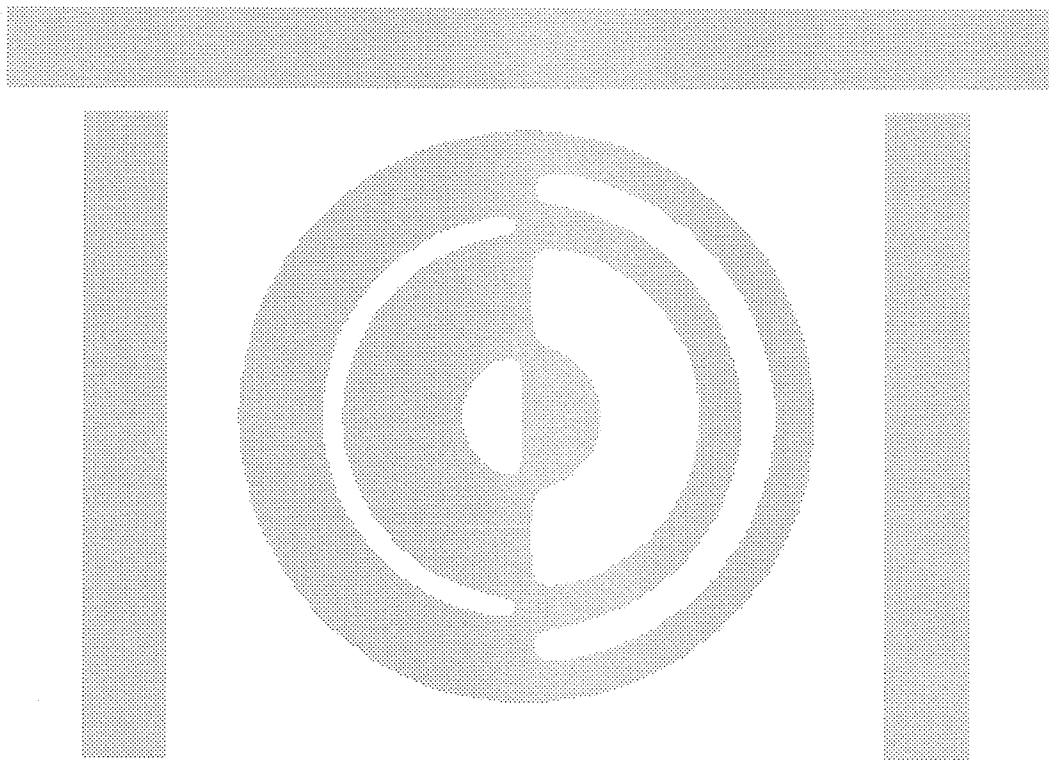


# *The Javanese Gambang and Its Music*

**R Anderson Sutton**



# *The Javanese Gambang*



*AND ITS MUSIC*



*by R. Anderson Sutton*

THE JAVANESE GAMBANG AND ITS MUSIC

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## NOTE ON ORTHOGRAPHY

The system of spelling Javanese and Indonesian words in this study is, for the most part, the romanization used in Java since 1972. The following is a guide to pronunciation.

<u>Spelling</u>	<u>Nearest American English Equivalent(s)</u>
a	1. <u>popular</u> . 2. <u>raw</u> (only in final or penultimate syllable of a morpheme in Javanese).
b	<u>bottle</u> .
c	<u>hits</u> (very close to <u>hitch</u> ).
d	<u>dark</u> (but dental; i.e., tip of tongue touches back of upper front teeth).
ḍ	<u>dark</u> (but retroflex; i.e., tip of tongue toward the back of the mouth--Javanese only).
e	<u>elevate</u> .
è	<u>elevate</u> .
é	<u>elevate</u> .
f	<u>fate</u> .
g	1. <u>go</u> . 2. (if preceded by 'n') <u>singing</u> . 3. (if at end of a syllable) similar to <u>blackboard</u> .
h	<u>hit</u> .
i	<u>unique</u> .
j	<u>adze</u> (very close to <u>ajar</u> ).
k	1. <u>keep</u> (but not aspirated). 2. (only at end of a syllable) a glottal stop.
l	<u>like</u> .
m	<u>mix</u> .
n	<u>not</u> .

<u>Spelling</u>	<u>Nearest American English Equivalent(s)</u>
o	<u>old</u> (but no final closure of lips).
p	<u>pan</u> (but not aspirated).
r	a rolled 'r'--more like Spanish 'r' than English 'r'.
s	<u>sun</u>
t	<u>tan</u> (dental; not aspirated)
ṭ	<u>tan</u> (retroflex)
u	<u>soon</u>
v	between English <u>fate</u> and <u>van</u> , closer to fate.
w	between English <u>was</u> and <u>van</u> , closer to <u>was</u> , but with less lip rounding.
y	<u>yoke</u>

Some very recent publications substitute 'dh' for 'd' and 'th' for 't'; this use of 'h' to indicate the retroflex will probably become more standardized in the future. Passages cited from publications, most of which appeared before 1972, use several orthographic systems. The 'c' in this study would have been represented 'tj' or 'ch' (the latter in English language writings); the 'j' in this study would have been represented 'dj'; and the 'y' in this study would have been represented 'j'. Some scholars have chosen not to use any diacritical marks to discriminate between 'd' and 'ḍ', 't' and 'ṭ', 'e' and 'è' or 'é'. The minor inconsistencies between scholars writing at different times and for different readerships should not cause the reader of the present study any difficulty.



The spelling of the city 'Jogjakarta', used throughout this study is one of many variants and is chosen since it most closely represents the pronunciation. Its normal spelling currently is "Yogyakarta", despite the fact that it is usually pronounced as if spelled 'Jogjakarta'.

Plurals in Indonesian and Javanese, when not obvious from context, are formed by reiterating the noun. For example, 'kursi' means 'chair'; 'kursi-kursi' means 'chairs'. In this study, the English system of pluralization is used: 'kursis' means 'chairs'.

Familiar Javanese (ngoko) is used rather than polite Javanese (krama) except in instances where the krama word is normal. A glossary of Javanese and Indonesian terms may be found in Appendix C.

#### LIST OF ABBREVIATIONS

BB	= balungan beat	lit.	= literally
DR	= density referent	LLF	= (a motif whose) lowest tone is lower than its final tone
gmb.	= gambang	No.	= number
ill.	= illustration	r.h.	= right hand
Ind.	= Indonesian	R.R.I.	= Radio Republik Indonesia
Ir.	= irama	Vol.	= volume
Jav.	= Javanese	W.P.	= whole performance
l.h.	= left hand		



## CHAPTER I

### INTRODUCTION

#### Rationale

The impetus for this study was twofold: a seminar in Javanese music taught by Hardja Susilo at the University of Hawaii in 1972 and a subsequent visit to Java in 1973 during which I studied Javanese gambang performance. The gambang<sup>1</sup> is the only xylophone in the Javanese gamelan (a set of predominantly percussion instruments). Before 1973 I had become aware that very little had been written about the gambang beyond a general description of the instrument and its music. During my second trip to Java in 1974, I discovered a modest paper (Suparno 1973) dealing specifically with gambang performance. The Suparno paper, that presents a substantial sampling of gambang performance in transcription, is a valuable contribution. Suparno assumes of his readers considerable familiarity with both the socio-cultural and musical contexts of the gambang. He is a Javanese musician writing for other Javanese: essentially, an insider writing for other insiders. The existence of Suparno's paper, then, does not alter the need for this study. As an 'outsider' to both the culture and its music, I intend to offer a 'thorough introduction' (if such a coinage does not seem paradoxical) to the gambang. This study is aimed primarily at a readership of outsiders, but I hope that it may be of use and interest to insiders as well.

This study is based on two assumptions. First, an understanding of an instrument and its music must begin with the understanding of

its socio-cultural and musical contexts. Second, an understanding of its music necessitates transcription and analysis of musical performance. The two assumptions can be stated inversely: through an investigation of an instrument something can be learned not only about the instrument, but also about its musical and socio-cultural contexts. The primary concern of the study is to identify and describe some features of the gambang and its music which the Javanese themselves feel to be important.

#### Methodology

The research for this study was initiated at the University of Hawaii and carried out, for the most part, during two trips to Java: the first for two months in 1973, the second for ten months in 1974 under the auspices of the East-West Center. I was fortunate to have had the pre-field training in gamelan music performance and theory. On both trips I arranged private lessons with recognized performers enabling me to carry on extensive conversations with musicians concerning musical practice, theory, and socio-cultural context. With their consent, I made tape recordings of these musicians playing compositions and demonstrating techniques on certain instruments. Much direct musical communication was preserved on tape. The use of a tape recorder during conversations seemed to make my teachers feel uneasy. Therefore, I kept a hand-written journal, to which I referred for further discussion and clarification.

I attended as many performances involving Javanese gamelan music as possible, taperecording when permission was given. Direct

observation of musical practice and related behavior provided stimuli for in-depth discussions with my teachers. Since proper audience behavior does not preclude conversation at performance, direct observation was often complemented by audience feedback, providing perspective on the opinions and ideas of my informants. In addition, I often attended rehearsals during which Javanese gamelan music was played and discussed by the musicians amongst themselves. These experiences revealed that my teachers' focuses of attention and their ways of verbalizing about them to me in lessons and interviews typify the indigenous viewpoint.

Most tape recordings were made with a Sony TC 55 cassette recorder. Some performances and a number of single instrument examples were recorded with an Uher Report 4400 using two Sennheiser MD 421 cardioid microphones. The corpus of compositions performed on the gambang and transcribed in this study were recorded during June through October 1974, using the Uher and Sennheiser equipment. The vocal and rebab (spike fiddle) parts were recorded on the Sony TC 55. Each recording used in the corpus of this study was played back to the performer for comments.

#### Informants

During my two trips to Java, there were three Javanese musicians with whom I studied most intensively: Suhardi, Prajasudirja, and Sastrapustaka. (Many Javanese are known by a single name.) This study derives, in large measure, from hearing them play and talking with them at great length about the gambang, its musical contexts, and Javanese

culture and society. Except where specified otherwise, when I speak of 'my informants', it is to these three men that I refer. A brief biographical sketch of each is given below.

Suhardi was born in Jogjakarta in the late 1930's (he does not know precisely what year). He became enamored of gamelan music at about the age of four, when he frequently spent entire nights in the company of a neighborhood musician who played for wayang kulit (shadow puppet drama) which is accompanied by gamelan music. He pursued his interest through his youth but despaired of making a living from music. In the early 1960's Ki Wasitodipuro, who at that time directed Javanese music at the government radio station, Radio Republik Indonesia (normally abbreviated to R.R.I.) in Jogjakarta, heard him perform on a number of Javanese gamelan instruments and offered him a full-time position as a musician at R.R.I. Jogjakarta. Since then Suhardi has gained wide respect in Jogjakarta as an impeccable musician and teacher. He was also invited to join the musicians of the Pakualaman court--considered a great honor--where he now holds the rank of bekel. His wife, who studied singing as his pupil, is one of the Pakualaman court singers.

Prajasudirja was born in Jogjakarta in the late 1910's (he does not know precisely what year) and studied gamelan music during adolescence with a group of musical neighbors led by the Jogjanese court musician Astakuswala. Prajasudirja became well-known in Jogjakarta as a gamelan teacher in his early twenties and joined R.R.I. in the late 1940's as a musician. He left this position in 1957 to take a pensioned civil service job because R.R.I. makes no pension

provision for its musicians. Shortly after the founding of two conservatories of gamelan music in Surakarta (ASKI and KOKAR),<sup>2</sup> he was invited to teach at both institutions and continues to do so today. In Jogjakarta, he teaches classes in Javanese music at two dance academies (ASTI and KONRI)<sup>3</sup> and at a conservatory of Western music (AMI).<sup>4</sup> His systematic approach to teaching both advanced students and beginners has earned him a reputation as an excellent teacher.

Sastrapustaka, born in Jogjakarta in 1911, has been connected with the life of the Jogjanese court since he was very young. The name 'Sastrapustaka' was given to him by the court in 1942 when he began to work in the court library. Before that time he was known as Atmahastra, another court name given to him for his participation in court dances during the 1920's and 1930's. Throughout his entire life, he has been exposed almost daily to the gamelan music played in the court. In the 1930's he frequently performed gamelan music for radio broadcasts. His years of experience working in the court library have made him a recognized scholar as well as a noted performer of Javanese music. In addition to his activities in the court, he teaches gamelan music at ASTI, KONRI, and AMI.

#### Research Setting

Java is the most populous of the many thousands of islands that comprise the nation of Indonesia. Lying between the large island of Sumatra to the west and the small island of Bali to the east, Java forms roughly the shape of a rectangle, approximately 620 miles long and, at its widest point, 125 miles wide. Most of the island lies

within 6 to 8 degrees south latitude and 106 and 114 degrees east longitude. The climate varies from place to place on the island, but may be characterized generally as tropical and humid.

Java supports two major culture areas, each with its own language. The westernmost area is Sunda; its indigenous language is Sundanese. Although the Sundanese inhabit one third of the island of Java, when I speak of the Javanese, I refer to the group of people with a common language and culture who inhabit the rest of the island. The existence of several dialects of the Javanese language causes occasional difficulty in speech communication between, for example, people from eastern Java and central Java. Indonesian, the official national language, is used for communication between members of different dialect and language groups. This official language is increasingly prominent in publications and in the speech of younger Indonesians, but the normal language of communication for any one area is still the regional language.

#### Historical Background

The Javanese have experienced contact with other cultures throughout recorded history. The first major external influence for which there is historical evidence came from the Indian subcontinent. Although it is difficult to determine the time at which Indian influences first began to be felt, it is certain that by the eighth century A.D. they were significant (Legge 1964:27-28). During this century the first Indian-Javanese kingdom ('first Mataram') arose, and important architectural monuments such as the Shaivite temples on the Dieng plateau in central Java were constructed. From the rise of this first kingdom of



Mataram until the fall of the Majapahit kingdom in the early sixteenth century, Hindu influence was the predominant non-indigenous force. Another was Buddhism, particularly influential from the mid-eighth century through the mid-ninth century. The architectural feats of this period of Buddhist supremacy include Borobudur, one of the most remarkable pieces of architecture in all of Southeast Asia.

Islam is reported in the Indonesian archipelago as early as the end of the thirteenth century and was spreading through much of what is now Indonesia before the beginning of the sixteenth century. With the fall of Majapahit, Islam replaced Hinduism as the official religion, at least at the court echelon. Today Islam remains the official religion of the courts and the religion espoused, at least nominally, by many Javanese. However, relatively few adhere to the strict teachings of Islam. Hindu-Buddhist and autochthonous elements are contained in the belief systems of many Javanese.

Scholars generally agree that the nature of culture history in Java is syncretic. This may be seen not only in religion, but also in language (for example, the numerous Javanese words of Sanskrit and Arabic origin), and in other aspects of culture including the performing arts. Syncretism does not imply the adopting of every outside cultural trait to which there is exposure. There is, for example, no discernible Indian influence in Javanese music styles, although temple carvings in Java of Indian musical instruments suggest exposure to Indian music as early as the eighth century. Perhaps syncretism has masked the Indian musical influences from the investigating eye (and ear) of scholars, but it seems more probable that Indian music simply was not compatible

with the Javanese cultural context. In present day performance practice, Javanese music and Indian music appear very different indeed.

The seat of power was in eastern Java from the end of the tenth century until the end of the sixteenth century. The 'second Mataram', an Islamic kingdom, arose in central Java at the end of the sixteenth century. For over one hundred and fifty years, it exercised power over most of central Java, despite encroachment by the Dutch, who first arrived on the island of Java in 1596.<sup>5</sup> In the middle of the eighteenth century, Dutch intervention in a dispute between the ruler of Mataram (Susuhunan Paku Buwana II) and his younger brother (Mangku Bumi) precipitated the Third Javanese War of Succession.<sup>6</sup> In 1749, the first year of the war, Paku Buwana II died, ceding his kingdom to the Dutch. Mangku Bumi continued to oppose the Dutch and their recognition of his nephew (Paku Buwana III) as vassal ruler. The fighting ended with the Treaty of Gianti in 1755, which divided Mataram into two vassal states. Paku Buwana retained the title 'susuhunan' and nominal rule over the eastern portion of Mataram, with his palace (Jav. kraton) in the city of Surakarta (also called Solo). Mangku Bumi took the title 'sultan' and moved to the western portion of Mataram where he founded the city of Jogjakarta (also called Jogja) about forty miles southwest of Surakarta.

Another of Mangku Bumi's nephews, R. M. Said, also challenged him for leadership. R. M. Said's acknowledgment of Dutch supremacy in 1757 gained him vassal rule over a portion of east Mataram (the principality of Mangkunegaran). Half a century later, during the five years of British rule (1811-1816), the principality of Pakualaman was formed

within the Sultanate of Jogjakarta, dividing Mataram into four areas, each with its own nominal ruler.

For a time after this, with real power in the hands of the Dutch, the four nominal rulers devoted considerable time and resources to the arts. Frequent land disputes between Jogjakarta and Surakarta during the nineteenth century are indicative of the animosity between the two neighbors. This animosity extended to the realm of the performing arts. Even today, although the music played in both areas seems almost identical to the uninitiated ear, there are many stylistic differences that distinguish 'Solonese' musical style from 'Jogjanese'. The Mangkuningaran and Pakualaman developed some of their own style characteristics as artistic manifestation of their identities separate from either Surakarta or Jogjakarta. Today the musical repertoires of the four areas have much in common, although the same composition may be treated somewhat differently in each area. The most pronounced differences, and the ones most talked about today, are those between Solonese and Jogjanese styles.

The arts flourished from the return of the Dutch to power in Java in 1816 until 1942 when occupation by the Japanese brought a disruptive period in Javanese arts and difficult times for the people. The nation of Indonesia was declared at the end of World War II. The Dutch tried to return to power in their former colonies but faced revolutionary opposition which terminated with Indonesian victory in 1949. A center for revolutionary organization was the Jogjanese kraton. The sultan himself (Hamengku Buwana IX) contributed to the successful expulsion of the Dutch. Jogjakarta repeatedly demonstrated its intolerance for

Dutch colonial rule from the partitioning of Mataram in 1755 through the revolution. Surakarta, in contrast, tended to acquiesce to colonial domination. The louder, more forceful style of Jogjanese music may be an artistic reflection of the two responses.

### Social Setting

My intent below is not to describe Jogjakarta in distinction to the rest of Java, but rather as an area typical of Java and familiar to me. The city of Jogjakarta is a center of Javanese culture. A recent estimate of the population is "over 400,000" (Williams 1974:12). It is the capital of a small province, Daerah Istimewa Jogjakarta (lit. the Special Region of Jogjakarta), whose 1212 square miles support a population of 2,490,000 (McDivitt 1975:458). Thus, the average population density of the province is 2054 persons per square mile. Indeed, people seem to be everywhere. Streets are teeming with humanity; houses are small, cramped together, and usually shelter far more people than a Westerner would consider comfortable or even bearable. People live and work in the constant company of others and manage to do so with a minimum of external conflict.

Foremost in the value system is the importance of harmony in all facets of life. Expression of personal opinions or feelings which might cause embarrassment or anger is scrupulously avoided. Similarly, if someone has unwittingly caused another individual embarrassment or anger, the latter will try to suppress any outward sign of his emotional response. The ubiquitous smile, which causes casual tourists to conclude naively that all Javanese are 'happy with their lot', may

in fact disguise a spectrum of emotions. By Western standards there is very little violence. Intolerable situations, when they arise (as they do in any society), are generally dealt with through indirection or through a third party. I do not wish to overgeneralize. The repeated military conflicts with the Dutch indicate that some situations may evoke direct and forceful tactics. Social harmony (Jav. rukun) is, nevertheless, highly valued. To this end much social behavior is formalized and patterned, with an elaborate code of verbal and gestural etiquette (Jav. tata krama).

While aspects of social harmony are most visible to an outside observer, complete harmony includes more. In comparison with the rugged individualism characteristic of Western culture, Javanese are often characterized as non-individualistic. Open competition for individual glory is rarer in Javanese society than in the West, but a sense of individuality is important nevertheless. As I found in conversing with musical informants and neighbors, harmony within oneself and a sense of oneself is deemed essential to any type of action whether it be communal or not.

The performing of Javanese music is essentially a communal art. The aesthetic norms for the playing of some instruments may allow for little or no personal input or interpretation, while for others, some individuality may be allowed or even required. Within this context, two levels of 'harmony'<sup>7</sup> are found. At the level of the total sound fabric, even the instruments allowed individual latitude should not disturb the unity of the whole. Thus, group harmony should not have to be achieved by suppression of individuality, but rather by the

understanding of how to manifest one's individuality unjarringly.

From the Javanese point of view, anyone not in harmony with himself will inevitably disrupt the harmony of the group and will be unable to perform well as an individual.

The slametan (a ritual communal meal) may be mentioned as an example of the concern for keeping harmony with the spirit world, which may affect one's life beneficially or adversely. In order to sponsor a slametan, an individual must at first be at peace within himself-- in harmony with himself. He must be in harmony with his neighbors, whom he will invite to share in the slametan, thereby strengthening his social bonds. While harmony with the spirit world is one purpose of a slametan, then, other aspects of harmony are involved as well.

In setting the date of a slametan and such important rites of passage as marriage and circumcision (which may entail slametans), attention is paid to calendrical cycles as they relate to the individual(s) involved. Before approving a proposed marriage, the parents usually take into account the Javanese birthdays<sup>8</sup> of the prospective couple in order to determine to what extent the marriage is likely to be successful.<sup>9</sup> This reckoning involves a continuum from 'very probable' to 'highly unlikely'. One of my informants, quite happily married for six years, told me that there was "about an eighty percent" positive fit between the birthdays of his wife and himself. This was evidently deemed sufficient for both sets of parents to grant approval for the marriage.

The significance of thinking in a continuum, rather than in absolute polarities, should be stressed since it is fundamental to

much of the Javanese world view. In contrast to the West, where such polarities as good and evil, right and wrong, figure prominently in thought and daily conversation, the Javanese tend to think and talk of things within continuums. A person's behavior may be called "apik" (lit. good) or "kurang apik" (lit. not so good) or something in between. Evaluations of different musicians by my informants were invariably couched in relativistic terms. Such comments as "swarané kepénak; rebabané isih kurang" (lit. his voice is pleasant; his rebab playing is still not sufficient) and "karawitané cukupan" (lit. his gamelan playing is acceptable) were common. I never heard any musician refer to another's playing as "downright bad"--a comment often heard in Western music circles.

Other continuums used in the judgment of actions and things are independent of a good-bad continuum. That is to say, one end of the continuum is not automatically positively valued and the other negatively valued. For example, the concepts of alus (usually translated as "refined") and kasar (usually translated as "coarse") are met with frequently in the description of someone's appearance or behavior. These are not necessarily two ends of the same continuum but are qualities unto themselves. Some attributes of behavior, for example, may be perceived as somewhat alus, and others as somewhat kasar. As a standard of judgment, it is the appropriateness, in the context, of the extent of refinement and coarseness which is important. Somewhat kasar behavior in a situation where a predominance of alus behavior is appropriate may well cause irritation; the reverse is usually less offensive but is, nevertheless, inappropriate and may be humorous.

In the realm of aesthetics, a dancer's movements or a musician's playing is often evaluated in terms of these two qualities. It is equally inappropriate for a musician to play in a refined style in a context which is somewhat kasar as for a musician performing a very alus composition to use an even slightly kasar style.

In a musical composition and in a dance or dance drama, the context and, therefore, the appropriate amount of refinement and coarseness are to a great extent fixed by tradition. Situations arise that have occurred countless times before. Instances of ambiguity in Javanese music do occur and may reflect the presence of ambiguity in life. Social interaction, like musical interaction, often involves repetition of familiar situations, but not always. Thus, the appropriate behavior in some situations may be ambiguous or interpreted differently by different individuals. In both musical and social interaction, the range of choices in some situations is greater than in others. The extent to which people agree on what to choose in an ambiguous situation will determine the amount of 'harmony' (musical or social) in the interaction.

Much of what has been said above may be summed up with mention of the Javanese concept cocog<sup>10</sup> (lit. appropriate, suitable, in agreement). Certain behavior may be very appropriate (Jav. cocog banget) in one situation but not so appropriate in another (Jav. kurang cocog). The Javanese birthdays of my informant and his wife "cocog" about eighty percent. Ideas held by one individual may be cocog in varying amounts with those of another, or an object may be quite cocog to one individual but less so to another. Implicit in such thinking is the Javanese



recognition that people are, and should be, different from one another in their tastes and behavior. This means that 'cocog-ness' can be achieved by resolving the problem of appropriateness in various manners. Indeed, without this recognition, such a large--and inevitably diverse--group of people living in such a small area could not hope to maintain the great amount of social harmony which is so highly valued and which, to a great extent, prevails.

## Notes to Chapter I

- <sup>1</sup> Except where specified otherwise, the term 'gambang' is applied to the xylophone of the Javanese gamelan. Foreign terms are underlined and defined on first appearance.
- <sup>2</sup> ASKI is the normal abbreviation for Akademi Seni Karawitan Indonesia, and KOKAR for Konservatori Karawitan Indonesia.
- <sup>3</sup> ASTI is the normal abbreviation for Akademi Seni Tari Indonesia, and KONRI for Konservatori Tari Indonesia.
- <sup>4</sup> AMI is the normal abbreviation for Akademi Musik Indonesia.
- <sup>5</sup> Some Portuguese came before the Dutch, but their presence was felt mainly on islands other than Java.
- <sup>6</sup> See further D.G.E. Hall 1968:335-6.
- <sup>7</sup> This should not be misconstrued as 'harmony' in the Western musical sense.
- <sup>8</sup> See Geertz 1960:30-37.
- <sup>9</sup> This practice is still widespread, but some of the younger and more well-to-do Javanese are abandoning this in favor of a more Western model.
- <sup>10</sup> Dictionaries normally spell 'cocog' with a final g, but it is usually pronounced as if spelled 'cocok' (ending with a glottal stop).

## CHAPTER II

## JAVANESE GAMELAN MUSIC

The kinds of musical activity in contemporary Java are diverse. Cassette recorders blast Western and Indonesian rock music in many stores and private homes. Radios broadcast orkès malayu (lit. Malayan orchestra; combo music often from Jakarta or, as the name implies, the Malayan peninsula), kroncong (indigenous folk music, with acculturated Portuguese influence), American jazz, and so on. Teenagers often fill the evenings strumming guitars and singing by the roadside. Yet along with all these, Javanese gamelan music has wide appeal.<sup>1</sup> It is important to Javanese cultural identity and, therefore, to an understanding of contemporary Java. The Javanese refer to gamelan music as karawitan, thereby distinguishing it from other forms of musical expression.

The karawitan discussed in this study is usually performed in the context of uyon-uyon (a performance in which karawitan is listened to and enjoyed for its own sake). It is also an essential component of many Javanese performing arts, the most prominent of which are: wayang kulit (shadow puppet drama), wayang golèk (three-dimensional wooden puppet drama), wayang wong (dance drama with verbal dialogue), sendratari (dance drama without verbal dialogue), keçoprak (a type of non-dance drama), and beksan (dance).<sup>2</sup> In addition, karawitan is becoming an important aspect in worship services in some Christian churches. Generally, its function is not religious in the Western sense. However, karawitan is attributed power which might be considered religious. In the context of slametans, karawitan is intended both as entertainment

and as a source of power in gaining harmony with the spirit world. In addition, the instruments themselves may be considered sacred, whether the function of the music played be purely entertainment, purely religious, or a combination of the two.

### Karawitan and the Concept 'Art' Music

Whether karawitan should be labelled an 'art' music, as distinct from 'pop' music or 'folk' music, presents some problems.<sup>3</sup> 'Art' music in the Western sense implies most, if not all, of the following: a verbalized theoretical system, musical notation, formalized transmission, a professional musician status, recognition of composers, and appeal to a minority elite. At present, karawitan exhibits some of these features. First, Javanese musical theory is verbalized both in writing and in speech. Several types of musical notation exist, although none is used as extensively as in Western art music. Transmission may be formalized. Processes of learning may include training at an educational institution, study with a musical friend, or may be based solely upon (informal) observation. While many competent gamelan musicians (niyagas) are not paid for their music making, there are some professionals. However, no fortunes are to be made from such a profession; those who choose karawitan as a profession do so primarily for love of the music rather than for financial success.

The features discussed thus far conform to a Western definition of art music, but other features stand in contrast to that definition. The composer of a particular gamelan composition is rarely known even to karawitan scholars. The framework of anonymity in karawitan invites

comparison to folk music in Western society.

The age of any composition is impossible to determine because the question is wrongly put and irrelevant. Within an oral [sic] tradition, no two performances are ever alike. Each gamelan, or each director of a gamelan, adds to or subtracts from the version from which he learned. Certain stylistic practices become fashionable at certain times and in certain localities. Thus a composition may develop distinct differences from one area to another over a period of time. A piece is never fixed, but involved in a continual process of re-creation with every performance, even with every repetition. It is this that is meant by the adage that within an oral [sic] tradition, all music is contemporary.

(Becker 1972:25-26)

As another contrast to the Western definition of art music, karawitan appeals more or less equally to all strata of society. The concept 'karawitan', then, includes features of both art and folk musics in the Western sense; it defies pigeonholing under Western classification schemes.

It is often said that a good *niyaga* is able to play all, or most, of the gamelan instruments. Such diversity is not expected in traditional evaluations of a Western orchestral musician. The use of notation in Western tradition allows for a more fragmented approach to the music; a Western violinist, for example, does not have to know all the parts of a symphony in order to perform competently. Moreover, the melodic and rhythmic details in Western art music are usually prescribed. In contrast, much of the musical material in any one performance of a Javanese composition is not completely fixed. Musico-social norms shared by performer and listener determine what material is chosen from what is technically possible. To make acceptable choices for each part, the range of acceptable choices for all the other parts must be

understood.

Such a description may imply that karawitan is improvised music. Indeed, by some definitions it could be characterized as improvised or improvisatory. Given the many connotations of the term 'improvisation' and the problems of identifying just what musical events are improvised, I feel that the concept is not useful in discussing karawitan.<sup>4</sup> Avoiding the term reflects the Javanese point of view since no term identical to 'improvisation' exists in Javanese. The parts with low-level prescription are played on instruments collectively referred to as isèn-isèn (lit. having the nature of 'filling in').

Having pointed out some of the important general aspects of karawitan, I now turn to a more specific topic: the Javanese gamelan.

#### The Javanese Gamelan

A number of types of gamelan ensembles exist in Java today; only the most frequently used type (hereafter referred to as gamelan) will be discussed here. The word 'gamelan' has often been translated as 'orchestra', but the word refers to a collection of instruments, not to the people who play them. A musician who plays in a Western orchestra is most likely to own the instrument he plays and take it home to practice; and if one player is replaced by another, a different instrument, possibly made by a different manufacturer in a different country, will usually be used. A gamelan is a set of instruments which, under normal conditions, are not separated from one another. Most instruments of a gamelan are of fixed pitch and are tuned only to other instruments in the particular set (gamelan) to which they belong. The tuning would

most likely be incompatible with another gamelan. Decorative carving and painting on instruments of the same gamelan employ a single motivic scheme, making the set both visually and acoustically unified.

It is not unusual for a gamelan to be given a name and for this name to be prefixed by the honorific title kyai (lit. teacher; used to address Islamic religious leaders). The most revered gamelans are given weekly offerings of food and incense. Until quite recently, stepping over any of the instruments in any gamelan was considered a breach of etiquette, and even now it is strictly taboo to step over any instrument in a revered gamelan. Thus, there is respect shown to the physical objects with which music is made.

#### Tuning Systems

In current practice, two tuning systems are recognized by the Javanese: Sléndro (five tones to the octave, forming nearly equidistant intervals) and Pélog (seven tones to the octave, forming small and large intervals). The most frequently used notation system, called kepatihan notation, consists of numerical designations of the pitch degrees of these two tuning systems. In speaking or writing about karawitan, either the numerical designations or a traditional system of terminology may be used. The two are given below in Figure 1. Of the traditional terms, only lima and nem have numerical meanings ('five' and 'six' respectively).

The octave register of these pitch degrees is not normally discussed in absolute terms by bearers of the tradition, but instead in terms of the tessitura of a particular instrument. In the kepatihan notation

	numeral:	1	2	3	5	6	
Sléndro	term:	barang	gulu	ḍaḍa	lima	nem	
	numeral:	1	2	3	4	5	6
Pélog	term:	bem	gulu	ḍaḍa	pélog	lima	nem barang

Figure 1. Numerical and Terminological Designations of Pitch Degrees in Sléndro and Pélog.

octave register is indicated by subscript and superscript dots. In this system 'low six', 'middle six', and 'high six' are written  $\underset{\cdot}{6}$ ,  $\overset{\cdot}{6}$ , and  $\overset{\cdot\cdot}{6}$  respectively. The next lower or higher octave register is indicated by double subscript or superscript dots respectively ( $\underset{\cdot\cdot}{6}$  and  $\overset{\cdot\cdot}{6}$ ). Octave register is represented in this way throughout this study. Where octave register is not specified, a numeral representing a pitch degree is underlined (for example, pitch degree  $\underline{6}$ ).

Neither precise intervallic structure in cent measurements<sup>5</sup> nor the absolute pitch of the tones is standardized. Furthermore, within a single gamelan, whose range spans about six octaves, intervallic structure may vary from one octave to another, and octave intervals may be stretched or compressed.<sup>6</sup> The tuning of one gamelan may be cocog with some individuals but not with others. One of the gamelans whose tuning seems to be cocog with many people is the gamelan at the radio station R.R.I. in Surakarta. Based on pitch measurements of fixed pitch instruments in the third highest octave register, the pitches and intervals of this gamelan are given below in Figure 2. This introduction to Javanese tuning systems provides background for the following discussion of the instruments that comprise a Javanese gamelan.



	Name of Tone:	barang	gulu	ḍaḍa	lima	nem	barang		
Sléndro	Pitch (c.p.s.):	267	307	349	407	465	538		
	Interval (cents):	242	222	266	231	252			
		('octave' = 1213 cents)							
	Name of Tone:	bem	gulu	ḍaḍa	pélog	lima	nem	barang	bem
Pélog	Pitch (c.p.s.):	294	308	338	407	434	467	505	597
	Interval (cents):	81	161	321	111	127	136	289	
		('octave' = 1226 cents)							

from Surjodiningrat et al. 1972:51-53.

