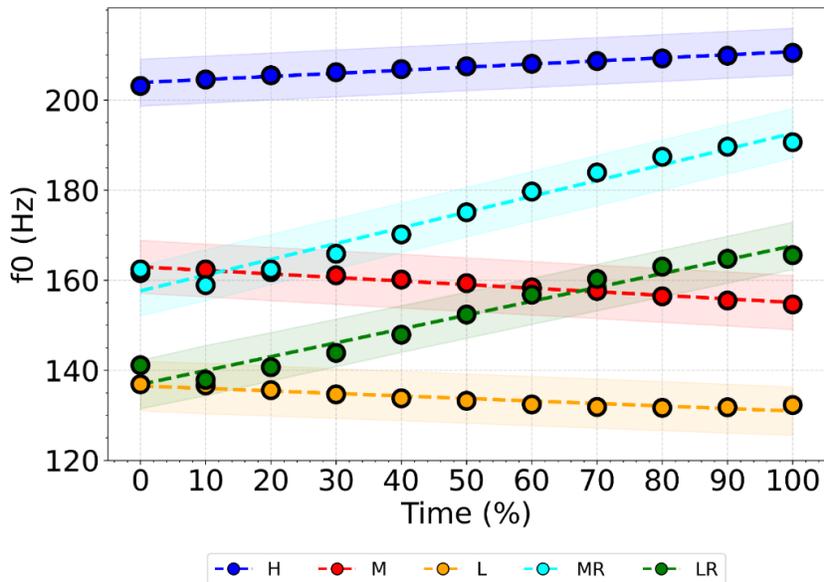


Figure 1: Linear fit of average  $f_0$  contours for five tone categories across normalized time (0–100%). The tone categories include high (H), mid (M), low (L), mid-rising (MR), and low-rising (LR). Shaded areas represent the standard deviation across all series and speakers. Dotted lines indicate the linear model fit to each tone category.

Having established the phonetic evidence of the five-way system, the study evaluates tonal distinctiveness through computational classification. Six traditional MLs include Decision Trees, K-Nearest Neighbors (KNN), Naive Bayes, Random Forests (RF), Support Vector Machines, and

Gradient Boosting [1]. Two deep learning architectures, such as a one-dimensional Convolutional Neural Network (1D-CNN) and a Long Short-Term Memory (LSTM), were trained and tested on time-series f0 data. Among these, RF and KNN achieved the strongest performance, each reaching an F1-score of 93%, and surpassing the deep learning models. Nevertheless, the LSTM network demonstrated notable sensitivity to temporal variation, achieving 88% accuracy, suggesting its usefulness for languages with more complex tonal transitions (Figure 2).

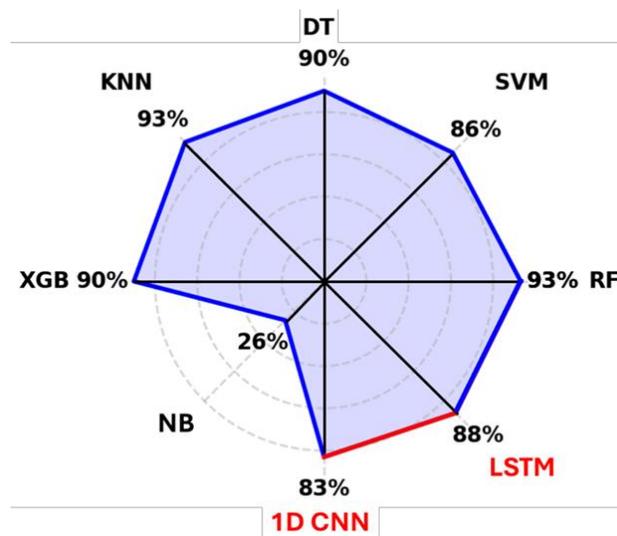


Figure 2. Comparison of F1-scores across traditional and deep learning models used for five-class tone classification in Maram. The traditional MLs include Logistic Regression (LR), Decision Tree (DT), Random Forest (RF), Support Vector Machine (SVM), K-Nearest Neighbors (KNN), Naive Bayes (NB), and Gradient Boosting (XGB), are indicated in blue. In contrast, the deep learning models, 1D Convolutional Neural Network (1D CNN) and Long Short-Term Memory (LSTM), are marked in red.

Taken together, the results provide evidence for both the quality and quantity of tones in Maram [2]. The study demonstrates how mathematically grounded phonetic modeling, combined with ML techniques, can serve as an effective toolkit for tonal analysis in low-resource languages. Beyond contributing to the phonetic documentation of Maram, the methodological framework presented here offers a scalable, data-driven template for tonal research across under-described languages worldwide.

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## English *Come* as a Verb of Accessibility to Consciousness

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This presentation proposes a unified account of the contextual polysemy of the English deictic verb *come*. Dominant approaches to polysemy - in particular, analyses within a cognitive linguistic approach (Lakoff 1987, Evans 2005, Lewandowska-Tomaszczyk 2012) - treat a word's multiple contextual interpretations as distinct meanings related to spatial representations via mechanisms such as metaphor. By placing spatial uses at the center of complex networks of discrete meanings, such analyses can lead to an unparsimonious proliferation of lexical information while failing to accurately predict and constrain the precise "extended" senses that a given word can have.

In contrast, monosemous approaches (Ruhl 1989, Bouchard 1995, Pustejovsky, 1995) consider that a given word possesses a single lexical meaning that interacts with contextual information and background knowledge to yield a wide array of interpretations. For example, Bouchard (1995) argues that the French deictic verb *venir* ('come') does not intrinsically express motion toward the speaker, but rather abstract orientation towards an end relation with the deictic center *o*. Characterizing the latter as the 'me-here-now', he maintains that both spatial and non-spatial contextual interpretations of the verb arise in part because context brings us to select one of this constant's three facets. While adopting this general monosemous approach, we nonetheless argue that the tripartite formulation of the deictic center is problematic because it moves domain-specific information (space, time) into the semantic representation rather than eliminating this complexity altogether, and because it fails to account for the full range of deictic verbs' contextual uses.

