

# Javanese Songs in Pentatonic and Diatonic Perspective

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**Abstract:** The purpose of this study was to analyse the differences between Javanese songs using the gamelan pentatonic musical notation with Javanese songs using Western diatonic musical notation. The research method applied is qualitative. Meanwhile, the design research is case studies. The focus of the research relates to the intervals between pentatonic and diatonic tones found in Javanese song and how to write the notation. Data analysis uses perspective karawitanology and musicology. The results showed that there were differences between Javanese songs written using the Javanese gamelan pentatonic musical notation with Javanese song written using diatonic music notation. The difference is mainly in how to sing it and the distance or interval of each note. Thus, when the song was sung, the taste of the song became very different in terms of its musical aspects. This is understandable because the intervals or distances between the notes are not the same. The way to write the Javanese songs notation with diatonic music notation is also different even though both use writing in the form of number notes. The main difference is the Javanese song notation is usually written without a line, while the diatonic musical notation uses a time signature line. Besides that, in writing Javanese songs that use Javanese gamelan notation, the *laras* is always mentioned.

## 1 INTRODUCTION

Songs in art life in Javanese society are understood as *tembang* or songs. In the beginning, *tembang* was associated with pentatonic gamelan music while songs or songs were associated with general music originating from diatonic Western music. In its development to date, many Javanese songs are sung and written in the form of two versions, namely the pentatonic version of gamelan and Western diatonic. Gamelan music is known as the scale called *laras pelog* and *slendro*, while diatonic Western music is known for its diatonic scale. Scale in *laras pelog* is written using numbers 6 1 2 3 4 5 6 which are read as nem, ji, ro, lu, pat, mo, nem. The scale in the *laras slendro* is written using numbers 1 2 3 5 6 1 which are read as ji, ro, lu, mo, nem, ji. The point is that diatonic Western music is written using numbers 1 2 3 4 5 6 7 1 read do, re, mi, fa, sol, la, si, do.

Some researches on pentatonic and diatonic music that are related to Javanese songs also have been done by some researchers, for example what is done by Restiningrum (2016). The study looked at the characteristics of mixing gamelan pentatonic music with Western diatonic music that was used to

accompany a song known as *Badutan* music. Initially this art was purely the art of gamelan music or *karawitan* which accompanied the Javanese song known as *Sindenan*. However, nowadays along with the development, the music of *Badutan* also accompanies many diatonic songs. The tone between the gamelan pentatonic music and diatonic general singing is very different, but in *Badutan* music it is still done by emphasizing humorous nuances.

Takari (2014) conducted a research on the pentatonic and diatonic scales in general review. In this study, it was found that (1) Pentatonic music developed in Asia and parts of Eastern Europe, while diatonic music emerged and developed in the West, which is now spread throughout the world. (2) The pentatonic scale is based on horizontal melodies while the scale is diatonic in terms of vertical melodies. (3) The pentatonic scale is produced in cyclic and divisive systems, while the diatonic scale is produced in a single divisive system. (4) The pentatonic scale is produced from an instrument designed to produce melodic tones, while the diatonic scale is produced from instruments designed to produce melodic and harmonious tones. (5) the pentatonic scale is associated with music that is

associated with extra musicals while the diatonic scale is associated with the cultivation of non-extra musical music.

Research conducted by Aryanto (2018) is related with the creation of *the Soepra gamelan* adapted from *Javanese gamelan*. The tone color is still a *gamelan* tone but using the diatonic scale. The creation of the *Soepra gamelan* is intended to keep it from eliminating the color of local traditional music but can be used for wider artistic purposes, both to play local traditional music and to play diatonic general music.

For local traditional arts such as songs that use the pentatonic scale to be changed in diatonic *laras*. Based on the findings Spiller (2009) explained, gamelan music that has a *pelog* and *slendro* style is more developed into diatonic-style music because it responds to the development of popular diatonic music in Indonesia. Therefore, it has been a common thing that gamelan music those who are pentatonic are changed into diatonic music.

Javanese song in *pelog* and *slendro* as the pentatonic Javanese gamelan music are presented through research produced by Heriwati (2010) has found that Javanese songs contain moral messages for behavioral teachings seen as good, instilling knowledge and invitations to do various actions that are useful for society, nation, and country. The message of this song was delivered in the form of a song which at first always used the accompaniment of *gamelan* music or *karawitan* with *laras pelog* or *slendro*. Javanese songs like that have now been changed into diatonic songs because *pelog* and or *slendro* tones are then transferred to diatonic tones. The function of pentatonic gamelan music is lost when the existing song notation has been made in diatonic form. Heriwati (2010) found that Javanese songs is divided into three main points, namely *Tembang Gede*, *Tembang Tenagahan*, *Tembang Alit*, and there are additional songs named *Tembang Dolanan*. This *Tembang Dolanan* is the one with the most chants sung by being converted into diatonic tones.