Figure 2. Pitch and Intervallic Structure of the Gamelan at R.R.I. Surakarta.

#### Instruments

A gamelan is considered complete if a sufficient number of instruments of either Sléndro or Pélog is included, but some gamelans consist of both Sléndro and Pélog instruments. When I speak of a 'complete gamelan', I am referring to a gamelan consisting of a sufficient number of instruments in both tuning systems. While some compositions may be played in either tuning system, any one rendition uses only one tuning system at a time. In a complete gamelan, a player of a fixed-pitch instrument will have, in most cases, two instruments at his disposal, one Sléndro and one Pélog.<sup>7</sup>

Numerous writings on Javanese music include descriptions of the instruments that comprise a complete gamelan. Kunst organizes his lengthy presentation (1949:135-243) under the categories idiophones, membranophones, chordophones, and aerophones. Hood and Susilo (1967:16-25) and Susilo (1967:12-57) choose to categorize instruments by

function. The Javanese have many ways of grouping the instruments for discussion. I have chosen one of the more frequently used groupings which is based on the basic form and shape of the sound producing materials and the method by which these materials are supported. Except where specified, a complete gamelan contains two of each instrument, one Sléndro and one Pélog.

### I. Knobbed gong instruments (pencon)

A. Suspended vertically (collectively called gantungan). Within this category there are three types of gongs, suspended vertically by means of string (klanté) from a large wooden frame (gayor).

1. The largest is great gong (gong ageng), usually referred to as gong.
2. The middle-sized is called either siyem or gong suwukan. The number of siyems may be as few as two or as many as nine. Usually there are three or four.
3. The smallest is kempul. Usually there are from six to ten kempuls.

B. Resting horizontally. The gongs in this category are termed 'kettles' because of their more spheroid shape in contrast to the vertically suspended gongs.

1. The largest is kenong, which rests on criss-crossing strings in wooden frames (plangkan). I have seen as many as 14 in one gamelan, but ten is considered sufficient.
2. Smaller and similarly mounted are ketuk (one for each tuning system), kempyang (a set of two kettles, used only for Pélog), and engkuk-kemong (a set of two kettles used only for Sléndro).
3. A set of ten, 12, or 14 small kettles arranged in two rows is called bonang.
  - a. The bonang with the largest kettles is bonang panembung, exclusive to Jogjakarta and now rarely used. A complete gamelan need not include bonang panembung.

- b. The bonang one octave higher than bonang panembung is bonang barung, frequently referred to as 'bonang' or 'barung'.
- c. The bonang with the smallest kettles, one octave higher than the bonang barung, is bonang panerus.

## II. Keyed instruments (wilahan: lit. keys)

A. Suspended horizontally (collectively called gendèr). There are three types of gendèr in a complete gamelan. Each consists of relatively thin metal keys suspended by string (pluntur) over individual tubular resonators (bumbung).

1. The gendèr with the largest keys, numbering six or seven per instrument, is gendèr panembung, usually referred to as slenṅom.
2. The gendèr with middle-sized keys, usually numbering 13 or 14, is gendèr barung, usually referred to as 'gender'.
3. The gendèr with the smallest keys, one octave higher than gendèr barung, is gendèr panerus.

Note: For reasons discussed below, a complete gamelan must contain three gendèr barungs and three gendèr paneruss (one Sléndro and two Pélog).

B. Resting horizontally.

1. A set of six or seven thick metal keys resting on rattan padding (tawonan) over a trough resonator (pangkon), and held in place by two metal rods (plancak) passing through holes near each end of each key (collectively called saron). There are three types of saron in a complete gamelan.

- a. The largest is saron demung, usually referred to as 'demung'.
- b. The middle-sized, one octave higher than demung, is saron barung, usually referred to as 'saron'.
- c. The smallest, one octave higher than saron barung, is saron peking, usually referred to as 'peking'.

2. A set of more than ten keys resting over a trough resonator and held in place by pins passing through a hole near one end of each key (collectively called gambang).

- a. Gambang gangsa has metal keys. Like bonang panembung, gambang gangsa is obsolescent and not essential for a complete gamelan.
- b. Gambang kayu, usually referred to as 'gambang', has wooden keys.

Note: There may be more than two gambangs (kayu) in a complete gamelan. See Chapter III for a detailed description.

### III. Stringed instruments (kawat: lit. string)

- A. Spike fiddle. The only instrument in this category is rebab, which consists of one string attached to the instrument in such a way that two taut portions, independently tunable, are available to the player. For this reason, it is more often described as a two-stringed spike fiddle. Complete gamelans frequently contain two rebabs; but since the strings are easily tunable, a single rebab is sufficient and may be used for both Sléndro and Pélog.
- B. Zither. There are two types of zithers; only one type is necessary in a complete gamelan.
  1. The larger (and more standard) is celempung. The number of strings may be as few as 22 or as many as 26, which, except for the lowest one or two, are arranged in double courses. Four legs, apparently Western influenced, support the resonating chamber at about a 30 degree angle from the floor.
  2. The smaller is siter, tuned one octave higher than celempung. A variety of siter types exist. The number of strings may be as few as ten or as many as 26, arranged in ten to 13 courses.

Note: There may be either two or three celempungs and/or sitters in a complete gamelan, for reasons discussed below.

### IV. Wind instruments (sebulan: lit. blown)

- A. End-blown bamboo flute (suling). The term sebulan is rarely used by the Javanese, since only one type of aerophone is used in the gamelan.

V. Drum instruments (kebukan: lit. that which is hit lightly. Although other instruments of the gamelan are also 'hit lightly', the term 'kebukan' refers only to the membranophones. One of the non-musical meanings of the root 'kebuk' is "to slap [the stomach] lightly" [Horne 1974:265].)

A. Double-headed laced membranophones (collectively called kendang).

1. The largest is kendang gending.
2. The middle-sized is kendang ciblon, usually referred to as 'ciblon' or batangan.
3. The smallest is kendang kecipung, usually referred to as 'kecipung'.

Note: A complete gamelan must include one of each of these.

B. Double-headed tacked membranophone (bedug). This instrument is found in some of the best complete gamelans but by contemporary standards is not considered necessary.

Although other instruments are used in contemporary karawitan, they are omitted from this discussion either because they are not part of the gamelan proper, or because they are marginal to the tradition.

Strictly speaking, the voice is not an instrument, but is an essential medium in karawitan. Within the context of an orchestral composition (gending), there may be a male chorus (gérong) and a female soloist (pesindèn). In one style, known as bedayan, a vocal part is sung by a combined chorus of men and women.

#### 'Loud' and 'Soft' Instrumentation

Two general categories of instrumentation may be distinguished in Javanese performance practice: 'loud playing' (called soran in Jogjakarta and bonangan in Surakarta) and 'soft playing' (called alusan in Jogjakarta and klenéngan in Surakarta). I choose to use these two

English words since they are frequently used in discussing karawitan in English and are less confusing than direct translations from the Javanese terms. The Javanese terms do not imply the dichotomy of the English 'loud' and 'soft'. 'Soran' derives from the Javanese sora (lit. loud); 'bonangan' derives from the instrument type 'bonang' and implies that the bonangs are featured. 'Alusan' derives from 'alus' (refined). The derivation of the word 'klenéngan' is not generally agreed on, but it does not derive from any word meaning 'soft'. In Surakarta, 'klenéngan' may refer to an informal gamelan concert (usually featuring soft playing). Sometimes the word ngajengan (lit. that which is in front) may refer to the soft playing instruments, due to their usual placement in front of the others (Susilo 1967:8). Until recently Jogjakarta has been known especially for its loud playing and Surakarta for its soft playing, but a performance in either city now usually includes some of each.

Normally, there are more instruments sounding in soft playing than in loud playing. In addition, soft playing usually features the voices (gérong and pesindèn), which are usually silent in loud playing. In the figure below, the instruments which may be used for loud playing are listed on the left. For soft playing, all of these may be used, but the instruments listed on the right (all of them silent in loud playing style) are featured.

Instruments Used for Loud Playing	Instruments Featured in Soft Playing
gong ageng	gendèr (barung)
siyem	gendèr panerus
kempul	gambang (kayu)
kenong	rebab
keçuk	celempung
kempyang	siter
engkok-kemong	suling
bonang panembung*	
bonang (barung)	
bonang panerus	
slentem	
(saron) demung	
(saron) barung	
(saron) peking	
gambang gangsa*	
kendang gending	
(kendang) ciblon	
(kendang) ketipung	
bedug*	*rarely used

Figure 3. Loud and Soft Instrumentation.

#### Four Important Javanese Musical Concepts

Four concepts I believe to be basic to the understanding of karawitan performance deserve discussion: balungan (a melodic outline), paçet (a modal construct), bentuk (macro-structure) and irama (micro-subdivision). These are central to the gending repertoire, which comprises most of the karawitan currently performed and from which the corpus of this study is selected.

#### Balungan: Melodic Outline

English renderings of the term 'balungan' are numerous. Most notable are 'nuclear theme', 'central melody', 'principal melody', 'saron part', and 'fixed melody'. Dutch writers have referred to the

balungan as 'kern-melodie' and 'cantus firmus'. To some extent all of the above translations are correct, but they may be misleading. In everyday Javanese language, balungan means 'frame' or 'skeleton'. The root 'balung' means 'bone'. The framework for a house is called 'balungan', as is the outline of a story (Horne 1974:53).

In the performance of a gending by a complete ensemble (except in one style, rarely used<sup>8</sup>), at least one, and usually three, types of instruments sound the balungan: saron barung, demung, and slentem. In performances with a complete gamelan, seven instruments (four saron barungs, two demungs, and one slentem) may sound the balungan. Therefore, the label 'saron part' is insufficient.

For many gendings, more than one version of the balungan may be known. In a single performance of any gending, the balungan part is fixed so that the players of the instruments that sound this part (hereafter referred to as 'the balungan instruments') play the same version. Thus, there may be justification in calling the balungan a 'fixed melody' or 'cantus firmus', but these terms imply only one 'correct' version of the balungan for each gending. The particular version chosen for a performance depends on which version is cocog to the performers.

By the definition in the Harvard Dictionary of Music, the balungan can be called a melody: "In the broadest sense, a succession of musical tones..." (1969:517). In terms of perception, however, it is contestable whether the balungan is always heard as the principal or central melody. It seems, from remarks by my informants, that it may often be perceived, as its general meaning suggests, as an outline for



other melodic material--particularly in contexts where the succession of balungan tones is very slow. (The time interval between balungan tones may be as much as ten seconds in the performance of many gendings.<sup>9</sup>) Hence, the labels 'principal melody', 'central melody', and 'kern-melodie' are inappropriate. Even though Becker chooses to analyze the balungans of a large number of gendings in her discussion of the modal construct 'paṭet', she makes her reader aware that it is not necessarily the most prominent or most important part (Becker 1972:205).

One of the most significant features of the balungan instruments is their limitation to a single octave. In Pélog this octave is open (1,2,3,4,5,6,7). In Sléndro it is closed (1,2,3,5,6,1) and may include a lower 6 (hence, 6,1,2,3,5,6,1). The 6̣ is not found on Jogjanese demungs or saron barungs and only on some Jogjanese slenṭems. In Surakarta it is standard on all three types of balungan instruments but, to my understanding, does not figure prominently in the playing of these instruments when they are sounding only the balungan. It thus seems justifiable to characterize the balungan, when manifested on these instruments, as a single-octave phenomenon. Though together the balungan instruments cover a range of three (or slightly more than three) octaves, my informants point out that the balungan is tailored to the single-octave instruments on which it is played.<sup>10</sup>

As discussed, the concept 'balungan' may be defined as a single-octave melodic outline, almost always realized on one or more of the balungan instruments.

### Paṭet: Modal Construct

'Paṭet'--usually translated as mode--is a complex concept which eludes precise definition despite numerous attempts by musicians and scholars. Rather than making yet another attempt at a definition, I offer a discussion of the paṭet concept.

In each tuning system three paṭets are generally recognized: Sléndro paṭets Nem, Sanga, and Manyura, and Pélog paṭets Lima, Nem, and Balang. Each gending is said to be in one paṭet. Classification by paṭet is, to a considerable extent, based on intuition and feeling, a condition which yields occasional differences of opinion from one musician to another concerning the paṭet of a particular gending. Cases of ambiguity, some of them discussed below, do not make the task of defining paṭet any easier, but may indicate that the paṭet concept operates within continuums.

Two major systematic investigations of the musico-technical nature of paṭet are the studies by Hood (1954) and by Becker (1972), both of which investigate melodic contour as an indicator of paṭet. However, the findings of neither study completely define all aspects of the paṭet concept, perhaps because their focus is limited to the balungan (which is the part most readily available in notation). Becker surmises, quite correctly I believe, that paṭet is implicit in other parts besides the balungan: "melodic patterns, their pitch level and their position within the formal structure of the composition all relate to the paṭet of the piece in question" (Becker 1972:204-5). Comments made by my informants and some Japanese writers indicate that the paṭet concept has multi-octave implications. McDermott and

Sumarsam explain some of the multi-octave features of gendèr playing in relation to paṭet (McDermott and Sumarsam 1975). A thorough investigation of this aspect of paṭet would be a lengthy and arduous task. My purpose here is to present some important information on the concept of these paṭets, bearing in mind that much is yet to be learned before a concise definition of paṭet may be posited.

#### Sléndro Paṭet Nem

Each of the three Sléndro paṭets is associated with a stage in the human life cycle.<sup>11</sup> Paṭet Nem is associated with childhood, the first stage, where the personality is not clearly formed--where idiosyncracies are not permanently set. Suhardi describes paṭet Nem as the most awkward (for performer and listener), just as a child is awkward in his social behavior. In musico-technical terms, my informants said that paṭet Nem is largely a combination of the other two Sléndro paṭets (Sanga and Manyura) and is often ambiguous in the feelings it arouses. Gendings in paṭet Nem are described by my informants as durung gembira (lit. not yet happy), by which they mean that the feelings aroused are neither happy nor sad, but too ambiguous to be strongly either. Implicit in the word 'durung' (lit. not yet) is the association with the human life cycle; 'later' (that is, in paṭet Sanga and paṭet Manyura) feelings will be stronger.

One important indicator of paṭet discussed by my informants is the final tone of a gending. Cadential formulas, as emphasized by Hood (1954) and considered along with other formulas by Becker (1972), are not normally discussed; perhaps to my informants the final tone implies

the formula(s) leading to it. In their discussions with me, they identified tone 2 and tone 2 as the most characteristic gending finals for paṭet Nem. Finals 6,5, and 3 are also frequent, they said. The register was specified. Since each of the balungan instruments is limited to a single octave, the register of the final is manifested on multi-octave instruments, particularly rebab and gambang. In the case of final 6, for example, the balungan instruments, each in its own tessitura, sounds tone 6, while multi-octave instruments sound tone 6.

In each of the Sléndro paṭets, one of the five pitch degrees of the Sléndro tuning system is identified as the most foreign to the paṭet. Hood has coined the term 'enemy tone' to refer to these (Hood 1954). My informants do not use the Javanese word for 'enemy' for this concept but the word asing (lit. foreign). However, since the 'enemy tone' concept has already gained popularity in the English literature on Javanese music, I have chosen to speak of 'enemy pitch degree', (or, when clear from context, 'enemy degree' or 'enemy') maintaining the established 'enemy', but substituting 'pitch degree' for 'tone' since the concept is not register-specific. In paṭet Nem, the pitch degree normally identified as the enemy is degree 1. I know of no gending in Sléndro paṭet Nem whose final is degree 1.

However, due to the ambiguous character of Sléndro paṭet Nem, the enemy degree may be emphasized in other ways. For example, in discussing the use of kempul for gending in paṭet Nem, Susilo points to one musico-technical source of such ambiguity, "Here, then, we find a contrastive principle: reinforce the enemy tone in order to weaken the

sense of modality, rather than avoid it in order to strengthen that sense. Yet if we take 'ambiguity' as a characteristic of the sense of modality in paṭet nem, the two principles are reconciled" (Susilo 1967:17-18).

#### Sléndro Paṭet Sanga

Paṭet Sanga is associated with the second stage of life, maturity (adolescence to about age forty, according to Suhardi). Most gendings in this paṭet are gembira (happy), pernès (appealing, light-hearted), or sedih (sad). The use in the vocal and rebab parts of flattened tones, unavailable on the fixed-pitch instruments, is identified by my informants as the musico-technical source of sad feelings, in much the same way that sadness is ascribed by many Westerners to the minor third and sixth degrees. In paṭet Sanga it is frequently the pitch degrees 3 and 6 that are flatted. Whether this is mere coincidence or evidence of syncretism with the West is not clear. Javanese use the term minir (presumably from the Dutch and English "minor") for this practice, but it may be only the term that was borrowed. An indigenous term barang miring is often used for this same practice, although my informants differentiate the two terms. Minir is a flattening of Sléndro tones, while barang miring implies a Sléndro-based tuning system (for voice and rebab) using some Pélog intervals. It is more difficult to point to anything specific in the gendings which make them happy or light-hearted, rather than sad. I suspect that association with performance context contributes greatly to the feeling a particular gending elicits.

The most characteristic final in paṭet Sanga is tone 5. Other frequent finals are 1 and 2, but it is final 5 that is felt to be the

most satisfying and complete. In fact, according to Suhardi, the classification of *Gending Bondèt* in Surakarta as *Sléndro paṭet Sanga* rather than *Sléndro paṭet Nem* (its usual Jogjanese classification) is based on the fact that the final tone of each major section is 5. In both regional traditions, however, it is acknowledged that this *gending* does not fit clearly into either category. Positing a continuum between *paṭet Nem* and *paṭet Sanga*, then, *Gending Bondèt* falls near the middle and is ambiguous with respect to *paṭet*. *Gendings* ending on tone 2, my informants tell me, are felt to be 'durung rampung' (lit. not yet finished) and not as unequivocally happy or light-hearted as the *gendings* without *minir* that end on 5.

The enemy pitch degree in *paṭet Sanga* is clearly degree 3. Compared to degree 1 in *paṭet Nem*, degree 3 in *paṭet Sanga* is less often featured. In contrast to *paṭet Nem*, *paṭet Sanga* is not characterized by ambiguity.

#### Sléndro Paṭet Manyura

*Paṭet Manyura* is associated with the final stage of life, middle and old age (age forty and older, according to Suhardi). *Gendings* in this *paṭet*, like *gendings* in *paṭet Sanga*, may be happy, light-hearted, or sad; but in many *gendings* the feelings are less pronounced than in *paṭet Sanga*.

There is a musico-technical explanation for this; *paṭet Manyura* may resemble *paṭet Nem*. Becker (1972) finds a marked similarity between *paṭets Nem* and *Manyura* based on *balungan* contours. Suhardi mentions the similarity of these two *paṭets* with respect to *gending* finals: tones 6 and 2 are frequent finals in both *paṭets*. He

distinguishes the two paṭets not by extra-musical associations but primarily by musico-technical criteria. Given that paṭet Nem involves a mixing of Sanga and Manyura elements, Suhardi chooses to classify Gending Majemuk, for example, as paṭet Manyura. Most Javanese classify this gending as paṭet Nem because of its association with wayang kulit (see below), but many of the musicians I interviewed acknowledge that it is strongly Manyura. Again, I feel a continuum may be posited between paṭet Nem and paṭet Manyura, with Gending Majemuk falling near the middle.

McDermott and Sumarsam mention ambiguity between paṭet Sanga and paṭet Manyura: "two paṭet[s] that often resemble one another..." (1975:238). While they may be correct at the micro-level, I know of no ambiguity between these two paṭets in labelling the paṭet of a whole gending, and it is at this level that the concept is usually applied. I do not believe that there is a continuum between paṭets Sanga and Manyura; ambiguity between the two suggests paṭet Nem.

The most characteristic final in paṭet Manyura is tone 6̣. Other frequent finals are 2 and 3̣. Suhardi identifies tones 6̣ and 3̣ as the most comfortable and satisfying paṭet Manyura gending finals. Gendings in paṭet Manyura with final 1 are rare and, according to Suhardi, do not leave the listener with a feeling that the gending is really finished.

The enemy pitch degree in paṭet Manyura is clearly degree 5̣ which, like degree 3̣ in paṭet Sanga, is rarely featured. My informants point to the avoidance of degree 5̣ in paṭet Manyura as one important distinction between paṭet Manyura and paṭet Nem.

Sléndro Paṭets and Wayang Kulit

In the context of drama, particularly wayang kulit, the paṭets used are of great importance. A wayang kulit performance usually begins around eight or nine o'clock in the evening and lasts until dawn. The 'wayang kulit night' is divided in three periods, each corresponding to one of the Sléndro paṭets and representing microcosmically the human life cycle. Most publications on the subject list the division as follows:

Sléndro paṭet Nem	from beginning of performance to midnight (ca. 8:00 to 9:00)	(12:00)
Sléndro paṭet Sanga	from 12:00 to 3:00	
Sléndro paṭet Manyura	from 3:00 to dawn (ca. 5:00 to 6:00)	

During the first period, most--but not all--of the karawitan performed is in Sléndro paṭet Nem; in the second period it is mostly in paṭet Sanga, and in the third mostly paṭet Manyura. Having become quite familiar with this scheme before travelling to Java, I was surprised to find that none of the wayang kulit performances I attended (in Jogjakarta, Surakarta, and surrounding villages) fit this scheme precisely. Conversations with my informants confirmed my observations that the times for changing from one paṭet to the next are not as fixed as publications imply.

As Suhardi expresses it, a change to paṭet Sanga should not come before 12:00 and not much after 1:30. During the performances I witnessed, the change to paṭet Sanga usually occurred around 1:00--well within the range of acceptability. Similarly, the change to paṭet



Manyura, according to Suhardi, should occur sometime around 3:00 and not too much after 4:00. A performance I attended in which paṭet Manyura was not initiated before 4:30 was, in Suhardi's mind, a little late but not a serious error. It is the puppeteer (dalang) who effects the change from one paṭet to another. In most of the performances I attended, the dalang had a clock by his side; presumably he could have changed paṭet earlier had he wanted to. The flexibility in time of paṭet change notwithstanding, the sequence Nam-Sanga-Manyura is maintained for wayang kulit performances. For uyon-uyon several schemes of time association exist but, in my experience, are not followed in practice (and are therefore omitted from this discussion).

#### Pélog: Bem and Barang

Pélog is a heptatonic tuning system but is often spoken of as two overlapping pentatonic systems with auxiliary tones. One is Pélog Bem, in which 1,2,3,5, and 6 are the essential five pitch degrees and 4 and 7 are auxiliary. The other is Pélog Barang, in which 2,3,5,6, and 7 are the essential pitch degrees and 4 and 1 are auxiliary. The pentatonic orientation within the heptatonic Pélog is reflected in the instrumentation of a complete gamelan, which must include a gendèr barung Pélog Bem, gendèr barung Pélog Barang, gendèr panerus Pélog Bem and gendèr panerus Pélog Barang, each with only five tones to the octave. Ideally there are two gambangs and two celempungs in Pélog as well. If there is only one of each, the available tones within one octave at any given time will correspond only to Bem or Barang. The other tuning is obtained by an exchange of keys (gorogan) on the

gambang and by retuning the celempung. The full range of these different instruments varies; the following represents a portion of any of these within its own tessitura:

Pélog Bem: ...1 2 3 5 6  $\dot{1}$   $\dot{2}$   $\dot{3}$ ...

Pélog Barang: ... $\dot{7}$  2 3 5 6 7  $\dot{2}$   $\dot{3}$ ...

This important difference between Sléndro and Pélog has led Susilo to postulate (oral communication, 1975) that there are really three tuning systems in contemporary Javanese music: Sléndro, Pélog Bem, and Pélog Barang, each essentially pentatonic and each with its own character and modal subdivisions. This is an important observation and correlates with a discussion I had with Sastrapustaka concerning feelings associated with karawitan. He talked of different feelings aroused by (a) Sléndro, (b) Pélog Bem, and (c) Pélog Barang. The standard division of Pélog (as a single heptatonic system) into paçets tends to obscure this more fundamental division of Pélog into two pentatonic systems.

#### Pélog Paçet Barang

The most easily identifiable Pélog paçet is paçet Barang, which features pitch degrees 2,3,5,6, and 7, with 4 and 1 as auxiliaries. In fact, all the compositions for which the Pélog Barang tuning is used (in playing gendèr barung, gendèr panerus, gambang, and celempung) are designated as paçet Barang. Yet, my informants all point to two general types of Pélog paçet Barang, which they differentiate in discussion by the final tones of the gendings. Gendings ending on tone 5 are characterized as nçlangut (lit. removed, far off) and able to make people trenyuh (lit. touched, moved). The more frequent final 6, they

associate with happier feelings, but not as purely happy as the feelings in some gendings in Sléndro paṭet Sanga. Both 6 and 5 are considered 'comfortable' final tones. Becker (1972:167) points out the frequency of final pitch degree 2, which I did not discuss with my informants. Some Pélog paṭet Barang gendings end on 7, which, like 1 in Sléndro paṭet Manyura, Suhardi feels to be 'durung rampung', but more comfortable than ending on tone 1 in Sléndro paṭet Manyura.

#### Pelog Paṭet Nem

The area of greatest confusion in discussing paṭet is what may be called the Pélog Bem tuning system. Becker says that "Pelog Paṭet Bem is the Jogjanese term for those pelog modes using the scale tones 1 2 3 5 6, i.e. Paṭet Lima and Paṭet Nem..." (Becker 1972:202). All the musicians with whom I conversed recognize both paṭet Lima and paṭet Nem (Pélog) and do not consider Bem a designation of paṭet. However, I found some gendings classified as Pélog paṭet Nem by one musician and as Pélog paṭet Lima by another (for example, Gending Mayangsari, Gending Logondang, Ketawang Ibu Pertiwi, Ladrang Tirtakencana). Some musicians distinguish another paṭet within the Pélog Bem system, called either Pélog paṭet Manyura or Pélog paṭet Nyamat. Interestingly, some gendings reported by Kunst (1949:89) to be classified as Pélog paṭet Manyura are nowadays classified as Pélog paṭet Nem (for example, Randu Kentir, Ayun-ayun).

The former distinction between Pélog paṭet Nem and Pélog paṭet Manyura seems to be disappearing in the standard system of classification, but there are different types of Pélog paṭet Nem currently

recognized. Suhardi chooses to refer to some *gendings* in *paṭet Nem* as 'Manyura' type (like *Sléndro paṭet Manyura*, but realized on the *Pélog Bem* scale), others as 'Sanga' type (like *Sléndro paṭet Sanga*, but realized on the *Pélog Bem* scale), and still others as a mixture of the two (like *Sléndro paṭet Nem* but realized on the *Pélog Bem* scale).

Of the five essential pitch degrees of *Pélog Bem* (1,2,3,5,6) none is singled out as enemy in *Pélog paṭet Nem*. Pitch degree 4 is considered an exchange for 3 (or more rarely 5). Pitch degree 7 is unquestionably the pitch degree most foreign to *Pélog paṭet Nem*, but in a different sense than the enemy pitch degrees in the *Sléndro paṭets*.

#### Pélog Paṭet Lima

While *Sléndro paṭet Nem* is 'durung gembira', *Pélog paṭet Nem* allows for more definite feelings, according to my informants. It is *Pélog paṭet Lima* which, like *Sléndro paṭet Nem*, Suhardi and Prajasudirja consider to be the *Pélog paṭet* which arouses the most ambiguous feelings (again, 'durung gembira'). The musico-technical aspects of *paṭet Lima* which give rise to its identity distinct from *Pélog paṭet Nem* are not easily talked about, and no subcategories of *paṭet Lima* are identified. It was mentioned that the three most characteristic finals of *paṭet Lima* are 5, 1, and 3 (register not specified for 3); for *paṭet Nem* (*Pélog*) 5, 6, and 2. Becker's study (1972:167) corroborates the statements of my informants concerning these finals.

#### Sléndro-Pélog Parallels

Many musicians draw parallels between the three *Sléndro paṭets* and the three main *Pélog paṭets*, as found in Figure 4 (A). Sastrapustaka

and others draw a different set of parallels, Figure 4 (B).

	Sléndro paṭet Nem . . . . .	Pélog paṭet Lima
A	Sléndro paṭet Sanga . . . . .	Pélog paṭet Nem
	Sléndro paṭet Manyura . . . . .	Pélog paṭet Barang
	Sléndro paṭet Nem . . . . .	Pélog paṭet Nem
B	Sléndro paṭet Sanga . . . . .	Pélog paṭet Lima
	Sléndro paṭet Manyura . . . . .	Pélog paṭet Barang

Figure 4. Two Conceptions of Parallels between Sléndro and Pélog Paṭets.

The first set of parallels reflects the progression of Pélog paṭets (Lima-Nem-Barang) in the now rare wayang kulit form known as wayang gedog, which tells stories of the autochthonous hero Panji. The second accounts for the ambiguity in both Sléndro and Pélog paṭets Nem, but does not account for the 'durung gembira' associations of Pélog paṭet Lima in contrast to Sléndro paṭet Sanga. To investigate all the merits of both these sets of parallels would be time consuming and, I strongly suspect, would highlight the special characteristics of each of these paṭets and identify types within each one.

It might be said, at least of the Javanese musicians with whom I have had contact, that they 'think in Sléndro'. Many explanations employ Sléndro models whether the particular subject is specific to Sléndro, or Pélog, or not tuning-system-specific. This stems from an ability to conceptualize and perform in one tuning system and 'transpose' within that tuning system or to the other tuning system, keeping the physical processes intact but yielding a different sound product.

This kinetic orientation is particularly significant for the gambang, gendèr barung, gendèr panerus, and celempung, which have the same number of tones per octave (five) at all times.

More specifically, Suhardi distinguishes two types of soft instrument orientation: Sanga and Manyura. In gendings in patet Sanga, for example, the soft instruments should play in a Sanga manner: employing melodic formulas appropriate to patet Sanga. In gendings in Sléndro or Pélog patet Nem, some passages should be played in a Sanga manner and others in a Manyura manner.

Suardi's recognition of different ways of playing the soft instruments seems to correspond with a statement by R.M. Sarwaka, "'the distinction between a given patet and another one is based upon a difference in chèngkok'..." (Kunst 1949:72). The term cèngkok, like so many other musico-technical terms in Java, has a number of meanings. A general translation given by Becker is "formulaic melodies for saron, gender, bonang, gambang, etc." (1972:172). The particular meaning intended is usually fairly clear from the context. Unfortunately Kunst does not offer any further context of R. M. Sarwaka's remark and assumes it to be limited to paṭetan (free rhythmic interluding by rebab, gendèr, gambang, suling, and, in some contexts, male voice). In the way I frequently heard the term 'cèngkok' used, Sarwaka's "difference in chèngkok" could just as well be taken to mean "difference in the parts of the voices and soft-playing instruments". Walton's study of sindèn (the part sung by the pesindèn) and Sléndro patets (1974) demonstrates the importance to patet of different tone levels of sindèn melodic formulas (called 'cèngkok sindèn'). McDermott and Sumarsam (1975)

present several examples of the important differences between gendèr melodic formulas (called 'cèngkok gendèr') in one Sléndro paṭet and another. Such differences are readily acknowledged and frequently discussed among Javanese musicians. According to my informants these differences are more crucial to paṭet differentiation in Sléndro than in Pélog, but are characteristic of soft-instrument playing in both tuning systems.

It has been my intention above to present what I discovered and at the same time point out that, while the paṭet terminology is widespread, its specific application is not a matter of universal agreement. While the paṭet of some gendings is ambiguous, the paṭet of others is not. The paṭet of each gending I have chosen for the corpus of this study is clear; and for the two gendings in Pélog paṭet Nem, the 'type' ('Sanga' type or 'Manyura' type) is given, as identified and discussed by Suhardi.

#### Bentuk: Macro-Structure

The bentuk (usually translated 'form') is determined by the points at which certain instruments sound in relation to each other and in relation to a conceptualized pulse which often has the same density as the balungan part. The result is a regular and recurring pattern of 'punctuation', often referred to as 'colotomic structure'. I know of no Javanese term denoting this concept; perhaps because it is such an integral feature of karawitan and taken for granted, no term is necessary. The difference between one form (bentuk) and another is a difference in the subdivision of the whole gending by colotomic

structure.

A gending in any form begins with a buka (lit. introduction) which may be given by one of the following: rebab, gendèr barung, bonang barung, kendang, solo male voice, or solo female voice. The final tone of the buka coincides with the beginning of the balungan and the simultaneous sounding of gong and kenong, at which point the rest of the ensemble joins in. The largest colotomic unit is marked off by the sound of the gong, and is called gongan. This unit is subdivided into kenongans, colotomic units marked off by the sound of a kenong, which are further subdivided by the sound of ketuk and, in some forms, kempul.

Susilo recognizes two basic categories of form: 'strict' and 'free', differentiated by whether the number of kenongans per gongan "is regular throughout a composition, or varying" (Susilo 1967:18). In the context of uyon-uyon performances, the gendings usually played are in strict form. The gendings in free form are often played in the context of dance or dramatic performance. Since the musical corpus of this study is concerned with gendings in three of the strict forms, only these three will be discussed here.<sup>12</sup>

In the figures below, and for the remainder of this study, the colotomic structure is represented by the following symbols (see page 47). A conceptualized balungan pulse (hereafter called 'balungan beat') is represented here by a dot.



- n = a point at which a kenong is sounded.
- t = a point at which the keṭuk is sounded.
- p = a point at which a kempul is sounded.
- ng = a point at which the gong ageng, together with a kenong, are sounded. (The gong is not sounded without a kenong.)
- w = a wela (colotomic rest<sup>13</sup>) (Although no colotomic instrument is sounded at points designated 'wela', they are conceived by the Javanese as important to the structure of a gending.)

Figure 5. Key to Symbols for Colotomic Structure.