Leveraging insights from Bouchard's neo-Saussurean framework (1995, 2002, 2013), we argue instead that the deictic center is composed of domain-independent primitives provided by properties of general cognition, as in (1). In line with Bouchard (1995), we define an SC as any contextually inferable entity (the speaker, the hearer or a third person) which the speaker considers to possess consciousness. In turn, we define accessibility as in (2). We propose that the English deictic verb *come* has the invariant meaning 'X is oriented toward being in a relation of localization (i.e. anchoring) with the deictic center', as in (3).

- (1) Deictic center *o*: 'a point that is accessible to a Subject of Consciousness (SC)'
- (2) An element *A* is accessible to a given SC if there is a potential for *A* to become a part of the SC's Content of Consciousness (i.e. for the SC to *experience A*).
- (3) Semantic representation of *come*:

$$\xrightarrow{\text{X}} \text{L}(\text{X}, \text{o})$$

All specific senses of *come* emerge compositionally from the interaction between the verb's invariant meaning and contextual/background information<sup>1</sup>. For example, in (4) *come* indicates that 'Mike is oriented toward being localized at *o*.' The subject *Mike* identifies *X* as a concrete, mobile entity and the NP *the restaurant* identifies *o* as a physical point. World knowledge tells us that one physical point to which an SC has access is his or her own location, yielding the enriched meaning: 'Mike is undergoing motion towards the location of an SC (most likely the speaker).' Because an SC can be any contextually provided conscious entity, *come* can be used to describe motion not only toward the speaker (the most discursively salient SC, as in (4)), but also toward the listener (5) or a third person (6) when context supports such a reading.

- (4) Mike is coming to the restaurant.

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<sup>1</sup> For a full discussion of this verb's semantic content and resulting contextual interpretations, see Zuercher (2013).

- (5) I am coming to the restaurant.
- (6) Bill thought a man was coming toward him.

Because the notion of accessibility is domain-independent, there are many ways in which an element can be accessible to an SC, accounting for the numerous situations that *come* can describe. For example, in (7) the PP indicates that accessibility occurs via visual perception. In (8), due to properties of the subject and complement, accessibility is interpreted as possession. In (9), context supports a construal of mental accessibility.

- (7) The castle came into sight.
- (8) The inheritance came to her from her aunt.
- (9) The idea came to me last week.

The most general way for an element to be accessible to SCs is to be part of the real world, i.e., to exist. Hence, *come* can be used to describe being in existence or coming into existence. Thus, the information provided by the subject and the PP in (10) allows *come* to describe an entity as existing with certain properties, while the arguments in (11) through (13) lead to contextual interpretations such as origin, heredity, and cause, respectively.

- (10) Dogs come in many shapes and sizes.
- (11) This word comes from Japanese.
- (12) Her brown eyes come from her father.
- (13) Her fatigue comes from too much work.

When the verb tense suggests change rather than a stable state, the sentence can be construed as expressing *entering* into existence. Depending on the information provided by the arguments, this can take the form of such diverse situations as a physical entity's formation (14), the occurrence of an event (15), or a temporal succession (16).

- (14) The planet came into being about 4.5 billion years ago.
- (15) The crisis came at an inconvenient time.
- (16) The generations that come after us will face new challenges.

Moreover, since adjectives express states and properties, an adjective can also be used with *come* to express the entering of a state by identifying the nature of X's end relation with the deictic center *o*. In (17), accessibility is achieved via X's existence (i.e. being true), and we therefore construe the sentence as describing a transition from potentiality to actuality. Similarly, in (18), the adjective indicates that the subject's referent transitions from fictiveness to reality via the property of being alive. Another general way for a person to have access to an entity is via potential control. Hence, an object can become accessible by leaving a state of fixedness and entering into the realm of potential manipulability, an interpretation triggered by adjectives of disunion, as in (19).

- (17) Your dreams will come true.
- (18) The figures in the painting came alive.
- (19) The screw on the refrigerator came loose.

Having presented a unified account of the pragmatic flexibility of *come*, we conclude the presentation by outlining potential consequences of this analysis for the contextual polysemy of the Japanese deictic verb *kuru*.

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## A New Scope Puzzle in Japanese Ga/No Conversion

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**Introduction:** One important issue in the study of Ga/No Conversion (GNC) that has attracted much attention is the scope taking properties of genitive subjects (see Hiraiwa (2001, 2005), Miyagawa (2012), and Ochi (2021)). In this paper, I will bring a new fact that genitive subjects in the adnominal clause take scope over the head noun that the clause attaches to when the whole nominal is embedded in a clause and marked with nominative, which is otherwise prohibited. I will solve this scope puzzle through extension of Hiraiwa’s (2001, 2005) genitive case-licensing under the phase-based approach that makes crucial use of case-valuation.

**Previous Studies:** Ochi (2021), for example, reports that the one marked with genitive case can take scope over the head noun *probability* in (1a), yielding a distributive reading. Nonetheless, when the adverb *yesterday* precedes the embedded genitive subject as in (1b), the distributive reading cannot be obtained even if the subject is marked with genitive case.

- (1) a. zen’in-ga/no                      kinoo                      kita                      kanoosei  
           everyone-Nom/-Gen    yesterday                      came                      probability  
           ‘the probability that everyone came yesterday’  
       b. kinoo                      zen’in-ga/no                      kita                      kanoosei  
           yesterday                      everyone-Nom/Gen                      came                      probability (Ochi (2021: 118))

Ochi (2021) argues that the genitive subject in (1a) moves to the Spec-DP and its case is licensed there. Hence, the distributive reading is available. However, the genitive subject in (1b) as well as the nominative subject in general, cannot take scope over the head noun *probability* because it stays within the adnominal clause.

**Additional Data:** The conclusion in the previous studies was that the genitive subject cannot take scope over the head noun when it follows the adverb. However, the situation looks different when the whole noun phrase in the larger clause is marked with nominative case as in (2). Here, I use *reason* instead of *probability* just for ease of the judgement of scope relation.

