

# Cross-Lingual Onomatopoeia Recognition

[A Very Preliminary Inquiry]

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## ABSTRACT

This paper considers the potential development of experiential media systems through which one may be able to test semantic recognition across language barriers of source sounds from common onomatopoeia. The author suggests a preliminary project that tests some theoretical concepts present in recent linguistics scholarship concerning onomatopoeia and related sound-influenced language devices.

## Categories and Subject Descriptors

A.1 [General Literature]: Introductory and Survey; I.7.7 [Computing Methodologies]: Document and text processing - *general*

## General Terms

Experimentation, Human Factors, Languages, Theory

## Keywords

Onomatopoeia, Linguistics, Phonemes

## 1. INTRODUCTION

The primary goal of the current paper and its sister project is to consider and playfully explore a contested realm in linguistic scholarship: the general architecture, meaning, and use of the class of words known as onomatopoeia. Though at a very nascent stage, the overall goal is to develop experiential media systems that whimsically test otherwise serious theoretical suggestions from the existing linguistic scholarship. The author believes that, to a large degree, onomatopoeia is one of the more playful and fun aspects of everyday language and that the investigation of potential cross-lingual semantic understanding (and even confusion) of onomatopoeia may very well benefit from whimsy.

Following a cursory review of related scholarship, the author outlines a preliminary mediated game that simply tests users' recognition of semantic meaning provided isolated onomatopoeic

expressions from an unfamiliar language. In this case, the language in use is Bahasa Indonesia for a test developed for both native and non-native English speakers. The author hopes to further expand the project to include more language families (Indo-European, Sino-Tibetan, etc.) and to make the game run in both directions linguistically.

## 2. ONOMATOPOEIA – FROM SOUND TO MEANING

### 2.1 Literature Review

If the author were to present an underlying thesis driving the project, it would be to suggest that there exists within the established lexicon of most if not all spoken languages words or phrases that transcend mere symbolism into being iconic. Further, the author follows a logic that an internal linguistic resemblance of a word to its referent falls on a spectrum from most symbolic, wherein sound is completely arbitrary, to most iconic, wherein sound is such a strong determinant of the word that it may cross otherwise impenetrable language barriers or even approach universality.

Developing a project around this idea is not an easy task. To begin, there is no general consensus among scholars what constitutes an onomatopoeic expression [1]. Part of the difficulty stems from confusion generated simply by the malleability of language paired with the creativity of the human experience, forcing some scholars to delineate between not only lexical and non-lexical onomatopoeia but also extreme cases of “word-making” such as it exists, for example, in the fiction of Joyce [2].

Some scholars are less convinced than others that iconic expressions exist. Pinker writes, “Residues of resemblance between a [hand] sign and its referent can occasionally be discerned, but like onomatopoeia they are so much in the eye or ear of the beholder that they are little use in learning.” [3] Yet, others have demonstrated with limited success, though notable granularity, a spectrum of indirect to direct semantic relationship. Among those works, there are suggestions of universality, including the appearance of common phonemes and a tendency towards reduplication across languages [4]. Rungrojsuwan even manages to chart suggested semantic devices at the phoneme level, where: stops correspond to abrupt sounds; fricatives suggest audible motion; nasals communicate reverberation; and continuants act as a temporal device related to the sounds they

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represent. Expanding to consonant clusters, Bollinger cannot help but point towards potential meaning, looking at the “gl-“ in gleam, glare, glow, glitter, glaze, glimmer, glamour; or in the “sl-“ of slow, sloth, slush, slosh; and the “dr-“ of drop, drizzle, drool, droop, drape [5]. It has been further noted that among vocal gestures, including intonation [tonemes] and timing [chronemes], are equally important to semantic understanding, not least in spoken onomatopoeia [6]. And to complete an exploration over all parts of the linguistic environment, some have completed thorough syntactical investigations of onomatopoeia across several languages, noting among other points that such expressions are very rarely (if at all) adjectives and that those used for interjections are very dissimilar to those used as nouns [7].

## 2.2 Connection to Project

As a simple initial exploration, the author’s project creates a playful environment drawing largely from the research of Rungrojsuwan with some acknowledgement that Bollinger’s observations play out in a handful of the onomatopoeia examples used. There is no attempt to create either a comprehensive or generalizable experiment as yet, only the testing of preliminary ideas with the secondary hope of identifying problems. Obviously, the project also needs to expand beyond the two languages used to treat Rungrojsuwan faithfully.

## 3. PROJECT

### 3.1 Set-up

The user is presented with a single well-established lexical onomatopoeia from an unfamiliar language (Bahasa Indonesia) in a text box. The word is first presented in written form and two seconds later by a correct, isolated pronunciation. The user may then attempt to identify both the semantic meaning of the word and produce the equivalent onomatopoeia in English. At this point, the system does not test the user nor provide speech recognition to do so. However, this is an obvious area within which to further develop the system: checking the user response (spoken or typed) and to keep score. The test may be altered to present the user with either the spoke or written versions separately.

### 3.2 Conscious Decisions

The author elected to present onomatopoeias out of context from sentences within which they may be uttered. While this may hamper some sense of understanding, especially with regard to flow and tone in a larger context, the possibility of confusion and user withdrawal seemed the greater burden. Simply, when confronted with several new and unfamiliar sounds, a user is

assumed to be less likely to locate without repetition and aid the key term.

Presenting both the written and spoken form is also problematic. Even with a Romanized language such as Bahasa Indonesia, some key pronunciations are likely unknown and potentially distracting at sight (e.g. “c” is equivalent to English “ch-“). Yet, the author felt that some similarities, especially a few interesting consonant clusters, were less likely to be detected aurally and needed the visual context. This is a bias, of course. The problem of written text also convinced the author to avoid the other two languages he anticipated using in this iteration, Armenian and Burmese, because of the assumed overwhelming nature of the appearance of their scripts to an unfamiliar user. But, to begin to adequately test universality, these among others should be used in the future.

Onomatopoeia terms were selected from a wide range of available words from Bahasa Indonesia. Meaning, the author consciously chose words that he thought represented a balance of those likely to cognitively transfer easily to English speakers and others that were different enough to either leave a user without an obvious English equivalent or elicit an incorrect guess.

## 4. CONCLUSIONS

This first iteration is meant to be fun and hopefully compelling enough to build momentum towards a larger project. No general conclusions are found here aside from the author’s own assertion that the field is worth investigation, the experiment worthwhile, and the supporting scholarship existent.

## 5. ACKNOWLEDGMENTS

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