### Ketawang

The colotomic structure of gendings in Ketawang form is given

in Figure 6:

(line 1 = '1st kenongan')	. . . . .
	t   w   t   n
(line 2 = '2nd kenongan')	. . . . .
	t   p   t   ng

Form 6. Ketawang Form--Colotomic Structure<sup>14</sup>

In Ketawang form, a gongan consists of two kenongans. Each kenongan, comprising eight balungen beats, is subdivided by keṭuk on the second and sixth beats and kempul or wela on the fourth beat. A gending in Ketawang form may consist of several gongans, each of which contains different musical material, but the colotomic structure of each gongan is the same.

Ladrang

The colotomic structure of gendings in Ladrang form is given in Figure 7:

1st kenongan	.	.	.	.	.	.	.
	t	w	t	n			
2nd kenongan	.	.	.	.	.	.	.
	t	p	t	n			
3rd kenongan	.	.	.	.	.	.	.
	t	p	t	n			
4th kenongan	.	.	.	.	.	.	.
	t	p	t	ng			

Figure 7. Ladrang Form--Colotomic Structure.

In Ladrang form, a gongan consists of four kenongans, each of which is subdivided in the same manner as a kenongan in Ketawang form. Like gendings in Ketawang form, a gending in Ladrang form may consist of several gongans, each of which contains different musical material with the same colotomic structure.

Gending Keṭuk 2 Kerep, Nḍawah Keṭuk 4

The colotomic structure of gendings in the form called 'Gending Keṭuk 2 Kerep, Nḍawah Keṭuk 4'<sup>15</sup> is given in Figure 8 (see page 49). This form consists of two sections, mérong and nḍawah, which differ in colotomic structure. Some gendings contain more than one gongan in both of these sections, but the colotomic structure within a section remains the same. In the playing of a gending in this form, a transitional passage known as the pangkat nḍawah is signalled by an accellerando in the mérong and may involve an alteration in the balungan part.



keçuk beats per kenongan (two) and their density in relation to the balungan beat (on the fourth balungan beat and every eight thereafter). In the mérong in other forms, there may be two, four or eight keçuk beats per kenongan, and their density may be either *kerep* or *arang* (lit. far apart; on the eighth balungan beat and every sixteenth thereafter).

The colotomic structure of the ndawah may be characterized as a doubling of the keçuk beats per kenongan. The phrase 'Ndawah Keçuk 4' (lit. 4 keçuk beats in the ndawah) indicates the number of keçuk beats per kenongan (four) in the ndawah section. In the ndawah in other forms there may be eight or, in rare instances, sixteen keçuk beats per kenongan. In all cases, the keçuk beat in the ndawah section coincides with the second balungan beat and every fourth balungan beat thereafter.

#### Irama: Micro-Subdivision

The high amount of structure in Javanese music, as discussed above, reflects the Javanese propensity for subdivision. At the macro-level, gendings are divided into gongans, which are divided into kenongans, which are in turn further subdivided. At the micro-level, subdivision is equally important. It may be said that density at a macro-level determines form and at a micro-level determines irama. In contemporary Java, the term 'irama' may be used to refer to tempo (for example, "iramané kepénak"--lit. the tempo is comfortable). More often, however, I heard this term applied to the rhythmic relationship between the balungan beat and the parts which subdivide it. I use the

term in the latter sense in this study.

This concept has been described numerous times by Javanese and Western writers. A lucid explanation by two Javanese musician-scholars (Martopangrawit and Sindoesawarno) is reported by Becker (1972:23-25). Before presenting her translation, Becker states, "The two descriptions vary in detail but not in basic concept. (Anyone studying for any period in Java becomes accustomed to such differences in terminology and description. Musical pedagogy as well as music practice operates mostly within an oral [sic] tradition.)" (Becker 1972:23). Bearing this in mind, I do not wish to refute the explanations of Martopangrawit and Sindoesawarno, but I choose to offer an explanation of irama based on my experience studying with my informants.

#### The Five Iramas

While terminology may vary, five iramas are generally recognized and labelled as follows: irama seseg (lit. close together), irama I, irama II, irama III, and irama IV.<sup>16</sup> From the several layers of subdivision of the balungan beat, I choose the fastest pulse, called 'density referent' (and abbreviated DR) by Hood (1971:114), for graphic display in Figure 9 (see page 52). The visual format is similar to that given by Martopangrawit and Sindoesawarno and is used here as the most expedient means of graphic display. The reasons I have not presented their explanations in full are discussed below, following a brief explanation of irama change.

BB	.....	etc.	Irama Seseg
DR	.....	etc.	
BB	.....	etc.	Irama I
DR	.....	etc.	
BB	.....	etc.	Irama II
DR	.....	etc.	
BB	.....	etc.	Irama III
DR	.....	etc.	
BB	.....	etc.	Irama IV
DR	.....	etc.	

Figure 9. Relative Density of Balungan Beat and Density Referent in the Five Iramas.

#### Irama Change

Although the performance of some gendings may not involve any change in irama, most performances of most gendings do involve at least one and sometimes up to nine changes from one irama to another. These are made possible by ritardandos or accelerandos in the tempo of the balungan beat. To paraphrase Becker, the faster the balungan beat, the less time there is for subdivision of that beat (Becker 1972:23). Thus a change from irama seseg to irama I involves a slowing of the tempo of the balungan beat to a point where it is comfortable for the fastest pulse to double its subdivision of the balungan beat, as represented graphically in Figure 10 (see page 53). The change of irama occurs at point x in time. Up to point x, the tempo of DR is twice that of BB; at point x this relationship changes, so that after this point the tempo of DR is four times that of BB. This same type of graph could be made for a change from irama I to irama II, and so on. If read from right to left this identical graph represents

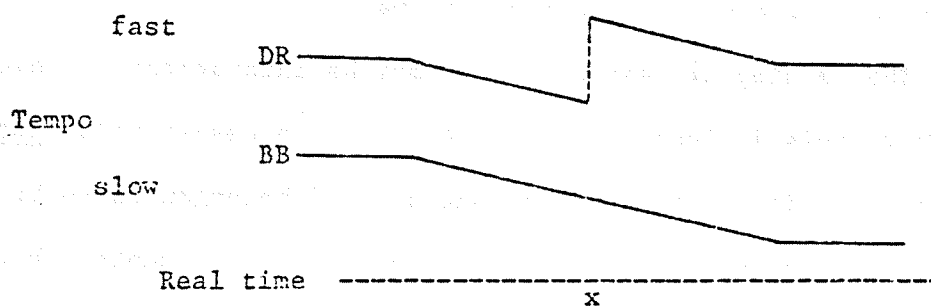


Figure 10. Change from Irama Seseg to Irama I.

a change from irama I to irama seseg. It should be noted that in changing irama, the balungan beat changes to and remains in the new tempo, but the fastest pulse returns to more or less the same tempo it had in the previous irama. This is generally true of all iramas except irama IV, for which the fastest pulse, I was told, should be somewhat faster than in the other iramas. The reasons for this preference for a faster DR pulse in irama IV reflects Javanese musical perception.

#### Perceptual Units and Irama

Several terms are currently in use for discussing perceptual units (in addition to the terms 'gongan' and 'kenongan', which refer to colotomic units). Gatra (usually translated as 'measure') has been defined as follows, "One gatra consists of four saron strokes and is the smallest meaningful unit" (Becker 1972:21 translating Sindoesawarno n.d.:51). I take issue with this definition and hence with Becker's explanation of irama, for which a translation of Martopangrewit's explanation of irama (Martopangrewit n.d.:1) is used. In his

explanation, Martopangrawit employs the unit called 'gatra' to explain the subdivision which determines irama.

The meaning of 'saron stroke' may be interpreted in several ways. In fact, this is Becker's translation of Sindoesawarno's "tutukan balungan" (lit. beat of the balungan). If balungan is to be understood as the part actually played on the balungan instruments, then Becker's translation is correct. It seems, however, that what Sindoesawarno means is the conceptualized 'balungan beat', mentioned above, which may or may not be realized at each occurrence by a 'saron stroke'. Two examples from the musical corpus of this study demonstrate this problem: Ladrang Pangkur Pélog paçet Barang (hereafter referred to as 'Ladrang Pangkur') and Gending Gambir Sawit, Keçuk 2 Kerep, Ndawah Keçuk 4, Sléndro paçet Sanga (hereafter referred to as 'Gending Gambir Sawit'). In Ladrang Pangkur, the first kenongan played in irama III (Corpus VI:18-21)<sup>17</sup>, there are eight strokes of the saron, each subdivided by 16 pulses of the DR. In Gending Gambir Sawit, in the first kenongan played in irama III (Corpus II:44-51), there are also eight strokes of the saron, but each is subdivided by 32 pulses of the DR. This inconsistency is reconciled by the explanation of irama as determined by the relation between the balungan beat, a conceptual construct, and the DR pulse.

Assuming that my understanding of Sindoesawarno's "tutukan balungan" is correct, a consistent explanation of irama, as given above, is possible. However, whether a gatra in all iramas consists of the same number of balungan beats is in question, particularly in light of verbalization concerning gatra perception. For iramas seseg,



I, and II, my informants feel the smallest meaningful unit consists of four balungan beats. In iramas III and IV, however, they feel that a gatra consists of two balungan beats. Two such units in any irama comprise a kalimat lagu (which may be translated as 'musical sentence'; kalimat=sentence; lagu=song, melody<sup>18</sup>). This apparent inconsistency is further reconciled in Suhardi's teaching. He explains that in all iramas there are two gatras to a musical sentence and each gatra is made up of four perceptual beats, which I call 'lagu beats', as shown in Figure 11.

	8 BB = 8 LB = 16 DR in Irama Seseg
	8 BB = 8 LB = 32 DR in Irama I
1 Musical Sentence = 2 gatras =	8 BB = 8 LB = 64 DR in Irama II
	4 BB = 8 LB = 64 DR in Irama III
	4 BB = 8 LB = 128 DR in Irama IV

Figure 11. Irama and Perceptual Units.

Thus each tone actually played on the balungan instruments in the irama III portion of Gending Gambir Sawit falls at the end of a gatra. The other three lagu beats of each of these gatras are not now normally manifested by the balungan instruments although formerly they often were.

Because a musical sentence in irama IV consists of 128 DR pulses, there is a strong preference for a faster DR tempo, so that the musical sentence is still perceivable as a unit. This was indeed the case in the performances I attended and is reflected in the fast tempo of the DR in the irama IV passage (Corpus VI:39-63).

## Notes to Chapter II

- <sup>1</sup> Like most musics, it is changing. See further Becker 1972, especially 30-159.
- <sup>2</sup> See further Brandon 1967 for a detailed description of these and other theatrical forms in which gamelan music is used.
- <sup>3</sup> The problem of using these categories in another Southeast Asian music (that of Sulu Archipelago, Southern Philippines) is discussed by Trimillos 1972:75.
- <sup>4</sup> See also McDermott and Sumarsan 1975.
- <sup>5</sup> This is reckoned by dividing the octave into 1200 equal intervals. The Western equal-tempered semi-tone equals 100 cents.
- <sup>6</sup> See further Hood 1966.
- <sup>7</sup> With certain exceptions; see below, page 39.
- <sup>8</sup> The style in which the balungan is not sounded is called janturan. See Hood and Susilo 1967:22.
- <sup>9</sup> In irams IV; see below, page 51.
- <sup>10</sup> See below, page 201.
- <sup>11</sup> This association was mentioned to me by each of my informants on separate occasions. It is also discussed by Kunst (1949:76).
- <sup>12</sup> For a more comprehensive discussion of strict forms see Susilo 1967:9-20 and Becker 1972:19-22. For a discussion of the free forms, normally associated with dance and various types of drama, see Sindoesawarno n.d.:55-56 and Martopangrawit n.d.:16-17.
- <sup>13</sup> See further Susilo 1967:15.
- <sup>14</sup> In traditional Jogjanese style, a kempul is sounded in the middle of each kenongan of gendings in Ketawang form. In Surakarta and now normally in Jogjakarta, there is a wela in the middle of the first kenongan of each gonggan in this form, rather than a kempul. For this reason a wela rather than a kempul is shown in Figure 6.

- 15 More common is the Solonese designation 'Gending Keçuk 2 Kerep, Minggah Keçuk 4'. The Solonese use of the word 'minggah' in this context is identical to the Jogjanese use of the word 'ndawah'. The non-musical meaning of 'minggah' is 'rise; ascend', and of 'ndawah' is 'fall; descend'. The choice of opposite words to refer to the same musical phenomenon is indicative of the sense of rivalry in the arts between these two cities even today.
- 16 These designations by Roman numeral are the same as those attributed to M. Ng. Wirawijaga by Sindoesawarno (n.d.:37). My informants' "irama seseg" is the same as Sindoesawarno's (n.d.:37).
- 17 Throughout this study, corpus items are referred to by Roman numeral and score numbers within each corpus item by Arabic numeral. "Corpus VI:18-21" refers to the sixth corpus item (Ladrang Pangkur), scores 18 through 21.
- 18 The meanings of the word 'lagu' are numerous. See further Chapter V.

## CHAPTER III

## THE GAMBANG

Physical Description

The gambang is composed of a set of wooden keys<sup>1</sup> (wilahan) of graduated length, resting over a wooden trough resonator (grobogan) and is played with two beaters (tabuh). The keys rest on a soft strip of cloth or twine which has been fastened to the tops of the long sides of the grobogan. This soft strip is referred to as kasuran (lit. 'mattress-like') or bantalan (lit. 'pillow-like').<sup>2</sup> In order that the keys do not hit each other or move out of place when struck, each one is held loosely in place by metal pins (paku, ancer).<sup>3</sup> Each key has one hole near the end of the key nearest to the player. Pins penetrate the soft strip on both sides of the grobogan in such a way that they separate the keys on the end away from the player and go through the hole on the part of the key near the player. Thus, the keys are not fastened down but merely kept in place (see Figures 12 and 13).

Grobogan: Resonator

Basically, a grobogan consists of five planks of wood nailed firmly together to form a trough, closed on the bottom and four sides, and open at the top. Almost without exception, the ends of the grobogan extend upward above the level of the keys. This characteristic apparently serves little if any function with respect to sound. The ends are the portion of the instrument most likely to be carved

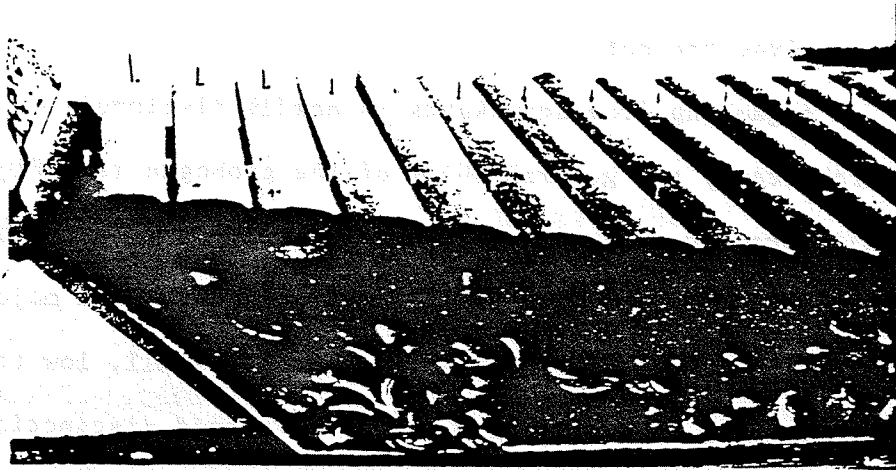


Figure 12. A Solonese gambang viewed from the side away from the player. A pin (paku, ancer) passes through a hole near the end of each key.

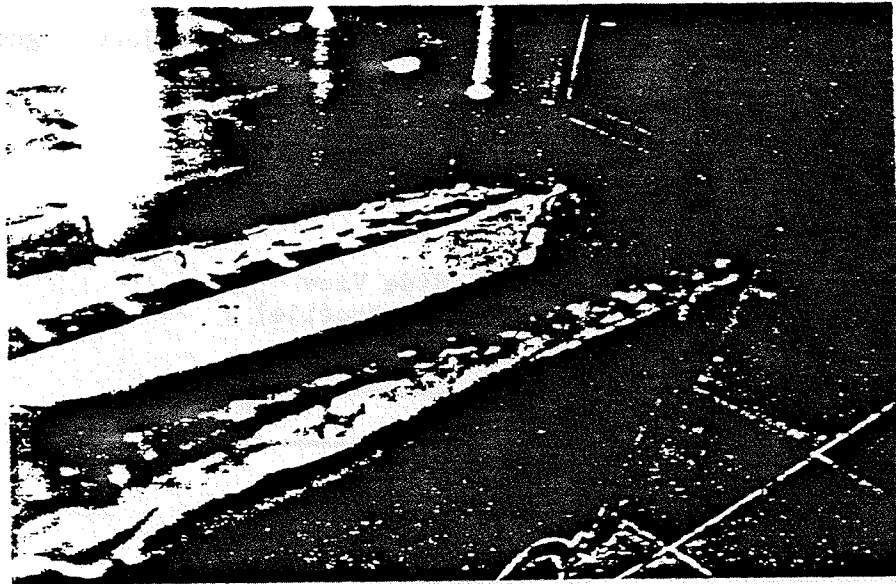


Figure 13. A Jogjanese gambang with keys removed, showing the pins and the soft strip (kasuran, bantalan) upon which the keys normally rest.

decoratively. The sides of the grobogan may also be carved; the keys themselves are not.<sup>4</sup>

A gambang from Jogjakarta is easily distinguished from one from Surakarta by the general shape of the grobogan (see Figure 14). The major profile (side view) of a Jogjanese grobogan forms an inverted trapezoid with its base resting on the floor. The major profile of a Solonese grobogan forms two trapezoids: a small, low trapezoidal base supporting a larger, inverted one. A second distinction between the two is the greater slant from the horizontal of the ends in the Solonese type. The portion of the ends extending above the level of the keys is generally larger on the Solonese grobogan and on many instruments is carved into two nagas (mythical snakes) with intertwining tails, which may border a floral motif. I have never seen, either in photographs or during a year living in Jogjakarta, a Jogjanese gambang with nagas carved on the ends (or elsewhere).

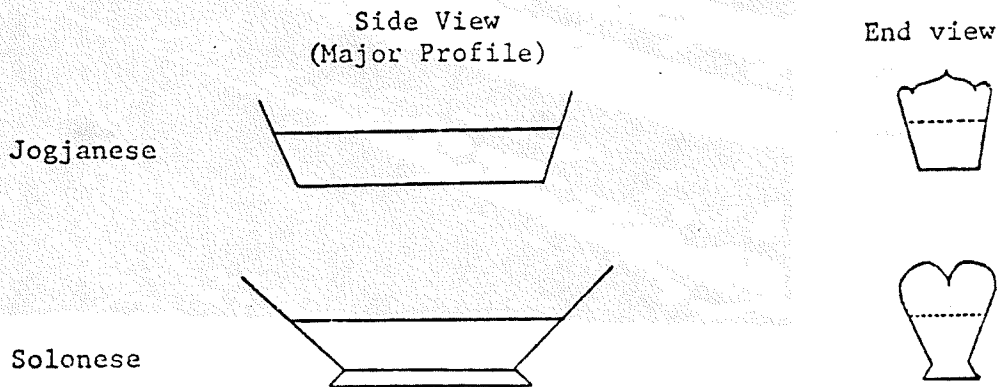


Figure 14. Shape of Jogjanese and Solonese Grobogan.

Regarding trough resonators, A. M. Jones states, "But the old Indonesian troughs however elaborately decorated, were carved out of a solid log" (Jones 1964:130). This seems to be true for most saron resonators regardless of age, but judging from the gambangs I inspected and the many photographs I have seen, trough resonators of extant gambangs (some of which are several centuries old) are constructed from planks of wood, not carved from a single log. In fact, the root of 'grobogan' is grobog, described by Prajasudirja and defined by Horne as "a large storage box" (Horne 1974:220). The term 'grobogan' (lit. something like a grobog) is used in Java to distinguish a gambang resonator from a resonator carved from a single log. In his classification of gamelan instruments by wadh (lit. container, receptacle), which in this case means the frames or supports for the primary vibrating part(s) of an instrument, Padoesoekotjo lists gambang with gong kemodong<sup>5</sup> under "grobogan" (1960:45), but lists the saron instruments under a separate heading.

The open top of the grobogan (at key level) may be partially closed by two additional planks attached laterally, one to each side of the grobogan (see Figure 15). These planks (tumbengan) leave a narrow slit the length of the grobogan and are said to improve its resonating capabilities.

Another feature held by some to improve grobogan resonance is the addition of strings inside the grobogan. This is quite rare according to the Javanese I interviewed and is present in only one of the several dozen gambangs examined. Figures 15 and 16 show three metal strings running the length of the grobogan, attached at either

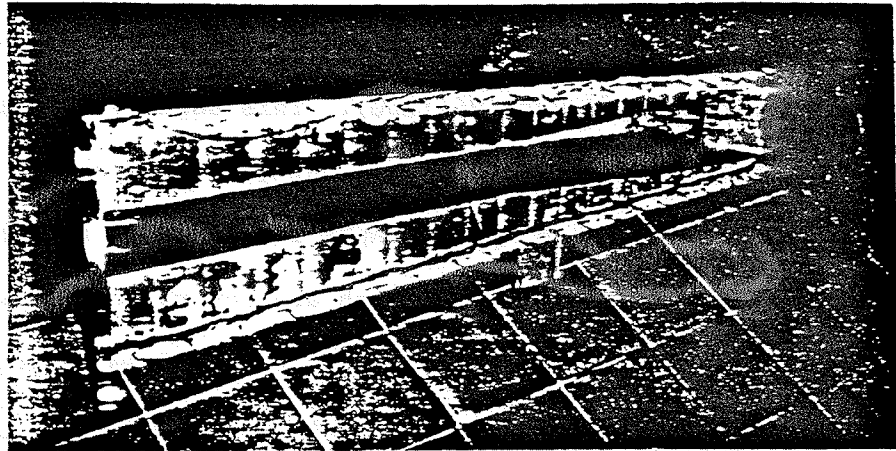


Figure 15. View of a Jogjanese gambang tilted on its side, showing the planks (tumbengan) and the strings inside the grobogan.

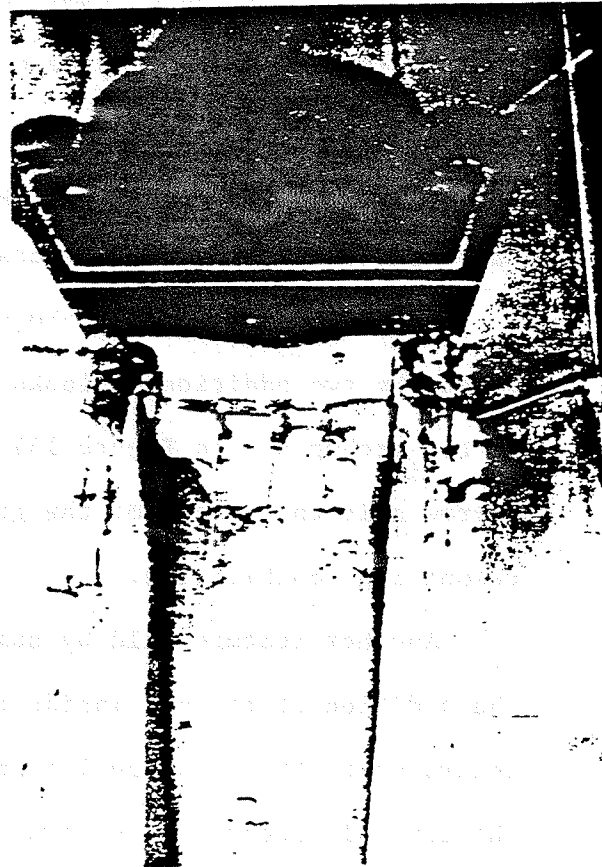


Figure 16. Overhead view of the grobogan depicted in Figures 13 and 15, showing the method by which the three strings inside are attached at one end.



end. Questions of tension and pitch are at present unanswered. The instrument depicted is part of a complete Sléndro-Pélog gamelan inherited by Sugianto (a wealthy entrepreneur residing in Jogjakarta) from his father. He does not play gambang himself and does not know whether the strings were intended to be tuned to specific pitches or not. At one time the strings may have been taut enough to produce focused pitches, but now they are quite slack. Should they have ever been tuned, it is difficult to imagine how, since they are attached to nails and screws, rather than to adjustable tuning pegs. To add to this mystery, only the Sléndro gambang in this gamelan has strings; the other two (Pélog Bem and Pélog Barang) have tumbengan but no strings.

#### Tabuh: Beater

A gambang beater consists of a stem (garan) attached to a wooden disc with soft padding (blebed) around its circumference (see Figures 17 and 18). Sastrapustaka mentions bénda as the term for the wooden disc used for gambang (and gendèr) beaters. He surmises that the term might have been borrowed from the name of a tree (bénda) whose fruit is round. Unlike the terms 'blebed' and 'garan', I did not find this term in general use when describing a gambang beater, but neither did I discover any other term for the wooden disc.

Of the many gambang beaters I saw in Jogjakarta and Surakarta in 1974, all had padding. Usually this padding was made of cloth but occasionally of rubber. According to Kunst, the disc is "occasionally edged with rubber or cloth" (1949:186), implying that the "somewhat resilient, soft-wooden disc" (Kunst 1949:186) usually strikes the key

Figure 17. A pair of gambang beaters, showing the sticks (garan) made of buffalo horn, and wooden discs with padding (blebed) of cloth wrapped around the circumference. Seen from position of player.

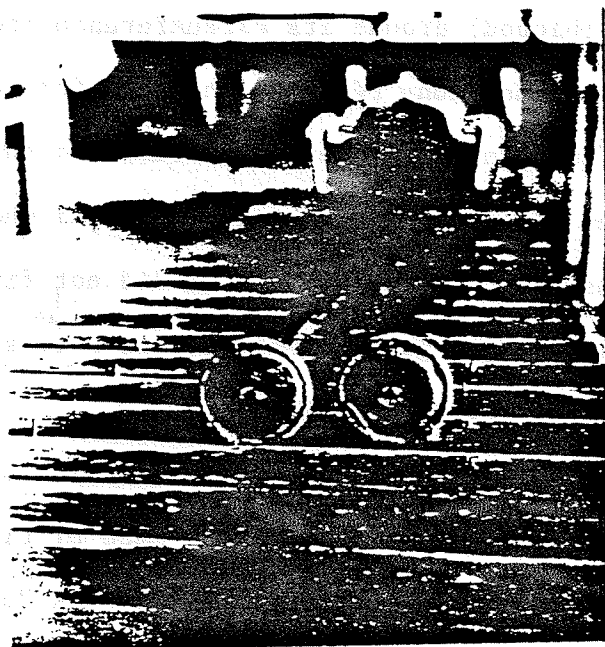
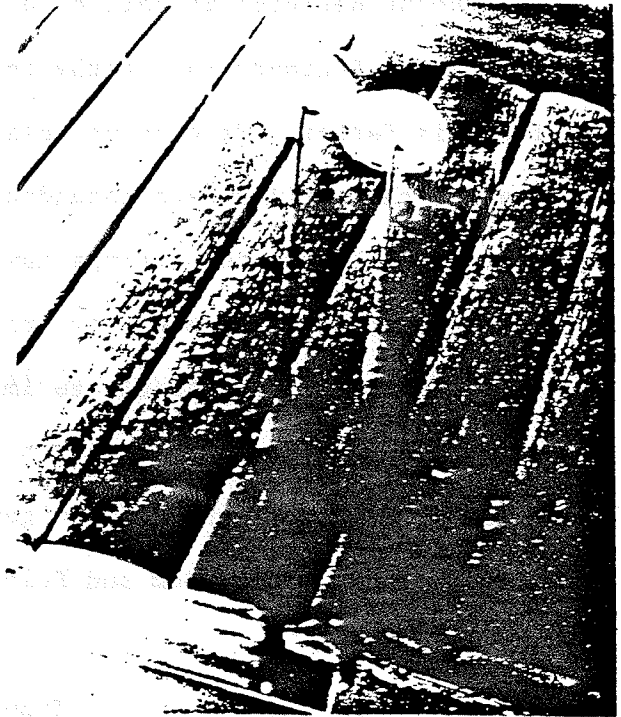


Figure 18. Same beaters as in Figure 17, shown from the other end.

directly. If so, either the soft wood was very soft indeed, or the sound of the gambang has changed greatly since the 1920's and 1930's (during which time Kunst was in Java).

The stem fits snugly into a hole in the center of the disc and does not protrude beyond it. Usually, stems are made from water buffalo horn, which may be black, or a mottled yellowish white, and range in length from about ten to fifteen inches. Due to the method of holding the beaters and the playing technique (described below) I imagine that gambang beaters with shorter or longer stems would be difficult to use and are therefore rare.

Suhardi expresses a distaste for long, springy stems and heavy discs, since they are difficult to control at fast tempos. Yet the type of stem and disc is a matter of personal preference. Various types of gambang beaters may be purchased, the potential buyer checking for the pair most suitable (cocog) to him.

#### Wilahan: Keys

A long discussion with a Javanese musician about the gambang may involve mention of all the parts discussed above, but it will certainly focus on the keys themselves. One indicator of the predominant importance of the keys is purely economic. Over the course of several months I made repeated visits to one shop which sold miscellaneous gamelan instruments (i.e., not complete gamelan sets). I inquired about the price of a particular gambang and was told that it would cost 40,000 rupiahs (ca. U.S. \$100.00), which I knew to be expensive for any gambang, no matter how good. I was especially surprised about the high

price of this gambang since the grobogan, although sturdily made, was not elaborately carved. I had seen gambangs in both Jogjakarta and Surakarta which cost from U.S. \$20.00 to \$50.00<sup>6</sup> and whose grobogan were elaborately carved and painted. The crucial difference turned out to be the type and number of keys on the instrument. This was made even clearer when I was offered the keys of the U.S. \$100.00 instrument for the equivalent of U.S. \$90.00. These keys were made of slangking wood, the shopkeeper told me and went on to point out that there were 21 keys (from 6̣ to 6̣, Sléndro), old and dry, and quite thick and rounded in form. The information conveyed to me by this shopkeeper turned out to be an all-encompassing summary of what is valued most by the Jogjanesse musicians with whom I discussed the matter. Below is a survey of some facts and opinions relating to gambang keys which will help to explain why the salesman was justified in asking a relatively high price for his gambang and why the Jogjanesse would value such a gambang highly.

#### Woods

A number of types of wood are used for gambang keys. The discussion below covers those which I discussed with my informants. In most cases the Latin equivalent is given, and the English equivalent if there is one.

Slangking. The Latin equivalent for this wood has yet to be ascertained. Kunst speculates that the term slangking was given erroneously, since it "is the name of a herb (Anisomeles indica, and two more species of the same family)" (Kunst 1949:185). Even today the term

is used by musicians to refer to a type of hard, fine-grained, heavy black wood used for gambang keys. Consultation with several ethnobotanists whose speciality is Indonesia suggested that the use of this term for wood (rather than herbs) is probably restricted to musicians, but within the circle of musicians it is widely used.<sup>7</sup>

I talked about gambang wood at some length with five musicians in Jogjakarta,<sup>8</sup> and others briefly, all of whom list slangking as the best wood for gambang keys. Sastrapustaka, who from his childhood has been associated with the Jogjanese kraton as dancer and now librarian, tells me that before tiles became the preferred roofing material in the Jogjanese kraton, slangking wood was used for mending roofs, at least during the reign of Hamengkubuwana VII (1877-1921) (D.G.E. Hall 1968:933). He stressed the importance of the hardness of the wood and the fineness of its grain, which, he said, resist moisture absorption. Moisture absorption can change the pitch of a key, and it is scientifically plausible that the finer the grain, the less moisture absorbent it will be.<sup>9</sup> Another important quality of slangking wood is its heaviness which keeps the key from bouncing up immediately after being struck.

Concerning the sources of slangking wood, it is generally thought by the musicians with whom I spoke that it formerly grew in Java, but no longer does. Sastrapustaka said slangking is now, to his knowledge, grown in Sulawesi, a large island northeast of Java. KJ. Wasitodipuro mentioned that the only town in central Java where he knows of gambangs still being made with slangking keys is Semarang. Located on the north coast of central Java, Semarang would be a logical port in central Java

for shipments from Sulawesi. This whole matter is in need of further substantiation, however. In Surakarta and Jogjakarta, I could find no instrument maker who uses new slangking wood. It is possible that the cost of shipment has caused gambang makers to turn to other more modestly priced and readily available types of wood.

"Berléan". I place quotation marks around this word because I have been unable to determine its proper spelling. Ijzerdraat and Sosrosuwarno (1954:37) mention black "belian" wood used for gambang keys, which is presumably the same word. If so, the Latin equivalent is Eusideroxylon Zwageri, called 'Borneo ironwood' in English. In Jogjakarta I heard it pronounced in several ways, which would be rendered in writing as "berléan", "berléyan", or "berlian". These may be Jogjanese variants of barléyan (lit. diamond). Suhardi and Sastrapustaka think the word may be derived from a European language, perhaps English 'brilliant', and said it describes the tone of this wood in comparison with other types of wood used for gambang keys.

"Berléan" is frequently mentioned as the best wood used in making new gambangs. The grain is quite fine, although not as fine as that of slangking. The wood is hard and heavy. It is rated second only to slangking as the best wood for a gambang.

Sembir (Artocarpis glauca; a species of breadfruit). This is a yellowish wood, which turns brown with age. Its lighter color, coarser grain and lighter weight make it quite different from either slangking or "berléan". Sembir wood is frequently found on Jogjanese gambangs but is not given the praise that slangking and "berléan" are. Ki Wasitodipuro rates it third, but the other musicians I interviewed do

not rank gambang wood past the previously mentioned two. This is the first wood about which I encountered negative comments. According to Kunst (1949:186), sembir enjoys popularity in Surakarta, second only to rawan (see below).

When struck, keys of sembir are much more likely to bounce off the soft strip upon which they rest, producing undesirable sounds. It is possible that Solonese gambang playing during the 1920's and 1930's (when Kunst was in Java) involved a lighter touch on the keys than the Jogjanese style at that time. In the 1970's the Jogjanese tend to play more lightly than the Solonese I witnessed. It is more likely that the Solonese preference for sembir mentioned by Kunst is due to the sound, which, in my opinion, has a slower decay than that of other woods used for gambang keys, particularly in the highest octave. However, difference in the sound of keys is due to thickness as well as type of wood (see below).