Even though *Tembang Dolanan* is currently being used more in the community in diatonic tones, for the public or public schools that still uphold the noble values of Javanese culture, there are also those who still preserve using the *pelog* and *slendro* as gamelan music *laras* that conducted in Primary Schools in the Surakarta area of Central Java (Supeni, 2015). Various preliminary studies, all of which are closely related to Javanese songs, both Javanese songs in the form of *pelog* and *slendro* gamelan music and Javanese songs in the form of Western music are

diatonic. Even so, the results of the study specifically analyzed the differences between Javanese songs using the gamelan pentatonic musical notation with Javanese songs using Western diatonic musical notation.

Based on the background, the problem raised in this study is concerning first, how Javanese songs in particular are written in the ideology of Javanese gamelan music writing and in the diatonic musical model. Second, how to sing the Javanese song in the context of Javanese gamelan music is pentatonic and in the Western musical perspective diatonic. Based on these problems, the objectives of this study can be conveyed, namely to find out the different forms of *Tembang Jawa* (Javanese Songs) notation in the context of Pentatonic Javanese gamelan music and in the Western musical perspective of Diatonic. Secondly to know the difference in inter-tone intervals from Javanese songs that use pentatonic Javanese gamelan notation with the tones of Dolanan songs using diatonic musical notation.

## 2 RESEARCH METHODS

The method of this research is qualitative with the approach of musicology and *karawitanology*. The research design uses a case study, which only takes three examples of Javanese song from several songs published in Indonesian folk songs. The reason for taking Javanese song from books is folk songs in Indonesia because it is assumed that the majority of Indonesian people know the song from Indonesian folk songs. The book was used for music art lessons in public schools at various levels. The focus of this research is related to Javanese song from the pentatonic and diatonic perspectives. The pentatonic perspective relates to the way of writing, reading / singing, and the knowledge of tone intervals in the scale or *laras*. The term *laras* in the song world or Javanese gamelan music is considered the same as the scale. The diatonic perspective relates to the way of writing, reading, and interval knowledge in diatonic music.

The technique of collecting data uses interviews, documentation studies, and observations. The interview was aimed at the teachers and students of the Public School about Javanese song used in learning. Documentation is obtained from document searches by researchers to various public schools in Semarang City and Regency. The levels of the Public Schools are elementary, middle and high school, which every school uses Javanese song songs in learning music. Observations were made when the

teacher taught by seeing the Javanese songs sung using pentatonic or diatonic tones. When the teacher or student develops, the notation is taken care of by the researcher as an observer, until it is known that the notation applied in the song is using the Javanese gamelan pentatonic tones or Western diatonic music.

The technique of data validity is essentially using data manipulation, which is to match data from interviews, documentation, and observations. The data analysis technique uses a method of checking every note used in singing Javanese songs based on the scale used. *Pelog* and *slendro* subscriptions, as well as diatonic scales are used as keys in analyzing any distance or interval of tones that appear in songs. After knowing the scale through the distance or tone interval used in the song, then the side of the way of writing the notation is used in the song. Javanese song notations or songs that do not use a timeline and are seen as a *pelog* and / or *slendro* scale, whereas if the writing method uses a time signature, the writing is seen as a diatonic scale. The way of writing the musical scale of diatonic tone uses western music model while the scale of *pelog* and *slendro* is using gamelan music model.

### 3 RESULTS AND DISCUSSION

In the results of this study, it was stated that the results of the study with the discussion were not separated. The purpose of the results of this study and discussion is not separated so that any data presented as a result of research can be directly explained using appropriate theories and or concepts. Javanese song as a traditional art of Javanese society is certainly known by Javanese society at large. The meaning of this Javanese song is according to the results of research by Heriwati (2010) consisting of *Tembang Gede*, *Tembang Tengahan*, and *Tembang Alit* with still *Tembang Dolanan*. According to Supeni (2015) to date, there are still many elementary schools in Surakarta, Central Java, which use Javanese gamelan music and pure Javanese songs, as stated by Heriwati, even though they are more dominant in Dolanan song.

