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MAPPING MORPHONOSEMANTIC CATEGORIES IN JAVANESE ONOMATOPOEIA

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Abstract

This study presents an in-depth analysis of the morphonosemantics process in Javanese onomatopoeia by applying the theoretical framework developed by Fitriana (2022) for Japanese mimetic language. Using a descriptive qualitative approach, data on onomatopoeia and its derivatives were collected from a corpus of contemporary Javanese magazines. This analysis, which focuses on the interaction between form and meaning, reveals that Javanese systematically utilizes phonological transformations and morphological processes to encode gradations of meaning. The main findings show that phonological alternations, particularly shifts in vowel quality (e.g., from front-high vowels to back-low vowels), consistently correlate with augmentative changes in size, mass, and strength. Meanwhile, morphological processes such as infixation (e.g., the insertion -um-), reduplication, and prenasalization systematically intensify the duration, repetition, or strength of an action or state. This detailed analysis of over 483 onomatopoeic forms contributes to the documentation of a threatened language variety and enriches the understanding of iconicity in minority languages. The study highlights the systematic relationship between phonological changes and semantic shifts in Javanese onomatopoeia, demonstrating its cultural and linguistic significance.

Keywords: Javanese, onomatopoeia, morphonosemantics, linguistic iconicity

Abstrak

Penelitian ini menyajikan analisis mendalam mengenai proses morfonosemantik dalam onomatope bahasa Jawa dengan menerapkan kerangka teoretis yang dikembangkan oleh Fitriana (2022) untuk mimetik bahasa Jepang. Dengan pendekatan kualitatif deskriptif, data onomatope dan turunannya dikumpulkan dari korpus majalah berbahasa Jawa kontemporer. Analisis yang berfokus pada interaksi antara bentuk dan makna ini mengungkapkan bahwa bahasa Jawa secara sistematis memanfaatkan transformasi fonologis dan proses morfologis untuk menyandikan gradasi makna. Temuan utama menunjukkan bahwa alternasi fonologis, khususnya pergeseran kualitas vokal (misalnya, dari vokal depan-tinggi ke vokal belakang-rendah), secara konsisten berkorelasi dengan perubahan augmentatif pada ukuran, massa, dan kekuatan. Sementara itu, proses morfologis seperti infiksasi (misalnya, sisipan -um-), reduplikasi, dan prenasalisasi secara sistematis mengintensifkan durasi, repetisi, atau kekuatan suatu tindakan atau keadaan. Analisis terperinci terhadap lebih dari 483 bentuk onomatope ini berkontribusi pada dokumentasi variasi bahasa yang terancam dan memperkaya pemahaman tentang ikonisitas dalam bahasa-bahasa minoritas. Penelitian ini menyoroti hubungan sistematis antara perubahan fonologis dan pergeseran semantik dalam onomatope bahasa Jawa, yang menunjukkan signifikansi budaya dan linguistiknya.

***Kata kunci**: Bahasa Jawa, onomatope, morfonosemantik, ikonisitas linguistik*

INTRODUCTION

Indonesia, an archipelago with 718 local languages, faces serious threats to the survival of its linguistic diversity due to globalization and sociolinguistic shifts (Eberhard et al., 2023). Javanese, the largest regional language in Southeast Asia with approximately 80 million speakers (Eberhard et al., 2023), is experiencing intergenerational language maintenance degradation. Updated research indicates that a significant percentage of regional languages in Indonesia are at risk of extinction if systematic intervention, including revitalization through in-depth linguistic studies, does not occur. Javanese, with its complex morphophonological and semantic systems, requires detailed documentation of its dialectal varieties to prevent linguistic erosion, particularly in East Java, a region known for significant dialectal variation (Sumani et al., 2018).

One of the richest domains in linguistics for such studies is onomatopoeia, sound-imitative words that reflect the local wisdom of their speakers. Onomatopoeia functions not only descriptively but also contribute to the creation of an auditory texture in communication, adding nuance and expressive depth to language use (Akita & Tsujimura, 2016), exemplified by Javanese lexemes like *meong* (cat sound) or *udhug-udhug* (engine sound). This phenomenon represents a manifestation of linguistic iconicity, a concept which posits that the phonetic form of a word can non-arbitrarily reflect physical or conceptual attributes of its referent. Studies on onomatopoeia and mimetic words (ideophones) have advanced significantly in Japanese and Korean linguistics (Akita, 2017; Dingemanse & Akita, 2017; Iwasaki, 2017), however, similar research in the Javanese language remains relatively scarce, creating a substantial gap in the literature (Iida & Akita, 2024; Thompson et al., 2019). Yet, the documentation of onomatopoeic expressions holds the potential to reveal the cognitive systems of speakers in mapping natural sounds onto lexical structures (Sidhu, 2024).