Rawan (Eugenia aromatica; clove tree).<sup>10</sup> Like sembir, this wood is yellowish, darkens somewhat with age, and is relatively light in weight and coarse in grain. Rated highly by the Solonese, according to Kunst (1949:186), rawan wood was mentioned by only one of the Jogjanese with whom I spoke, and in unfavorable terms. Sastrapustaka told me that keys made of rawan do not produce sufficiently audible tones in the lower register. In his experience, however, he has found keys of rawan less likely to bounce when struck than keys of sembir.

Jati (Tectona grandis; teak). One of the most readily available timbers in and around Jogjakarta, jati is a reddish brown wood which turns brown with age. It is relatively coarse in grain and not as

heavy as slangking or "berléan". The Javanese consider this one of the best woods for furniture. Although frequently used by gambang makers for gambang keys, its inferiority to slangking, "berléan", and sembir is readily acknowledged at least in Jogjakarta. Kunst reports that gambang keys are "generally made of teak..." (1949:185), but I would hesitate to make such a generalization about Jogjakarta. There, the wood is used in making new keys, but those in the better gamelans are, to my knowledge, slangking and "berléan". The jati keys I saw on several new gambangs had been stained dark brown, which made them look more like slangking or "berléan". Upon close inspection, the coarse grain caused me to turn a key over, only to find the characteristic reddish-brown color of jati; the bottom had been left unstained. The maker may have intended to mislead an unknowledgeable buyer or may have preferred dark brown to reddish-brown. In any case, jati is acceptable for gambang keys but is not preferred.

Rasamala (Altinggia excelsa). Similar to jati, this wood is reddish, turns brown with age, and is relatively coarse in grain. According to Sastrapustaka, the only musician who mentioned this wood in connection with the gambang, the keys made from this wood are, like sembir, too light in weight. Rasamala is one of the most popular timber trees in central Java<sup>11</sup> but to Sastrapustaka's knowledge is not being used anymore for gambang keys.

Nangka (Artocarpus integra; jackfruit). Strong and heavy in weight, nangka is a bright yellow wood which turns brown with age. One of Kunst's informants (R. M. Jayadipura) told him that nangka wood was



used for gambang keys (Kunst 1949:185). None of the musicians with whom I talked mentioned nangka in connection with gambang keys, but instead for the grobogan. When I asked whether nangka could be used for gambang keys, they expressed surprise and told me that for grobogans (and other types of resonators) it was the best wood to use, owing to its durability and resistance to decay. They speculated that it is probably not sonorous enough to make good gambang keys.

Bambu (English: bamboo). "Gambang with bamboo keys are found relatively seldom in Java" (Kunst 1949:186). Statements by my informants corroborate this. Sastrapustaka and Prajasudirja remember seeing gambangs whose keys were made from bambu petung (Dendrocalamus asper), a large, thickwalled variety of bamboo. They know of no permanently-housed gamelans whose gambangs have bamboo keys, but have seen such gambangs only in portable folk ensembles 30 or 40 years ago. Even in the four iron gamelans<sup>12</sup> I saw, the gambang keys were either of "berléan" or jati wood. Perhaps the keys of the portable folk ensembles were bamboo because that material is readily accessible, inexpensive, or lightweight. It became apparent during my interviews that bamboo is not considered a suitable material for gambang keys.<sup>13</sup>

Other Wood. I came across no other names of wood for gambang keys during my stay in Java, but there may be other types occasionally used. One of the gambangs owned by Suhardi had been stored in the back of his house for several years, during which time one key had broken. He fashioned a replacement from a lightweight, white wood which happened to be at hand, and which was not one of the woods mentioned above.

Ideally, he told me, this should be only a temporary replacement until he can purchase a key of the same wood as the rest of his keys (slangking). But to find a single slangking key for sale is highly unlikely. This demonstrates that there are other types of wood available in Java which, although not the most pleasing to the Javanese ear, can be made into sufficiently sonorous gambang keys.

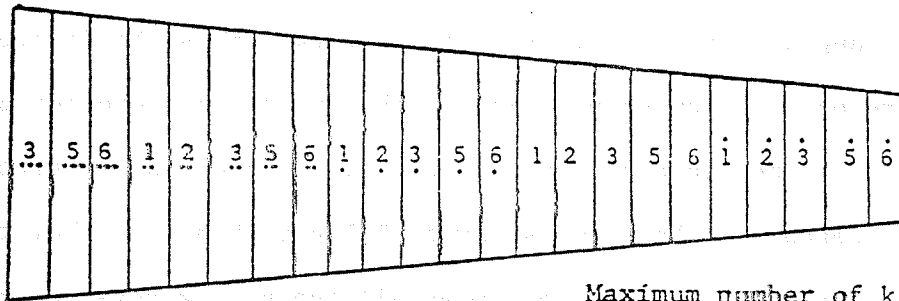
#### Number and Compass

In the many written sources mentioning the Javanese gambang, there appears little agreement over the number, or usual number, of keys. This lack of consensus is most likely due to the time span elapsing between the observations. Kunst sums up most previous writings on this subject by saying it consists of "some 16 to 21 keys" (1949:185). Yet Poensen (1872:104) reports an illustration of a gambang with 15 keys, and Soerjowinoto states, "De klankgevende deelen bestaan uit latten van hard hout ca. zes en twintig in getal, in een rij..." (Soerjowinoto 1920/21:269). ("The sound-giving parts consist of bars of hard wood, about twenty-six in total, in a row...") This is probably an erroneous estimation, but I saw several gambangs with 22 keys and one with 23. Not only is there a variety in the types of wood used for the keys but also in the number of keys. Just as there is no 'standard Sléndro or Pélog tuning', neither is there a 'standard gambang'. One maker may prefer to make gambangs with 19 keys, another with 21; or the number could depend on the particular wishes of a buyer placing an order: for the number of keys that is cocog with him.

For gamelans with only one Pélog gambang, rather than a separate gambang Pélog Bem and gambang Pélog Barang (see page 39), there must

be three or four exchange keys (sorogan). Neither the bem keys nor the barang keys are referred to as 'sorogan' as such; instead, whatever keys are not in playing position on the instrument (whether bem or barang) are called 'sorogan' and are normally stored in the grobogan. It is preferable to have two separate Pélog gambangs so that the gambang player will not have to remove all the barang keys and replace them with bem keys, or vice versa, between gendings. Furthermore, Gending Kagok Respati and Gending Sambul Gending change from Pélog Bem to Pélog Barang in the middle and return to Pélog Bem.<sup>14</sup> In order to perform these gendings satisfactorily there must be two Pélog gambangs, just as there are two Pélog gendèrs. The player switches from one to the other at the appropriate time during the unfolding of the gending--startling an unprepared audience. To my knowledge, neither of these gendings is frequently played. Thus, separate Bem and Barang gambangs are considered a luxury rather than a necessity. One Pélog gambang is sufficient provided there are sorogan keys.

Despite the variability in the number of keys one may find from gambang to gambang, my informants are in remarkable agreement concerning the continuum from 'very complete' to 'insufficient'. The tonal compass of the instrument forms an integral part of the discussion. In Figure 19 the gambang with the greatest compass that I have examined is diagrammed. This is a Sléndro gambang, but since, in both Sléndro and Pélog, there are five tones to the octave at any one time on the gambang, the continuum from 'very complete' to 'insufficient' applies equally for Sléndro and Pélog.



Maximum number of keys and tonal compass of a gambang

Number of Keys	Tonal Compass*	Ranking
22 or more	5 (or lower) to 6 (or higher)	very complete
21	6 to 6̇; or 5 to 5̇	complete
20	6 to 5̇	complete
20	5 to 3̇	sufficient
19	1̇ to 5̇ (Sléndro & Pélog Bem)	sufficient
19	7 to 5̇ (Pélog Barang)	sufficient
19	6 to 3̇	sufficient
18	1̇ to 3̇ (Sléndro & Pélog Bem)	sufficient, but rather limiting
18	7 to 3̇ (Pélog Barang)	sufficient, but rather limiting
17	2̇ to 3̇	just barely sufficient; quite limiting
16 or less	(regardless of tonal compass)	insufficient

\*I have seen at least one gambang with each tonal compass listed. I found no gambang with a compass of 1̇ to 6̇, 2̇ to 6̇, 2̇ to 5̇, or with fewer than 17 keys, nor did my informants mention these possibilities.

Figure 19. Number of Keys and Tonal Compass, Ranked in a Continuum.

In essence, the judgments of my informants reflect the norms of gambang musical practice. For most playing, the 'just barely sufficient' gambang may be used, but contemporary norms of performance may

require (or at least allow) certain treatment in some gendings which must be simplified or avoided on the 'just barely sufficient' and even on the 'sufficient' gambangs. The more keys, the greater number of choices; if the choices are too limited, the playing may become awkward, or, as the Javanese say, "kurang kepénak" (lit. not so comfortable). A 'complete' gambang does not limit the choices, and a 'very complete' gambang actually gives the player more options than he is likely to use, by current standards.

#### Thickness and Shape

In evaluating a set of gambang keys, thickness and, to some extent, shape may be as important as the type of wood or the number and compass of the keys. My informants feel that relatively thick keys of a given type of wood yield a better sound than keys of the same wood but thinner. They also point out that, should altering the tuning be necessary,<sup>15</sup> keys that are too thin would break or lose their sound in the tuning process.

Like instruments with bronze keys, gambangs are tuned by shaving the bottoms of the keys (i.e., the face not visible when the keys are in playing position on the grobogan). To lower the pitch, the wood is shaved off the center portion of the bottom of the key; to raise the pitch, the wood is shaved off the portions on either end of the bottom of the key (see Figure 20). I asked a number of musicians whether wax or some other substance is ever attached to the keys of a gambang (or any other Javanese gamelan instrument) for tuning purposes--a practice reported by David Morton in the tuning of Thai xylophones (Morton

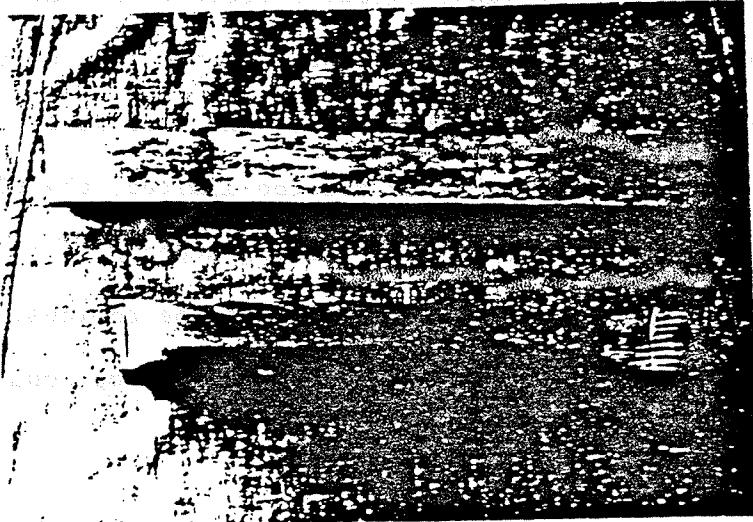


Figure 20. Two tuned gambang keys: bottom view. The longer key has been lowered in pitch by scraping the middle. The shorter key has been raised in pitch by scraping the end.

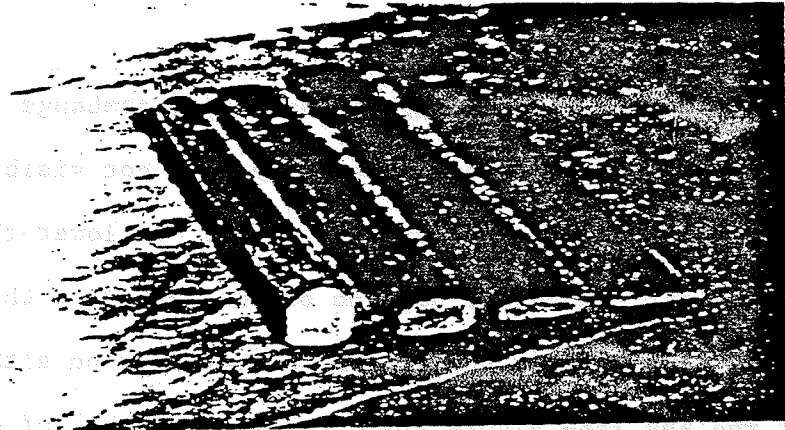


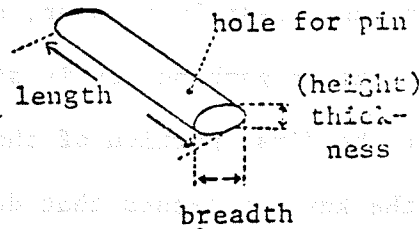
Figure 21. Four gambang keys: pitch degree 3 from each octave, showing rounded surface.

1968:11). None of the people I asked had ever heard of this as a permanent tuning method. Only in the process of tuning is clay sometimes applied to determine whether a key is very slightly higher or lower than another key to which it is being tuned. In this case, clay is attached to the end of the key being tuned, thereby lowering the pitch. If this seems to bring the key more nearly in tune, the center portion of the bottom of the key is shaved and the clay removed. If, instead, it seems to put the key more out of tune, the ends of the key are shaved and the clay removed. This process is continued until the key is perfectly in tune thereby minimizing wasted shaving (which would not only make the key unnecessarily thinner, but also cause the tuner extra tedious work). When a gambang key is still far out of tune, a knife may be used for the first portion of the tuning-shaving process, but as the pitch of the key approaches that desired by the tuner, a fine file or bits of thin broken glass may be used.

Because of this tuning-shaving process, it is understandable why thick keys are preferred even over thin keys whose sound is still good. The shopkeeper mentioned above had many gambangs in his shop in addition to the fine one described at the beginning of this section. One of the others also had 21 keys made of slangking wood, but he was willing to sell it for only 12,000 rupiahs (about U.S. \$30.00). The crucial difference between the \$30.00 gambang with 21 slangking keys and the \$100.00 gambang with precisely the same number of keys made from the same fine wood was a difference in the thickness of the keys. The salesman thought the \$30.00 gambang might be retunable once, but already some of the lower keys did not yield a full sound. The \$100.00 gambang,

on the other hand, could be retuned several times and still maintain the full, rich sound of each key in its present condition.

Since I could not conduct scientific measurements of the thickness of gambang keys in Java without appearing to the owner to be demeaning his possession, I offer below the dimensions of the highest and lowest keys on the gambangs of Kyai Gandrung, the Jogjanese gamelan of the Music Department of the University of Hawaii. Although I could not make measurements in the field, I am quite certain that the keys on these two gambangs are quite thick and could withstand numerous retunings.



<u>Pitch</u>	<u>Thickness</u>	<u>Breadth</u>	<u>Length</u>
Pélog 6̇	5.5 cm.	4.2 cm.	33.6 cm.
Sléndro 5̇	5.2 cm.	4.3 cm.	34.0 cm.
Pélog 6̇̇	1.2 cm.	6.9 cm.	60.8 cm.
Sléndro 6̇̇	1.0 cm.	7.0 cm.	58.4 cm.

Figure 22. Dimensions of Representative Keys from Two Gambangs.

Since the highest key on each of these two gambangs appears to have been tuned sometime in the past, thickness is measured at the place of the hole for the pin, the thickest part of the key. In the tuning process



neither the breadth nor the length of the keys is altered. The breadth is a measurement of a cross section because the ends do not form a right angle with the long sides of the keys. This fact in turn makes the length on one edge of the key slightly longer than on the other edge. For this reason, the length of the middle of the key is measured.

The lowest-pitch key on a gambang is the thinnest, broadest, and longest. From low to high, the keys become successively thicker, narrower, and shorter. Regardless of any of these dimensions, the hole for the pin should be at the node. A. M. Jones, whose experience with xylophones has been primarily with African varieties, states, "A xylophone key when struck vibrates...in a way that produces two nodes. These are transverse lines on the key where no vibration takes place at all and they are situated about two-ninths of the length of the key inwards from each end. If the key is to sound well, it is at these points that it must be supported" (Jones 1964:125). Whether this is true for all xylophones is brought into question by the Javanese preference for placing the hole exactly one quarter the length of the key from the end. My informants corroborate Hardjoprakoso's discussion of this in his article "Membuat Gamelan" (lit. making a gamelan) (1966:18-24). Because of this, only one half of the key lies over the grobogan on a properly made gambang. A quarter of the key at each end extends beyond the grobogan on either side. Therefore, in any one position on the grobogan, only a key twice as long as the distance from one side of the grobogan to the other may be used. In other words, neither long keys nor short keys are necessarily desirable in their own right, but must be appropriate to the size of the grobogan.

Decorative carving on the gambang is reserved for the grobogan, but the keys should be beautiful to the eye as well as the ear. For no apparent acoustical reasons, each key is shaped so that, from above, it has the shape of a trapezoid. This in turn contributes to the shape made by all the keys in place on the instrument: also a trapezoid when viewed from above, whose base is the longer edge of the lowest-pitch key (see Figure 19). Perhaps taken for granted, this was not mentioned by any one I talked with. However, the shape of the keys as viewed from their ends is an important visual aspect. A preference is indicated for keys whose surface (top) is rounded, as shown in Figure 21, in contrast to keys whose surface is nearly flat, as shown in Figure 12. This preference may simply be an affirmation of the importance for thick keys, since rounded keys are generally thick, whereas flatter keys range from thick to quite thin.

#### Age and Moisture Resistance

The precise amount of time that wood requires to become dry depends on the chemical composition, the size of the piece of wood, and the environment. A log in the humid climate of Java would take many years to dry, while a piece of wood the size of a gambang key, even in Java, should take no longer than about six months to reach its maximum dryness, according to ethnobotanists. Javanese musicians do not consider a gambang key to be truly lawas (lit. old) if it is less than ten or 15 years old. Their preference for old keys is acoustic: they feel that the older a key, the more stable in pitch it is because it becomes increasingly resistant to moisture absorption.

Bronze, the most highly valued substance used in the making of all the other keyed and gong instruments in the gamelan, takes up to 30 years to stabilize in pitch. It is quite possible that this quality of bronze has been assumed by the Javanese to be a quality of wooden keys as well, but there may also be validity to the reason they give for preferring old keys.

One gambang maker I met was in the process of fashioning gambang keys from the supports of his house, which he had just replaced with new wood. He told me the supports had been made from "berléan" wood over 40 years before and that, prior to being made into house supports, the wood had been soaked in a nearby river for six months. When I mentioned this to an ethnobotanist, he said that the chemicals in a river in such a highly populated area as Jogjakarta could cause chemical changes in the wood (replacing hydroxides with urea), which would make the wood more resistant to moisture than a piece of wood aged outside of water. My informants told me that the practice of soaking wood in the river occurs far less frequently now than it did in the past. It would seem probable, then, that wood used for gambang keys in the past was more likely to have been soaked in the river and therefore become more resistant to moisture than keys made quite recently.

According to Kunst, "Since moisture in the air causes the gambang keys to expand and their pitch to drop, two of these instruments may be found in the orchestras of some of the more sensitive lovers of music; of these two, the one intended for the wet monsoon sounds a few vibrations sharp in the dry season, but has the required pitch

during the wet monsoon, whilst the other one, out of use during the wet season, is in the dry monsoon in perfect harmony with the other, bronze, instruments, whose pitch is not subject to the influence of moisture" (Kunst 1949:187). When asked if some gamelans had two gambangs, one for wet season and one for dry, my informants replied that they knew of no such gamelan but confirmed Kunst's statement about the pitch dropping slightly during the wet season and rising during the dry season. They added, and probably correctly, that for gambangs with old keys, the change of pitch would be negligible.

#### Summary

In summarizing the facts and opinions expressed by my informants and other scholars concerning gambang keys, it is scarcely necessary to go beyond the statement of the gambang shopkeeper who asked a seemingly high price for one of his gambangs. A musician considers the keys to be the most important element of the gambang. Of the types of wood discussed, slangking is unanimously rated best and "berléan" rated next. Both these woods are dark, have fine grain, and are heavy in comparison with the other woods mentioned. A complete set of keys numbers 20 or more with a tonal compass 6 (or lower) to 5 (or higher). If only one Pélog gambang is present, a complete set of keys includes sorogan, increasing the total by four. A set of thick keys of a given type of wood is considered more valuable than a set of thinner keys of the same wood, since the former would be more sonorous in all registers and could, if necessary, be tuned several times without losing its tone quality. Keys with a rounded top surface are preferred, presumably for visual

reasons, over keys with flat surfaces. Since old wood tends to be drier and more resistant to moisture, old keys, other factors being equal, are more desirable than new ones.

Thus, the set of keys offered by the shopkeeper satisfied all Jogjanese criteria for superior quality. Towards the end of my stay I purchased the set without reservation.

#### Basic Playing Technique

In playing position, the gambang player sits cross-legged on the floor, facing the instrument. To his left are the lower-pitched keys, and to his right the higher. In each hand he holds one gambang beater loosely by the stem and strikes the middle of the keys with the padded circumference of the wooden disc. The position of the beater in the hand varies from individual to individual. Prajasudirja (Figure 23) holds the stem between his thumb and middle finger, with his forefinger bent and resting over the top of the stem. Suhardi (Figure 24) also holds the stem between his thumb and middle finger, but with his forefinger almost fully extended and pressing lightly against the stem.

As one of the instruments which usually manifests the density referent (DR), the gambang is played rather fast but should never be played uncomfortably fast or uncomfortably slowly. In order to play sufficiently and yet comfortably fast, the wrist must be flexible. In the process of striking the keys, the gambang player moves his forearms slightly, letting wrist movement accomplish most of the lowering and raising of the beaters to and from the keys. The fingers hold, but do not manipulate, the beaters.

Figure 23. Prajasudirja playing his own gambang. Note in each hand the forefinger bent and resting on top of the stem.



Figure 24. Suhardi playing his own gambang. Note in each hand the forefinger nearly extended and pressing lightly on the stem.



If a gambang player is performing in the context of drama or dance, he will usually not direct his eyes toward the gambang keys. If the context is uyon-uyon, he is more likely to look at the instrument at least part of the time, but I discerned no tendency to look at either hand more than the other, nor a need to do so to keep his place. This may be due to the predominance of octave playing in contemporary Javanese gambang playing.

#### Style Terminology

Both Prajasudirja and Suhardi describe their own style as banyumili (lit. flowing water). This style of gambang playing, in contrast to the others they mentioned, involves continuous motion in both the left and right hand parts, playing on every (or nearly every) beat of the fastest pulse. The gambang playing in the corpus of this study is almost completely banyumili style.

Geter is the Javanese term for a ricochet technique in gambang playing, used in the right hand only. The style of a player who makes frequent use of geter is generally called grontolan (lit. like kernels of corn). Suhardi's occasional use of geter, only for the first or last few beats of a gending, would not be called 'grontolan' style, but rather, the use of a few geter in the context of banyumili style.

One occasionally hears of a gambang player using a technique called angklung. This term usually refers to a type of bamboo instrument composed of two or three tuned bamboo tubes in a frame which is held in one hand and shaken by the other. In the context of gambang playing, the term is used to refer to the technique of playing on only the

offbeats of the DR. This is occasionally necessitated if the drummer, the tempo director of the gamelan ensemble, has set a tempo that is uncomfortably fast for the gambang. Ideally this should not occur, but in order to give the feeling of the DR pulse, only the offbeat pulses are played. The following figure shows the difference between banyumili, grontolan, and angklung styles.

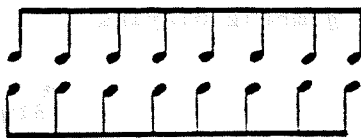
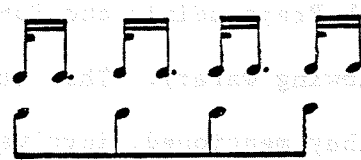
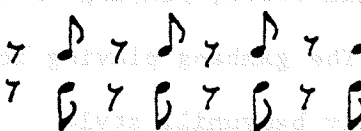
Banyumili:	right hand: left hand:		etc.
Grontolan:	right hand: left hand:		etc. (slow)
Angklung:	right hand: left hand:		etc. (fast)

Figure 25. Rhythmic Character of Banyumili, Grontolan, and Angklung.

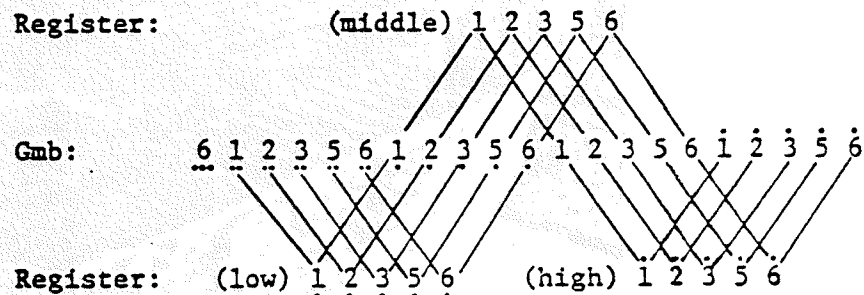
Damping the sound of the keys, an essential feature of the playing technique of the other keyed instruments, is not normal on the gambang, due to the fast decay of the sound. In the past, however, there was a style developed, exclusively in Jogjakarta, I believe, which involves damping some of the keys. In this style, called glebeg, the left hand touches the key which it is striking, or the key which it has just struck (both occur) thereby damping the sound. This occurs only in the left hand, according to Prajasudirja (see Figure 27). He also mentions damping in the right-hand part, in which the beater rather than the hand



is used. After the beater strikes the key, it is held down for just an instant, thereby damping the sound. He feels this type of gambang damping may be included in the category 'glebeg' but is more certain that this term applies to the left-hand damping technique. While he and other gambang players can perform this rather difficult technique, it is no longer in vogue.

### Octave Register

Whatever techniques or styles are used, the basic orientation in gambang performance is playing in octaves (i.e., doubling at the octave). The terminology for octave register on the gambang assumes octave playing and divides the gambang into three registers: high, middle, and low. For octave combinations of left and right hand, as shown in Figure 26, low register is represented with a subscript dot, and high register with a superscript dot.



(The lines point to keys played by both hands but do not represent position of beaters or forearms to keys.)

Figure 26. Octave Register on the Gambang.

In Javanese, several sets of terminology for register are in common use. High register is called cilik (lit. small) or nduwur (lit. above, at

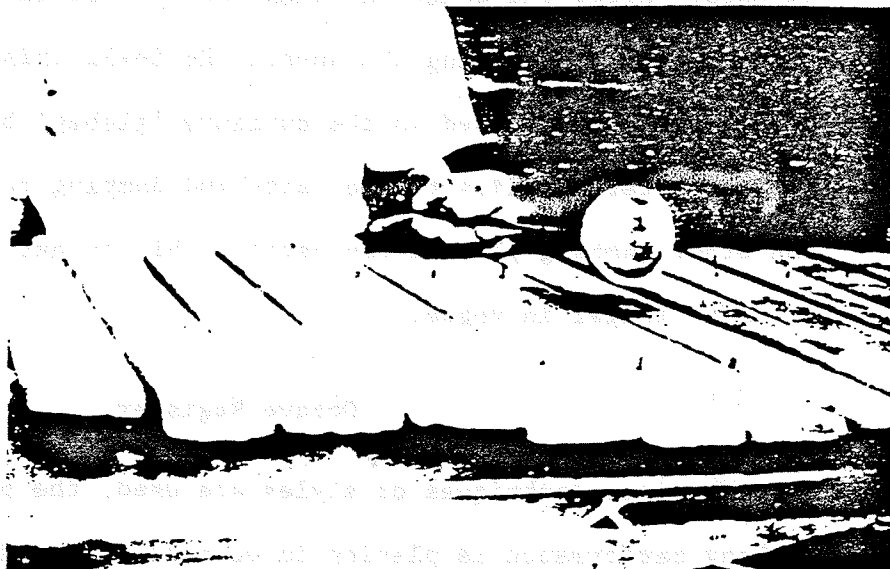


Figure 27. Prajasudirja demonstrating 'glebeg' technique: damping the key with his left hand.

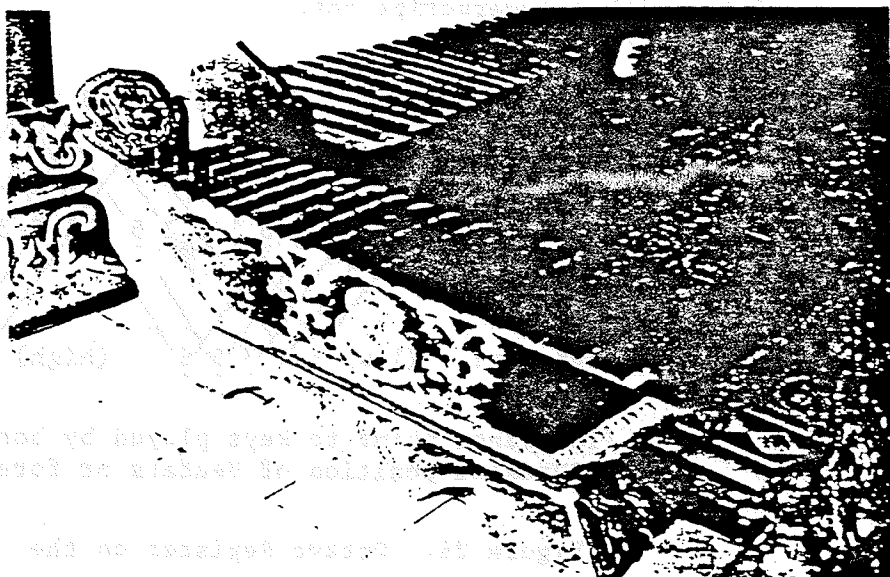


Figure 28. Gambang gangsa of the Jogjanese kraton gamelan Kyai Guntur Sari.

the top). Middle register is called tengah (lit. middle, center). Low register is called gedé (lit. big, large) or ngisor (lit. below, at the bottom). Hence, 'middle 3' (dada tengah) would be realized on the gambang as the simultaneous sounding of the gambang tones 3 and 3, according to the figure above. There is no term for the octave combination of 6 and 6, or anything lower. It might be referred to as 'very low six', for example, but it occurs rarely.

#### The Term 'Gambang'

In the previous section a description of the instrument known in contemporary Java as 'gambang' has been presented. From that description, it is apparent that the term has a rather wide gloss. Whether a gambang has elaborate carving or none, whether it has 17 keys or 23, whether the keys are made of fine old slangking wood or new jati wood, whether it has a Solonese or a Jogjanese grobogan, it would undoubtedly be identified as a gambang by the Javanese. Yet the term 'gambang' is found elsewhere with broader or different referents.

#### Gambang Gangsa

Thirty or 40 years ago the term gambang had a wider gloss for the Javanese. The instrument now known simply as 'gambang' was at that time properly referred to as 'gambang kayu' (lit. wooden gambang; meaning the keys are made from wood) to distinguish it from the now rarely used 'gambang gangsa' (lit. bronze gambang; meaning the keys are made from bronze).<sup>16</sup> As Moyle has pointed out with respect to Samoan instruments, "In some cases where the name of an instrument consists of two

words, the first is a general term followed by the name of the material from which it is fashioned..." (Moyle:1974:57). This brings up the question of what the general term 'gambang' means.

The description of a gambang kayu appearing at the beginning of this chapter serves as a general description of a gambang gangsa as well, but with two differences. First, the keys are bronze, not wooden. Second, the keys rest on woven squares of rattan (tawonan),<sup>17</sup> rather than soft strips of cloth. With these two differences, the only contrast between a gambang gangsa and a saron is the method by which the keys are attached to the respective resonator. The method of attachment appears to be one identifying feature of the gambang (gangsa or kayu), but there are others.

#### Resonator

The gambang gangsa illustrated in Figure 28 belonging to the Jogjane kraton gamelan Kyai Guntur Sari, has a grobogan resonator, as one might expect for an instrument in the category 'gambang'. But the shape of the grobogan more closely resembles the form that is typical of Surakarta. The resonator of the gambang gangsa from a Mangkunegaran gamelan illustrated by photograph in Kunst (1949:426, ill. 71) is not a grobogan but looks like a saron resonator elongated to accommodate 15 keys. Although hand drawn plates are not always reliable for detail, Raffles' drawing of a gambang gangsa (1817:plate opposite 470) also portrays what appears to be an elongated saron resonator, while the gambang kayu portrayed has a Solonese-looking grobogan.

A closer look at the two photographs and Raffles' drawing reveals that the keys on all the gambangs are separated by pins on one side of the resonator and pierced by pins on the other, in the same manner as the keys of a gambang kayu. Raffles' drawing of a saron distinctly shows two holes per key. (There is a ten-keyed instrument in this same plate labelled selantam, for which, unfortunately, no holes are shown--this is most likely an inaccuracy in the drawing.) It appears likely that the way a key is attached to the resonator is more fundamental than the type of resonator in determining the taxonomic category 'gambang'.

#### Beater

From written sources, it seems that two different types of beaters are, or have been, used to play the gambang gangsa. The photograph in the notes accompanying Brunet's record album "Java: Gamelans from the Sultan's Palace in Jogjakarta" (Brunet 1973:14) shows two mallets with curved horn heads, similar (if not identical) to the type of beater normally used for playing the peking. Raffles' hand drawn plate (Raffles 1817:plate opposite 470) also shows two such beaters. Kunst's illustration (1949:426), however, shows two beaters resembling much more closely those used for the gambang kayu, except that the discs appear to be unpaddinged. Thus, not only are there two types of resonators, but also two types of beaters.