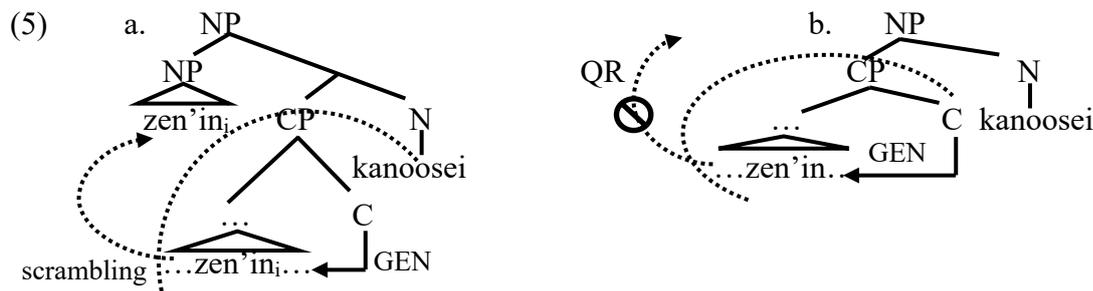
- (2) [kinoo                      zen’in-**no**                      kita                      riyuu]-**ga**                      (sorezore)                      wakatteiru  
       yesterday                      everyone-Gen                      came                      reason-Nom                      (each)                      understand  
       ‘I understand each reason that everyone came yesterday’

In (2), some native speakers of Japanese reported that it has a distributive reading, which suggests that the embedded subject with genitive case takes scope over the head noun even when the subject follows the adverb *yesterday* in the adnominal clause. Some comments are in order. The fact that the embedded subject follows the adverb *yesterday* indicates that it is not a so-called major subject and it is in the adnominal clause. Note also that the distributive reading of genitive-marked *everyone* is still unavailable to those who permit a distributive reading in (2) when the whole noun phrase embedded within the larger clause is marked with accusative case as in (3). The expression *sorezore*, if it appears, forces the unavailable reading that *everyone* takes scope over *reason* in (3), and thus the sentence is marked with \*.

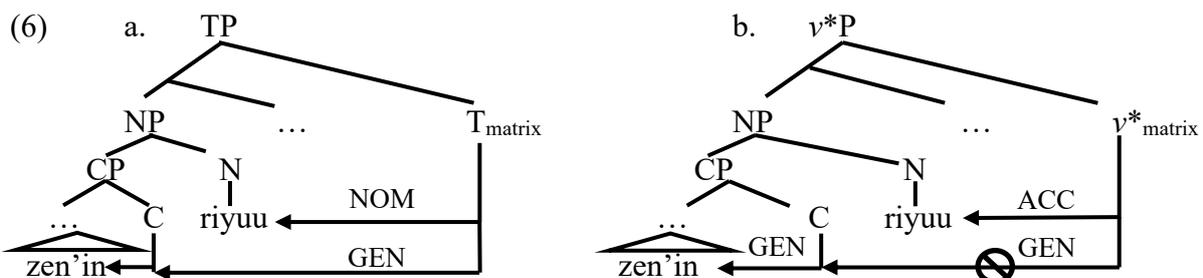
- (3) [kinoo                      zen’in-**no**                      kita                      riyuu]-**wo**                      (\*sorezore)                      sitteiru  
       yesterday                      everyone-Gen                      came                      reason-Acc                      (each)                      know  
       ‘I know the reasons that everyone came yesterday’

Thus, the contrast between (2) and (3) should be accounted for.

**Analysis:** Before proposing my analysis, I introduce some assumptions. First, along with Takahashi (2010), I assume that case marking/valuation determines phasehood. Also, I assume that the domain of quantifier raising (QR) of *everyone* is phase-bound. With these assumptions, I propose, based on Hiraiwa (2001, 2005), that the adnominal C head licenses genitive case either independently or with the higher T head. Since Ga/No conversion is possible while Wo/No conversion is generally impossible, I assume that  $v^*$  cannot participate in the genitive-licensing with the adnominal C head. Now, let us consider how the sentences in (1)-(3) can be explained. Firstly, (1a) and (1b) are analyzed as in (5a) and (5b) respectively. In the diagrams to follow, solid lines represent case-licensing, dashed lines movement of NP (QR or scrambling), and semicircles a phase boundary.



In (1a, b), where the whole noun phrase is not embedded in the larger clause, the only case-licenser for genitive is the adnominal C head and its projection forms a phase. Since QR is phase-bounded, QR of *everyone* cannot cross this CP. Thus, in (1b), *everyone* cannot take scope over the head noun, which leads to the absence of the distributive reading. In (1a), where *everyone* precedes *yesterday*, nothing blocks the genitive subject *everyone* from undergoing scrambling to the specifier of NP, hence it has the distributive reading in question. Secondly, the examples in (2) and (3) are analyzed as in (6a, b).



In (6a), the matrix T takes part in the genitive licensing of *everyone* with the adnominal C head through the nominative case licensing of the whole noun phrase headed by *reason*, which extends the domain of QR of *everyone* to the matrix TP, resulting in the distributive reading. However, in (6b), the whole noun phrase is licensed by the matrix  $v^*$  that I assume cannot join the genitive case, licensing, which means the domain of QR is limited to the adnominal clause, resulting in the unavailability of the distributive reading.

**Selected References:** Hiraiwa (2001) “On Nominative-Genitive Conversion,” *MITWPL* 39.  
 Ochi (2021) “Some Notes on Nominative/ Genitive Object Construction in Japanese,”  
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# The Syntax of Poetic Modality: A Preliminary Study on Kakarimusubi and Role Language (Yakuwarigo)

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## 1. Introduction

This Paper examines two ostensibly distinct linguistic phenomena:

- (i) Classical Japanese *Kakarimusubi*: Its standard and non-standard variations. For instance, in the example “*Gonnochunago-zo Notamai-tsure ba*”, the focus particle “*zo*” appears, yet the predicate surfaces in the exclamatory form “*tsure*” rather than the expected attributive form. (Maki et al.2025)
- (ii) Modern Role Language (*Yakuwarigo*) in Japanese and English, as evidenced in anime and Disney films. Examples in this section are drawn from Sekiguchi (2016):
  - a. Japanese: The use of sentence-final particles such as “*-wa*” or “*-kashira*” by heroines in Studio Ghibli films (e.g., “*Tani-no Hito-ga Yorokobu-wa*”).
  - b. English: The use of non-standard forms by characters like the dwarfs in *Snow White* (“*They ain't stole*”) or the command-heavy register of Disney villains (“*Silence!*”).