In addition to onomatopoeia, Javanese is also rich in mimetic words that mimic movements or circumstances through phonetic patterns, such as *klebat-klebat* (fast movement) or *gubrak* (falling objects). Mimetics in Javanese show phonemic adaptations to represent intensity, such as the use of the vowel /a/ for the meaning of ‘big’ (e.g. *plak*) or the nasal consonant /ŋ/ for resonant sounds (e.g. *ngaplok*). This phenomenon is in line with theory of articulatory iconicity (Perniss et al., 2010), which explains that the articulation of certain phonemes (e.g., the plosive /k/ or /t/) can be associated with the concepts of ‘sharpness’ or ‘speed’.

The uniqueness of the Javanese language lies in its morphonosemantic phenomena, systematic interactions between morphological processes (word form changes) and phonological transformations (sound shifts) that directly influence meaning (Fitriana, 2022). For instance, the lexemes *crit* (small amount of liquid) and *crot* (large amount of liquid) illustrate gradations of meaning through variations in the vowels /i/ and /o/, while *ngetik* (soft sound) and *ngetok* (loud sound) demonstrate the relationship between sound frequency and object dimension. This aligns with Haspelmath’s (2008) theory of linguistic iconicity, which posits that the phonetic structure of a word can reflects the physical or conceptual attributes of its referent.

Accordingly, the central research question of this study is: ‘How do morphological processes (affixation, reduplication) and phonological transformations (vowel alternation, consonant modification) in Javanese onomatopoeia systematically map meaning gradations in line with the four morphonosemantic categories, namely augmentation, intensification, acceleration, and semantic inversion, as proposed by Fitriana (2022)?’ The objective of this research is to examine and validate the morphonosemantic theoretical using Javanese language

data. This effort is expected to contribute to language preservation initiatives and to enrich the understanding of iconicity in the study of languages.

LITERATURE REVIEW

The analysis in this study is grounded in the morphonosemantic framework comprehensively elaborated in Fitriana's (2022) dissertation on the structure of the Japanese mimetic lexicon. This framework provides a precise theoretical foundation for examining the systematic relationship between formal changes, phonological alterations, and semantic shifts in mimetic words or ideophones.

Onomatopoeia

Onomatopoeia is a linguistic phenomenon that refers to words formed through imitation of natural sounds or sounds produced by objects, animals, or humans. According to Ullmann (1962), onomatopoeia can be classified into two main categories: primary onomatopoeia and secondary onomatopoeia. Primary onomatopoeias directly imitate natural sounds, such as animal sounds (e.g., 'crow' for roosters or 'woof' for dogs) or human sounds (such as a baby's 'cry' or 'shout'). Meanwhile, secondary onomatopoeias are more complex as they describe sounds arising from physical interactions between objects, such as friction, collision, or water flow (e.g., the 'swish' of the wind or the 'crackle' of breaking wood). This classification becomes the basic framework for understanding the dynamics of onomatopoeia in Javanese, which has a distinctive structure and pragmatic function.

In the context of Javanese, secondary onomatopoeia dominates the use of sound imitation words (Sunarya & Sutono, 2020). Brandstetter (1957) and Uhlenbeck (1964) assert that Javanese onomatopoeias not only function as sound markers but are also loaded with expressive and emotional content (Sunarya & Sutono, 2020). These words are often formed through the process of imitating the sound of object movement, such as '*thang*', '*thing*', '*thung*', '*theng*', and '*thong*', each of which represents a variation of the sound of impact or vibration (Febrianti, 2015). The formation process involves morphological derivation, such as affixation and reduplication, to expand the meaning and grammatical function of onomatopoeic forms. For instance, the root of an onomatopoeic word can be modified by adding the prefix *N-* or *aN-* and/or the suffix -an, thereby shifting its category to a noun, verb, or adjective (Booij, 2018; Hadi, 1971). A typical example is the onomatopoeic base *thok* (representing the sound of a loud knock), which can be prefixed with the nasal *N-*, resulting in *nothok* (to knock), marking it as a verbal form denoting the act of striking or knocking.

Vreede (1908), Gonda (1988), and Kets (1982) explain that morphological variations in Javanese onomatopoeia are not only structural but also affect the nuances of meaning. For example, the addition of the *pepet* sound (/ə/ sound) to the root of an onomatopoeic word can change the emotional connotation or intensity of the imitated sound, for example in the word *krak* (imitation of the sound of a branch or small bone breaking) with *krĕk* (imitation of the sound of a larger branch being forced to bend, a deeper crack, or a joint that sounds. The impression is heavier and more restrained). This process is in line with phonematic theory which states that phonetic changes in Javanese onomatopoeia are often related to shifts in affective meaning. Furthermore, onomatopoeic words in Javanese can stand alone as lexical words or undergo grammaticalization into particles that contain pragmatic functions, such as expressions of admiration, surprise, or disappointment (Hadi, 2013).