#### Keys

As in the case of gambang kayu, the number of keys varies from one gambang gangsa to another. According to Kunst, there are generally 14 to 15 keys (1949:171). Earlier reports by Groneman (1890:37) and

Snelleman (1918:814) describe instruments with 15 keys. Crawford (1820: plate opposite 340) gives the approximate pitches of a gambang gangsa numbering only 11 keys, with a tonal compass of two octaves in Sléndro. Raffles' hand drawn plate (Raffles, 1817, Vol. I:plate opposite 470) also shows 15 keys. The only gambang gangsa I have seen, depicted in Figure 26, has 19 keys.<sup>18</sup>

Concerning the pitch vocabulary of the keys, it is difficult to report anything certain. Kunst states, "Both in sléndro and in pélog the gambang gangsa sounds all the tones of the scale; this is in contradistinction to the gambang kayu, which, in pélog, never sounds the tone pélog [pitch degree 4], and, further, leaves out either the bem or the barang" (1949:171). Kunst does not state whether the gambang gangsa in his illustration 71 is Sléndro or Pélog. Raffles lists his hand drawn gambang gangsa as salindro (i.e., Sléndro), and it is certain that the Kyai Guntur Sari gambang gangsa is Pélog (Surjodiningrat et al. 1972:53). That the latter has 19 keys would tend to support Kunst's statement concerning the presence of all tones per octave, for a 19-keyed Pélog instrument, then, would encompass roughly the same tonal range as a 14- or 15-keyed Sléndro instrument: nearly three octaves. Several informants say they think a Pélog gambang gangsa includes only five tones to the octave, like a Pélog gambang kayu. They are unsure whether there are sorogan keys for gambang gangsa.

In a list of the instruments in each gamelan of the Jogjanese kraton, none of the six Pélog gamelans have more than one gambang gangsa, though four of these have two gambang kayus: one Pélog Bem and the other Pélog Barang. If there were two gambang gangsas, we might

assume that one was Pélog Bem and the other Pélog Barang. Curiously omitted by Kunst in his section about gambang gangsa is a remarkable statement by Groneman which may explain the confusion over the tonal compass of Pélog gambang gangsas. He states that the Pélog gambang gangsa, which may be called selukat<sup>19</sup> (at least in the Pakualaman court), has six tones per octave: including both barang and bem but omitting pelog (pitch degree 4). Hence the pitch vocabulary per octave would be the same as two Pélog gambang kayus (Bem and Barang) combined.

It is possible that all these sources are correct and that all these types of instrument exist, or did at one time, but I find Groneman's explanation most plausible. Considering that the instrument is very rarely used today and that Kunst notes its increasing obsolescence, it is possible that Kunst heard a gambang gangsa sound both barang and bem and therefore assumed that, unlike the gambang kayu, all seven pitch degrees were present. Similarly, my informants may have focused their attention on the absence of pitch degree 4 and therefore assume that, like the gambang kayu, only five pitch degrees were present on the gambang gangsa at any one time. The lack of detailed information on this instrument makes it difficult to draw any conclusions concerning tonal compass and pitch vocabulary of the Pélog gambang gangsa. The range for Sléndro gambang gangsas is, in all cases mentioned, two octaves or more; presumably it is not significantly different for Pélog instruments.

#### Playing Technique

My informants corroborate most written sources in agreeing that the gambang gangsa is played with two beaters and that the part played is a

simple elaboration of the balungan. More specifically, the player sounds a key first with his left hand and then the key one octave higher with his right hand in fairly rapid alternations. My informants consider the octave orientation in playing sufficient grounds for the application of the term gambang to the instrument. Yet one report states explicitly that the gambang gangsa is played with one beater (Helsdingen 1913:25). Were this the only evidence of a single beater technique, it might be dismissed as possibly careless reporting or an unusual performance. Brandts Buys, who wrote a number of articles on Javanese gamelan and its music, says that on the gamelan Kyai Mega Mendung in Jogjakarta he saw what he surmised to be several amateur musicians playing a gambang gangsa, each playing one half of the instrument with a single beater, sounding the balungan (Brandts Buys 1938:220). Yet he mentions this example as an exception to the normal playing technique (i.e., one person playing in octaves, alternating the left hand and the right hand, and sounding something other than the balungan). This same playing technique is described in a note by Land in Groneman (1890:105); and, as Hood says of Groneman's "Bijlage D" (a score given in Groneman 1890:118-23), "although the two gambang [kayu and gangsa] play different parts, they show the same character in contrast to the balungan melody" (Hood 1954:242).

#### Gambang Gangsa and Gambang Kayu

Judging from available sources of information, both these Javanese instruments have the following points in common:

1. A set of keys resting over a trough resonator and held in



place by pins piercing a hole near one end of each key and separating adjacent keys near the other end.

2. A range of two or more octaves, hence multi-octave.
3. Played (almost always) with two beaters, primarily in octaves and with some independence from the balungan.

Given the octave orientation in playing, it is evident that a two-octave range would be necessary merely to accommodate a single-octave melody played in octaves. With one exception (Crawford 1820:plate opposite 340), the ranges in Sléndro are greater. In Pélog, even if the 19-keyed gambang gangsa has all seven Pélog tones to the octave, its range would exceed two octaves by four keys; and if it has only five or six tones per octave, its range would exceed three octaves. Based on the information at hand, the gambang gangsa, while more limited in range than the gambang kayu, may be played (in octaves) with a range greater than one octave.

Some notation systems, including that used in the Jogjanese kraton (as well as many published booklets), include not only the pitch degree of the balungan, but some indication of register for non-balungan instruments as well. Without going into the details of Jogjanese kraton notation,<sup>20</sup> I quote a passage from Kunst:

Since the staves cover only a single octave, any vocal melody--which usually extends over more than two octaves--could, if the notation-system in question were to be used for the reproduction of such a melody, be represented only in a "folded-back" form, i.e. condensed into one octave; this is circumvented, however, by giving the notes, whenever the theme exceeds the limits of the middle octave, an appendix in the form of a tiny stroke directed downwards on the slant, and pointing to the left when the melody moves to the lower, and to the right when it moves to the higher octave...

In instrumental scores these strokes appended to certain notes may also occur, although the nuclear theme as beaten upon the saron or the demung, is limited to a single octave, and can therefore manage without those accessory lines. In this, however, the said lines signify that the gambang variation-play is expected to move towards and in the lower (ngandap) or higher (ngelik) register; ornamental playing to nuclear tones without any appendix takes place in the middle register (tengah).

(Kunst 1949:351)<sup>21</sup>

The type of gambang is not specified. Presumably the gambang kayu is implied for soft-playing; but for loud playing, in which the gambang kayu is customarily silent, it seems likely that the register indicators are intended for the gambang gangsa. It should be added that the octave register not only of the gambang part but also of the parts played on other multi-octave instruments is an essential aspect of 'proper' performance; it is not a matter of individual whim or momentary inspiration.

#### Some Non-Javanese Gambangs

Outside the Javanese cultural area, there are instruments known as gambang, or whose names bear obvious resemblance to the term 'gambang'. For the remainder of this study, a 'gambang' is assumed to have wooden keys, except where specified otherwise.

#### Sunda (West Java)

Two Sundanese gambangs are illustrated in Kunst (1949:454-55, ill. 162 and 163), showing great similarity to the Javanese gambang. A description of the resonator, arrangement of pins, the beaters (two in each case), and keys (20 in one, and 18 in the other) of these two Sundanese gambangs would apply just as well to a Javanese gambang.<sup>22</sup>

According to a Sundanese dancer-musician living in Jogjakarta, the gambang in Sunda is played primarily in octaves and is important in showing the register as a composition unfolds. Soemintaatmadja (1967:7) talks of the Sundanese gambang as a "wakil rebab" (lit. second in command to the rebab) and an indicator of the 'lagu'. As mentioned above, 'lagu' may mean 'melody' or 'song', but in the context of Javanese (and perhaps Sundanese) orchestral compositions, it implies, among other things, octave register (see Chapter V).

### Bali

A Balinese gambang is remarkably different from either the Sundanese or the Javanese. The keys, made from bamboo, are "suspended over a shallow wooden trough" (McPhee 1966:32) by means of string passing through a hole near either end of each key. The range is two octaves (seven tones to the octave). The keys are not arranged in graduated lengths, in contrast to Javanese and Sundanese gambangs (see McPhee 1966:274-5; and ill. 77 and 78.) The Balinese gambang is, however, very definitely played in octaves. In fact, the seemingly irregular arrangement of keys and the forked construction of the Balinese gambang beaters enable the player to execute complicated passages, playing octaves with each hand. This same type of beater and gambang is depicted on the fourteenth century temple Panataran (in eastern Java) and is assumed to have been formerly used in Java. As Kunst points out (1968:74) they are not found in present-day Java. Kunst speculates that the coming of Islam to Java (and not to Bali) may well account for the disappearance of this type of gambang in Java,

for it is used exclusively for Hindu cremation ceremonies in Bali. He has, however, seen bamboo-keyed instruments in Java and has called them gambangs, presumably because the Javanese also called them gambangs (Kunst 1968:74).

McPhee warns his reader against confusing the Balinese gambang with the Javanese gambang. Indeed, there are instruments in Bali whose physical appearance more closely resembles the Javanese gambang: notably the cungklik ("with wooden keys lying across a deep soundbox") and grantang<sup>23</sup> ("whose keys consist of a series of tuned bamboo tubes, open at one end, and hung horizontally within a frame") (McPhee 1966:32). Both these instruments encompass a range of two octaves (McPhee 1966:234) and, at least in McPhee's score (1966:237), are played exclusively in octaves.

In Bali, then, the term 'gambang' applies to a certain type of multi-octave xylophone, but not to the Balinese instrument most like the Javanese gambang: i.e., the cungklik.

#### Sulu Archipelago, Southern Philippines

Sulu, much further from Java than the island of Bali, has xylophones called gabbang whose physical appearance is very similar to the Javanese gambang kayu. The resonator, the method of attaching keys, the number of beaters, and even the number of keys (17 to 22) described by Trimillos (1972:177-8) fit the description of a Javanese gambang kayu as well. The gabbang is heptatonic, however, with keys usually made of bamboo (Trimillos 1972:177). It is not played primarily in octaves but in what Trimillos has called "inflected monophony" (1972:283).

### Summary

Throughout Southeast Asia, there are many xylophone types and multi-octave keyed instruments. To mention all of them even briefly, let alone to attempt to compare each with the Javanese gambang, is beyond the scope of this study. The several mentioned above have been intended to give perspective to the present study. Yet from the brief mention of the gambang in three non-Javanese cultures, it is apparent that the term 'gambang' applies to: (1) certain types of multi-octave xylophones (with the exception of the Javanese gambang gangsa), (2) played with two beaters, one held in each hand, (3) primarily in octaves (with the exception of the gabbang of Sulu), (4) and whose keys are kept in place over a trough resonator (5) by means of pins piercing a hole near one end of each key and separating one key from the next at the other (with the exception of the Balinese gambang).

## Notes to Chapter III

- <sup>1</sup>Any of several types of wood may be used, and the number of keys varies from instrument to instrument. See further page 56.
- <sup>2</sup>Kunst (1949:185) and Poensen (1872:104) mention neither of these terms but give instead sumpilan (lit. rope-like) and tawonan (lit. bee-like). I heard the term 'tawonan' used to refer to the rattan upon which the metal keys of the saron instruments rest, but neither of these terms were used by my informants in discussing the gambang.
- <sup>3</sup>The more widely used term is 'paku' (lit. nail). In fact, the pins on some gambangs I saw were nails. Prajasudirja, however, uses the term 'ancer' (lit. mark, marker).
- <sup>4</sup>At Pandi's Art Shop in Sanur, Bali, I saw an instrument with wooden keys that were carved decoratively on each end. The owner of the shop had no idea as to its origin but referred to the instrument as a "gambang Cina" (lit. Chinese gambang).
- <sup>5</sup>Gong kemodong consists of two low-pitched metal keys, very close in pitch to one another, suspended over a wooden box. Inside this box is often an earthen pot which serves as the primary resonator. 'Grobogan' does not mean 'resonator', but can be the resonator, as in the case of the gambang.
- <sup>6</sup>These amounts are approximate, since prices are not fixed on many items sold in Java. A clever bargainer may, for example, convince a salesman to sell a '\$50.00 gambang' for only \$25.00.
- <sup>7</sup>I asked Dr. C. H. Lamoureux, an ethnobotanist at the University of Hawaii, to check the term 'slangking' during a short trip to Java. He consulted with Dr. Kuswadi and others there, none of whom had heard that term used for a type of wood.
- <sup>8</sup>My informants and two others: Ki Wasitodipuro, a reknowned expert on Javanese gamelan; and Sudarta, a musician employed at R.R.I. Jogjakarta who often plays gambang for the radio broadcasts of karawitan.
- <sup>9</sup>Oral communication from Roger Skolmen, a Ph.D. candidate in botany at the University of Hawaii and an employee of the Hawaii State Forestry Division.

- 10 Kunst's identification of rawan (*Eugenia aromatica*) as nutmeg tree (Kunst 1949:185) is not correct. The English equivalent of rawan is clove tree.
- 11 Oral communication from Dr. Lamoureaux.
- 12 The Javanese talk of bronze, brass, and iron gamelans, distinguishing the metal used for the keys and gongs of a particular gamelan. Iron is the cheapest of these three metals and is more often associated with the folk tradition.
- 13 It thus appears that A. M. Jones' statement (1964:125) that gambang keys "are of teak or bamboo" is most misleading. He refers to Kunst but seems to have overlooked the many Javanese names for wood given by Kunst.
- 14 These two gendings are both classified as 'Pélog paṭet Nem' but have lengthy sections which the Javanese recognize as paṭet Barang due to the exclusion of pitch 1 (bem) and the frequent use of pitch 7 (barang).
- 15 If a gambang is purchased separately, it most likely will not be in tune with the instruments with which it is to be played. Furthermore, 'new' keys may have to be returned several times as the wood ages.
- 16 In Jogjakarta in 1974, I found only one man (Jayenggati, a musician in the Jogjanese kraton) who was acknowledged to be a player of the gambang gangsa. Nineteenth and early twentieth century descriptions of Javanese gamelans list the gambang gangsa as no less essential than any other instrument. Just why it has almost disappeared from use is a matter for speculation.
- 17 Cf. note 3. (Chapter III) and see further Chapter II, page 25 (saron).
- 18 In the explanatory notes to the recording "Java: Gamelans from the Sultan's Palace in Jogjakarta" (Brunet 1973:14), the number of keys on this gambang gangsa is given erroneously as 16.
- 19 According to Kunst (1949:165-6), 'selukat' (also, 'selokat') is a synonym for the (single octave) 'peking', and the term 'gambang selukat' is synonymous with 'gambang gangsa'.
- 20 The Jogjanese kraton notation is explained in detail by Kunst (1949:350-354) and by Becker (1972:39-40).

- 21 Kunst's "ngandap" for low register and "ngelik" for high register are used in the same sense as the terms I listed for register on page 87 and 89. 'Ngandap' is the polite Javanese (krama) word for 'ngisor' (lit. below, at the bottom). 'Ngelik' means literally, to go up; and I found this term more frequently used to refer to a section of a gending characterized by singing and the playing of the multi-octave instruments in the high register, at least for part of the section.
- 22 According to Kunst (1949:358-9), the gambang gangsa is occasionally encountered in Sunda and may be referred to as either dempling or kedempling.
- 23 The word garantang appears in the introduction to the Jogjanese kraton collection of gendings in notation and is considered by Javanese and Western scholars to be an ancient Javanese word for 'gambang' (Kunst 1949:16; and Hood 1970:151). Kunst points out in another work (1968:73) that "the name gambang itself has come down to us through Old Javanese literature, e.g. several times in the Malat, the earliest date of which is late Majapahit (fourteenth century)."



## CHAPTER IV

## TRANSCRIPTION: METHODOLOGY AND CORPUS

Choice of Corpus

The corpus consists of six gendings in strict form (see Chapter II), all of which are heard primarily in the context of uyon-uyon.<sup>1</sup> I choose to concentrate on the one context in which the music is, at all times, the focus of attention, rather than to survey gambang playing in its various contexts. The Javanese teachers of karawitan that I witnessed invariably introduced new students to the music through gendings in strict form. In order to obtain a meaningful sample of strict form gendings used primarily for uyon-uyon, the three most frequently used strict forms are included: Ketawang; Ladrang; and Gending Keçuk 2 Kerep, Ndawah Keçuk 4. The corpus includes playing in all five iramas and, with the exception of Sléndro paçet Nem, all paçets of both Sléndro and Pélog. Both types of Pélog paçet Nem ('Sanga' and 'Manyura') are chosen for contrast.<sup>2</sup> The corpus does not include any gending whose paçet classification is disputed.

The focus in this study is the gambang playing of one niyaga. This contrasts with the study by Suparno (1973) which presents samples of the gambang playing of four niyagas. My purpose is to investigate the playing of one from a number of analytical viewpoints in hopes of suggesting interesting areas for further research with a larger sample of gendings and niyagas.

Suhardi, whose gambang playing constitutes the corpus of this study, once told me that he had wished for some years that he could

become all the players and singers performing a gending at one time. If he could, he explained, the resulting sound product would be superior to that in actual performance practice, with different people playing and singing each part. In essence, what he said is that the more nearly identical the conceptualization of a gending by all players and singers, the more musical logic in the sound product. In reality the ideal performance never occurs, since one musician never will have precisely the same conceptualization of a given gending as another. In cases where conceptualization by the performers is nearly identical, he said, the sound product is pleasing; but if conceptualizations vary too much, the resultant sound product is something less than pleasing and at times chaotic. The extent of sameness in the conceptualization of a gending determines the extent of 'harmony' in the sound product. Variety, he feels, should not come from different conceptualizations of a single gending but from different individual realizations of the same conceptualization. These individual realizations are determined by the norms of performance practice and sometimes by the feelings and individual preferences of the performers.

During my studies with Suhardi and my other informants, it became clear that certain parts are more important to the context of gambang playing than others. In a performance in which the complete gamelan (as described in Chapter II) is used, the following parts form what may be called the 'core context' of gambang playing: rebab, gendèr, gérong, pesindèn, and slențem (playing balungan).

To exemplify gambang playing in its 'core context', Suhardi's realizations of parts other than the gambang are given for Ketawang

Puspawarna, Sléndro paṭet Manyura (Corpus I). The pesindèn part is performed by Suhardi's wife, who was formerly his pupil and shares his conceptualization of the gending. The gambang, gendèr, and gérong parts transcribed are all performed by Suhardi at separate times. For the recording of each of these, the balungan, as taught by Suhardi, is played on the slenṭem by one of his students, Kartono. An accomplished musician keeps the other parts in mind even when they are not actually played. In the transcription of Ketawang Puspawarna in this study, all these parts are 'put together' as if played simultaneously.

For the other gendings in the corpus (Corpus II-VI), only the gambang part is transcribed. The decision to transcribe and analyze gambang playing taperecorded without the full gamelan sounding was deliberate—the aim being to notate accurately the tones played. In a recording of a complete gamelan performance, the tones of the gambang are frequently 'swallowed up' by the tones of the more sonorous metal instruments. Even when audible, it would be extremely difficult and at times impossible to identify rests in only one hand or non-octave intervals. This raises a question concerning the meaning of gambang playing if the audience cannot hear all that is played. Indeed, unless a member of the audience is relatively near the instrument, he is likely to hear tones produced on the gambang only some of the time. The other musicians will hear a greater percentage of gambang tones, and only the gambang player and those nearest him will hear all of them. During my two trips to Java I have often sat very near a number of gambang players and have found that 'wrong' tones are very common and are not nearly as significant in Javanese criteria for musical excellence in

gambang playing as other features (to be discussed in Chapters VI and VII). It is for this reason that occasional 'wrong' tones were not considered significant enough to merit retaping the entire gending. In the transcriptions, these 'wrong' tones have been 'corrected' so that the analysis does not have to account for the unintended. In Ladrang Pangkur (Corpus VI), there are two places which Suhardi identified as 'trouble spots' while listening to the playback of the recording. The gending was played and taperecorded again, but he felt that the first performance was better overall. For this reason, the first performance is transcribed, with the 'trouble spots' indicated as such.

#### Methodology of Transcription

The gendings of the corpus were transcribed by ear from 7½ ips reel-to-reel copies of the original field recordings. The transcription process was commenced with the tapes at normal speed. Each transcription was revised from listening to the tapes at half and quarter speeds, and checked again at normal speed. The level of specificity for all parts transcribed is one half of one DR pulse.

#### Transcription Format

The transcription format is relevant to the indigenous system of talking about gendings: complete title (form, name, tuning system and mode), indigenous names of sections within a single gending, colotomic structure, irama, tempo (given in metronome markings), type(s) of drum(s) used, balungan, and conceptualized melody (called 'lagu').

In keeping with what Hood labels the "Hipkins solution" (Hood 1971: 90-93) to musical notation of non-Western music, I have decided to use the kepatihan cipher notation system, used widely in Java, for the indication of pitch degree and register.<sup>3</sup> The choice of this system precludes the cultural biases inherent in Western notation, particularly with respect to absolute pitch and equal-tempered intervals. While this may be a hardship for some readers, it will make the data more accessible to the Javanese.

The register markings for each part are relative to the tessitura of the particular instrument or voice range. For example, a male singing 2 ('high 2') and a female singing 2 ('middle 2') are actually singing the same tone. In this way the transcription reflects the Javanese perception of register, in which they recognize the individual character of each part as well as its relation to the whole.

For the duration layout, the density referent, almost always manifested by the gambang, is chosen as a constant. The tempo of the density referent is more nearly the same in each irama than that of either the balungan or lagu beats. The choice of density referent is closer to a graphic display of real-time, than would be that of either the balungan or lagu beats as constant.

Except when there is a change of irama, a single score contains 32 DR pulses, a meaningful grouping in any irama. In irama seseg, this is two musical sentences; in irama I, one musical sentence; in iramas II and III, one gatra (measure); and in irama IV, half a gatra. A change of irama is represented by a solid vertical line at which point the eye should shift immediately to the score below: for example,

Corpus II: 2 and 3. The resultant blank space on the page does not represent any rest or pause in the music, but is necessitated by the format which assumes 32 DR pulses per score.

The meter of Javanese music, mostly duple with duple subdivisions, is not different from much of Western art, folk, and popular music. Javanese systems of notation, however, represent meter differently from standard Western notation. A grouping of four (4/4 meter) is normally notated in the West as /a b c d/a b c d/a b c d/a, with greatest stress on the first beat (a) and often secondary stress on the third (c). These same four beats with the same stress pattern would be grouped by the Javanese as a/b c d a/b c d a/b c d a/. Beat 'a' has the greatest stress (although not necessarily accented in Java in the ways Western 'stressed' beats or downbeats are) in both groupings, and beat 'c' has secondary stress. However, beat 'a' is called the fourth beat and beat 'c' the second beat in the Javanese grouping. In a grouping of beats by the Javanese system, it is the last beat and not the first which is the downbeat.

### Gambang

The gambang is played predominantly in octaves:

r.h. 5 6 5 3 2 3 1 6 5 5 5 1 1 6 1 2

l.h. 1 6 5 3 2 3 1 6 5 5 5 1 5 6 1 2

To facilitate reading, especially at high speed, and to make non-octave intervals immediately apparent, only the right-hand part is notated except where the left-hand part is something other than one octave below the right-hand part:

r.h. 5 6 5 3 2 3 1 6 5 5 5 1 1 6 1 2  
 l.h. 1 5

The system chosen conveys the same amount of information as the former, but with greater economy.

It is important to keep in mind the Javanese way of hearing the gambang part—at least the way my informants say they hear it. First, it is the left-hand part that is fundamental and 'more important' than the right-hand part. Suhardi says it should be slightly louder than the right-hand part. In vocalizing gambang passages, my informants sing the left-hand part. In cases where the left hand rests, the right-hand part is sung an octave lower, 'filling in' the rest. At this point my choice of the right-hand rather than the left-hand part for notation in full is brought into question. I experimented with the left hand notated in full and found, among those people whom I asked to read passages written both ways, that the eye actually focuses on the few notes in the part not notated in full. Since the left-hand part is the more important, it is desirable that the eye focus on the left-hand note where it differs from the usual octave relationship with the right-hand note.

Since gambang parts are rarely written out, the designation of octave register of the gambang keys is not standardized. In Chapter III and in the transcriptions I have chosen the following:

Sléndro  
 & Pélog Bem 6 1̇ 2̇ 3̇ 5̇ 6̇ 1̇ 2̇ 3̇ 5̇ 6̇ 1 2 3 5 6 1̇ 2̇ 3̇ 5̇ 6̇  
 Pélog Barang 6 7̇ 2̇ 3̇ 5̇ 6̇ 7̇ 2̇ 3̇ 5̇ 6̇ 7̇ 2 3 5 6 7 2̇ 3̇ 5̇ 6̇

Another workable possibility is the following:

Sléndro  
& Pélog Bem 6 1̇ 2̇ 3̇ 5̇ 6̇ 1 2 3 5 6 1̇ 2̇ 3̇ 5̇ 6̇ 1̇ 2̇ 3̇ 5̇ 6̇

Pélog Barang 6̇ 7̇ 2̇ 3̇ 5̇ 6̇ 7̇ 2 3 5 6 7 2̇ 3̇ 5̇ 6̇ 7̇ 2̇ 3̇ 5̇ 6̇

My choice of the former is determined by my choice of the right-hand part for notation in full, simply because it involves far fewer register dots, thereby making the transcription easier to read.

The sounding of 3̇ (using the former system) in the left hand, whether or not the right hand sounds the tone one octave higher (3), is identified by the Javanese as gambang tone 3 (middle register). In discussing the register of gambang playing, then, neither the left-hand part nor the right-hand part is discussed separately, but rather the combination of the two (i.e., the 'gambang part').<sup>4</sup>

### Balungan

Javanese cipher notation may include register markings in the balungan notation, which are intended as guidelines for playing multi-octave instruments. Since the balungan is a single-octave phenomenon in its realization, in this study it is notated as such. For Sléndro gendings, distinction is made in the realization of the balungan between 1 and 1̇, and this distinction is incorporated into the transcription. In the occasional cases of discrepancy between the balungan tone actually played and that most preferred by Suhardi, the tone most preferred is given in the transcription. The balungan part appears in the line above the gambang part.



### Colotomic Structure

The same symbols used for colotomic structure in Chapter II are used in the transcription. Although the colotomic instruments have definite pitch, it is the structure that is important here and therefore their position rather than pitch is notated. For the sake of convenience, these symbols appear above the gambang part in the same line as the balungan part, immediately following the balungan tone/beat with which they coincide.

### Lagu

The multi-octave conceptualized melody (lagu), as dictated by Suhardi, is written above the balungan/colotomic structure line, but only when different from the balungan in pitch degree or register or where there is no corresponding balungan tone. In order to avoid confusion with the balungan and to indicate the conceptual nature of the lagu, it is notated in parentheses, for example (6).

### Gendèr

The gendèr is played with two beaters, one held in each hand. Unlike the gambang, it is not played predominantly in octaves. Therefore, the parts of the left and right hands are notated in full. Usually a tone sounded by one hand is not stopped until the next tone in that hand's part is sounded. When one hand stops a tone before it sounds the next one, the symbol o is used in the transcription.

The arrangement of keys on the gendèr is as follows:

(Sléndro) 6̣ 1̣ 2̣ 3̣ 5̣ 6̣ 1̣ 2̣ 3̣ 5̣ 6̣ 1̣ 2̣ 3̣

### Rebab

The rebab is capable of producing microtonal deviations from the tones of the fixed-pitch instruments. In the gending transcribed, such deviations are not essential or meaningful ('emic'), according to Suhardi, and are therefore notated as the nearest tone in the fixed-pitch scale. (In a study devoted to rebab, such deviations should be dealt with, but the focus here is the gambang and its contexts.)

While it has been pointed out in Chapter II that the rebab has one string affixed to the instrument in such a way that two independently tunable portions are available to the player, it is, in practical terms, a two-string spike fiddle. Due to the proximity of the two strings, the fingers of the left hand, to my knowledge, always touch both strings simultaneously. Articulation, which sometimes involves bowing of both strings, is shown in the transcription with notation of only the essential tone.

The strings of the rebab are tuned to 2 and 6.

### Gérong and Pesindèn

Like the rebab part, the male vocal (gérong) and female vocal (pesindèn) parts occasionally involve microtonal deviations from the fixed-pitch scale. According to Suhardi, such deviations in the gending transcribed are not essential or meaningful ('emic'). Therefore they are notated as the nearest tone in the fixed-pitch scale.

The range of the gérong part in the gending transcribed is 6 to 3̣ (in the male tessitura). Because the range of the pesindèn part is identical, but one octave higher, it is also transcribed 6 to 3̣.

## Key to Symbols

General

- | = a change in irama.
- ⚡ = unmeasured pause (not a rest).

Gambang, Gendèr, and Balungan

- = a rest in the density of the part in which it appears.  
(Gendèr density is conceived by the Javanese to be one half the gambang density in each irama.)

Gambang

- / = right hand tone sounded slightly (perceivably, but less than one half a DR pulse) before the left hand tone.  
For example:

5 means 5 is played in the right hand slightly  
| before 1 in the left.

5 means 5 is played in the right hand slightly  
/ before 5 in the left.

- \ = left hand tone sounded slightly (perceivably, but less than one half a DR pulse) before the right hand tone.
- = delayed slightly (perceivably, but less than one half a DR pulse).
- ↘ = geter (ricochet; see Chapter III, page 85).
- [ ] = intended tone (in cases where either the player rested unintentionally or sounded a 'wrong' tone).



Colotomic Structure

- t = keṭuk  
 p = kempul  
 n = kenong  
 w = wela (colotomic rest)  
 ng = gong and kenong<sup>5</sup>

Gendèr

- o = stopping of a tone by one hand before that hand sounds the next tone.

Rebab, Gérong and Pesindèn

-  = glissando of more than one tone.
-  = tie (tone continues from one score to the next).
- ' = end of a held tone, indicating silence following the symbol until the next note.
- 2 2 = tone 2 is articulated, held, and articulated again.  
 (Tone 2 is chosen merely as an example)
- ~ = an ornament not transcribable at the chosen level of specificity (one half of one DR pulse).

Type(s) of Drum(s)

- KG = kendang gending enters.  
 KK = kendang keṭipung enters.  
 KC = kendang ciblon enters.

Tempo

4DR=ca 80 = 'Four density referent pulses occur at a rate of about eighty per minute.' (4DR is one eighth of one line, and is almost always the same as four gambang beats.)

[Faint, mostly illegible text, possibly bleed-through from the reverse side of the page]

Score 1-13	Score 3-8	Score 1
(1) 2-13	(1) 3-8	(1) 1
Score 1-13	Score 3-8	Score 1

Corpus I: Ketawang Puspawarna, Sléndro Pačet Manyura

The name 'Puspawarna' means 'types of flowers'. The text of the vocal part describes different types of flowers, which are usually considered to symbolize different types of young women. This gending is usually described as happy (gembira).

I have heard it played most often as the opening gending in the concert 'Uyon-uyon Murya Raras', broadcast live from the Pakualaman once every five Sundays.<sup>6</sup> In the context of wayang kulit I have heard it played once.

The gending is in Ketawang form with two sections: the umpak-umpak (a section characterized by singing and playing mostly in the middle and low registers and usually without gérong) and ngelik (a section characterized by singing and playing mostly in the high register and usually with gérong). After a short introduction (buka) on the rebab, the umpak-umpak, consisting of one gongan, is played twice. Near the end of the repetition of this gongan, a signal from the rebab indicates transition to the ngelik section, consisting of three gongans. This performance ends with a ritard at the end of the ngelik section. This is considered a complete performance but a short one, since it ends after only one statement (without repetition). In a more extended performance, the ngelik would be followed by the umpak-umpak (once or twice) and then the ngelik again. This flow of repetition may occur over and over until there is a ritard, signaling the ending.