There is also the form of Pentatonic Javanese Gamelan mixed with diatonic music which is not evenly matched. This is often used to accompany Javanese songs and Javanese singing using diatonic tunes. The results of the research conducted by Rustiningrum (2016) noted that many songs with the strings of Javanese language on them are diatonic accompanied by using Pentatonic Javanese gamelan music. One of them was found in *Badutan* art which was mostly performed in Sragen, Central Java. There

both Javanese songs with *pelog* or *slendro* or Javanese song diatonic are all accompanied by pentatonic gamelan music. This certainly makes the musical feeling uncomfortable or disturbed because there are many discordant / unsuitable sounds.

The pentatonic tunes that are converted into diatonic *laras* and to accompany Javanese songs are more prevalent and very common. The figure or musician who changes the tunes of *pelog* and *slendro* music into the very famous diatonic music is Manthous in his *campursari* work (Wadiyo, 2018). Far from that, actually the Javanese song, whose notation has been changed into diatonic Western music, has been done for a long time. Books of Indonesian Regional songs used in Public Schools at all levels by Rangkuti (1981), this Javanese Song notation is also converted into diatonic music. Songs as intended, for example the song *Gambang Suling* (diatonic music version contained in Regional songs in Indonesia) or *Swara Suling* (version of the Javanese Song of Gamelan), *Suwe Ora Jamu*, *Gundul Pacul*, and *Te Kate Dipanah*. These songs will be studied more broadly in this discussion.

The side of writing the Javanese Songs notation from the pentatonic Javanese gamelan to Western music is diatonic as it is in the songbook for formal school children as written by Rangkuti which has an impact on the changing nuances of the song. The theory of writing the Javanese Tembang notation actually has been around for a long time Osada (2018).

Initially according to Rustopo, writing a Javanese song notation departed from giving a number on the *saron* (gamelan musical instrument) bar in Javanese gamelan music to simplify the game by looking at the numbers. The notation was then known as the *Kepatihan notation*. Numbers 1 through 7 are in lieu of the name tone. The *saron's laras slendro* blades consist of six blades, given sequential numbers from the leftmost bar to the rightmost bar. The sequence numbers are 1 to 7 without numbers 4. As for the *saron's laras pelog* blades from the lowest tones to the highest tones given numbers 1 through 7. Along with the development of subsequent writing to date, for Javanese song writing has been like writing diatonic musical number notation but usually not given the blue line known as *kepatihan notation*, like the following.

It appears in the notation writing, in the lines of writing the notation does not use the timeline. Besides that, in the upper right there is the *Pelog Nem* writing. The writing is so different from the song writing that is changed into the form of diatonic Western musical model number notation. Next, this *Swara Suling* song and *Suwe Ora Jamu* in Western music are diatonic.

SUWE ORA JAMU  
SWARA SULING

Āi Nartosabdo

4/4 Andante

0 7 1 7 | 3 . 7 1 7 6 5 | 4 . 3 5 3 |  
Swa ra su ling ngu mandang swa ra ne tu lat tu

4 . 7 1 7 5 4 | 3 . . . |  
lit ke pe nak u ni ne

3 . 5 4 5 3 i | 7 6 . 6 7 i |  
u .....ni ne mung nre nyu ha

7 5 . 5 7 5 | 4 6 . 6 7 i |  
ke ba reng lan ke ti pung ti ba su

7 . 3 1 7 5 4 | 3 . ||  
ling si grak kendangan ne

Figure 1.

SUWE ORA JAMU  
Lagu Daerah Jawa Tengah

4/4 Moderato

3 4 | 5 . 5 3 4 | 5 . . 3 |  
Su we o ra ja mu ja

4 . 4 5 3 | 4 . . 5 | 7 . 7 i i |  
mu go dong te la su we ra ke te

7 . 7 6 6 | 4 . 4 3 3 | i . 0 ||  
mu kte mu pi san ga we ge la

Figure 2.

In the numeric notation, the writing model of this diatonic Western musical notation there appears a line of bars. The timeline shows the number of beats per hour. The upper right is usually written the name of the song / song creator, not the name of the *laras* of pelog or barrel of Slendro. The term *laras* in the world of *karawitan* and *Tembang Jawa* according to Brotosejati (2008) besides being used to refer to the scale is also to mention the tone. *Laras pelog* means the scale of pelog, while *laras slendro* means the song uses the slendro scale. *Laras pelog* and *laras slendro* is often called the pentatonic scale, 5-tone system. *Laras pelog* and *laras slendro* use 5 main tones in a musical composition karawitan and tembang. In the song *Swara Suling* and *Suwe Ora Jamu*, use the Pelog Nem tuning. The basic tone is Nem (6). The following is a song entitled *Gundul Pacul* which is played or sung with *Pelag Barang* and a song titled *Te Kate Dipanah* which is played or sung by *Slendro Sanga*.