One of the distinctive features of Javanese onomatopoeia is its ability to imitate sounds that are not only physical, but also metaphorical. For example, the word *theng* not only refers to the sound of a vibrating string but can also be used to describe a hanging or uncertain situation (Febrianti, 2015). This phenomenon shows that onomatopoeia in Javanese has a broad mimetic dimension, where sound imitation is not limited to literal representation, but also includes symbolic associations with human experience (Dingemanse, 2012). Comparative studies between Javanese onomatopoeia and other languages, such as Japanese, found that Javanese tends to use more varied phonotactic patterns, such as complex combinations of consonants and vowels, to express sound nuances.

The Javanese onomatopoeia formation process also involves special phonological mechanisms, such as the use of consonantal clusters or emphasis on certain syllables. For example, the word *krak* (broken sound) uses the cluster /kr/ to mimic the violence of impact, while *ngglok* (waterfall sound) uses the nasal /ŋ/ to reinforce the impression of liquid flow (Sunarya & Sutono, 2020). These patterns show that Javanese onomatopoeia not only imitate sounds but also reconstruct the listener's perception of the sound source through systematic phonemic structures.

In addition, Javanese onomatopoeia has an important role in pragmatic communication. Words such as *lha* (to express emphasis) or *hus* (to forbid or shush) are often used in daily conversation to achieve illocutionary effects, such as commanding or convincing the interlocutor. The perlocutionary function of onomatopoeia is also seen in Javanese literature, where sound imitative words are used to build sensory imagery and strengthen the expression of emotions in stories.

Thus, onomatopoeia in Javanese is a complex system, combining phonological, morphological, semantic, and pragmatic aspects. This uniqueness makes it not only a tool for sound imitation, but also a means of cultural expression that reflects the Javanese community's sensitivity to the environment and social interaction.

Morphonosemantics

Morphonosemantics is a theoretical framework that examines the relationship between morphological processes (such as reduplication and affixation) and phonological transformations (e.g., the change of voiceless obstruent to voiced ones) in producing gradations of meaning in mimetic words or ideophones (Fitriana, 2022). It is defined more specifically as 'a morphological process involving reduplication and affixation, as well as a phonological process in which voiceless obstruent becomes voiced obstruent, resulting in a shift in meaning.' Essentially, this theory investigates how the interaction between morphology and phonology operates in a non-arbitrary manner to systematically encode meaning differentiation.

Ideophones, often referred to as 'sensation-mimicking' words, not only represent sounds (phonomimes), but also describe visual phenomena and motion (phenomimes), as well as physical sensations and psychological states (psychomimes), through distinctive and often iconic phonological structures (Dingemanse, 2012). Although the morphonosemantic model was originally developed in the study of Japanese mimetics (Fitriana, 2022), it presents a theoretically distinct contribution that differs from well-documented phonological phenomena such as rendaku. Therefore, its application to the Javanese language serves not only as a descriptive tool but also as a cross-linguistic validation of an emerging theoretical concept. In particular, it holds promise in the analysis of onomatopoeic and mimetic expressions in Javanese that exhibit similar phonemic and semantic patterning.

To uphold theoretical precision, it is essential to distinguish morphonosemantics from rendaku, a morphophonological process in the Japanese language, in two fundamental aspects (Fitriana, 2022):

1. Rendaku is a voicing alternation process that is narrowly constrained, affecting only the initial consonant of the second element in a compound word. For instance, in *origami* (from *ori* + *kami*), only the consonant /k/ in kami changes to /g/. In contrast, morphonosemantics involves a holistic transformation of the entire mimetic root. For example, the shift from *para-para* to *bara-bara* entails voicing alterations across the entire reduplicated unit.
2. Rendaku is generally a phonological process with no predictable impact on lexical meaning. Its function is primarily structural. In contrast, morphonosemantics, by definition, systematically and predictably encodes scalar or qualitative meaning shifts, such as changes in intensity, size, or speed.