We contend that these are not isolated idiosyncrasies but diverse manifestations of a unified linguistic faculty: Poetic Syntax, governed by Poetic Licence. We propose that this syntactic module operates within a dedicated functional projection—the Poetic Modality Phrase (Poetic ModP) within the CP domain, accounting for its creative and rule-bending nature across languages.

## 2. Theoretical Framework

We propose a Poetic ModP, based on Rizzi's (1997) split-CP and Miyazaki & Ishii's (2026) Mod<sup>o</sup> analysis, as the syntactic locus of artistic, character-driven language.

### 2.1 Structural Position

Poetic ModP is located within the CP layer, between ForceP and FinP. However, due to Poetic Licence, it can be realised locally (e.g., adjoined to vP), which explains its flexible distribution.

### 2.2 Bipartite Structure

- a. [Mod:Discourse]: Encodes speaker-oriented modality towards the interlocutor (e.g., intimacy, deference, arrogance). This layer constitutes the core of Role Language features (e.g., “*-zamasu*”, “*-wa*”, “*-kashira*” in Japanese; question tags for empathy or exclamations like “oh dear” in English).
- b. [Mod:Focus]: Encodes the foregrounding or emphasis of a specific element within the sentence. This is the core mechanism of *Kakarimusubi*.

### 2.3 The Mechanism of Poetic Licence

The formal features within Poetic ModP are subject to Poetic Licence, permitting the strategic relaxation or reconfiguration of standard syntactic operations (e.g., Agree, movement) to achieve aesthetic, dramatic, or character-building effects.

## 3. Applying Poetic ModP to Japanese and English Data

### 3.1 Analysis of Kakarimusubi (Classical Japanese)

- a. The standard “*zo*” construction involves a [Mod:Focus] feature which triggers A'-movement of the focused phrase to Spec-Poetic ModP and an Agree relation with Fin<sup>o</sup>, resulting in the predicate's attributive form.

Ex. *Mairase-yo to zo, Hito-no Moushi-tsuru*. (Involving both movement and agree)
- b. Non-standard cases are explained by Poetic Licence operating within the Poetic ModP:
  - (i) Non-standard Agreement: In “*Mizushi-ga Kuruma-ni-zo Ari-kere ba*”, Poetic Licence allows the [Mod:Focus] feature of “*zo*” to be valued without triggering the standard Agree operation, potentially to borrow the concessive nuance associated with the exclamatory form “*kere*”.
  - (ii) Non-standard Movement: In “*Wagakokoro-wo ba Kimi-zo Shiri-keru*”, the presence of “*zo*” activates [Mod:Focus]. Poetic Licence permits the focus feature to be valued (*in*

*situ*) without necessitating movement to the clause periphery, simplifying the structure whilst retaining emphatic force.

NOTE: The examples in this section are drawn from Maki et al. (2025), whose work on “*Genji-monogatari*” provides the relevant data.

### **3.2 Analysis of Role Language (Modern Japanese & English)**

- a. Japanese Role Language: Particles such as “-*zamasu*” or “-*wa*” are lexical instantiations of [Mod:Discourse] features (e.g., [+intimate], [+feminine]). Their ability to attach to various syntactic categories (V, Adj, N) and appear in different clause types derives from Poetic Licence, which allows the head of Poetic ModP to merge flexibly within the structure.
- b. English Role Language:
  - (i) Dwarfs' Non-standard English: The use of ain't, -in' for -ing, and “ya” are not mere performance errors. They are [Mod:Discourse] features ([+uneducated], [+rough], [+rustic]) licensed under Poetic Licence within the Poetic ModP. This creates a deliberate contrast with the Standard English of Snow White ([Mod:Discourse: +standard, +refined]).
  - (ii) Villains' Language: The frequent use of imperative forms (“Take her far into the forest!”) and repetition (“One hour, you hear?”) are [Mod:Discourse] features expressing [+dominant, +impatient]. Poetic Licence allows these features to override or dominate the clause's default illocutionary force.

### **4. Theoretical Advantages and Cross-Linguistic Predictions**

This model demonstrates four key strengths. First, it achieves Descriptive Adequacy by accounting for both standard and non-standard phenomena in *Kakarimusubi* and the fluid nature of Role Language in Japanese and English within a unified framework, explaining everything from the distribution of “-*zamasu*” to the dwarfs' non-standard grammar. Second, its Explanatory Power moves beyond mere feature-listing to reveal the underlying syntactic mechanism: these features are licensed within a dedicated, flexible Poetic ModP. Third, the model has Cross-Linguistic Applicability; the core concept of a Poetic ModP subject to Poetic Licence predicts that languages with rich artistic traditions (e.g., Shakespearean English, German poetic inversions) will exhibit similar syntactic operations in a designated functional projection. Finally, it Bridges Synchronic and Diachronic Analysis, modelling sociolinguistic change—such as the decline of “women's language” in Disney and Ghibli films—as a shift in the inventory of available [Mod:Discourse] features within the Poetic ModP, driven by evolving social stereotypes.

### **5. Conclusion: Towards a Universal Theory of Artistic Syntax**

*Kakarimusubi* and Role Language are not peripheral curiosities but central evidence for a Poetic Syntax module inherent to human language. This system utilises the core syntactic apparatus (projections, features, Agree) in a creatively licensed fashion to generate aesthetic and pragmatic effects. The proposed Poetic ModP provides a rigorous, generative framework for this module, unifying the analysis of historical Japanese texts and modern films, from the particle “-*zo*” to “-*zamasu*”, demonstrating that the grammar of poetry and character is an integral part of our linguistic capacity.

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**1. Introduction:** Case assignment in gerunds has long been a controversial issue in generative grammar. Recent studies (e.g. Shimokariya (2017); Sato (2019)) have addressed gerunds within the Minimalist framework, yet theoretical and empirical questions remain unresolved. Building on Pair-Merge approaches (Richards (2009); Epstein, Kitahara and Seely (EKS) (2016); Otsuka (2017, 2023)), this study proposes a new analysis of gerunds.