As played in the transcribed example, the flow is as follows:

Buka	→	Umpak-umpak x 2	→	Ngelik x 1
(rebab only)		(1 gongan x 2)		(3 gongans x 1)
score 1		score 2-8		score 9-20

Ketawang Puspawarna, Sléndro Paṭet Manyura

Buka

Lagu	1	4DR=ca 60 ritardando										(6)	
Balungan & Colotomic Structure												6ng	
Gambang												6	
Gendèr	r.h.											6	
	l.h.											6	
Rebab.		6	12	3	32	12	1	212	3	3	2	1621	6
Pesindèn													
Gérong													

Umpak-umpak

Lg	2	4DR=ca 70 ritardando										(1)	
B&C		(1)	(2)	(1)	(3)	(3)	(2)	(3)	(1)				
		-	2t	-	3w	-	2t	-	ln				
Gmb		6	1 6	1 2 6	1 2 2	1 2 1 6	1 2 3 5 6	3 2 1 2 6	5 3 3 3 6	6 5 6	1		
		-			6					3			
Gnd		3 o	- 5 o 6	i - 5 6	i 6	- 5 6	2 6	i 2	-				
		- 2 o	1 o 2	3 1 6	3 - 21 6	- 2 - 3o2	1 3 2 1						
Reb		6	2 2	2	323	3	32 12	2 12	1 212	1			
		irama I											

Lg	3	4DR=ca 80 ritardando										(2)	
B&C		(3)	(3)	(2)	(2)								
		-	3t	-	2p								
Gmb		- 1 6	2 2	1 2 3 3 5	2 1 6 2	1 6 6 1 6	1 2 3 5 6	5 6 5 3 2	6 1 2				
		2	6			-		1					
Gnd		6 -	5 6	i 5 6	i 6	i 2	i 3	i 2	i 6				
		- 2 6	3 - 1 2	6 - 1 6	1 2	1 o 2 o 2							
Reb		1	1 2	32 3	3	2 12	2 3	2 12	2				
		irama II											

Lg	(3)			(1)			(2)			(6)																									
B&C	-			1t			-			6ng																									
Gmb	6	i	i	i	6	2	i	6	5	6	3	2	1	3	2	1	1	2	1	2	2	6	5	3	3	5	3	5	6	2	1	6			
Gnd	5	-	3	5	-	3	5	6	5	i	5	6	5	i	5	6	i	6																	
Reb	2	3	1	2	1			2	1	2	1												2	1	6	2									
Psd	3			3			3			3			53'2			2			12'21			'			3			3							
	jar-wa			purwa			tung-gal			ba-sa			ne-			bos			ka-																

5/4DR=ca 80

Lg	(1)			(2)			(1)			(3)																									
B&C	-			2t			-			3w																									
Gmb	6	1	6	1	1	6	6	1	1	2	2	1	2	6	1	2	2	1	2	3	5	3	5	6	5	i	6	5	3	1	2	3			
Gnd	3	o	-	3	o	6	5	3	5	6	2	3	2	6	2	3	2	6	2	3	2	i	6	2	3	2	i	6	5	3	1	2	3		
Reb	6	1		6	1			2	1	2	2	3	2	3	3																				
Psd	1	2		323216																			61	2											
	ra									éma-			né			dé-			wé																

6

Lg	(3)			(2)			(3)			(1)																									
B&C	-			2t			-			1n																									
Gmb	6	6	6	2	2	i	2	3	3	3	2	i	3	2	6	3	5	6	3	2	1	2	6	5	3	3	3	6	6	5	6	1			
Gnd	5	6	5	i	5	6	i	6	2	3	2	-	i	2	3	2	i	6	2	3	1														
Reb	3		2	12	2	2	3	2	12	2													121		121										
Psd	3																						2	3											
	a-			mi-			wi-																												



7

Lg	(3)	(3)	(2)	(2)
B&C	-	3t	-	2p
Gmb	- 1 6 2 2 1 2 3 3 5 2 1 6 2 1 6 6 1 6 1 2 3 5 6 5 6 5 3 2 6 1 2			
Gnd	6 - 5 6 i 5 6 i 6 i o 6 i 2 - i 6 i 6			
Reb	1 1 2 3 2 3 12 6			
Psd	121 ' 1 ti			

8

Lg	(6)	(2)	(1)	(6)
B&C	-	lt	-	6ng
Gmb	6 6 6 1 2 3 5 6 6 i 6 i 2 2 i 2 2 3 2 i 6 i 5 3 3 5 3 5 6 3 5 6			
Gnd	i o 6 i 6 1 o 6 i 2 - 3 - 2 - 3 - 2 i 6			
Reb	6 i 2 i 2 i 2 6 6 i 2 i 2 2 3 2 i 6 i 6			
Psd	2 2 3 2 i 2 3 i 2 i 2 ' 6 5			
	sen- don- sin de- n ing pra-			

Ngelik

9

Lg	(6)	(6)	(6)	(2)
B&C	-	-t	6	-w
Gmb	6 5 6 3 5 6 5 6 6 i 6 3 5 6 5 6 i 2 i 6 i 2 i 6 6 i 6 6 i 6 i			
Gnd	- i o 6 i 6 - i o 6 i 6 i - 6 i 2 - i 6 i 6			
Reb	6 6 6 i 2 i 2 2 2 2			
Psd	65' 3 6 6 dang- ga			



	12		(6)		(6)		(5)		(3)
Lg			i		6t		5		3ng
B&C									
Gmb		5 3 5 3 2 2 2 5 5 3 5 6 5 6 5 6 i 2 6 5 3 5 2 1 6 6 6 2 2 1 2 3							
		2	-	2	1		-	6	
Gnd		5 6 5 2 5 6 5 3 2 - 1 2 5 2 3 5 3							
		- 2 3 5 0 5 - 2 3 5 3 5 6 - 5 3 2 1 2 0 2 3 0 3 -							
Reb		5 6 3 5 3 35 656 6 56 i 6 5 3 5 3							
Psd		6 6 6 2 i 2i 2 ' 6 ' 6 '							
		ka- car- yan ang- gung ci-							
Gér		5 ' 6 6 i 2 6 i 65 ' 3							
		gung ci- na- tur							

	13		(6)		(i)		(3)		(2)
Lg			-		-t		3		2w
B&C									
Gmb		3 3 3 5 6 3 5 6 6 5 6 5 6 5 6 i 6 i 6 2 2 i 2 3 3 3 6 i 2 6 i 2							
		-	3	3	2	6			
Gnd		6 5 6 3 6 - 56 i 6 - 56 i 2 - i 2 6							
		5 6 0 6 - - 2 6 1 - 2 6 3 - 23 0 5 2							
Reb		3 3 6 i2i 22i2 6 i i							
Psd		6 5 35 3 3 3							
		na- tur							
Gér		3 ' 6 i 2							
		sè- det							

14	Lg	(6)	(3)	(2)	(1)
B&C		6	3t	2	ln
Gmb		6, 6 6 2 2 i 2 3 3 3 2 3 2 i 6 3 5 6 3 2 1 2 6 5 3 3 3 6 6 5 6 1			
Gnd		5 - 5 6 5 i 5 3 6 i 6 3 6 5 6 i			
Reb		- 1 6 1 2 1 6 o 6 - 3 5 6 o 6 - 2 6 2 1 6 1			
Psd		i 2 i 2 i 2 2 3 ' 6 3 ' 2 12 1 21 6 2 1 2 1			
Gér		2 i 3 2 3 ' i 2 6 3 ' 3 5 3 2 1			
			kang sa- det kang sa-		ri- ra

15	Lg	(3)	(3)	(2)	(2)
B&C		-	3t	-	2p
Gmb		- 1 6 2 2 1 2 3 3 5 2 1 6 2 1 6 6 1 6 1 2 3 5 6 5 6 5 3 2 6 1 2			
Gnd		6 - 5 6 i 5 6 i 6 i 2 i 3 i 2 i 6			
Reb		- 2 6 3 - 21 6 2 1 6 1 6 1 6 1 2 1 2 6 1 2			
Psd		1 1 232 323 323 2 12 2 3 2 12 2			
Gér		3 3 53235 653 2 121 1			
		ri- ra			gan- des

16	Lg	(3)	(1)	(2)	(6)
	B&C	-	lt	-	6ng
	Gmb	6 i i i 6 6 5 5 i 6 3 2 1 3 2 1 1 2 1 2 2 6 5 3 3 5 3 5 6 2 1 6			
		[6]	3	1	-
	Gnd	5 - 3 5 - 3 5 6 5 i 5 6 5 i 5 6 i 6			
		- 1 6 5 6 1 6 5 6 3 5 5 3 5 6 1 6 2 1 6			
	Reb	2 3 1 2 1 2 12 1 21 6.2 1 21 6			
	Psd	3 3 3 5 6 5 6 3 3 1			
		gan- des ing wi- ra-			
	Gér	2 ' 3 5 3 1 2 12 16 1 ' 6			
		ing wi- ra- ga			

17	Lg	(1)	(2)	(1)	(3)
	B&C	-	2t	-	3w
	Gmb	6 1 6 1 2 3 5 6 5 6 5 3 2 6 1 2 2 1 2 3 5 3 5 6 5 i 6 5 3 1 [2] 3			
		1	6	2	7
	Gnd	i o 6 i 2 - i - 6 i 6 2 i 2 6 2 3 2 i			
		1 6 1 6 1 2 1 o 2 1 2 - 3 5 o 5 o - 2 5 3 5 6 3			
	Reb	6 1 21 6 1 21 2 2 12 6'3 35			
	Psd	3 3 2 1 2 1 6			
		ga			
	Gér	6 ' 3 6 5 6 3			
		ke- wes			

18

Lg	(3)	(2)	(3)	(1)
B&C	-	2t	-	ln
Gmb	6 6 6 2 2 i 2 3 3 3 2 i 3 2 6 3 5 6 3 2 1 2 6 5 3 3 3 6 6 5 6 1			
Gnd	5 6 5 3 6 5 6 3 6 i 6 2 6 i 2 i			
Reb	65 6 i6 i 6i 3 ' 2 12 1 21 62 1 2 12 1			
Psd		6 i 2i 2 6 3		
Gér	3	kè- wes yèn ngan-	yèn ngan- di-	5 3 2 1 ka

19

Lg	(3)	ritardando (3)	(2)	(2)
B&C	-	3t	-	2p
Gmb	1 1 6 2 2 1 2 3 3 5 2 1 6 2 1 6 6 1 6 1 1 6 6 1 1 2 2 1 2 6 1 2			
Gnd	6 o 6 - 5 6 i 5 6 i 6 i 2 i 3 i 2 i i 6			
Reb	1 12 3 23 323 2 12 2 3 2 12 2			
Psd	3 1 3 3212 1			
Gér	1	di- ka	a-	3 5 2 nga-



Corpus II: Gending Gambir Sawit, Keçuk 2 Kerep,  
Ndawah Keçuk 4, Sléndro Paçet Sanga

The name 'Gambir Sawit' is also the name of a type of decorative pattern used in baçik (a process of dyeing cloth). Gambir is a plant from which betel leaves are picked for chewing. Sawit is a type of baçik garment with matching headdress, according to Horne (1974:530). The meaning of these two words together is not known, nor does there seem to be any explanation why this gending was given its name. This gending is generally described as *pernès* (light hearted; appealing).

During the year I spent in Java I heard this gending played once during a wayang kulit performance and several times at the weekly broadcast ('Uyon-uyon Mana Suka') by R.R.I. in Jogjakarta.<sup>7</sup> It was also frequently played by many amateur groups I witnessed. Although I have no statistics to prove it, I feel certain that this is one of the most popular of all Javanese gendings--an uyon-uyon gending par excellence.

The gending is in 'Gending Keçuk 2 Kerep, Ndawah Keçuk 4' form with two major sections (*mérong* and *ndawah*) bridged by a transitional passage (*pangkat ndawah*). The *mérong* consists of one gongan and is played two and a half times, with the *pangkat ndawah* leading to the completing of the gongan. The *ndawah* consists of one gongan and is played twice. A *ritard* preceded by an *accelerando* during the final gongan signals the end. This is considered a complete performance, although there could have been more statements of the *mérong* and *ndawah*. The *pangkat ndawah* can only be played once. Once the *pangkat ndawah* is begun, the *mérong* cannot be played again. Thus, unlike



gendings in Ketawang form, in which the first section (umpak-umpak) can be played after the second section (ngelik), in 'Gending Keṭuk 2 Kerep, Nḍawah Keṭuk 4' form the nḍawah cannot be followed by the mérong. The transcription excludes the buka, since it would normally be played by the rebab. As played in the transcribed example, the flow is as follows:

Mérong x 2½      +    Pangkat Nḍawah x 1    +    Nḍawah x 2  
 (1 gongan x 2½)    (½ gongan x 1)            (1 gongan x 2)  
 score 1-37                      score 38-44                      score 45-104

Handwritten musical notation for the first section, including a staff with notes and a sequence of numbers: (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37).

Handwritten musical notation for the second section, including a staff with notes and a sequence of numbers: (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44).

Handwritten musical notation for the third section, including a staff with notes and a sequence of numbers: (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100) (101) (102) (103) (104).

Gending Gambir Sawit, Keçuk 2 Kerep, Ndawah Keçuk 4,  
Sléndro Paçet Sanga

Lagu

Balungan and Colotomic Structure

Gambang

(5)

5ng

5

KG

Mérong

	2/	4DR=ca 72 ritardando										4DR=ca 45									
Lg		(5)	(3)	(5)	(2)	(2)	(3)	(5)	(6)	(2)	(2)										
B&C		-	3	5	2t	-	3	5	6w	2	2										
Gmb		-	5	5	3	3	5	5	2	2	2	2	3	3	5	5	6	2	2	2	2
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		irama seseg																			

	3/	4DR=ca 90 ritardando																								
Lg		(2)	(2)	(2)	(3)	(2)	(1)																			
B&C		-	-t	2	3	2	1n																			
Gmb		2	3	1	6	5	1	6	5	5	6	5	6	1	2	3	5	5	6	5	2	1	5	6	1	
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		irama I																								

	4/	4DR=ca 44																															
Lg		(1)	(1)	(3)	(2)	(2)	(1)	(2)	(6)																								
B&C		-	-	3	2t	-	1	2	6w																								
Gmb		1	6	1	5	6	1	6	1	1	6	1	6	1	6	1	2	3	5	2	1	6	1	5	3	2	2	2	5	5	3	5	6
		5					2	5		5																							

	5/	4DR=ca 88 ritardando																															
Lg		(2)	(2)	(2)	(5)																												
B&C		2	2	-	-t																												
Gmb		-	6	5	1	1	6	1	2	2	-	2	1	2	6	1	2	2	1	2	6	1	2	1	2	2	3	1	6	5	1	6	5
		1			5																												
		irama II																															

6  
 Lg (2) (3) (2) (1)  
 B&C 2 3 2 ln  
 Gmb 5 6 5 6 1 2 3 5 5 5 5 5 3 2 5 3 3 5 3 2 1 2 6 5 5 6 5 6 1 5 6 1  
 -

7  
 Lg (1) (1) (3) (2)  
 B&C - - 3 2t  
 Gmb 1 6 1 5 6 1 6 1 1 6 1 5 6 1 6 1 1 6 1 2 3 2 3 5 5 6 5 3 2 6 1 2  
 5 2 5 2 5 1

8  
 Lg (5) (i) (6) (5)  
 B&C - 1 6 5w  
 Gmb 2 1 2 3 5 2 3 5 5 3 5 6 1 5 6 i i 2 i 6 5 6 3 2 2 3 2 3 5 2 3 5  
 6 2

9  
 Lg (i) (2) (i) (6)  
 B&C - - 5 6t  
 Gmb 5 3 5 5 5 6 5 5 5 6 5 i i 6 i 2 2 3 2 i 6 i 5 3 2 2 2 5 5 3 5 6  
 2 1 - 1 5 2

10  
 Lg (i) (6) (5) (3)  
 B&C 1 6 5 3n  
 Gmb - 6 5 6 i 6 i 2 2 6 5 3 5 3 5 6 6 i 6 5 3 5 2 1 1 2 1 2 3 1 2 3  
 1 [6] 1 2 2 -

11

Lg	(2)	(2)	(2)	(5)
B&C	2	2	-	3t
Gmb	3 5 3 5 5 2 1 2 2 1 2 6 1 2 1 2 2 3 2 3 5 6 i 2 2 2 i 6 5 i 6 5			
	6	3	6	3

12

Lg	(5)	(3)	(2)	(1)
B&C	5	3	2	lw
Gmb	2 2 2 2 i i 6 6 2 2 3 i 6 i 5 2 3 5 2 3 3 1 6 5 5 6 5 6 1 5 6 1			
		2	-	

13

Lg	(3)	(5)	(3)	(2)
B&C	3	-	1	2t
Gmb	[1] 6 1 2 3 1 2 3 3 2 3 2 3 2 3 5 5 6 5 3 2 3 1 6 5 5 5 1 1 6 1 2			
	5	1	1	5

14

Lg	(2)	(1)	(6)	(5)
B&C	-	1	6	5ng
Gmb	2 1 2 6 1 2 1 2 2 3 2 3 3 1 6 1 1 2 1 6 5 6 3 2 2 3 2 3 5 2 3 5			
	6	3	5	2

ritardando 4DR=ca 52

15 4DR=ca 63 steady

Lg	(5)	(2)	(2)	(5)
B&C	-	-	5	5t
Gmb	5 5 5 3 5 2 3 5 5 3 5 6 1 6 1 2 2 3 1 6 5 6 3 2 2 3 2 3 5 2 3 5			
	-	-	-	-

16  
 Lg (1) (2) (1) (6)  
 B&C 2 3 5 6w  
 Gmb 5 3 5 6 1 6 5 1 1 6 1 2 1 2 1 2 3 5 2 1 6 1 5 3 2 2 2 5 5 3 5 6  
 2 5 3

17  
 Lg (2) (2) (2) (5)  
 B&C 2 2 - -t  
 Gmb 6 6 5 5 5 6 1 2 2 1 2 6 1 2 1 2 2 3 1 6 5 6 3 2 2 3 2 3 5 1 6 5  
 1 - 3 -

18  
 Lg (2) (3) (2) (1)  
 B&C 2 3 2 1n  
 Gmb 5 6 5 1 1 6 1 2 3 5 5 5 3 3 2 3 3 5 3 2 1 2 6 5 5 6 5 6 1 5 6 1  
 1 5 6

19  
 Lg (1) (1) (3) (2)  
 B&C - - 3 2t  
 Gmb 1 6 1 5 6 1 6 [1] 1 6 1 2 1 2 1 5 5 2 1 2 2 2 3 5 5 6 5 3 2 6 1 2  
 5 2 1 5 3 - 3 1 1

20  
 Lg (2) (1) (2) (6)  
 B&C - 1 2 6w  
 Gmb 2 1 2 6 1 2 1 2 2 3 2 3 3 1 6 1 5 5 5 1 1 6 1 2 2 6 5 3 2 3 5 6  
 6 3 5 2 5 1

21  
 Lg (2) (2) (2) (5)  
 B&C 2 2 - -t  
 Gmb 6 6 5 5 5 6 1 2 2 1 2 6 1 2 1 2 2 3 2 3 5 6 i 2 2 2 i 6 5 i 6 5  
 1 3

22  
 Lg (2) (3) (2) (1)  
 B&C 2 3 2 ln  
 Gmb 2 2 2 2 i i 6 i 5 5 - 3 3 1 6 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1  
 6 2 2 6

23  
 Lg (1) (1) (3) (2)  
 B&C - - 3 2t  
 Gmb 1 6 1 5 6 1 6 1 1 6 1 2 3 2 1 5 5 6 5 3 2 3 1 6 5 5 5 1 1 6 1 2  
 5 2 5 - - 5

24  
 Lg (5) (i) (6) (5)  
 B&C - 1 6 5w  
 Gmb 2 1 2 3 5 2 3 5 5 3 5 6 i 6 2 i i 2 i 6 5 6 3 2 2 3 2 3 5 2 3 5  
 6 2

25  
 Lg (i) (2) (i) (6)  
 B&C - - 5 6t  
 Gmb 5 3 5 5 5 6 5 5 5 5 5 i i 6 i 2 2 3 2 i 6 i 5 3 2 2 2 5 5 3 5 6  
 2 - 1 - - 2 2

26

Lg		(i)		(6)		(5)		(3)
B&C		1		6		5		3n
Gmb	-	6 5 6 i i 6 i i 2 i 2 2 6 5 6 6 i 6 5 3 5 2 1 1 2 1 2 3 1 2 3						
	1	-	3	1				

27

Lg		(2)		(2)		(2)		(5)
B&C		2		2		-		3t
Gmb	3 5 3 5 3 3 1 2 2 6 5 5 5 6 1 2 2 1 2 3 5 6							
	6	2	1	-	6	1	2	

28

Lg		(5)		(3)		(2)		(1)
B&C		5		3		2		1w
Gmb	2 2 2 2 i i 6 i 5 5 - 3 3 1 6 5 5 6 5 6 6 5 5 6 6 1 1 6 1 5 6 1							
		6 2	2			-	-	-

29

Lg		(3)		(5)		(3)		(2)
B&C		3		-		1		2t
Gmb	1 6 1 2 3 1 2 3 3 2 3 5 3 5 3 5 5 6 5 3 2 3 1 6 5 5 5 1 1 6 1 2							
	5		1	6	1			5

30

Lg		(2)		(1)		ritardando 4DR=ca 42		(5)
B&C		-		1		(6)		5ng
Gmb	2 1 2 3 2 3 2 3 2 5 3 2 1 5 6 1 1 2 1 6 5 6 3 2 2 3 2 3 5 1 6							
	6	5	6					5

31 4DR=ca 63

Lg	(5)	(2)	(2)	(5)
B&C	-	-	5	5t
Gmb	5 5 5 3 5 2 3 5 5 3 5 2 3 5 3 5 5 5 5 1 1 6 1 2 2 3 1 6 5 2 3 5	2	6	5

32 *accelerando*

Lg	(1)	(2)	(1)	(6)
B&C	2	3	5	6w
Gmb	5 6 5 3 2 2 2 2 2 2 2 3 5 6 1 2 2 3 2 1 6 1 5 3 2 2 2 5 5 3 5 6	1	2	5

33

Lg	(2)	(2)	(2)	(5)
B&C	2	2	-	-t
Gmb	- 6 5 1 1 6 1 2 2 1 2 6 1 2 1 2 2 3 2 1 5 6 1 2 2 3 1 6 5 1 6 5	1	3	5

34

Lg	(2)	(3)	(2)	(1)
B&C	2	3	2	ln
Gmb	5 6 5 6 1 2 3 5 5 5 5 5 3 3 2 3 2 5 3 2 1 2 6 5 5 6 5 6 1 5 6 1	6	6	1

35 4DR=ca 91

Lg	(1)	(1)
B&C	-	-
Gmb	- 6 1 5 6 1 6 1 - 6 1 5 6 1 6 1	2 5 [6] 2



36  
 Lg 4DR=ca 45 accelerando  
 (3) (2) (2) (1) (2) (6)  
 B&C 3 2t - 1 2 6w  
 Gmb 5 5 5 1 1 6 1 2 2 3 2 1 6 1 5 3 2 2 2 5 5 3 5 6  
 - - - - -  
 irama I

37  
 Lg 4DR=ca 76 steady  
 (2) (2) (2) (2) (2) (3) (2) (1)  
 B&C 2 2 - -t 2 3 2 1n  
 Gmb - 6 5 1 1 6 1 2 2 3 1 6 5 1 6 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1  
 1 5 6

Pangkat Ndawah  
 38  
 Lg (2) (2) (1) (1) (6) (6) (5) (5)  
 B&C - 2 - 1t - 6 - 5w  
 Gmb 1 6 1 2 3 2 1 2 2 3 2 3 3 1 6 1 1 2 1 6 5 6 3 2 2 3 2 3 5 2 3 5  
 5 2 - 2 5 2

39  
 Lg ritardando  
 (6) (6) (5) (5) (3) (3) (2) (2)  
 B&C - 6 - 5t - 3 - 2n  
 Gmb 5 3 5 6 1 6 1 2 2 3 2 3 5 2 3 5 3 6 5 3 2 3 1 6 5 5 5 5 5 6 1 2  
 2 1

40  
 Lg 4DR=ca 42  
 (6) (6) (5) (5) (2) (2)  
 B&C - 6 - 5t - 2  
 Gmb 2 2 2 3 5 6 i 2 2 2 i 6 5 i 6 5 2 2 6 i 5 6 5 2



46  
 Lg (2) (1) (6) (5)  
 B&C - 5w  
 Gmb 6 6 5 1 1 6 1 2 2 3 2 3 3 1 6 1 1 2 1 6 5 6 3 2 2 3 2 3 5 1 6 5  
 1 5 5 2

47 4DR=ca 64 steady  
 Lg (1) (1) (2) (1)  
 B&C - 1t  
 Gmb 5 6 5 6 1 5 6 1 1 6 1 5 6 1 6 1 1 2 6 5 5 6 5 6 6 1 1 6 1 5 6 1  
 - 5 2 - -

48  
 Lg (3) (2) (1) (6)  
 B&C - 6w  
 Gmb 5 5 5 i i 6 i 2 2 2 i 2 i 6 5 2 3 5 2 6 5 6 5 2 2 6 5 3 5 3 5 6  
 1 1 2

49  
 Lg (1) (5) (2) (1)  
 B&C - 1t  
 Gmb 6 6 1 2 2 6 1 2 5 2 3 5 3 2 3 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1  
 1 [5] - 5 - 6 -

50  
 Lg (3) (2) (1) (6)  
 B&C - 6w  
 Gmb 1 6 1 2 2 6 1 2 5 6 i [2] i 6 5 2 3 5 2 6 5 6 5 2 2 6 5 5 5 3 5 6  
 5 5 5 2 1 - 1 - 2



56  
 Lg (5) (2) (1) (6)  
 B&C - 6w  
 Gmb 2 2 2 2 i 3 2 i 6 i 5 2 i 5 3 2 3 5 2 6 5 6 5 2 2 6 5 5 5 3 5 6  
 1 1 - 2

57  
 Lg (1) (5) (2) (1)  
 B&C - 1t  
 Gmb 6 6 5 1 1 6 1 2 2 3 1 6 5 2 3 5 2 2 i i 5 5 2 2 5 2 5 6 5 6 5 1  
 1 6 5 1 2 1 -

58  
 Lg (3) (2) (1) (6)  
 B&C - 6w  
 Gmb 1 6 1 6 1 6 1 2 5 6 5 2 i 6 5 2 3 5 2 6 5 6 5 2 2 6 5 3 5 3 5 6  
 5 5 1 1 2

59  
 Lg (2) (2) (2) (6)  
 B&C - 2t  
 Gmb 6 6 5 1 1 6 1 2 2 1 2 6 1 2 1 2 2 3 5 6 i 6 5 i i 6 i 2 2 2 2 2  
 1 5 3 5

60  
 Lg (5) (3) (2) (1)  
 B&C - 1n  
 Gmb i i 6 6 2 2 3 i 6 i 5 2 3 5 3 5 3 2 2 3 3 1 6 5 5 2 5 6 5 - 5 1  
 6 5 2 1 2 1 -

61  
 Lg (2) (1) (3) (2)  
 B&C - 2t  
 Gmb 1 6 1 2 1 2 1 5 5 2 1 2 1 2 1 5 5 2 1 2 1 2 1 6 5 2 3 5 3 2 3 5  
 5 3 - 3 3 - 3 3

62  
 Lg (5) (3) (2) (1)  
 B&C - 1w  
 Gmb - 6 5 6 1 2 3 5 5 2 2 3 3 1 6 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1  
 1 3 5 2 - 6

63  
 Lg (5) (2) (i) (6)  
 B&C - 6t  
 Gmb 5 5 5 6 1 2 3 5 5 5 5 i i 6 i 2 2 3 2 i 6 i 5 3 2 2 2 2 2 3 5 6  
 -

64  
 Lg (2) (i) (6) (5)  
 B&C - 5w  
 Gmb 5 6 5 i i 6 [i] 2 2 3 2 3 3 i 6 i i 2 i 6 5 6 3 2 2 3 2 3 5 i 6 5  
 1 5 1 5 2

65  
 Lg (i) (i) (2) (i)  
 B&C - 1t  
 Gmb 5 2 5 6 5 6 5 i 5 6 i 5 6 i 6 i i 2 6 5 5 6 5 6 6 i i 6 i 5 6 i  
 6 1 2 1 - 2

66  
 Lg (3̇) (2̇) (i) (6)  
 B&C - 6w  
 Gmb i 6 i 6 i 6 i 2 3 5 3 2 3 6 i 2 2 3 2 i 6 i 5 3 2 2 2 2 2 3 5 6  
 5 5 [5]

67  
 Lg (2̇) (i) (5) (3)  
 B&C - 3t  
 Gmb 5 6 5 i - 6 i 2 2 2 5 6 i 5 6 i i 6 2 i 5 3 2 1 1 2 1 2 3 1 2 3  
 1 5 [1]

68  
 Lg (6) (5) (3) (2)  
 B&C - 2n  
 Gmb 3 2 3 2 3 2 3 5 6 i i 6 5 2 3 5 5 6 5 3 2 3 1 6 5 5 5 1 1 6 1 2  
 1 1 - 1 5

69  
 Lg (6) (6) (6) (6)  
 B&C - 6t  
 Gmb 6 6 6 1 2 3 5 6 5 6 5 3 5 3 5 6 i 2 i 2 2 6 5 3 5 3 5 3 5 3 5 6  
 1 2 3 1 2 2

70  
 Lg (2̇) (i) (6) (5)  
 B&C - 5w  
 Gmb 5 6 5 i i 6 i 2 2 3 2 3 3 i 6 i i 2 i 6 5 6 3 2 2 3 2 3 5 i 6 5  
 1 5 5 2

71  
 Lg (2) (2) (2) (6)  
 B&C - 2t  
 Gmb 5 6 5 5 5 6 5 i i 6 i 6 5 6 i 2 2 i 2 6 i 2 i 2 2 6 5 3 5 3 5 6  
 1 - 1 5 [2] 3 1 ?

72  
 Lg (5) (3) (2) (1)  
 B&C - lw  
 Gmb i 6 5 2 2 2 3 i 6 6 2 i 6 i 5 2 3 5 2 3 3 1 6 5 5 2 5 6 5 - 5 1  
 2 - - 1 2 1 -

73  
 Lg (2) (1) (3) (2)  
 B&C - 2t  
 Gmb 1 6 1 2 1 2 1 5 6 2 1 2 1 2 1 5 5 2 1 2 1 2 1 6 5 2 3 5 3 2 3 5  
 5 3 - 3 3 - 3 5

74  
 Lg (5) (3) (2) (1)  
 B&C - lw  
 Gmb 5 6 5 1 1 6 1 2 3 5 1 6 5 2 3 5 5 2 2 3 2 1 6 5 5 2 5 6 5 - 5 1  
 1 5 3 5 - 1 2 1 -

75  
 Lg (3) (2) (1) (6)  
 B&C - 6t  
 Gmb 1 6 1 6 1 6 1 2 2 6 1 2 2 6 1 2 5 6 5 i 6 5 2 6 6 6 5 3 5 2 1 6  
 5 5 1 5 6 5



76  
 Lg (2) (1) (6) (5)  
 B&C - 5ng  
 Gmb 5 1 1 6 1 2 3 5 3 5 3 2 1 5 6 1 1 2 1 6 5 6 3 2 2 3 2 3 5 1 6 5  
 5 6 6 3

77  
 Lg (1) (2) (1) (6)  
 B&C - 6t  
 Gmb 5 6 5 1 1 6 1 2 5 6 5 2 1 6 5 2 3 5 2 6 5 6 5 2 2 6 5 3 5 3 5 6  
 1 5 1 2

78  
 Lg (2) (1) (6) (5)  
 B&C - 5w  
 Gmb - [6] 5 6 1 2 3 5 3 5 3 2 1 5 6 1 1 2 1 - - 6 3 2 2 3 2 3 5 2 [3] 5  
 1 6 6 6 3 6 5 3

79  
 Lg (1) (1) (2) (1)  
 B&C - 1t  
 Gmb 5 6 5 2 1 5 6 1 5 6 1 6 1 [2] 3 5 5 6 5 2 1 2 6 5 5 6 5 6 1 5 6 1  
 [2] 2 - 3 -

80  
 Lg (3) (2) (1) (6)  
 B&C - 6w  
 Gmb 5 5 5 i i 6 i 2 2 2 i 2 i 6 5 2 3 5 2 6 5 6 5 2 2 6 5 3 5 3 5 6  
 1 1 2

81  
 Lg (1) (5) (2) (1)  
 B&C - 1t  
 Gmb 6 6 1 2 2 6 1 2 5 2 3 5 3 2 3 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1  
 1 5 6 5 6

82  
 Lg (3) (2) (1) (6)  
 B&C - 6w  
 Gmb 1 6 1 6 1 6 1 2 5 6 i 2 i 6 5 2 3 5 2 1 6 1 5 3 5 3 5 3 5 3 5 6  
 5 5 [5] 2 2

83  
 Lg (2) (2) (2) (6)  
 B&C - 2t  
 Gmb 5 6 1 2 2 6 1 2 2 1 2 6 1 2 1 2 2 3 5 6 i 6 5 2 2 2 2 2 i i 6 6  
 1 5 6 5 3

84  
 Lg (5) (3) (2) (1)  
 B&C - 1n  
 Gmb 2 2 2 2 i 3 2 i 6 i 5 2 1 2 6 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1  
 - 6 6

85  
 Lg (2) (1) (3) (2)  
 B&C - 2t  
 Gmb 1 6 1 2 3 2 1 [5 5] 2 1 2 1 2 1 5 5 2 1 2 1 2 1 6 5 2 3 5 3 2 3 5  
 5 5 3 3 - 3 3

86

Lg	(5)	(3)	(2)	(1)
B&C		-		1w
Gmb	3 6 5 1 1 6 1 2 3 5 5 6 5 i 6 5 5 2 2 3 3 1 6 5 5 6 5 6 1 5 6 1			
	<u>1</u>	<u>2</u>	<u>3</u> <u>5</u> <u>2</u>	-

87

Lg	(5)	(6)	(2)	(i)
B&C		-		2t
Gmb	5 6 1 5 6 1 6 1 5 5 3 5 5 3 5 6 6 6 5 i i 6 i 6 5 5 5 i i 6 i 2			
	<u>2</u>	<u>5</u> <u>2</u>	<u>5</u>	

88

Lg	(5)	(2)	(1)	(6)
B&C		-		6w
Gmb	2 2 2 2 i 3 2 i 6 i 6 2 i 6 5 2 2 3 5 6 5 6 5 2 2 6 5 5 5 3 5 6			
			1 1	- <u>2</u>

89

Lg	(1)	(5)	(2)	(1)
B&C		-		1t
Gmb	6 6 5 1 1 6 [1] 2 2 3 5 6 5 i 6 5 2 2 3 i 6 i 5 2 1 2 5 2 5 6 5 1			
	<u>1</u>	<u>5</u> <u>1</u>	<u>2</u> <u>2</u>	- <u>1</u> -

90

Lg	(3)	(2)	(1)	(6)
B&C		-		6w
Gmb	1 6 1 6 1 6 1 2 2 6 1 2 2 6 1 2 3 5 2 6 5 6 5 2 2 6 5 5 5 3 5 6			
	<u>5</u>	<u>5</u> <u>1</u> <u>5</u> <u>6</u> <u>5</u>	<u>1</u> <u>6</u>	- <u>2</u>

91 *accelerando* 4DR=ca 84

Lg (2) (2) (2) (6)

B&C - 2t

Gmb 6 6 5 1 1 6 1 2 2 2 2 1 2 6 1 2 2 3 2 3 5 6 i 2 2 6 5 3 5 3 5 6  
 1 5 1 2

92 *ritardando* 4DR=ca 76

Lg (5) (3) (2) (1)

B&C - 1n

Gmb - 6 5 2 2 2 2 2 i i 6 i 5 2 3 5 3 2 2 3 3 1 6 5 5 6 5 2 1 5 6 1  
 1 5 2

93

Lg (2) (1) (3) (2)

B&C - 2t

Gmb 5 6 1 5 6 1 6 1 1 6 1 2 1 2 1 5 5 2 1 2 1 2 1 6 5 2 3 5 3 2 3 5  
 2 5 3 - 3 3

94 *accelerando*

Lg (5) (3) (2) (1)

B&C - 1w

Gmb - 6 - 1 1 6 1 2 3 5 5 6 5 i 6 5 5 2 2 3 3 1 6 5 5 6 5 6 1 5 6 1  
 1 - 5 5 3 5 2

95

Lg (5) (2) (i) (6)

B&C - 6t

Gmb 5 5 5 6 1 2 2 5 5 5 5 i i 6 i 2 - 6 5 5 5 6 5 3 2 2 2 5 - 3 5 6  
 - 3 1 - 1 - 2

96  
 Lg (2) (i) (6) 4DR=ca 92 (5)  
 B&C - 5w  
 Gmb - 6 5 i - 6 i 2 - 3 2 3 2 i 6 i i 2 1 6 5 6 3 2 2 3 2 3 5 2 2 5  
 1 5 5 [3] [5] 3

97  
 Lg (i) (i) (2) (i)  
 B&C - lt  
 Gmb 5 6 5 6 i 5 6 i 5 6 i 5 6 i - i i 2 6 5 5 6 5 6 6 i i 6 i 5 6 i  
 - - 2 [1 1]

98 4DR=ca 108  
 Lg (3) (2)  
 B&C -  
 Gmb - 6 i 6 - 6 - 2 - 6 - 2 - 2 - 2  
 5 [6] [5] - 5 - 5 - 5 1 1

99 4DR=ca 63  
 Lg accelerando (6)  
 B&C 6w  
 Gmb - 6 5 3 5 3 - 6  
 [1] - 2 5  
 irama II

100 4DR=ca 96  
 Lg (i) (3) (5) (2)  
 B&C - 3 - 2n  
 Gmb 6 6 6 5 5 6 6 i i i 5 2 3 1 2 3 - 5 3 5 - 2 1 6 5 5 5 1 [1] 6 1 2  
 6 6 3 - - 5 [2]  
 KG

101

Lg	(6)	(6)	(i)	(5)
B&C	-	6t		5w
Gmb	2 2 2 5 3 5 3 5 3 5 6 6 5 6 - i 6 i - 5 3 2 2 3 2 - 5 2 - 5			
	1	2	2	- 1 6 6 - 3 3

102

Lg	(5)	(2)	(2)	(1)
B&C	-	2t		1w
Gmb	2 2 2 2 i i 6 i 5 5 2 3 3 1 6 5 5 6 5 6 1 2 3 5 3 5 3 2 1 5 6 1		ritardando	
		2	6	

103

Lg	(1)	(2)	(2)	(1)
B&C	-	2t		1w
Gmb	- 6 1 5 6 1 6 1 1 6 1 2 1 2 1 2 3 5 2 3 3 1 6 5 5 6 5 6 1 5 6 1			
	5	2	3	2

104

Lg	(2)	(6)	(1)	4DR=ca 16
B&C	-	6t		5)
Gmb	5 6 5 i 6 5 2 1 6 1 5 3 2 5 3 2 2 3 2 3 5 6 1 2 2 3 1 6 5 5 2 3 5 3 5 5 5			5ng
	5			6

Corpus III: Ketawang Walagita, Pélog Patet Nem ('Manyura' Type)

The meaning of the name of this *gending* is open to several interpretations. That *gita* means 'song' is clear, but *wala* may be translated variously as "child", "troops", or "stem from which a bunch of coconuts grows" (Horne 1974:703). None of the Javanese with whom I discussed this expressed any definite opinion concerning its meaning. Instead, they know it as the name of this *gending*; that is its 'meaning'. My informants had difficulty describing the feelings associated with this *gending*. It is neither happy nor sad, they said. One suggested that the feeling might be described as *luhur* (lit. exalted). It is different in feeling from each of the other *gendings* in the corpus of this study.