This distinction underscores that morphonosemantics is not merely a variant of rendaku, but a distinct linguistic principle with a clearly defined semantic function. Fitriana (2022) identifies four primary categories of meaning shifts triggered by morphonosemantic transformations in Japanese mimetic words. These categories offer a useful taxonomy for analyzing Javanese data:

1. Intensification: A change in sound or form that increases the strength, intensity, or duration of an action or state. Example in Japanese: *para-para* (light tearing sound) → *bara-bara* (rough tearing sound). The change in sound from /p/ to /b/ intensifies the power of the tearing action.
2. Augmentation: A change that indicates an increase in the size, volume, or weight of the object or phenomenon represented. Example in Japanese: *koro-koro* (sound of a small object rolling) → *goro-goro* (sound of a large object rolling). The change in sound from /k/ to /g/ represents an increase in the mass of the object.
3. Acceleration: A change related to increasing the speed or smoothness of a movement. Example in Japanese: *toro-toro* (slowly melting) → *doro-doro* (rapidly melting). The change in sound from /t/ to /d/ indicates an acceleration of the process.
4. Semantic Inversion: A change that produces a meaning that is qualitatively opposite or contrasting to the basic meaning. Example in Japanese: *sara-sara* (smooth texture) → *zara-zara* (rough texture). The sound changes from /s/ to /z/ reverses the sensory attribute from smooth to rough.

This framework, with its clearly defined distinctions and categorizations, provides a robust analytical tool for uncovering systematic patterns in Javanese onomatopoeia and for facilitating typological comparison with similar systems in other languages. Each of these categories reflects a consistent morphology, phonology, and semantic correlation, where voiceless consonants (such as /k/, /t/, /p/) are associated with ‘small’, ‘slow’, or ‘light’ meanings, while voiced consonants (/g/, /d/, /b/) are associated with ‘big’, ‘fast’, or ‘strong’ (Fitriana, 2022; Perniss et al., 2010; Sidhu, 2024).

Ideophones within the morphonosemantic framework exhibit two key characteristics that distinguish them from ordinary lexical words. First, the root forms involved in ideophonic reduplication often lack independent lexical meaning. In other words, the base or ‘root’ of an ideophone acquires meaning only when reduplicated within a specific phonological structure. For instance, in Japanese, the ideophone *piri-piri* denotes the sensation of an electric shock or a sharp

stinging pain. However, the form *piri* on its own does not possess a recognized meaning in everyday usage. This pattern indicates that ideophonic meaning emerges as a prosodic construction rather than from the base morpheme itself.

Second, ideophones demonstrate a systematic relationship between phonological transformation and semantic shift. Certain sound changes, for example from /k/ to /g/ or from /s/ to /z/, do not occur arbitrarily but are consistently associated with predictable changes in meaning. In many cases, voiceless consonants such as /p/, /t/, and /k/ tend to be linked with meanings related to 'lightness,' 'smallness,' or 'slowness,' whereas voiced consonants such as /b/, /d/, and /g/ often correspond to meanings involving 'strength,' 'largeness,' or 'speed.' This systemic pattern suggests that the phonological structure of ideophones is inherently iconic, reflecting or mimicking the sensory, kinesthetic, or affective attributes of their referents.

This phenomenon aligns with the broader concept of sound symbolism, as observed in various African languages. For example, in Yoruba, *mbú* is used to denote a loud explosive sound, while *kpú* refers to a lighter popping sound—the phonemic contrast here reflects acoustic intensity. However, in the context of morphonosemantics, the relationship between sound and meaning is not merely intuitive or perceptual but is organized into theoretical categories that can be systematically mapped, including augmentation, intensification, acceleration, and semantic inversion. In this sense, morphonosemantics offers a more structured and predictive approach to explaining linguistic iconicity in mimetic expressions.

Although morphonosemantics is mostly studied in the context of Japanese, its principles are relevant for analyzing mimetic words in Javanese. For example, the Javanese words *thang* (impact sound) and *theng* (hanging situation) undergo phonological variations that affect meaning. Reduplication processes such as *thok-thok* (repetitive knocking sound) or *thuk-thuk* (falling pile sound) also show gradations of intensity similar to Japanese patterns. Furthermore, affixation in Javanese, such as the addition of N- to *Ngrasuk* (to enter by force), can encode semantic change through phonological transformation.

Morphosemantics encompasses not only linguistic aspects but also reflects underlying cultural schemas. Semantic inversions such as *sara-sara* (smooth) vs. *zara-zara* (rough) in Japanese are related to traditional aesthetic values, such as the appreciation of simplicity (*wabi-sabi*). In Javanese, the words *alus* (subtle words) and *kasar* (harsh words) also have strong cultural connotations, despite their different phonological mechanisms. Another example is *kyoro-kyoro* (glancing with the head) vs. *gyoro-gyoro* (glancing with the body) in Japanese, where the voicing /k/ → /g/ increases the scale of the movement. A similar pattern in Javanese can be seen in *gumregag* (chaotic movement) vs. *gumreget* (orderly movement), which uses affixation to differentiate intensity.