Specifically, this study integrates phase cancellation by external Pair-Merge of heads (EKS (2016)) and internal Pair-Merge of phrases (Richards (2009); Otsuka (2023)) to account for the internal structures of gerunds and of verbs selecting gerundive complements. The proposed analysis resolves long-standing problems concerning (i) Case assignment from the matrix verb to the gerundive complement, (ii) the licensing of gerundive subjects, and (iii) the clausal size of gerunds. This study deals with two types of gerunds: acc-gerunds with an overt subject in (1a), and control gerunds without an overt subject in (1b).

- (1) a. Sue prefers John reading a book.  
b. Sue prefers reading a book.

**2. Five Assumptions:** (i) Chomsky's (2013, 2015, 2021) Labeling Algorithm and Form Copy are adopted. (ii) Extending EKS (2016) to the C-T domain and following Shimokariya (2017), this study assumes that because T in gerunds is defective ( $T_{def}$ ), it neither agrees with a gerundive subject nor assigns structural nominative Case to it; hence no  $\phi$ -feature inheritance takes place from C to  $T_{def}$ , which in turn triggers external Pair-Merge of C and  $T_{def}$ , forming a  $\langle T_{def}, (C) \rangle$  amalgam, canceling C's phasehood and rendering it syntactically invisible. This study also assumes that the  $\langle T_{def}, (C) \rangle$  amalgam does not bear any unvalued Case feature. (iii) Gerundive subjects undergo Internal Pair-Merge to the  $\langle \phi, \phi \rangle$  adjunct position (i.e. the TP adjunct position) (Otsuka (2023)). Slightly modifying Moritake's (2024: 125) Nominal Licensing Conditions, this study assumes that when an NP occurs in an adjunct position, unvalued features on multiple occurrences of the same NP can all remain unvalued and still be properly licensed, while the higher copy is pronounced at PF in accordance with Sportiche (2016). (iv) Verbs selecting gerundive complements are regarded as bridge verbs, defined here as verbs that do not assign structural Case to their complements. (v) The attachment of *-ing* is a morphological, pre-syntactic operation.

**3. Analysis:** In the acc-gerund (2a), R combines with  $v^*$ , labeling  $\alpha$  as  $\langle \phi, \phi \rangle$ . External Argument (EA) merges in spec  $\langle R, v^* \rangle P$  and receives a  $\theta$ -role. When  $T_{def}$  and C are introduced, the absence of  $\phi$ -feature inheritance results in external Pair-Merge of  $T_{def}$  and C, creating  $\langle T_{def}, (C) \rangle$ , with C becoming syntactically invisible. EA then undergoes internal Pair-Merge to the  $\langle T_{def}, (C) \rangle$  adjunct position, determining the label of  $\beta$  and  $\gamma$  as  $\langle R, v^* \rangle$  and allowing the

higher copy to be phonetically realized. Because EA does not agree with  $\langle T_{\text{def}}, (C) \rangle$ , no structural nominative Case is assigned to it. Consequently, EA is syntactically licensed only by internal Pair-Merge to the  $\langle T_{\text{def}}, (C) \rangle$  adjunct position. In this configuration, EA's Case feature remains unvalued but does not interfere with labeling of  $\delta$  or  $\varepsilon$ , since Pair-Merged elements are invisible to syntax. The EA bearing an unvalued Case feature is then transferred to the SM interface, where it is morphologically realized with the default accusative Case in English, yielding *John reading a book* (Schütze (2001); Otsuka (2017)). Finally, the label of  $\delta$  and  $\varepsilon$  is determined as  $\langle T_{\text{def}}, (C) \rangle$ .

Next, we move on to the derivation of the matrix clause (2b). The matrix verb behaves as a bridge verb (EKS (2016)). Transfer follows Chomsky's (2001) Phase Impenetrability Condition: the internal argument's trace transfers first, followed by the matrix TP.

- (2) a.  $[_{\varepsilon} EA_j [\delta \langle T_{\text{def}}, (C) \rangle [_{\gamma} t_j [_{\beta} \langle R_i, v^* \rangle [_{\alpha} IA [ (R_i) t ] ] ] ] ] ]$  (gerundive clauses)  
 $(\alpha = \langle \varphi, \varphi \rangle, \beta = \gamma = \langle R, v^* \rangle, \delta = \varepsilon = \langle T_{\text{def}}, (C) \rangle)$
- b.  $[EA [_{\zeta} \langle R, (v^*) \rangle [_{\varepsilon} \text{Gerundive Clauses} ] ] ]$  (matrix clauses)

Control gerunds follow the same derivation, except that the lower subject copy is unpronounced, as shown in (3a, b). Following Chomsky (2021)'s Form Copy, the higher copy EA<sub>2</sub> is phonetically realized, while both the Copies receive their  $\theta$  role.

- (3) a.  $[_{\delta} \langle T_{\text{def}}, (C) \rangle [_{\gamma} EA_1 [_{\beta} \langle R_i, v^* \rangle [_{\alpha} IA [ (R_i) t ] ] ] ] ]$  (gerundive clauses)  
 $(\alpha = \langle \varphi, \varphi \rangle, \beta = ?, \gamma = ?, \delta = \langle T_{\text{def}}, (C) \rangle)$
- b.  $[EA_2 [_{\zeta} \langle R, (v^*) \rangle [_{\delta} \langle T_{\text{def}}, (C) \rangle [_{\gamma} (EA_1) [_{\beta} \langle R_i, v^* \rangle [_{\alpha} IA [ (R_i) t ] ] ] ] ] ] ]$   
(Form Copy  $\Rightarrow$  {EA<sub>2</sub>, EA<sub>1</sub>})  $(\beta = \gamma = \langle R, v^* \rangle)$  (matrix clauses)

**4. A Critical Review of Previous Studies:** Shimokariya (2017: 419) analyzes gerunds as CPs, but the absence of complementizers or *wh*-elements challenges that view. The present  $\langle T_{\text{def}}, (C) \rangle P$  analysis, effectively a TP analysis, avoids this issue. Sato (2019: 57) attributes Case assignment to multiple agreement, but the mechanism is unclear. Since the present analysis does not assume Case assignment to gerunds, such complexity is avoided.