Besides the one time I heard this *gending* performed as an interlude in a *ketoprak* performance, I have heard it only in the context of *uyon-uyon*. It was performed once at the weekly broadcast 'Uyon-uyon Mana Suka' in Jogjakarta and occasionally by amateur groups.

The *gending* is in Ketawang form with two sections: *umpak-umpak* and *ngelik*. The remarks concerning performance flow preceding the transcription of Ketawang Puspawarna (Corpus I) apply here as well, with the exception that the *ngelik* consists of only two *gongans* instead of three. The *buka* is not transcribed since it would normally be played by *rebab*. As played in the transcribed example, the flow is as follows:

Umpak-umpak x 2	→	Ngelik x 1
(1 <i>gongan</i> x 2)		(2 <i>gongans</i> x 1)
score 1-10		score 11-18

Ketawang Walagita, Pélog Paçet Nem ('Manyura' Type)

Lagu

Balungan and Colotomic Structure

Gambang



(6)  
6ng  
6

KK and KG

Umpak-umpak

2 4DR=ca 44 ritardando

Lg (1) (2) (1) (3)

B&C - 2t - 3w

Gmb 6 1 2 2 6 1 2 3

irama seseg

3

4DR=ca 69 ritardando

Lg (3) (2) (3) (1)

B&C - 2t - ln

3 5 3 2 1 2 6 5 3 3 3 3 3 5 6 1

Gmb

irama I

4

4DR=ca 42

Lg (3) (3)

B&C - 3t

Gmb 1 1 6 2 6 1 2 3 5

3

5

4DR=ca 84 ritardando

Lg (2) (2)

B&C - 2p

3 5 - 2 1 6 6 1 6 1 2 6 6 2

3 / - / 1

Gmb

irama II



6  
 Lg (3) (1) (2) (6)  
 B&C - 1t - 6ng  
 Gmb - 1 2 3 3 3 3 3 1 6 5 3 5 6 1 6 2 - 2 2 6 5 3 3 5 3 5 6 3 5 6  
 6 5 2 2 3 1 1 1

7  
 Lg (1) (2) (1) (3)  
 B&C - 2t - 3w  
 Gmb 6 1 6 1 1 6 6 1 1 2 2 1 2 6 1 2 2 1 2 3 5 3 5 6 6 i 6 5 3 1 2 3  
 - - - - 6

8  
 Lg (3) (2) (3) 4DR=ca 66 (1)  
 B&C - 2t 1n  
 Gmb 6 i 2 3 3 3 i 2 2 2 i 6 5 5 3 5 5 6 - 2 1 2 6 5 3 3 3 6 6 5 6 1  
 6 3 - 3

9  
 Lg (3) (3) (2) (2)  
 B&C - 3t - 2p  
 Gmb 1 1 6 2 2 1 2 3 3 5 2 1 6 2 1 6 6 1 6 1 1 6 6 1 1 2 2 1 2 6 1 2  
 2 6 3 - - -

10  
 Lg (6) (2) (1) (6)  
 B&C - 1t - 6ng  
 Gmb 6 6 6 1 2 3 5 6 6 i 6 i 2 6 i 2 2 3 2 i 6 i 5 3 3 5 3 5 6 3 5 6  
 -

Ngelik 11

Lg	(3)	(3)	(3)	(3)
B&C	3	3t	-	-w
Gmb	6 i 6 5 3 1 2 3 3 / 2	1 2 3 3 / 6 1 6	1 2 3 5 6 5 3 5 6 5 3 2 1 2 3 3 / 6 1 6	1 2 3 [2]

12

Lg	(3)	(3)	(5)	(6)
B&C	3	3t	5	6n
Gmb	3 2 3 1 2 3 2 3 3 / 5	5 3 1 2 3 2 3 3 5 3 5 5 3 3 5 5 6 / 5	6 5 6 3 5 6	

13

Lg	(2)	(3)	(2)	(i)
B&C	2	3t	2	1p
Gmb	i 2 2 i 2 2 / 6	i 2 2 / 6	i 2 3 3 3 2 3 3 5 3 2 i 2 6 5 5 6 5 6 i 5 6 i	[1]

14

Lg	(6)	(5)	(3)	(2)
B&C	6	5t	3	2ng
Gmb	3 3 3 3 2 2 i 2 6 6 6 / 2	i i 5 3 5 5 / 6	6 5 3 2 3 1 6 6 1 6 1 2 6 1 2	

15

Lg	(5)	(3)	(2)	(1)
B&C	5	3t	2	1w
Gmb	[2] 1 2 2 1 2 2 / 6	1 2 3 3 2 3 1 2 3 3 / 6	5 3 2 1 2 6 5 3 3 3 6 6 / 3	5 6 1

16

Lg	(6)	(6)	(5)	(4)
B&C	5	6t	5	4n
Gmb	6 6 6 1 2 3 5 6 6 6 6 5 6 3 [5] 6 i 2 6 5 3 5 2 1 1 2 1 2 3 - 2 3			
		5		1

17 ritardando

Lg	(6)	(5)	(2)	(1)
B&C	6	5t	2	1p
Gmb	3 2 3 5 6 3 5 6 6 i 6 i i 5 3 5 5 2 2 3 3 1 6 5 5 6 5 6 1 5 6 1			
	1	2	5	2

18 4DR=ca 27

Lg	(3)	(2)	(1)	(6)
B&C	3	2t	1	6ng
Gmb	1 2 1 2 3 5 3 6 6 i [5] 3 2 6 1 2 2 3 2 1 6 1 5 3 3 5 3 5 6 3 5 6 5 6 6 6 6			
	[3]	5		1

Corpus IV: Ketawang Mijil Wedaring Tyas, Pélog Paṭet Nem ('Sanga' Type)

The name includes the poetic form, mijil, of the vocal parts in the ngelik section and the name of the text: wedaring tyas (lit. expression of feelings). This gending is generally described as happy (gembira) but not as clearly so as many gendings in Sléndro paṭet Sanga.

I have heard this gending played several times at the weekly broadcast 'Uyon-uyon Mana Suka' in Jogjakarta and once at a broadcast by the gamelan club 'Ngudya Irama'.

The gending is in Ketawang form with two sections: umpak-umpak and ngelik. The remarks concerning the performance flow preceding the transcription of Ketawang Puspawarna (Corpus I) apply here as well. The buka is not transcribed, since it would normally be played by the rebab. As played in the transcribed example, the flow is as follows:

Umpak-umpak x 2	→	Ngelik x 1
(1 gongan x 2)		(3 gongans x 1)
score 1-10		score 11-22

Ketawang Mijil Weḍaring Tyas, Pélog Paḷet Nem ('Sanga' Type)

Lagu

Balungan and Colotomic Structure

Gambang



(5)

5ng

5

KK and KG

Umpak-umpak

2 4DR=ca 40 ritardando  
 Lg (2) (1) (2) (6)  
 B&C 2 1t 2 6w  
 Gmb 5 2 2 1 1 2 2 6  
 irama seseg

Lg

B&C

Gmb

4DR=ca 60 ritardando

(2) (1) (6)  
 2 1t 6  
 2 2 2 2 1 6 6 1 1 2 1 6 5 2  
 1 -  
 irama I

Lg

B&C

Gmb

4DR=ca 88

(5)

5n

3 5 3 5

6  
 irama II

Lg

B&C

Gmb

5 ritardando

(2) (1) (2) (6)  
 2 1t 2 6p  
 5 6 5 1 1 6 1 2 2 3 3 3 3 1 6 1 1 2 1 2 - 6 5 3 2 2 2 5 5 3 5 6  
 - 5 5 2 2 3 1 - 2



Ngelik

11  
 Lg (6) (6) (i) (6)  
 B&C 6 6t - -w  
 Gmb 2 2 2 5 5 3 5 6 6 5 6 3 5 6 5 6 i 2 i 6 i 2 i 6 5 3 5 6 6 3 5 6  
 ? 1 [1] 2 3 2

12  
 Lg (5) (5) (6) (i)  
 B&C 5 5t 6 ln  
 Gmb 6 6 5 5 5 i i 6 i 2 3 5 5 5 5 5 3 3 2 3 3 i 6 5 5 6 5 6 i 5 6 i  
 - 5 [2 1]

13  
 Lg (6) (6) (i) (2)  
 B&C 3 2t 1 2p  
 Gmb i 6 i 2 3 i 2 3 3 5 3 5 5 2 i 6 6 i 6 i i 6 6 i i 2 2 i 2 6 i 2  
 5 6 3

14  
 Lg (3) (i) (6) (5)  
 B&C - 1t 6 5ng  
 Gmb 2 i 2 6 i 2 i 2 2 3 2 3 3 i 6 i i 2 i [6] 5 6 3 2 2 3 2 3 5 i 6 5  
 6 3 5 2 6 -

15  
 Lg (i) (2) (i) (6)  
 B&C 1 2t 1 6w  
 Gmb 5 6 5 6 i 5 6 i i 6 i 2 i 2 i 2 2 3 2 i 6 i 5 3 2 2 2 5 5 3 5 6  
 1 5 3 2 3 [5]

16

Lg	(5)	(2)	(1)	(6)
B&C	5	2	1	6n
Gmb	6 i i 5 5 6 6 i i 6 2 i 6 i 5 2 3 5 2 1 6 1 5 3 2 2 2 5 5 3 5 6			

17

Lg	(2)	(2)	(1)	(1)
B&C	2	3	2	1p
Gmb	6 6 5 1 1 6 1 2 2 3 1 6 5 1 6 5 5 6 5 6 6 5 5 6 6 1 1 6 1 5 6 1			

18

Lg	(2)	(2)	(1)	(6)
B&C	3	2	1	6ng
Gmb	1 6 1 6 1 6 1 6 1 6 1 2 1 2 1 2 3 5 2 1 6 1 5 3 2 2 2 5 5 3 5 6			

19

Lg	(5)	(5)	(4)	(6)
B&C	5	5	-	6w
Gmb	5 5 5 6 1 2 3 5 5 3 5 2 3 5 3 5 5 6 5 5 5 6 5 3 2 2 2 5 5 3 5 6			

20

Lg	(5)	(4)	(4)	ritardando (2)
B&C	5	4	1	2n
Gmb	6 6 6 6 5 5 6 i i i 5 5 5 6 5 6 6 i 5 3 2 3 1 6 5 5 5 1 1 6 1 2			





Corpus V: Ladrang Sembawa, Pélog Patet Lima

The name 'Sembawa' may mean 'tiger' or 'subjunctive mood'.<sup>8</sup> To my knowledge, neither of these translations bears any connection to the gending or the text of the vocal part. My informants agree that this gending sets a mood of semadi (religious concentration and meditation).

I have heard this gending played once at the 'Uyon-uyon Murya Raras' at the Pakualaman<sup>9</sup> and several times at the weekly broadcast 'Uyon-uyon Mana Suka' in Jogjakarta. It is one of the most popular compositions in Pélog patet Lima.

The gending is in Ladrang form with two sections: umpak-umpak and ngelik. The umpak-umpak (consisting of one gongan) is played once and is followed by the ngelik (consisting of two gongans) also played once. At the end of the ngelik the performance could have ended, but instead it returns to the umpak-umpak which again is played once and followed by the ngelik. This example ends with a ritard at the end of the ngelik and is considered a complete performance. The buka is not transcribed. This gending is often joined to a previous gending in medley form with no buka separating it from the gending that precedes it. If performed separately, the rebab would normally play the buka. As played in the transcribed example, the flow is as follows:

	Umpak-umpak x 1	→	Ngelik x 1
	(1 gongan x 1)		(2 gongans x 1)
first statement:	score 1-9		score 10-25
second statement:	score 26-33		score 34-49

Ladrang Sembawa, Pélog Pačet Lima

Lagu	1	(1)
Balungan and Colotomic Structure		lng
Gambang		1

KK and KG

Umpak-umpak

2	4DR=ca 32
Lg	(1) (1)
B&C	- 1t
Gmb	1 1 1 1 irama seseg

3	4DR=ca 60 ritardando	4DR=ca 42
Lg	(1) (1) (2) (3)	(2) (1)
E&C	1 lw 2 3t	2 ln
Gmb	1 1 1 1 1 5 6 1 1 1 5 2 2 1 2 3 3 5 3 2 1 5 6 1 - - - - - 6 irama I	

4	4DR=ca 84 ritardando
Lg	(1) (1) (1) (1)
B&C	- 1t 1 lp
Gmb	5 6 1 5 6 1 6 1 - 6 1 5 6 1 6 1 1 6 1 5 6 1 6 1 1 6 1 5 6 1 6 1 irama II 2 5 2 5 2 5 2

5	(3) (6) (5) (3)
Lg	2 3t 5 3n
B&C	
Gmb	1 2 1 2 3 1 2 3 3 2 3 5 6 6 5 6 6 1 6 5 3 5 2 1 6 6 6 2 2 1 2 3 1 - 6

6 4DR=ca 72

Lg	(3)	(3)	(5)	(6)
B&C	-	3t	5	6p
Gmb	3 3 3 2 3 1 2 3 3 2 3 1 2 3 5 3 3 5 3 5 5 3 3 5 5 6 6 5 6 3 5 6	1	3	3

7

Lg	(i)	(6)	(5)	(3)
B&C	7	6t	5	3t
Gmb	6 5 6 i 6 i 6 i 6 2 i 2 2 6 5 6 6 i 6 5 3 5 2 1 6 6 6 2 2 1 2 3	3	1	5

8

Lg	(5)	(3)	(2)	(3)
B&C	5	3t	2	3p
Gmb	3 2 3 1 2 3 2 3 3 [5] 3 [5] 6 6 5 6 6 3 2 1 6 6 6 2 2 1 2 3 2 3	1	3	5

9 ritardando

Lg	(5)	(5)	(i)	(i)
B&C	2	1t	2	1ng
Gmb	6 6 3 5 5 1 6 5 5 6 5 6 1 2 3 5 5 6 5 6 6 5 5 6 6 i i 6 i 5 6 i	3	5	

Ngelik 10 4DR=ca 68

Lg	(i)	(i)	(3)	(2)
B&C	-	-t	3	2w
Gmb	i 6 1 5 6 i 6 i i 6 i 5 6 i 6 i 6 2 i 2 i 2 i 6 6 i 6 i 2 6 i 2	5	2 3	3

11  
 Lg (3) (i) (6) (5)  
 B&C - 1t 6 5n  
 Gmb 2̇ i 2̇ 6 i 2̇ i 2̇ 2̇ 3̇ 2̇ 3̇ 3̇ i 6 i i 2̇ i 6 5 6 3 2 2 3 2 3 5 2 3 5  
 6 3 5 2

12  
 Lg (i) (2) (i) (6)  
 B&C 1 2t 1 6p  
 Gmb 5 6 5 6 i 5 6 i i 6 i 2̇ i 2̇ i 2̇ 2̇ 3̇ 2̇ i 6 i 5 3 2 2 2 5 5 3 5 6  
 5 3 [1] [5] 2 [6]

13  
 Lg (5) (3) (5) (6)  
 B&C 5 3t 5 6n  
 Gmb 6̇ 5 6 3 5 6 5 6 6 i 6 5 3 1 2 3 3 5 3 5 5 3 3 5 5 6 6̇ 5 6 3 5 6  
 [6 1] - [3]

14  
 Lg (6) (6) (5) (3)  
 B&C - 6t 5 3p  
 Gmb 6̇ 5 6 3 5 6 5 6 6̇ 3 2 2 2 3 5 6 6 i 6 5 3 5 2 1 6̇ 6̇ 6̇ 2 2 1 2 3  
 3 [6 1] 5 - 6

15  
 Lg (6) (i) (6) (5)  
 B&C 6 5t 3 5n  
 Gmb 3 5 3 5 6 3 5 6 6̇ 5 6 i 6 i 6 i i 2̇ i 6 5 6 3 2 2 3 2 3 5 2 3 5  
 [3] 3 2

16  
 Lg (i) (2) (i) (6)  
 B&C 1 2t 1 6p  
 Gmb 5 3 5 6 i 5 6 i 5 6 i 2 i 2 i 2 2 3 2 i 6 i 5 3 2 2 2 5 5 3 5 6  
 2 3

17  
 Lg (3) (5) (6) (3)  
 B&C 5 3t 2 3ng  
 Gmb 2 2 6 3 3 2 i 2 6 6 5 5 5 6 5 6 6 3 2 1 6 6 6 2 3 1 2 1 6 1 2 3  
 3 1 5 6

18  
 Lg (3) (3) (2) (3)  
 B&C - 3t 2 3w  
 Gmb 3 2 3 1 2 3 2 3 6 5 3 1 2 3 2 3 3 [2] 3 1 2 3 2 3 3 2 3 1 2 3 2 3  
 5 [3] 5 1 2 5 1 5

19  
 Lg (2) (1) (2) (1)  
 B&C 2 1t 2 1n  
 Gmb 6 6 5 5 3 3 5 5 3 2 2 3 3 1 6 5 5 6 5 6 1 2 3 5 5 6 5 2 1 5 6 1  
 [5] 5 2

20  
 Lg (1) (1) (1) (1)  
 B&C - 1t 1 lp  
 Gmb 1 6 1 5 6 1 6 1 1 6 1 2 1 2 1 1 1 6 1 5 6 1 6 1 1 6 1 5 6 1 6 1  
 5 2 5 [6] 3 5 2 5 2

21  
 Lg (3) (6) (5) (3)  
 B&C 2 3t 5 3n  
 Gmb 1 6 1 2 3 1 2 3 3 2 3 5 6 6 5 6 6 1 6 5 3 5 2 1 1 2 1 2 3 1 2 3  
 5 [6] 1 [2]

22  
 Lg (3) (3) (5) (6)  
 B&C - 3t 5 6p  
 Gmb 3 2 3 1 2 3 2 3 1 2 3 1 2 3 2 3 3 5 3 5 5 3 3 5 5 6 6 5 6 3 5 6  
 1 5 5

23  
 Lg (i) (6) (5) (3)  
 B&C 7 6t 5 3n  
 Gmb 6 5 6 i 6 i 6 1 6 2 i 2 2 6 5 6 6 i 6 5 3 5 [2] 1 6 6 6 2 3 1 2 3  
 3 [1] 2 3 1 2 2 6

24  
 Lg (5) (3) (2) (3)  
 B&C 5 3t 2 3p  
 Gmb 3 2 3 1 2 3 2 3 5 6 6 5 3 1 2 3 3 5 2 1 1 2 1 2 2 3 3 2 3 1 2 3  
 5

25  
 Lg (2) (1) (2) (1)  
 B&C 2 1t 2 lng  
 Gmb 6 6 6 6 5 5 3 5 3 2 2 3 3 1 6 5 5 6 5 6 6 5 5 6 6 1 1 6 1 5 6 1  
 5 2 -

Umpak-umpak

26

Lg	(1)	(1)	(1)	(1)
B&C	-	1t	1	1w
Gmb	1 6 1 1 6 1 6 1 1 6 1 5 6 1 6 1 5 6 1 5 6 1 6 1 5 6 1 5 6 1 5 6 1 6 1			
	5 5 2 5 [1] 2 2			

27

Lg	(2)	(3)	(2)	(1)
B&C	2	3t	2	1n
Gmb	1 2 1 2 3 1 2 3 1 2 3 1 2 3 2 3 3 5 [3] 2 1 2 6 5 5 6 5 6 1 5 6 1			
		[3] 5 6 3	-	

28

Lg	(1)	(1)	(1)	(1)
B&C	-	1t	1	1p
Gmb	5 6 1 5 6 1 6 1 5 6 1 5 6 1 6 1 1 2 6 5 5 6 5 6 6 1 1 6 1 5 6 1			
	2	2	[6] -	[6]

29

Lg	(3)	(6)	(5)	(3)
B&C	2	3t	5	3n
Gmb	5 6 1 2 3 1 2 3 3 2 3 5 6 6 5 6 6 1 6 5 3 5 2 1 6 6 6 2 6 1 2 3			
	[6]	1 [2]		

30

Lg	(3)	(3)	(5)	(6)
B&C	-	3t	5	6p
Gmb	3 3 3 1 2 3 2 3 - 2 3 1 2 3 2 3 3 5 3 5 5 3 3 5 5 6 6 5 6 3 5 6			
	2	5 1	5	



31  
 Lg (i) (6) (5) (3)  
 B&C 7 6t 5 3n  
 Gmb 3 5 6 i 6 i 6 i i 2 i 2 2 6 5 6 6 i 6 5 3 5 2 1 6 6 6 2 2 1 2 3  
 2 3 1 6

32  
 Lg (5) (3) (2) (3)  
 B&C 5 3t 2 3p  
 Gmb 3 3 2 1 6 6 6 2 2 1 2 3 5 3 5 6 6 i 6 5 3 5 2 1 1 2 1 2 3 1 2 3  
 6

33  
 Lg (5) (5) (i) (i)  
 B&C 2 1t 2 lng  
 Gmb 1 1 1 2 3 5 6 i i 2 i 6 5 i 6 5 5 6 5 6 6 5 5 6 6 i i 6 i 5 6 i  
 [1]

Ngelik  
 34  
 Lg (i) (i) (3) (2)  
 B&C - -t 3 2w  
 Gmb 5 6 i 5 6 i 6 i 5 6 i 5 6 i 6 i i 2 i 2 i 2 3 5 5 - 5 3 2 6 i 2  
 [1] 2 [1] 2 3 3 6

35  
 Lg (3) (i) (6) (5)  
 B&C - 1t 6 5n  
 Gmb 6 i 2 6 i 2 i 2 2 3 2 3 3 i 6 i i 2 i 6 5 6 3 2 2 3 2 3 5 2 3 5  
 3 5 2

36

Lg	(i)	(2)	(i)	(6)
B&C	1	2t	1	6p
Gmb	5 6 5 6 i 5 6 i 5 6 i 2 i 2 i 2 3 5 3 i 6 i 5 3 2 2 2 5 2 3 5 6			
		3	2	

37

Lg	(5)	(3)	(5)	(6)
B&C	5	3t	5	6n
Gmb	6 6 6 5 6 3 5 6 6 i 6 5 3 1 2 3 3 5 3 5 5 3 3 5 5 6 6 5 6 3 5 6			

38

Lg	(6)	(6)	(5)	(3)
B&C	-	6t	5	3p
Gmb	6 5 6 3 5 6 5 6 i 2 i 6 i 3 5 6 6 i 6 5 3 5 2 1 6 6 5 2 6 1 2 3			
	3	[1]		

39

Lg	(6)	(i)	(6)	(5)
B&C	6	5t	3	5n
Gmb	3 5 3 5 6 3 5 6 i 2 2 6 i 5 6 i i 2 i 6 5 6 3 2 2 3 2 3 5 2 3 5			

*accelerando*

40

Lg	(i)	(2)	(i)	(6)
B&C	1	2t	1	6p
Gmb	5 6 5 6 i 5 6 i i i i 2 i 2 i 2 2 3 2 i 6 i 5 3 2 2 2 5 5 3 5 6			
		- 3	3	?

41 / 4DR=ca 78

Lg	(3)	(5)	(6)	(3)
B&C	5	3t	2	3ng
Gmb	6 i 2 3 3 3 i 2 2 2 6 5 5 6 5 6 - 3 2 1 6 6 6 2 2 1 2 1 6 1 2 3			
		1	1	5 - 6

42

Lg	(3)	(3)	(2)	(3)
B&C	-	3t	2	3w
Gmb	3 2 3 1 2 3 2 3 - 1 6 6 6 1 2 3 3 2 3 1 - 3 2 3 2 5 3 1 2 3 2 3			
	5	2	-	2 [5] - 6 5

43

Lg	(2)	(1)	(2)	(1)
B&C	2	1t	2	1n
Gmb	6 6 6 6 5 5 3 5 3 2 2 3 2 1 6 5 5 6 5 6 6 5 5 6 6 1 1 6 1 5 6 1			
		5	-	- - - - / / / /

ritardando

44

Lg	(1)	(1)	(1)	(1)
B&C	-	1t	1	1p
Gmb	5 6 1 5 6 1 6 1 5 6 1 5 6 1 6 1 1 2 6 5 5 6 5 6 6 1 1 6 1 5 6 1			
	2	[2]	- / / - / /	

45 / 4DR=ca 66

Lg	(3)	(6)	(5)	(3)
B&C	2	3t	5	3n
Gmb	5 6 1 2 3 1 2 3 1 2 3 5 6 3 [5] 6 6 i 6 5 3 5 2 1 6 6 6 2 6 1 2 3			
		5		

46

Lg	(3)	(3)	(5)	(6)
B&C	-	3t	5	6p
Gmb	3 2 3 1 2 3 2 3 3	1 6 6 6 1 2 3 3 5 3 5 5 3 3 5 5 6 6 5 6 3 5 6		

5 2

47

Lg	(i)	(6)	(5)	(3)
B&C	7	6t	5	3n
Gmb	3 5 6 i 6 i 6 i i 2 i 2 2 6	5 6 6 i 6 5 3 5 2 1 6 6 6 2 3 1 2 3		

2 3 1 6

48

Lg	(5)	(3)	(2)	(3)
B&C	5	3t	2	3p
Gmb	3 3 3 1 2 3 2 3 5 6 6 5 3 6 5 3 3 5 2 1 1 2 1 2 2 3 3 2 3 1 2 3			

2 5

49

Lg	(2)	(1)	(2)	(1)
B&C	2	1t	2	1ng
Gmb	6 6 6 6 5 5 3 5 5 2 2 3 3 1 6 5 5 6 5 6 6 5 5 6 - 1 1 5 6 1 6 5-11			

5 2

2 11-

Corpus VI: Ladrang Pangkur, Pélog Paçet Barang

The name 'Pangkur' refers to the poetic form of the text of the vocal parts in one section of the gending. It is generally described as a happy (gembira) gending. One informant describes it as renyah (lit. crunchy, crisp).

I heard this gending played several times at the weekly broadcast 'Uyon-uyon Mana Suka' in Jogjakarta. It was also frequently played by many amateur groups I witnessed. Like Gending Gambir Sawit (Corpus II), this is one of the most popular of all Javanese gendings--again, an uyon-uyon gending par excellence.