SWARA SULING

Pelog Nem

. . 5 6 5 i | . 5 6 5 4 3 2  
Swa ra su ling ngu mandang swara ne

. . i 3 i 2 | . 5 6 5 3 2 1  
tu lat tu lit ke pe nak u ni ne

. . . i | . 3 2 3 i 6 5  
U .....ni ne

4 . 4 5 6 5 | 3 . 3 5 3 2  
Mung nre nyu ha ke ba reng lan ken trungr

4 . 4 5 6 5 | . i 6 5 3 2 1  
Ke ti pung su ling si grak tembanga ne

Figure 3.

Te Kate Dipanah.

Slendro Sanga

. . 2 2 2 1 6 5 | 5 6 1 6 | 2 1 6 5  
Te ka te di pa nah di pa nah ngi sor ge la gah

5 6 1 6 2 1 6 5 | 5 5 2 3 | 2 3 6 5  
A na ma nuk on de on de mbok sr bo bok mbok sri ka te

5 5 2 3 2 3 6 5  
Mbok sri bo bok mbok sri ka te

Figure 4.

GUNDUL PACUL

Pelag Barang

. . 3 5 . 3 5 6 7 | 7 0 2 3 2 3 2 7  
ngan Gundul gun dul pa cul cul genbe le

. . 3 5 . 3 5 6 7 | 7 0 2 3 2 3 2 7  
ngan Nyunggi nyunggi wa kul kul genbe le

. 3 . 5 . 7 . 6 5 7 6 5 | 3 6 5 3  
tan wa kul ngglim pang se ga ne da di sak ra

. . 3 5 . 7 . 6 5 7 6 5 | 3 6 5 3  
tan wa kul ngglim pang se ga ne da di sak ra

Figure 5.

It appears in the article that, besides not being accompanied by a sign of time, there is also a writing in the upper right corner of *Pelag Barang* on the song *Gundul Pacul* and *Slendro Sanga* in the title of Kate Dipanah's Teaching song. This article is completely different from the writing of Bald Dip and Tekate Di Panah, which uses diatonic Western music writing. In writing notation that uses diatonic Western notation using a line of bars and in the upper right corner written the name of the creator or the name of the area the song originates, as we can see in the following song.

Te Kate Di Panah  
Lagu Daerah Jawa Tengah

4/4 Moderato

|   |    |    |    |    |    |     |    |    |     |     |     |    |    |   |  |  |
|---|----|----|----|----|----|-----|----|----|-----|-----|-----|----|----|---|--|--|
| 5 | 5  | 5  | 3  | 2  |    | 1   | 1  | 2  | 3   |     | 2   | 5  | 3  | 2 |  |  |
|   | Te | ka | te | di | pa | nah | di | pa | nah | ngi | sor | ge | la |   |  |  |

  

|   |     |   |    |    |     |   |     |   |     |     |     |    |  |     |     |     |    |  |  |  |
|---|-----|---|----|----|-----|---|-----|---|-----|-----|-----|----|--|-----|-----|-----|----|--|--|--|
| 1 | 1   | 2 | 3  |    | 2   | 5 | 3   | 2 |     | 1   | 1   | 5  |  | 6   | 5   | 6   | 2  |  |  |  |
|   | gah | a | na | ma | nuk | o | nde | o | nde | bok | sir | bo |  | bok | bok | sir | ka |  |  |  |

  

|   |    |   |  |  |  |
|---|----|---|--|--|--|
| 1 | .  | o |  |  |  |
|   | te |   |  |  |  |

Figure 6.

Kusnadi (2006) argues, a composition of songs is a composition that combines melodic elements, rhythms, and sound colors in dynamic forms of work by being decorated with song lyrics in accordance with the theme being worked on. With an aesthetic approach, the Javanese song is not only viewed from the perspective of a writing method, but also looks at how the intervals that appear in the scale can be seen that in fact the Javanese song when sung using diatonic Western music is very different in frequency. The use of the *pelog Nem laras Pelog Barang, slendro Sanga* in Javanese song here is a continuation of the Javanese gamelan music tradition which until now is actually still alive but many are transformed into diatonic musical tone by the user community.