**5. Conclusion:** This study shows that applying Pair-Merge to gerundive structures and verbs selecting gerundive complements yields a unified account of their Case, subject, and clausal properties, suggesting that the Pair-Merge mechanism has broader theoretical applicability within the minimalist framework.

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## Aspectual Licensing on Object Drop in Imperatives

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In this presentation, we argue that the (un)availability of object drop in imperatives is regulated by aspectual licensing conditions on overt subjects. We show that this analysis is superior to Bošković’s (2025) analysis, which ties object drop to the absence of an overt subject and to the particular verbal form used in imperatives.

Bošković (2025) points to the contrast between (1a) and (1b) to show that English imperatives disallow object drop when the subject is overt.

- (1) a. Open (it) carefully!  
 b. You open \*(it) carefully! (adapted from Bošković (2025: 1))

He maintains that null objects arise through  $\bar{A}$ -movement, as evidenced by the availability of parasitic gaps in (2).

- (2) Open \_\_ [without closing \_\_ afterward]. (Bošković (2025: 2))

On this basis, he argues that an overt subject in an imperative clause—an element bearing contrastive focus and occupying an  $\bar{A}$ -position—blocks a null object because the latter would undergo  $\bar{A}$ -movement across the subject, violating locality. However, this account is difficult to extend to other languages such as Russian. Russian imperatives exhibit two verbal forms: a non-imperative-specific bare/infinitival form, as in (3), and an imperative-specific inflected form, as in (4). The former disallows object drop with overt subjects, but the latter permits it.

- (3) ? Vsem otkryvat’ ?\*(pis’ma) ostorožno! (4) Ty otkryvaj ostorožno!  
 all.DAT open.INF letters carefully you open.IMP carefully  
 ‘Everyone open the letters carefully.’ ‘You open carefully.’

(Bošković (2025: 5))

Given this contrast, Bošković (2025) proposes the generalization in (5).

- (5) The blocking effect of overt subjects on object drop arises in imperatives with non-imperative-specific verbal forms, i.e. where a bare verb or a different verbal form is used as an imperative. (Bošković (2025: 8))

He assumes that “only true imperatives have/license SpecIP” (p. 8) and develops the following analysis. In (1) and (3), overt subjects with the bare/infinitival verb undergo  $\bar{A}$ -movement to receive a contrastive-focus interpretation, as schematized in (6a), and the same  $\bar{A}$ -movement of a null object induces a locality violation. In (4), by contrast, the imperative-specific verbal morphology enables the subject to remain in [Spec, IP], as in (6b), and thus does not interfere with object movement.

- (6) a. \* [ \_\_\_ Top [CP **DP<sub>subj</sub>** ... [IP t<sub>DP<sub>subj</sub></sub> ... V<sub>INF</sub>  $\emptyset$  ... ]]]  
 b. [ \_\_\_ Top [CP ... [IP **DP<sub>subj</sub>** ... V<sub>IMP</sub>  $\emptyset$  ... ]]] (adapted from Bošković (2025: 3))

This analysis faces two difficulties. First, English imperatives do allow overt subjects to co-occur with topicalized objects, as in (7), undermining the claim that overt subjects in imperatives block  $\bar{A}$ -movement.

- (7) The ápples, yóu put \_\_\_ in the refrigerator! (adapted from Zhang (1990: 113))

Second, consider Japanese imperatives. As in Russian, Japanese imperatives display two verbal forms: an imperative-specific affix *-e* and a bare/infinitival form *-u*.

- (8) Sassato {aru-ke! / aru-ku!} (9) Koko-ni {suwa-re! / suwa-ru!}  
 quickly walk-IMP / walk-INF here-DAT sit-IMP / sit-INF  
 ‘Hurry up and walk!’ (Hashimoto (1953: 14)) ‘Sit down here!’ (Onoe (1979: 20))

Crucially, neither form permits null objects in the presence of overt subjects, as shown in (10). The unacceptability of object drop in (10a) is problematic for Bošković's (2025) account, since his analysis should permit a null object to move across an overt subject in [Spec, IP] when the verb bears imperative-specific morphology.

- (10) a. Omae-wa ?\*(kono nimotsu-o) hako-be!  
 you-TOP this package-ACC carry-IMP  
 b. Omae-wa \*(kono nimotsu-o) hako-bu!  
 you-TOP this package-ACC carry-INF  
 'You carry (this package)!'

As an alternative to Bošković's (2025) account, we argue that the availability of null objects is dependent on aspectual licensing conditions on overt subjects. With respect to the licensing of overt subjects, Flagg (2002: 49) observes that "the starting point of the action/event being ordered is explicitly picked out when an overt subject is present in the imperative." This explains the contrast in (11a, b): (11a) contains an eventive predicate, which entails initiation of a buying event, while (11b) is stative and lacks any such initiation. The latter therefore resists an overt subject.

- (11) a. (You) buy a house—it's a great investment!  
 b. (\*You) own a house—it's a great investment! (Flagg (2002: 51))

This observation is linked to Tenny's (1994) argument that the boundedness of the event expressed by the verb is determined by the properties of the direct object. As the contrast in (12a, b) shows, a singular count noun object cannot appear with a durative *for*-phrase but can combine with a non-durative *in*-phrase; conversely, a plural count noun object can combine with the former but not with the latter.

- (12) a. Chuck ate an apple (\*for an hour/in an hour).  
 b. Chuck ate apples (for an hour/\*in an hour). (Tenny (1994: 24))

On these grounds, we propose that the availability of object drop in imperatives is closely connected to aspectual licensing conditions on overt subjects. Specifically, an overt subject in imperatives necessitates a telic interpretation, which is provided by the bounded direct object. This dependency accounts for the contrast observed in (1) and (3). When the bounded object (*it* in (1) or *pis'ma* in (3)) is explicitly present, it contributes to establish the telic interpretation of the event, allowing the subject to be overt. Conversely, when the object is unexpressed, the relevant aspectual property is unclear. This indeterminacy of the boundedness prevents a subject from being overt.