METHODS

This study employs a descriptive qualitative approach to conduct an in-depth analysis of the morphonosemantic phenomena found in onomatopoeia-based derivative words in the Javanese language. This approach was selected due to its emphasis on interpretive depth and contextual analysis, particularly suited to exploring meaning, phonological structure, morphological processes, and usage context within a natural linguistic corpus (Bogdan & Biklen, 2007; Creswell, 2018).

The research data consists of 117 onomatopoeic words and their derivatives. These data were extracted from three representative Javanese-language magazines: *Djaka Lodang* (issues from January 2020 to December 2023), *Panjebar Semangat* (issues from January 2024 to December 2024), and *Jaya Baya* (issues from January 2024 to December 2024). These sources were selected based on theoretical sampling to ensure adequate contextual representation of modern Javanese onomatopoeic vocabulary.

Primary data collection was conducted using a purposive sampling technique, which allows the researcher to select data-rich cases that are relevant to the research question (Patton, 2015). The inclusion criteria were as follows: (1) the clause or sentence must contain an onomatopoeic word or its derivative; (2) the usage context must be sufficient to determine its intended meaning; and (3) there must be a phonological variation (e.g., vowel or consonant shift) that influences meaning. Secondary data, comprising 366 lexical items, were obtained from the Javanese – Indonesian Dictionary (2021) published by Balai Bahasa Yogyakarta, to ensure lexical consistency and triangulate semantic interpretation. Data analysis was conducted in two main stages:

1. **Morphonosemantic identification:** This stage involved the analysis of phonological changes (e.g., consonant voicing shifts or vowel alternations) and morphological processes (e.g., reduplication, affixation) within onomatopoeic word pairs. An intralingual pairing method was employed to systematically compare phonological form alterations with the corresponding semantic shifts they produced.
2. **Data validation:** To ensure the validity of the analysis, source triangulation was performed by comparing definitions and example sentences from the magazine corpus with relevant dictionary entries. Additionally, seven native speakers of Javanese were consulted as respondents to verify contextual accuracy and semantic nuances.

The main limitation of this study lies in its reliance on written data from printed magazines, which excludes spoken dialectal variants that are not represented in such publications. Nevertheless, the novelty of this research lies in its integrated analysis of phonology, morphology, and semantics, which reveals systematic morphonosemantic patterns in the Javanese language that have not previously been examined in a comprehensive manner.

RESULTS

The following analysis classifies Javanese onomatopoeic data from the corpus according to the categories established by Fitriana's (2022) morphonosemantic framework. This analysis demonstrates that Javanese consistently employs vowel alternation and morphological processes to encode gradations of meaning, particularly within the categories of Augmentation and Intensification.

Augmentation

One of the most productive morphonosemantic mechanisms in Javanese onomatopoeia is vowel alternation. Systematic shifts in vowel quality correlate with augmentative semantic changes, namely increases in size, mass, force, or volume of the represented sound or object. High-front vowels such as /i/ and /e/ tend to be associated with notions of *smallness*, *lightness*, *sharpness*, or *high pitch*, whereas back or low vowels such as /ɔ/, /a/, and /u/ are more commonly linked to

meanings of *largeness*, *heaviness*, *dullness*, or *low pitch*. The following pairs illustrate this principle:

- ***Thik* vs. *Thok***: The shift from the high-front vowel /i/ to the mid-back vowel /ɔ/ changes the meaning from *thik* (a light tapping sound, such as a small stone hitting glass) to *thok* (a heavier and louder knocking sound, such as a hammer striking a nail). This vowel change iconically represents an increase in force and mass.
- ***Brak* vs. *Bruk***: The alternation from the low vowel /a/ to the high-back vowel /u/ shifts the meaning from *brak* (a loud and sharp crashing sound, such as a collapsing table) to *bruk* (a dull thudding sound of a heavy object falling, such as a person collapsing onto the floor). The vowel /a/ conveys a sharper, more dispersed impact, while /u/ suggests a heavier, deeper, and more concentrated force.
- ***Mlethik* vs. *Mlethèk***: The vowel shifts from high-front /i/ to mid-front /ɛ/ signals a change from *mlethik* (a small and sharp popping sound, like a finger snap) to *mlethèk* (a cracking sound on a hard surface, such as a clay pot cracking). The higher vowel /i/ correlates with a sharper, smaller sound, while /ɛ/ is associated with a broader, more substantial rupture.
- ***Ceklik* vs. *Ceklok***: The alternation from /i/ to /ɔ/ changes the meaning from *ceklik* (a small and sharp mechanical click, such as a remote button being pressed) to *ceklok* (the sound of something fitting snugly into a hole or a foot stepping into mud). This shift reflects an increase in depth and resonance.
- ***Creplis* vs. *Creplus***: The shift from the high-front vowel /i/ to the high-back vowel /u/ changes the meaning from *creplis* (a soft, delicate cracking sound, as in a subtle break) to *creplus* (a slightly heavier or more forceful cracking sound). This alternation suggests more substantial or forceful action, such as the sound produced when biting into and breaking the skin of a fruit.
- ***Ces* vs. *Cos***: The change from the mid-front vowel /ɛ/ to the mid-back vowel /ɔ/ alters the meaning from *ces* (a short hissing sound or a mild burning sensation) to *cos* (a more intense, piercing heat sensation). The vowel alternation marks a perceptible increase in intensity.