It can be assessed technically that, actually singing or singing using such as *pelog Nem, pelog barang, and Slendro Sanga* is as easy and or as difficult as singing a song using diatonic western musical notation. The following can be seen using a review of the frequency of Western music, which is also written as *pelog nem (6) and Pelog Barang*. The use of the *pelog laras* of goods relatively using the *laras* is rather high because of the tonic tone 3 (lu), much higher than the *pelog bem* which uses *tonika 6 (nem)*.

Table 1: The Conversion of Laras *Pelog Bem/ Nem* Into Western Diatonic Music Scale.

| Scale                       | Conversion |    |     |     |    |     |
|-----------------------------|------------|----|-----|-----|----|-----|
| <b>Musik Barat</b>          | 1          | 3  | 4   | 5   | 7  | 1   |
| <i>Read</i>                 | do         | mi | fa  | sol | si | do  |
| <b>Laras Pelog Bem/ Nem</b> | 6          | 1  | 2   | 3   | 5  | 6   |
| <i>Read</i>                 | nem        | ji | ro  | lu  | ma | nem |
| <b>Laras Pelog Barang</b>   | 3          | 5  | 6   | 7   | 2  | 3   |
| <i>Read</i>                 | lu         | ma | nem | pi  | ro | lu  |

In the table below it can be seen to see the song using the *pelog* or *slendro* can be very variety according to the *laras* and of course the frequency of the tones is very different from diatonic Western music. Each tuning (*pelog and slendro*) may only be played with two basic tones, namely at the *slendro do*

= 1 (ji) and do = 5 (five). Whereas on the tuning of the *pelog* it is only possible to play the basic note do = 6 (nem) or do = 3 (lu). This can be explained by observing the intervals of the *campursari gamelan* tones as follows.

Table 2: The use of Tonika in *Pelog* and *Slendro* with Interval Comparison.

| Western Diatonic Interval | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 1   | 2   | 3   | 4   | 5   |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <i>Interval</i>           | 200 | 200 | 100 | 200 | 200 | 200 | 100 | 200 | 200 | 100 | 200 | 200 |
| <i>Pelog 1</i>            | 1   | .   | 3   | 4   | 5   | .   | 7   | 1   |     |     |     |     |
| <i>Pelog 2</i>            |     |     |     |     | 5   | .   | 7   | 1   | 2   | .   | 3   | 5   |
| <i>Slendro 1</i>          | 1   | 2   | 3   | .   | 5   | 6   | .   | 1   |     |     |     |     |
| <i>Slendro 2</i>          |     |     |     |     | 5   | 6   | 7   | .   | 2   | 3   | .   | 5   |

At the *laras Pelog*, a row of 400-100-200-400-100 intervals may only be played in two kinds of ways, namely the notes do-mi-fa-sol-si-do or sol-la-si-do-re-mi in the *pelog laras* are identical to nem-ji-ro-lu-ma-nem or lu-ma-nem-ji-ro-lu. The two possible basic notes in Javanese *karawitan* are included in *pathet nem*. In the *slendro laras*, to arrange a range of intervals of 200-200-300-200-300 only possible in two ways, namely: do-re-mi-sol-la-do or sol-la-si-re-mi-sol which in the *slendro* tuning it is identical to ji-ro-lu-ma-nem-ji or ma-nem-ji-ro-lu-ma. Two types of basic tones are included in *pathet sanga* in Javanese gamelan.

## 4 CONCLUSIONS

Based on the results of the research and discussion it can be concluded that there are two themes. First, the way to write the Javanese Song notation in the perspective of Javanese gamelan pentatonic music is to use numerical notation like diatonic music. The difference is that diatonic music always uses a line of bars to determine the number of types per time signature while for writing Javanese Songs notation does not usually use a line of bars. In addition, in writing Javanese song, at the top right corner of the score is always written the *laras*. While the diatonic notation is written only the name of the creator or origin of the song area. Second, the intervals in the scales are used between the pentatonic and diatonic perspectives, different. The difference is mainly in the frequency of each pitch interval. Besides that, the way to read the notes is different. Reading *pelog* and or *slendo* notations using the Javanese numeral designation, namely ji ro lu pat mo nem pi adjusts the *laras*, while reading Western diatonic musical number notations is do, re, mi, fa, sol, la, si, do.

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