This approach predicts that object drop should be possible with an overt subject when the boundedness of the event can be contextually determined. This prediction is borne out in the Japanese data in (13).

- (13) a. Mudaguti-o tataite naide, omae-wa (kono nimotsu-o) sassato hako-be!  
 idle-talk-ACC speak not-do you-TOP this package-ACC quickly carry-IMP  
 b. Mudaguti-o tataite naide, omae-wa ?(kono nimotsu-o) sassato hako-bu!  
 idle-talk-ACC speak not-do you-TOP this package-ACC quickly carry-INF  
 'Stop talking and you carry (this package) as soon as possible!' (Cf. (10))

In (13a–b), object drop is permissible in both types of imperatives, irrespective of the presence of an overt subject. This is possible because the context itself supplies the boundedness of the event: it entails an act of carrying that begins immediately and proceeds to completion. Notably, Bošković (2025: 1, fn 1) himself remarks that "there is some speaker variation regarding the object drop cases discussed in the paper," which is expected, as speakers differ in how readily they infer the boundedness of the event from context.

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## FormCopy and Deletion/Ellipsis

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This paper aims to solve theoretical and empirical problems concerning Deletion/Ellipsis by offering an explanation based on FormCopy (Chomsky (2021)) and the proposal of “reusing” of an old structure in Workspace (WS) (Chomsky et al. (2019)).

There are many phenomena related to Deletion/Ellipsis, and two types of approaches have traditionally existed: PF deletion (see Ross (1969), Sag (1976) and Merchant (2001) among many others) and LF copy (see e.g. Williams (1977), Lobeck (1995) and Chung et al. (1995)). However, neither of the approaches can avoid the following three theoretical problems.

- (1) How can Deletion/Ellipsis be dealt with within the syntactic component when the antecedent part and the deleted/elided part are posited in different sentences?
- (2) Given that Deletion/Ellipsis is optional in that there exist non-deleted/elided counterparts, how can such optionality be derived?
- (3) Why does Deletion/Ellipsis exist with an independent apparatus to generate them?

To tackle these problems, this paper makes the assumptions in (4) and (5) and proposes (6).

- (4) A structure constructed by parsing or for uttering the previous sentence remains in WS.
- (5) A free operation “*de-Merge*” (a counterpart of free Merge in structure-building) takes apart the “old” structure in WS before the new sentence-building starts (cf. Demerge at Spell-Out of Takano (1996) and Fukui and Takano (1998)).
- (6) Proposal: The new sentence-building process can “reuse” the old structure in WS before it is completely *de-Merged* (see Takahashi (2002) and Frazier (2013) for other “recycling” approaches).

Now, let us consider a simple Fragment answer example to see how the proposal works. When understanding the question part in (7), the corresponding structure must be constructed in WS via parsing. Note that without such a structure, there is no way to comprehend the sentence in the C-I system. The answer part in (7) is generated by “reusing” the old structure.

- (7) Q: Who did you see?                      A: John.
- (8) a. [WS {who {did-C {I {...see...}}}}]    b. [WS {I {...see...}}]    “*de-Merge*”  
c. [WS {I {...see...}} {John {C{I {...see ...}}}}]    new structure building  
d. [WS {{I {...see...}} {John {C{I {...see ...}}}}]    “reusing” and FormCopy

From the old structure in WS in (8a) (“you” is changed to “I” via some parsing process), *who* and *C* are “*de-Merged*” in (8b). The new structure-building creates {C{I{...see John}}} and *John* is raised. Then, the *de-Merged* structure is “reused” in (8c). If the lower copy is syntactically invisible (Chomsky (2015)), the objects of the two *sees* are invisible. Hence, the two parallel structures “I {...see...}” look structurally identical, so they can participate in FormCopy and the lower (new) structure is deleted. Let us assume that the old structure also lacks phonological features, and then the only part to gain a phonological realization is “John.”

This approach solves all the theoretical problems. Problem (1) is unproblematic because the old structure exists in WS in the syntactic component. Problem (2) is resolved because of “*de-Merge*” in (5): *de-Merge* is freely applicable, so if it disassembles the whole structure, “reuse” and FormCopy are unapplicable, and non-deleted/elided examples are derived. As for problem (3), Deletion/Ellipsis is reduced to copy-deletion thanks to FormCopy. If the operation Merge necessarily exists, then its subparts of Internal Merge should exist as well. If Internal Merge exists, FormCopy must exist. Therefore, once “reuse” is possible, Deletion/Ellipsis should exist; this is another case of “enabling function” of SMT (Chomsky (2021)).

Now, let us move to empirical problems. Saito (2007) points out that Scrambling from

within the deleted/elided part is banned.

- (9) \* Sono hon -o<sub>i</sub> Taroo-wa [CP Hanako-ga t<sub>i</sub> katta to] itta si,  
 that book -ACC -TOP -NOM bought that said and  
 sono hon -o<sub>j</sub> Ziroo -mo \_\_\_\_\_ itta  
 that book -ACC -also said  
 ‘Taroo said that Hanako bought that book, and Ziroo also said that she bought that book.’  
 (Saito (2007: 210))

Moreover, Sakamoto (2019) argues that Quantifier Raising (QR) escapes from the deleted/elided part. Then, the question is what differentiates the grammaticality between Scrambling and QR. This paper adopts the ambiguous chain approach proposed by Otsuka (2023) and assumes that both Scrambling and QR are generated via pair-Merge (Chomsky (2004)). Otsuka’s (2023) basic point is that when Internal pair-Merge applies, two labeled copies of the moved item result, and to appropriately deal with them, one of the copies must be “Neglected.” When the lower copy is neglected, the upper copy will be pronounced, namely, resulting in Scrambling, but if the upper copy is neglected, the lower copy phonetically realizes, that is, QR. Adopting Otsuka’s (2023) idea, this paper makes two assumptions:

- (10) In the SM Interface, Neglect is necessarily applied to at least one copy.  
 (11) Neglect cannot target the elements within the deleted/elided part.  
 (12) { ... DP ... {deleted/elided part ~~DP~~ ... } }

Under the ambiguous chain approach, the syntactic structures for Scrambling and QR out of the deleted/elided part are basically the same. As schematized in (12), the two DPs are copies, and the upper one exists outside of the deleted/elided part, while the lower one is within it. To derive Scrambling from (12), Neglect has to target the lower copy. However, (11) prevents it and Neglect should be applied to the upper copy, deriving only QR. Thus, adopting the ambiguous chain approach, (10) and (11) can explicate impossibility of Scrambling out of the deleted/elided part. Other operations such as Topicalization and Focus preposing can salvage elements from the deleted/elided part (see e.g. Takahashi (2020)). The ambiguous chain approach only covers Scrambling and QR, so this fact bears out the current proposal.