These examples support the claim that vowel alternation in Javanese onomatopoeia functions as a morphonosemantic device to systematically encode scalar semantic contrasts, particularly along dimensions of force, size, intensity, and resonance. These patterns can be systematically summarized in the following table.

Table 1. Vowel Alternation Patterns and Augmentative Correlations in Javanese Onomatopoeia

Vowel Pair	Phonetic Feature Shift	Semantic Correlation (Augmentation)	Example Word Pair
/i/ → /ɔ/	High-Front → Mid-Back	Small/Sharp/High-pitched → Large/Heavy/Low-pitched	*thik* → *thok*
/a/ → /u/	Low → High-Back	Sharp/Crashing → Heavy/Dull	*brak* → *bruk*

Vowel Pair	Phonetic Feature Shift	Semantic Correlation (Augmentation)	Example Word Pair
/i/ → /ɛ/	High-Front → Mid-Front	Small/Sharp → Larger/Less Sharp	*mlethik* → *mlethèk*
/i/ → /ɔ/	High-Front → Mid-Back	Small/Mechanical → Deeper/Larger	*ceklik* → *ceklok*
/i/ → /u/	High-Front → High-Back	Small/Fast Action → Stronger/Larger Action	*creplis* → *creplus*
/ɛ/ → /ɔ/	Mid-Front → Mid-Back	Low Intensity → High Intensity	*ces* → *cos*

Intensification

In addition to augmentation, intensification is another principal morphonosemantic category in the Javanese language. Intensification, which involves increases in duration, repetition (iteration), or force, is frequently realized through morphological processes such as affixation and reduplication, as well as through consonant modification.

a. Infixation with *-um-*

The infix *-um-* is a highly productive morphonosemantic device for intensifying actions or states, often adding a sense of continuity, sudden emergence, or increased force (Fitriana, 2022).

- ***Ceplis* vs. *Cumeplis***: The base form *ceplis* (the sound of a small object detaching) is intensified to *cumeplis* (a small object bursting out quickly and abruptly, such as a pimple being popped). The insertion of *-um-* transforms the description from a neutral sound into a more dynamic and forceful action.
- ***Kresek* vs. *Kumresek***: The base *kresek* (a soft rustling sound, as in a plastic bag) becomes *kumresek* (a stronger and sustained rustling sound, as in many dry leaves being stepped on). The infix *-um-* in this case conveys greater volume and longer duration, reinforcing the sense of auditory intensity.

b. Reduplication (Full and Partial)

Reduplication, whether full or partial, functions as a morphonosemantic strategy to indicate repetition, continuity, or emphasis on a particular quality (Fitriana, 2022).

- ***Thithik* vs. *Thothok***: This pair illustrates the interaction between reduplication and vowel alternation. *Thithik* (a reduplication of a root with the vowel /i/) means ‘to tap lightly and repeatedly’. When the vowel shifts to /ɔ/ as in *thothok*, the meaning intensifies to ‘to knock forcefully and repeatedly’. Reduplication encodes iterative action, while the vowel alternation marks an increase in impact.
- ***Kring* vs. *Krang-kring***: The base form *kring* (a single ringing sound) is reduplicated with a vowel alternation to become *krang-kring* (a continuous or repetitive ringing sound, such as a bicycle bell). This is a classic example of intensification through repetition, combining prosodic emphasis with phonological expansion.

- ***Juwèh* vs. *Juwèwèh***: Partial reduplication of the final syllable transforms *juwèh* (talkative) into *juwèwèh* (very talkative). This reflects the intensification of a descriptive quality, showing how reduplication can amplify not only events or actions but also inherent properties or states.

c. Consonantal Modification (Prenasalization)

Prenasalization, or the addition of a nasal segment preceding a consonant, serves as another phonological mechanism for intensification in Javanese onomatopoeia (Fitriana, 2022).

- ***Grajag* vs. *Nggrajag***: The base form *grajag* (the sound of water spilling in large quantities) is intensified through prenasalization to become *nggrajag* (a more forceful, rapid, and noisy flow of water). The addition of the nasal /ŋ/ iconically enhances the **perceived weight and force** of the sound, suggesting increased intensity and turbulence.

Table 2. Morphonosemantic Processes for Intensification in Javanese Onomatopoeia

Linguistic Process	Semantic Function	Example Word Pair
-um- Infixation	Increase in force, duration, or dynamism	*kresek* → *kumresek*
Full Reduplication (with vowel alternation)	Repetition with enhanced impact	*thithik* → *thothok*
Full Reduplication (with vowel alternation)	Repetition or continuity	*kring* → *krang-kring*
Partial Reduplication	Intensification of a quality (e.g., 'very')	*juwèh* → *juwèwèh*
Prenasalization	Increase in force or volume	*grajag* → *nggrajag*

Semantic Inversion and Qualitative Shift

Although less frequent than augmentation and intensification, more complex morphonosemantic categories are also found in the data, highlighting the richness of the system.

a. Semantic Inversion

Semantic inversion occurs when a phonological change results in a qualitatively opposite meaning.

Kethemil* vs. *Kethemul: This pair serves as a clear example. A vowel shifts from /i/ to /u/ transforms *kethemil* (the sound of soft, gentle footsteps) into *kethemul* (the sound produced when stumbling or moving clumsily). In this case, the vowel alternation not only increases the size or intensity but also reverses the qualitative nature of the action from *controlled* and *delicate* to *uncontrolled* and *clumsy*.

b. Sound Quality Shift through Consonant Alternation

In addition to vowel alternation, consonant alternation can also encode meaning shifts, often in terms of auditory texture or acoustic complexity.

Ketheplèk* vs. *Ketheprèk: The shift from the lateral /l/ to the trill /r/ changes the meaning from *ketheplèk* (the sound of a moderately hard but light impact) to *ketheprek* (a louder, rougher, and more acoustically complex collision). The consonant /r/ is often associated with vibratory or resonant qualities, and its presence signals a qualitative change in timbre and sonic granularity.

Table 3. Semantic Inversion and Consonantal Alternation in Javanese Onomatopoeia

Word Pair	Phonological Change	Semantic Shift	Morphonosemantic Interpretation
Kethemil → *Kethemul*	Vowel shift /i/ → /u/	Gentle, controlled → Clumsy, uncontrolled movement	Semantic inversion through vowel alternation
Ketheplèk → *Ketheprèk*	Consonant shift /l/ → /r/	Light, moderate impact → Louder, rough, acoustic complex impact	Qualitative change through consonant alternation

This analysis demonstrates that Javanese onomatopoeia is not arbitrary but is governed by a set of systematic and predictable morphonosemantic principles, wherein each phonological or morphological modification correlates consistently with specific semantic shifts.

DISCUSSION

Although Javanese exhibits similarities with the morphonosemantic system of the Japanese language, particularly in the use of phonological features to express scalar meanings (Akita, 2017; Fitriana, 2022), it demonstrates distinctive characteristics. One such feature is the productive use of the infix *-um-* and prenasalization to intensify meaning in onomatopoeic expressions (S. R. Hadi, 1971). An analysis of Javanese onomatopoeia through the morphonosemantic framework proposed by Fitriana (2022) yields several findings that are theoretically and typologically significant. These findings support Haspelmath's (2008) theory of linguistic iconicity, which posits that the phonetic structure of lexical items is not entirely arbitrary, but rather reflects semantic aspects of their referents. Consequently, this analysis not only confirms the systematic presence of iconicity in the Javanese language but also broadens our understanding of how morphonosemantic principles may manifest differently across languages.

The results of the analysis convincingly show that the Javanese onomatopoeic lexicon operates within a coherent morphonosemantics system. Consistent changes in form and sound consistently map shifts in meaning that can be classified into the categories of augmentation, intensification, and even semantic inversion, as proposed in the theoretical framework. This provides strong cross-linguistic validation for the morphonosemantics theory, demonstrating that the principle is not limited to Japanese alone.

However, these findings also demand important adaptations of the theory. In the original model based on Japanese, the primary phonological mechanism highlighted is the replacement of obstruent sounds (e.g., /p/ → /b/, /k/ → /g/). In contrast, in Javanese, the dominant phonological mechanism for encoding gradations of meaning, particularly augmentation, is vowel quality alternation. The rich vowel system of Javanese, which includes front, central, and back vowels at various heights, is productively utilized to create subtle yet systematic semantic contrasts, such as between 'small/sharp' (high-front vowel) and 'large/heavy' (low-back vowel). This shows that while the principle of morphonosemantics (the systematic relationship between phonology and gradual semantics) is universal, the specific mechanisms used to realize it are language specific.