A relevant intriguing fact is that Scrambling is unapplicable from within the lower copy.

- (13)\* [[CP Hanako-ga t<sub>i</sub> iru to]<sub>j</sub> [ Sooru-ni [TP Taroo-ga t<sub>j</sub> omotteiru]]] (koto)  
 Hanako-NOM be C Seoul-in Taroo-NOM think fact  
 ‘[That Hanako is t<sub>i</sub>]<sub>j</sub>, in Seoul<sub>i</sub>, [Taroo thinks t<sub>j</sub>]<sub>j</sub>’ (Saito (2015: 224))  
 (14)\* DP<sub>i</sub> [deleted/elided part ~~DP<sub>i</sub>~~] Scrambling out from deleted/elided part  
 \* [...t<sub>i</sub>...] DP<sub>i</sub> t<sub>j</sub> Scrambling out from lower copy

This fact is readily captured: Assumption (11) prohibits Neglect from applying to “the deleted/elided part,” but it was only for expository simplicity, and under the current FormCopy approach to Deletion/Ellipsis, “the deleted/elided part” should be rephrased as “the lower copy.” If so, (13) also falls within the range of the explanation here. The current FormCopy approach can parallelly treat the situations here schematized in (14), which is its great advantage.

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# Adapting Nasal Vowels from French and Portuguese into English: A Cross-Linguistic Analysis with Reference to Japanese

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Nasal vowels provide a valuable testing ground for examining how languages restructure unfamiliar phonological contrasts in lexical borrowing. This study investigates how English adapts nasal vowels from French and Portuguese—two languages that preserve rich but typologically distinct nasal systems—and compares the results with Japanese as a reference point for cross-linguistic contrast.

Historically, English lost its contrastive nasal vowels during the Middle English period. When French and Portuguese loanwords containing nasal vowels entered English, speakers were confronted with a phonological feature no longer active in the native system. Rather than preserving nasalization as a vowel feature, English systematically reanalyzed nasal vowels as sequences of oral vowels followed by nasal consonants: /n/, /m/, or /ŋ/. This restructuring reflects the interaction of perceptual reinterpretation and orthographic mapping, both of which play a structural role in adaptation. French provides a relatively stable four-vowel nasal inventory (/ã, ê, ã, œ/), whereas Portuguese includes five nasal vowels in addition to productive nasal diphthongs such as /ão, ãe, õe/ (*cf.* table 1). These typological differences allow for a fine-grained comparison of how English resolves varying degrees of nasal complexity.

Drawing on loanword dictionaries, etymological references, IPA-based phonological descriptions, historical corpora, and pronunciation data, this study demonstrates that English consistently decomposes nasal vowels into V + N sequences (typically /n/, /m/, or /ŋ/), yet the specific outcomes vary systematically according to vowel quality, orthographic transparency, and the presence of overt nasal cues in spelling. French borrowings often retain partial vowel quality before anglicization (e.g., *genre, fiancé, salon*), while Portuguese nasal diphthongs display more variability (e.g., *samba, São Paulo*), reflecting stronger orthographic influence and perceptual reinterpretation. Through a comparative discussion with reference to Japanese, which has only a moraic nasal /N/ (*cf.* table 2), its loanword phonology demonstrates how typological factors, such as moraic organization and coda restrictions, lead to alternative adaptation pathways: English relies on semental decomposition, while Japanese reorganizes nasalization through moraic timing.

This research contributes to broader theories of perceptual phonology, loanword adaptation, and cue reweighting, demonstrating that even seemingly predictable adaptation outcomes encode rich evidence about the cognitive and structural mechanisms guiding cross-linguistic phonological integration within structurally constrained systems.

Keywords: nasal vowels; loanword phonology; historical linguistics, perceptual adaptation; English phonology; French; Portuguese; Japanese; nasalization; cross-linguistic perception; lexical borrowing

**Table 1** Nasal Vowel Systems of French, Portuguese (donor languages) and English

Feature	French nasal vowels	Portuguese nasal vowels	English adaptation
Inventory	4	5 + diphthongs	Simplified + oral vowel + nasal
Orthography	an/en, in/ein/ain, on, un	ã/an, em/en, im/in, õ/on, um/un ão, õe, ãe, em, om, ui	Spelling strongly influences mapping
Vowel quality	stable	more variable	often neutralized or anglicized

**Table 2**

Nasality System Comparison: French, Portuguese (donor languages), English and Japanese (recipient languages)

Language	Nasal Vowel System	Inventory	Notes
<b>French</b>	Contrastive nasal vowels	/ã/, /ɛ̃/, /ɔ̃/, /œ̃/	Stable four-vowel system; no diphthongs
<b>Portuguese</b>	Contrastive nasal vowels + nasal diphthongs	/ẽ/, /ẽ̃/, /ĩ/, /õ/, /ũ/ + diphthongs like <i>ão</i> /ẽw/, <i>õe</i> /õj/, <i>ãe</i> /ẽj/, <i>em</i> /ẽj/, <i>om</i> /õw̃/, <i>ui</i> /ũj/	Largest & most complex; both monophthongs and diphthongs
<b>English</b>	No contrastive nasal vowels	None	Nasalization only allophonic before nasals
<b>Japanese</b>	No contrastive nasal vowels	None	Nasality expressed through moraic nasal /N/

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