A comparison between the Javanese and Japanese language systems reveals how different languages use their unique typological resources to achieve similar semantic goals.

a. Japanese: Utilizes contrastive voicing of obstruent consonants, a prominent phonemic feature in its inventory, to indicate augmentation and intensification. Examples such as *koro-koro* → *goro-goro* are prototypical of this system.
b. Javanese: Utilizes its rich vowel system and productive morphological processes. Vowel alternation is the primary tool for augmentation, while affixation (especially the infix -*um*-) and reduplication are the primary tools for intensification. Processes such as prenasalization (*grajag* → *nggrajag*) are a characteristic feature of Austronesian languages that is integrated into this morphosemantic system, something not found in the Japanese model.

There is an interesting functional division of labor in the Javanese language system. Changes that are inherent to objects or events (such as size, mass, or weight i.e., Augmentation) tend to be encoded through phonological mechanisms (vowel alternation). Conversely, changes related to the dynamics of events over time (such as repetition, duration, or continuity i.e., Intensification) tend to be encoded through morphological mechanisms (infixation, reduplication). This division of labor demonstrates a very high level of organization in the iconic system of the Javanese language.

These findings provide strong support for broader theories of linguistic iconicity. The systematic patterns observed in Javanese onomatopoeia challenge the strict Saussurean view of the arbitrary nature of linguistic signs. Instead, the data aligns with theories such as sound symbolism and articulatory iconicity, which argue that articulatory gestures themselves can iconically represent meaning. For example, the universal association between high-front vowels like /i/, which are produced with a small resonating space at the front of the mouth, and the concept of 'smallness', as well as low-back vowels such as /a/ or /ɔ/, which are produced with a larger resonating space, and the concept of 'largeness', is highly productive in the Javanese onomatopoeic system.

From a typological perspective, this study proposes an important hypothesis: that the morphonosemantic principle, which refers to the systematic use of phonological and morphological alternations to encode gradual meaning in ideophonic lexicons, may represent a strong typological feature of languages with large and productive ideophone inventories. However, the concrete realization of this principle will always depend on the phonological and morphological resources available in each language. Accordingly, the morphonosemantic theory, which was initially developed based on Japanese data, may be expanded into a more universal framework for analyzing iconicity within ideophone systems across languages.

The consistency of these patterns across various semantic domains, such as impact, breakage, motion, and states, highlights the cognitive reality and linguistic significance of the morphonosemantic system in Javanese. These are not isolated instances, but rather components of a coherent subsystem within the language, effectively used to construct distinctive acoustic textures (see Dingemanse, 2012) and to convey nuanced meanings.

This study relies on written data from specific publications, which may limit the representation of dialectal variation and spontaneous nuances present in spoken Javanese (see Sumani et al., 2018). Future research employing spoken corpora and investigating specific regional dialects, especially in East Java where variation is notably high, will provide a more comprehensive picture. In addition, comparative analysis with other Austronesian languages may help clarify the origins and evolution of these patterns in Javanese. Further exploration of the pragmatic functions and cultural associations linked to specific onomatopoeic forms, as suggested in the literature review, also represents a promising direction for future inquiry.

CONCLUSION

This research demonstrates that Javanese onomatopoeia is not merely a collection of words imitating sounds, but operates within a systematic morphonosemantic framework (Fitriana, 2022). Phonological changes, particularly vowel shifts correlating with pitch height, and morphological processes such as infixation (-um-) and reduplication, predictably encode semantic gradations related to size, intensity, force, repetition, and the quality of sounds and actions.

The main findings affirm that Javanese productively utilizes vowel quality alternation as a primary phonological mechanism for encoding augmentation (changes in size, mass, or weight), and morphological processes such as -um- infixation, reduplication, and prenasalization for encoding intensification (increase in duration, intensity, or repetition). More complex phenomena, such as semantic inversion and changes in sound quality through consonant alternation, were also identified, demonstrating the depth and flexibility of this system.

This study makes a significant dual contribution. First, on a descriptive level, it provides detailed and theoretically grounded documentation of a less-explored aspect of Javanese linguistics. Given the sociolinguistic pressures faced by regional languages in Indonesia, such documentation is crucial for language preservation and revitalization efforts. Second, on a theoretical level, the study provides strong cross-linguistic validation for the theory of morphonosemantics. By demonstrating that these principles operate effectively in an Austronesian language through mechanisms different from those found in Japanese, this study broadens the theory's typological relevance. This enriches our understanding of linguistic iconicity as a universal phenomenon expressed through the specific tools provided by the grammar of each language.

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