The gending is in Ladrang form with three sections. The performance begins with the lamba (a term used by Suhardi to refer to the section of a gending in Ladrang form played in irama seseg, I or II, in contrast to another section in that gending played in irama III or IV). The lamba is played twice and is followed by the mulur (lit. to stretch; a term used by Suhardi to refer to a section played in irama III or IV in a gending in Ladrang form). The mulur is played twice, with the ngelik played once between the first and second statements. A ritard towards the end of the second statement of the mulur signals the end of the performance, which is considered complete. As played in the transcribed example, the flow is as follows:

Lamba x 2	→	Mulur x 1	→	Ngelik x 1	→	Mulur x 1
(1 gongan x 2)		(1 gongan x 1)		(1 gongan x 1)		(1 gongan x 1)
score 1-18		score 19-34		score 35-63		score 64-79

Ladrang Pangkur, Pélog Paçet Barang

Lagu	}	(6)
Balungan and Colotomic Structure		6
Gambang		6

KK and KG

Lamba 2

4DR=ca 44 ritardando

Lg	(3)	(2)	(3)	(7)	(3)					
B&C	3	2t	3	7w	3					
Gmb	6	3	3	2	2	3	3	7	7	3

irama seseg

Lamba 3

4DR=ca 69 ritardando

Lg	(2)	(7)	(6)									
B&C	2t	7	6n									
Gmb	3	2	7	2	2	6	5	3	5	6	5	6

irama I

Lamba 4

4DR=ca 43

Lg	(6)	(6)	(7)	(2)												
B&C	7	6t	3	2p												
Gmb	6	7	6	7	2	3	5	6	6	7	6	7	2	6	7	2

Lamba 5

4DR=ca 86 ritardando

Lg	(6)	(3)	(2)	(7)																													
B&C	5	3t	2	7n																													
Gmb	6	[6]	6	2	2	7	2	3	3	3	3	3	3	2	6	5	3	5	6	3	2	7	2	6	5	3	3	3	6	6	5	6	7

irama II

6 4DR=ca 80

Lg	(3)	(6)	(3)	(2)
B&C	3	5t	3	2t
Gmb	- 7 6 2 2 7 2 3 3 5 2 7 6 2 7 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2			
	2	6	-	-

7

Lg	(7)	(6)	(3)	(2)
B&C	6	5t	3	2n
Gmb	2 7 2 3 - 3 2 3 5 6 3 7 6 2 7 6 6 7 6 7 2 3 5 6 5 6 5 3 2 6 7 2			
	6	5	-	7

8

Lg	(3)	(3)	(2)	(7)
B&C	5	3t	2	7p
Gmb	6 6 6 2 2 7 2 7 2 7 2 3 - 3 2 3 5 6 3 7 7 7 6 3 3 7 6 5 6 5 6 7			
	-	6	6	3

9 4DR=ca 76

Lg	(3)	(2)	(7)	(6)
B&C	3	2t	7	6ng
Gmb	- 7 6 2 - - 2 3 3 5 3 5 5 2 7 2 2 3 2 7 6 7 5 3 3 5 3 5 6 3 5 6			
	2	6 7	6	3

10

Lg	(3)	(2)	(3)	(7)
B&C	3	2t	3	7w
Gmb	- 7 6 2 2 7 2 3 3 5 3 5 5 2 7 2 6 6 6 2 2 7 2 3 3 7 6 5 6 5 6 7			
	2	6	6	3

11

Lg (3) (2) (7) (6)

B&C 3 2t 7 6n

Gmb - 7 6 2 2 7 2 3 3 5 3 5 5 2 7 2 2 3 2 7 6 7 5 3 3 5 3 5 6 3 5 6

2 / 6 / 6 / 3 / 5 /

12

Lg (6) (6) (7) (2)

B&C 7 6t 3 2p

Gmb - 7 6 7 2 3 2 3 5 6 6 7 6 2 7 6 6 7 2 3 3 3 3 3 6 6 6 7 2 6 7 2

6 [3] 5

13

Lg (6) (3) (2) (7)

B&C 5 3t 2 7n

Gmb 6 6 6 2 2 7 2 7 6 6 6 [3 2 6 5 3] 5 6 3 2 7 2 6 5 3 3 3 6 6 5 6 7

- / 6 [3 2] 6 5 3 / / - / / 3

"trouble spot"

14

Lg (3) (6) (3) (2)

B&C 3 5t 3 2p

Gmb 7 7 6 2 2 7 2 3 3 5 6 7 6 2 7 6 6 7 6 2 6 3 5 6 6 5 6 5 5 2 7 2

2 / 6 [3] [3] 7 3

"trouble spot"

15

Lg (7) (6) ritardando (3) (2)

B&C 6 5t 3 2n

Gmb 2 7 2 3 3 3 2 3 3 5 6 7 6 2 7 6 6 3 3 5 5 2 2 6 6 7 6 7 2 6 7 2

6 / [3] 5 3 5 / 6 3 7 -



16

Lg (3) (3) (2) (7)

B&C 5 3t 2 7

Gmb 6 6 6 2 2 7 2 3 6 7 2 3 2 6 5 3 5 6 3 7 7 7 6 3 3 7 6 5 3 5 6 7

KC - 6 [5] 2

17 4DR=ca 47

Lg (3) (2)

B&C 3 2t

Gmb - 7 6 7 2 3 2 3 3 5 3 5 5 2 7 2

2 5 3

18 4DR=ca 92 ritardando

Lg (3) (7) (2) (6)

B&C 7 6ng

Gmb 6 6 6 2 - - 2 3 - 7 6 5 3 5 6 7 - 2 7 2 - 6 5 3 3 5 3 5 6 3 5 6

- 6 7 2 3 7 -

irama III

Mulur

19

Lg (3) (3) (2) (2)

B&C 3 2t

Gmb 3 5 6 3 5 6 3 5 6 7 2 7 3 2 6 3 5 6 3 5 5 2 7 6 6 7 6 3 2 6 7 2

3 -

20 4DR=ca 68 steady

Lg (3) (3) (2) (7)

B&C 3 7w

Gmb 5 6 6 2 2 7 2 3 3 3 2 3 2 7 6 3 5 6 3 7 7 7 6 3 3 7 6 5 3 5 6 7

[6] [2] [5] 2

21  
 Lg (3) (6) (3) (2)  
 B&C 3 2t  
 Gmb 6 7 6 2 2 - 2 3 3 5 2 7 6 2 7 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2  
 2 6 7

22  
 Lg (3) (7) (2) (6)  
 B&C 7 6n  
 Gmb 6 7 7 7 6 6 5 5 7 6 3 2 7 3 2 7 7 2 7 2 2 6 5 3 3 5 3 5 6 3 5 6  
 3 7 - - -

23  
 Lg (7) (7) (7) (7)  
 B&C 7 7 -t  
 Gmb 3 3 3 6 6 5 6 7 7 7 2 3 5 6 7 6 7 6 7 2 7 2 3 3 7 6 5 6 5 6 7  
 - 3 2 2 3

24  
 Lg (6) (6) (7) (2)  
 B&C 6 6 7 2p  
 Gmb 6 7 2 2 2 7 2 3 3 5 2 7 6 2 7 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2  
 2 6 6 [3 3 5]

25  
 Lg (2) (2) (6) (3)  
 B&C 3 2 6 3t  
 Gmb 2 7 2 6 7 2 7 2 2 7 2 6 7 2 7 2 6 3 3 2 3 2 6 5 3 5 2 7 6 7 2 3  
 6 [2] 3 6 3

26  
 Lg (3) (3) (2) (7)  
 B&C 2 7n  
 Gmb 6 6 6 2 2 7 6 3 3 3 2 3 2 7 6 3 5 6 3 2 7 2 6 5 3 3 3 6 6 5 6 7  
 - [6] 3

27  
 Lg (7) (7) (2) (3)  
 B&C - 3t  
 Gmb 6 7 6 7 6 7 6 5 [3] [3] 3 6 6 5 6 7 - 7 - 2 2 7 2 7 2 7 2 3 2 3 2 3  
 / 2 / 2 / 3 3 / 3 / / 2 6 6 / 5

28  
 Lg (7) (6) (3) (2)  
 B&C 6 5 3 2p  
 Gmb 5 6 6 5 6 7 2 7 3 2 7 2 6 7 6 [3] [5] 6 3 5 5 2 7 6 6 7 6 3 2 6 7 2  
 3 3 5 3 - - - [6] 7

29  
 Lg (3) (2) (3) (6)  
 B&C 5 6 5 3t  
 Gmb 2 7 2 6 6 2 7 2 2 7 2 3 2 3 2 6 6 3 2 3 2 3 2 7 6 3 5 6 5 3 5 6  
 / 6 / 7 3 6 / 5 - 5 / 5

30  
 Lg (3) (6) (3) (2)  
 B&C 6 5 3 2n  
 Gmb 6 7 6 2 2 7 2 3 5 6 6 7 6 2 7 6 5 3 3 5 5 2 7 6 6 7 6 7 2 6 7 2  
 / 2 / 6 6 [5] 3 -

31  
 Lg (6) (7) (3) (2)  
 B&C 6 7 3 2t  
 Gmb 6 6 6 7 2 3 5 6 6 6 5 6 6 5 6 7 7 7 6 7 6 7 2 3 3 3 6 7 2 6 7 2

32  
 Lg (6) (3) (2) (7)  
 B&C 6 3 2 7p  
 Gmb 6 6 6 2 2 7 2 3 3 3 2 3 2 7 6 3 5 6 3 2 7 2 6 5 3 3 3 6 6 5 6 7  
 [5] - // 3 // //

33  
 Lg (3) (6) (3) (2)  
 B&C 3 2t  
 Gmb 6 7 6 2 2 7 2 3 3 5 2 7 6 2 7 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2  
 // 2 // 6 -

34  
 Lg (2) (6) (7) (2)  
 B&C 6 7 2ng  
 Gmb 2 3 2 3 5 6 7 2 2 3 2 7 6 2 7 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2  
 [7]

Ngelik  
 35  
 Lg (2) (2) (2) (2)  
 B&C - 2 2t  
 Gmb 2 [7] 2 6 7 2 7 2 2 7 2 2 7 2 2 3 7 6 6 7 6 7 7 2 2 7 2 6 7 2  
 // 6 7 // 3 // 6 // 3 -

36

Lg (7) (7) (2) (3)

B&C 4 3 2 3w

Gmb 2̇ 7 2̇ 3̇ 2̇ 3̇ 2̇ 3̇ 2̇ 3̇ 2̇ 3̇ 2̇ 3̇ 2̇ 7 7 2̇ 7 2̇ 2̇ 7 7 2̇ 2̇ 3̇ 3̇ 2̇ 3̇ 7 2̇ 3̇

6/ 5/ 5/ [3] 5/

37

Lg (3) (3) (2) (7)

B&C - 3 5t

Gmb 3̇ 2̇ 3̇ 7 2̇ 3̇ 2̇ 3̇ 3̇ 7 6 6 6 7 2̇ 3̇ 3̇ [5] 3̇ 2̇ 7 2̇ 6 5 3 5 6 5 6 5 6 7

7/ 5/ 2 - 5 3 3 [7]

38 ritardando 4DR=ca 44

Lg (3) (2) (7)

B&C 6 7 5

Gmb 6 7 6 7 2̇ 7 2̇ 3̇ 2̇ 3̇ 6 7 2̇ 6 7 2̇ 2̇ 3̇ 2̇ 2̇ 6 7 5 3 5

2/ 5 7 7

39 4DR=ca 88 steady

Lg (6)

B&C 6n

Gmb 3 5 6 7 2̇ 3̇ 3̇ [5] 2̇ 7 6 2̇ 7 6

5

irama IV

40

Lg (2) (2)

B&C -

Gmb 6 7 6 7 2̇ 6 7 2̇ 2̇ 7 2̇ 6 7 2̇ 7 2̇ 2̇ 7 2̇ 6 7 2̇ 7 2̇ 2̇ 7 2̇ 6 7 2̇ 7 2̇

- 6 3 6 3 6 3

41  
 Lg (3) (2)  
 B&C 2 -t  
 Gmb 2 7 2 6 7 2 7 2 2 3 2 7 6 2 7 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2  
 6 3 - - - -

42  
 Lg (4) (3)  
 B&C 4 3  
 Gmb 2 7 2 7 6 6 6 2 2 7 2 3 - 3 2 3 - 7 2 3 3 7 2 3 - 3 2 3 2 3 2 3  
 6 7 - 6 5 2 6 7 6 5 5

43  
 Lg (2) (7)  
 B&C 2 7w  
 Gmb 3 5 3 2 7 2 6 5 - 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 7 - 7 6 7  
 3 3 3 3 3 2

44  
 Lg (6) (2)  
 B&C 3 2  
 Gmb 6 7 6 2 2 7 2 2 6 6 6 - 2 7 2 3 3 5 3 5 - 2 7 6 6 7 6 7 2 6 7 2  
 2 6 7 - 6 6 3 3

45  
 Lg (6) (5)  
 B&C 6 5t  
 Gmb 2 2 2 7 7 3 3 2 2 6 6 5 5 3 3 2 2 3 2 3 3 2 2 3 3 5 5 3 5 2 3 -  
 7 - - - 5

46  
 Lg (6) (6)  
 B&C 7 6  
 Gmb 5 3 5 3 5 3 5 6 6 3 5 6 6 3 5 6 7 2 7 6 7 3 5 6 6 3 5 6 - 3 5 6  
 2 2 5 2 3 2 [5] 5 2 3 2

47  
 Lg (5) (3)  
 B&C 5 3n  
 Gmb 2 7 2 3 2 6 7 2 7 2 6 3 3 6 5 6 - 3 2 7 6 6 6 [2] 2 7 2 7 2 7 2 3  
 3 5 7 5 - 2 6 6

48  
 Lg (3) (3)  
 B&C -  
 Gmb 3 6 5 3 5 7 2 3 3 7 2 3 3 7 2 3 3 7 2 3 - 7 2 3 5 6 5 3 5 7 2 3  
 5 2 [6] 7 6 2 6 7 6

49  
 Lg (3) (5)  
 B&C 3 5t  
 Gmb 3 7 2 3 3 7 - 3 5 6 5 3 5 6 5 3 3 5 3 5 3 5 3 2 2 3 2 3 5 5 3 5  
 2 6 7 6 2 6 6

50  
 Lg (6) (2)  
 B&C 6 7  
 Gmb 5 3 5 2 3 5 3 5 5 3 5 6 - 6 5 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2  
 2 6 2 7

51  
 Lg (7) (6)  
 B&C 5 6p  
 Gmb [2] 7 2 3 3 3 3 3 3 3 5 3 5 5 2 7 2 2 3 2 7 6 7 5 3 3 5 3 5 6 3 5 6  
 - / 6 / 3 [2]

52  
 Lg (3) (3)  
 B&C 3 5  
 Gmb 6 7 6 6 6 7 6 6 6 7 2 3 3 7 [2] 3 3 7 2 3 - 7 2 3 3 7 2 3 - 7 2 3  
 / 2 - 2 - 2 / 6 7 6 / 2 6 7 6 / 2 6 7 6

53  
 Lg (2) (7)  
 B&C 6 7t  
 Gmb 3 5 3 2 7 2 6 5 5 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 7 6 7 6 7  
 / 3 [6] 3 [5] 3 3 3 2

54  
 Lg (7) (6)  
 B&C 6 5  
 Gmb 6 7 6 2 2 7 2 7 2 7 2 3 3 3 3 3 2 2 7 7 3 3 5 2 7 2 6 3 5 6 5 6  
 / 2 / 6 / 6 ?

55  
 Lg (3) (2)  
 B&C 3 2n  
 Gmb 6 3 3 5 5 2 7 6 6 7 6 7 2 3 5 6 6 7 [5] 3 2 3 7 6 6 7 6 3 2 6 7 2  
 / 5 / 6 / 3 - [6] 7 5 - -



56  
 Lg (6) (7)  
 B&C 6 7  
 Gmb 6 6 6 7 2 3 5 6 6 2 6 3 6 2 6 6 6 2 6 3 6 2 6 5 6 5 6 5 6 5 6 7  
 - [2] - 3 3

57  
 Lg (3) (2)  
 B&C 3 2t  
 Gmb - 7 6 7 - 7 6 2 2 7 2 7 2 7 2 3 3 3 - 5 5 2 7 6 6 7 6 7 2 6 7 2  
 2 2 6 6 6 3

58  
 Lg (6) (3)  
 B&C 6 3  
 Gmb 6 6 6 2 2 7 2 7 2 7 2 3 2 3 2 3 - 7 6 3 3 7 6 3 3 7 2 3 3 7 6 3  
 - 6 6 5 2 [2] 2 2

59  
 Lg (2) (7)  
 B&C 2 7p  
 Gmb 5 6 3 7 6 7 6 3 5 6 3 2 7 2 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 7 7 7 6 7  
 2 [6] 3 3 3 2

60  
 Lg (3) (6)  
 B&C 3  
 Gmb 7 7 6 7 7 7 6 2 2 [7] 2 7 7 7 2 3 3 5 2 7 6 7 5 3 3 5 3 5 6 2 7 6  
 2 2 6 7 6 3 - - -

61

Lg (3) (2)

B&C 2t

Gmb 3 5 6 7 2̇ 7 3̇ 2̇ 7 2̇ 6 3 - 3 7 6 6 7 6 7 2 3 5 6 5 6 5 3 2 6 6 2  
 2 - 7 7

62

Lg (3) (7)

B&C 7

Gmb - 7 2 7 2 [7 2] 3 3 7 2 3 3 7 2 3 5 6 3 2 7 2 7 5 3 3 3 6 6 5 6 7  
 6 6 7 2 2 6 7 6 [6] - 3 3 7

63 ritardando

Lg (2) (6)

B&C 6ng

Gmb - 7 6 2 - 7 2 3 3 5 3 5 5 2 7 2 2 3 2 7 6 7 5 3 3 5 3 5 6 3 5 6  
 2 6 6 3 5 5

Mulur 64

Lg (3) (3) (2) (2)

B&C 3 2

Gmb 3 5 6 3 5 6 6 5 [6 7] 2 7 3 2 6 3 5 6 3 5 5 2 7 6 6 7 6 3 6 7 6 2  
 irama III 3 6 ? [3] - 2 -

65

Lg (3) (3) (2) (7)

B&C 3 7w

Gmb 6 6 6 2 2 7 2 3 3 3 2 3 2 6 5 3 3 6 3 7 7 7 6 3 3 7 6 5 6 5 6 7  
 5 [6] 2 3

66  
 Lg (3) (6) (3) (2)  
 B&C 3 2t  
 Gmb 7 7 6 2 2 7 2 3 3 5 2 7 6 2 7 6 6 7 6 3 6 7 2 3 6 3 6 7 6 7 6 2  
 2 6 6 - 2 3 2 -

67  
 Lg (3) (7) (2) (6)  
 B&C 7 6n  
 Gmb 6 6 3 7 7 6 7 3 5 6 3 2 7 3 2 7 3 - 3 5 6 7 2 3 3 5 2 7 6 3 5 6  
 5

68  
 Lg (7) (7) (7) (7)  
 E&C 7 7 -t  
 Gmb 3 3 3 6 6 5 6 7 3 3 3 6 6 5 6 7 7 2 6 5 6 5 6 5 6 5 6 7 6 7 6 7  
 - 3 6 - 3 3 3 2

69  
 Lg (6) (6) (7) (2)  
 B&C 6 6 7 2p  
 Gmb 6 7 2 3 2 3 3 3 5 2 7 6 2 7 6 6 3 6 3 3 6 6 7 7 2 2 7 2 6 7 2  
 2 6 5

70  
 Lg (2) (2) (6) (3)  
 B&C 3 2 6 3t  
 Gmb 2 7 2 6 7 2 7 2 2 7 2 6 7 2 7 2 6 6 3 3 3 2 6 6 5 7 7 6 5 3 2 3  
 6 3 6 3 7

71

Lg	(3)	(3)	(2)	(7)
B&C		2		7n
Gmb	6 6 6 2 2 7 2 3 3 2 3 2 3 6 5 3 7 7 6 7 6 3 6 7 7 3 - 7 6 3 2 7			
			- 2	

72

Lg	(7)	(7)	(2)	(3)
B&C		-		3t
Gmb	2 7 2 3 2 3 2 3 [3] 7 6 5 6 5 6 7 - 7 6 2 2 7 2 7 7 7 2 3 2 3 2 3			
	6 [7]	5	[2]	3 2 6 2 [7] 6 [5]

73

Lg	(7)	(6)	(3)	(2)
B&C	6	5	3	2p
Gmb	5 6 3 5 6 7 2 3 3 3 2 7 6 2 7 6 6 3 3 5 5 2 7 6 6 3 6 7 6 - 6 2			
			6 3	- 2 3 2 -

74

Lg	(3)	<i>accelerando</i>		(2)	(3)	(6)
B&C	5			6	5	3t
Gmb	6 7 2 3 2 3 2 6 6 3 2 3 2 3 2 6 6 3 2 3 2 3 2 7 6 3 5 6 5 3 5 6					
		5	- 5	[2]	5	- 5 [3] 5

75 4DR=ca 76

Lg	(3)	(6)	(3)	(2)
B&C	6	5	3	2n
Gmb	- 7 6 2 2 7 2 3 5 6 6 3 3 5 3 5 5 6 5 3 2 3 7 6 6 7 6 3 6 7 6 2			
	2	6	6	7 - [2] -

76

Lg (6) (7) (3) (2)

B&C 6 7 3 2t

Gmb 6 6 6 7 2 3 5 6 6 6 5 6 6 5 6 7 7 7 6 7 6 7 2 3 3 3 6 7 2 6 7 2

3

77

ritardando

Lg (6) (3) (2) (7)

B&C 6 3 2 7p

Gmb 6 6 6 7 2 3 3 3 3 3 2 3 2 6 5 3 5 6 3 2 7 2 6 5 3 3 3 3 3 5 6 7

KG

78

Lg (3) (6) (3) (2)

B&C 3 2t

Gmb 7 7 6 2 2 7 2 3 3 5 2 7 6 3 5 6 6 7 6 7 7 6 6 7 7 2 2 7 2 6 7 2

2 [7] 6

79

Lg (3) (7) (2)

B&C 7

Gmb 2 7 2 3 5 6 3 7 7 6 7 5 6 3 2 7 7 3 3 5 5 3 3 5 5 6 6 3 5 6 5 6 6 6 6

6

4DR=ca 30 (6)  
6ng  
6666  
7

## Notes to Chapter IV

- <sup>1</sup>Taperecordings of all corpus items are deposited in the Hawaii Archives of Ethnic Musics, Music Department, University of Hawaii at Manoa.
- <sup>2</sup>See the discussion of Pélog paṭet Nem in Chapter II.
- <sup>3</sup>For an example, see Becker 1972:41.
- <sup>4</sup>See discussion of octave register in Chapter III.
- <sup>5</sup>A stroke of the gong in the performance of gendings always coincides with a stroke of the kenong.
- <sup>6</sup>This gending is available on the disc "Javanese Court Gamelan from the Pura Paku Alaman, Jogjakarta; K.R.T. Wasitodipuro, director." (Nonesuch, Explorer Series H-72044). 1971.
- <sup>7</sup>This gending is available on the disc "Java: Gamelans from the Sultan's Palace in Jogjakarta." (Archiv Production, Musical Traditions in Asia, 2723 017). 1973.
- <sup>8</sup>Robert Brown and Andrew Toth, in the descriptive notes to the disc "Javanese Court Gamelan..." (see note 6 to Chapter IV) identify "Sembawa" as the name of an island. The island to which they are probably referring is Sumbawa (east of Lombok).
- <sup>9</sup>This gending is available on the disc "Javanese Court Gamelan..." (see note 6 to Chapter IV).

## CHAPTER V

## LAGU: MULTI-OCTAVE CONCEPTUALIZED MELODIC OUTLINE

The gambang part is not completely fixed. The way one performer plays the gambang for a certain composition may differ in detail or even broad outline from the way another performer plays it. To a lesser extent, two performances of the same composition by the same performer will show some differences. Gambang playing--and Javanese gamelan playing in general--operates essentially within an oral/aural tradition. Notation systems may function as reminders to gamelan players but are not normally used in performance situations.

As Becker has pointed out, "Until recently, it was believed that oral [sic] performances were either memorized or improvised. In fact, they are neither. The basic building block of an oral [sic] tradition is the melodic formula, not a fixed formula, but one which can be expanded, condensed or rearranged according to the needs of the musical situation in combination with the fancy of the performer" (Becker 1972:47). Given that a musician has a 'vocabulary' of melodic formulas, how does he arrange the formulas to make musical sense in the context of Javanese gamelan music? Becker states, "The musician knows the main melodic outline of the piece being played and chooses his formulas accordingly" (Becker 1972:48). This is an excellent explanation of what apparently takes place in Javanese musical performance, but it leaves a number of questions unanswered. At what level of specificity does the performer know the "main melodic outline" and from what source? To what extent are register and pitch degree important to this outline? It seems clear that Becker has something other than the balungan in mind

but has not articulated it. At a general level, she approaches a concept that I found to be an important aspect of Javanese gambang playing and one that figures prominently in the Javanese criteria for musical excellence.

#### Lagu, the Concept

During my first trip to Java I received some instruction in the theory and practice of gambang playing. The usual procedure in learning how to play the gambang for any composition was to learn the balungan first. I assumed at first that the balungan serves as a guide to the higher density playing of the gambang. Indeed in some cases it is an excellent guide, but in other cases the gambang part seems to be quite independent from it. It soon became quite clear that in the mind of a Javanese musician playing the gambang there was something beyond the balungan: a multi-octave melodic outline.

#### Source and Level of Specificity

An important question to be asked about this multi-octave melodic outline is how the musician acquired it in the first place. The balungan is actually sounded on several of the instruments, but I discovered that the multi-octave melodic outline is not. According to Suhardi, it is, instead, a conceptual abstract of the combination of (in order of importance) rebab, gambang, gendèr, gérong, and pesindèn parts. It is this conceptual abstract which he and others call the 'lagu' (Ind.; lit. song, melody) and which in English I have labelled 'multi-octave conceptual melodic outline'. Many of the musicians with whom I talked mentioned the importance of knowing the lagu of a gending,



especially if one is going to sing or to play one of the multi-octave instruments which sounds at a density greater than that of the balungan (for example, the gambang). Since I discussed the concept of lagu in greatest depth with Suhardi, it is his explanation that I offer here.

The density of the lagu, as conceptualized by Suhardi, was consistently four 'lagu tones' per gatra, each coinciding with a 'lagu beat' (see Figure 11). Suhardi found it extremely difficult to explain just how he could conceptualize the lagu at four beats per gatra while the voices and important instruments do not always or even usually sound at this density. Yet, this is the level of specificity at which he chose to conceive it. Since the balungan instruments frequently do sound at this density, I was prompted to ask why the lagu tones are not always sounded on the balungan instruments within their one-octave limitations. He explained that each part actually sounded has to urip déwé (lit. live itself; have its own individual character, different from other parts) but not stray too far from the lagu within its idiom. This is essential to an understanding of Javanese musical aesthetics and to the relation of each part to the others.

Equally essential is the realization that the lagu of each gending is not a fixed entity in the minds of all Javanese musicians. Neither, for that matter, is the balungan. Since the balungan is actually stated--and by more than one player in a full Javanese gamelan--it must be agreed upon before performance. Usually the lagu is not explicitly agreed upon. Yet according to Suhardi, a performing group will sound best if the members have very nearly the same concept of the lagu of each gending. If this is so, the non-Javanese might ask, why do

musicians not discuss the lagu before performing or even publish a text of lagus for Javanese gendings? The problem (and it is recognized as such by some musicians) is a social as well as a musical one. Recognized musical specialists may not agree with one another concerning the entire lagu of a composition. No one competent musician would wish to openly denounce another's lagu, as manifest in his way of playing certain instruments or singing. However, in study groups or formal training centers where one teacher is recognized as an authority, all the parts played for a gending are likely to be manifestations of a single lagu.

#### Register and Pitch Degree

One of the most important aspects of lagu is octave register.

During the lessons with my informants, the balungan was often sung, and this singing exceeded the range of one octave. When the balungan was written down, register dots were included. This same information is given in the Jogjanese kraton notation discussed in Chapter III (pages 94-95) and comes close to being a possible 'melodic outline', but is a compromise system. The numerals represent the single-octave balungan, but the register marks are intended for instruments which sound something other than the balungan.

This point was made clear to me in nearly every composition I studied. I choose a portion of Ketawang Puspawarna (Corpus I) as an example. The first gatra of the second gongan of the ngelik section (Corpus I:13) would be written as follows: - - 3̣ 2̣. The tone immediately preceding is 3, (with no register dot). I wondered how a

multi-octave instrument such as the gambang would realize this portion of the gending, and my teacher said to think of it this way: 6  $\dot{1}$   $\dot{3}$   $\dot{2}$ . Thus, the path from the previous 3 to the  $\dot{3}$  was to be conceptualized not as two rests, but as 6 followed by  $\dot{1}$ . This is significant. He did not say, "Play it this way", and give his example as the only correct solution. Instead, he said, "Think of it this way", implying that I need not try to play it precisely as he did but that I should think of the outline as he did. In other words, he suggested that I keep in mind a conceptual melodic outline that went beyond the one-octave bounds of the balungan instruments.

The above example involves filling in rests. Later when I studied Ladrang Pankur (Corpus VI), my teacher suggested that the passage 3 5 6 7, the third gatra of the third kenongan of the ngelik section (Corpus VI:52-53), be thought of as  $\dot{3}$   $\dot{3}$   $\dot{2}$  7 as a guide for gambang playing. Remarkably enough, only the last tone of this conceptual outline is the same as the balungan. Unquestionably, the last (fourth) beat of a gatra is the most important (Becker 1972:174), but in this same ngelik section of Ladrang Pangkur, the third gatra of the first kenongan (Corpus VI:37), the balungan differs from the conceptual outline even on the fourth beat:

balungan: - - 3 5      conceptual outline:  $\dot{3}$   $\dot{3}$   $\dot{2}$  7

This means that the balungan, even with indications of register, is not always a sufficient guideline for gambang playing.

## Lagu and Irama

Discussions of gamelan music with Suhardi often revolved around the concept of lagu. One day I asked if he could write down the lagu for a whole gending and he said he thought he could although he never had before. He explained that, for his students, he had written down the lagu for the ndawah sections in irama III in such gendings as Gambir Sawit. The actual tones sounded by the balungan instruments in this context are very often quite 'far apart': one at the end of each gatra. For this reason it is especially important to have some guide besides the balungan for the higher density instruments and vocal parts. I was told by Suhardi and Prajasudirja that until fairly recently it was common to find the saron barung and demung playing four tones, instead of just one, per gatra in this context. Although limited to one octave and to the idioms of the balungan instruments, the part played was very close to what they considered to be the pitch degrees of the lagu. If there were several persons playing this part (as there usually were), there had to be precise agreement on the choice and order of tones, just as in the playing of the balungan. The lagu written by Suhardi for his students and for me was not limited to a single octave nor to the idioms of the balungan instruments and was not intended to be played by any one instrument. Nevertheless, it may often look like a balungan part to those readers familiar with Javanese gamelan tradition.

The fact that Suhardi specified the irama of the section for which he had written the lagu points to the importance of irama to the lagu concept. The ndawah in irama III would not have the same lagu as it

would in irama II. To some extent this is due to the fact that the same number of balungan beats comprise twice as many gatrās (and therefore lagu beats) in irama III as they do in irama II. Below is given the last kenongan of the ndawah of Gending Gambir Sawit in both irama II (Corpus II:101-104) and irama III (Corpus II:69-76).

Balungan: - 6 - 5 - 2 - 1 - 2 - 1 - 6 - 5

Lagu in Ir. II: 6 6 1̇ 5 5 2 2 1 1 2 2 1 2 6̇ 1 5

Lagu in Ir. III: 66662̇1̇652̇2̇2̇2̇65321213253213216̇216̇5

Of particular significance is the lagu leading to the first tone 2 in the balungan: in irama II it is 5 2, but in irama III it is 2̇2̇2̇6̇. Hence, not only is the density relationship of the lagu and the balungan different in iramas II and III, but the lagu tones may bear no apparent likeness.

For irama I and II, the ratio of lagu beat and balungan beat is the same (one to one), but for certain passages the lagu in irama I is not the same as the lagu in irama II. In the mērong section of Gending Gambir Sawit, the lagu for the last six balungan beats of the first kenongan differ depending on whether they are played in irama I (Corpus II:3) or in irama II (Corpus II:17-18 and 33-34), as shown below.

Balungan: - - 2 3 2 1

Lagu, in Ir. I: 2 2 2 3 2 1

Lagu in Ir. II: 2 5 2 3 2 1

In each of the three occurrences of this passage, Suhardi's gambang playing moves away from the lagu at the end of the second of these beats of 5, an acceptable treatment of either lagu tone 2 or 5 in this

paṭet since it is not the end of a musical sentence. He explained that irama II would most likely move to 5, 5, or 2̇ (and not 2). On another day he might have chosen 5 or 2. No matter what tone the gambang player might choose, the lagu at this point is 5 in irama II. Some important features of the playing of the gambang and other instruments closely related to the lagu are discussed in the following section.

#### Garapan, the Treatment

I have heard many musicians use the term 'lagu' in reference to a multi-octave conceptual melodic outline. Another word sometimes used is garapan (lit. the working out, workmanship, treatment), but Suhardi distinguishes 'garapan' from 'lagu'. According to him, 'garapan' is the treatment of the lagu, particularly by the rebab, gambang, and gendèr, each of which may closely adhere to the lagu or may exhibit some independence from it. 'Garapan' is the "doing", the playing of a gending in a certain way, whereas lagu is the conceptual framework. 'Garapan' is not strictly a musical term; a wood carving may be described as having good garapan (i.e., workmanship). While other musicians may use different terms, it is clear that some independence in what Suhardi calls garapan from both the lagu and the balungan is important in Javanese musical aesthetics.

#### Flexibility in Garapan

Garapan, like lagu and balungan, is somewhat fixed by tradition, but may differ slightly from one musician to another. This matter was made clear to me in a discussion of Ketawang Puspawarna with Suhardi. In the first gatra of the second kenongan of the umpak-umpak section

(Corpus I:3), I noticed that the gambang and gendèr parts he played did not seem to relate directly to either the balungan or the lagu.

(The level of specificity in discussing garapan is the same as that in discussing lagu--four per gatra.) The tones of the left hand part of the gendèr are considered to be the fundamental tones with respect to lagu and garapan.

Balungan: - 3 - 2

Lagu: 3 3 2 2

Gendèr r.h. 1̇ 6 3̇ 6  
l.h. 3 6 1 2

Gambang: 3 6 6 2  
(in octaves)

It is important to note that, on the second lagu beat, the lagu does not dip to 6̇ but stays on 3. Suhardi said that the gendèr usually would play 6̇ at this point; the gambang would most likely play either 3 (the lagu tone) or 6̇. The interval 6̇ (gambang and gendèr garapan in the above example) and 3 (the lagu and balungan tone) is called kempyung, which is considered not very dissonant by the Javanese. Yet garapan may be more dissonant. At the end of the first gatra of the ngelik section of this same gending (Corpus I:9), the gambang is a step away from both lagu and gendèr (and from balungan, given that the tone struck on the penultimate beat is still sounding):

Balungan: - - 6 -

Lagu: 6 6 6 2̇

Gendèr r.h.: 6 6 2̇ 6  
l.h.: 2 - 1 2

Gambang: 6 6 6 1̇  
(in octaves)

This point, he said, demonstrates the relative independence of lagu, balungan, and the garapan of gendèr and gambang.

If he had to single out one instrument as closest to the lagu, Suhardi said he would choose the rebab. He was careful to point out that the rebab sometimes leads the lagu, sounding the lagu tone before any other instruments or voice, and sometimes lags behind the lagu when such leadership is not required by tradition. Suhardi told me that the rebab has less freedom to move away from the lagu than gendèr or gambang. The second lagu beat of the final gatra of Ketawang Puspawarna (Corpus I:20) may serve as an example. At this point both the lagu and balungan are tone 1. As he explained, the gendèr is most likely to go to 3̣ (in the left hand), but may go to 1. The gambang is most likely to go to 1, but may go to 3̣. The rebab is wrong if it goes to 3̣; it must go to 1. These statements, he told me, are based on his own listening experience, that is to say, what musicians usually do or do not do. Hence he is not recalling musical theory from a book but suggesting it from performance practice.

#### Implications of Lagu and Balungan for Garapan

Instances of the lagu and balungan in conflict even at the end of a gatra have been mentioned above. Normally, Suhardi said, the gambang tone sounded at this point should be the same as the lagu, rather than the balungan, or occasionally an octave (gembyang) or kempyung away. This holds true even if there is a balungan tone sounded at this point just a step away (kempyang) from the lagu. This is the case in the mèrong section of Cendeng Gambir Sawit; the balungan



of the first gatra of the final kenongan (Corpus II:11 and 27) ends on tone 3, and the lagu is tone 5. Both times this passage is played in the performance transcribed, the gambang tone is 5. Given that 3 is the enemy degree in paṭet Sanga, the gambang player's choice of tone 5 at this point might be interpreted as an avoidance of the enemy degree. However, this justification, while at first attractive, is not accurate according to Suhardi. He fully agreed with the identification of 3 as the enemy degree in paṭet Sanga but explained that the garapan he chose in the passage mentioned above was determined by the lagu. As he pointed out, in Genḡng Gambir Sawit, at the end of the third kenongan in the mērong (Corpus II:10-26) and at the antepenultimate balungan beat in the third kenongan of the ndawah section (Corpus II:67 and 100), both the balungan and the lagu tones are 3. In the two instances of each of these in the performance transcribed, the gambang garapan is also 3. Given that the enemy degree is featured in the lagu (as well as the balungan) at these points, the garapan also features the enemy degree. Hood mentions that occasionally the enemy degree is featured (1954:245), but he focuses on the balungan part only. A tone apparently featured by its position at the end of a gatra in the balungan part may be emphasized or obscured by the lagu-related instruments and voices.

So far, it would seem that the lagu, when different from the balungan at the end of a gatra, overrules it as a guideline for garapan. However, exceptions occur. One such exception which I discussed with Suhardi is found in the ndawah section of Genḡng Gambir Sawit. At the end of the third gatra of the second kenongan (Corpus II:55 and 87), the lagu tone 1 conflicts with balungan 2. He explained that many

musicians quite correctly choose to play gambang tone  $\dot{1}$  here, but he prefers not to conflict with the balungan tone since the only balungan tone of the gatra is the final 2. Therefore, he chooses to go to gambang tone  $\dot{2}$ , which is very close in register to the lagu tone  $\dot{1}$  but forms a pleasing interval with the balungan tone 2 (a gembyang).

I then asked why he does not play tone 2 on the gambang at the end of the first gatra of this same kenongan, where both lagu and balungan tones are 2. Again he said that many players do, but he, along with other players, prefers gambang tone 5 at this point, which forms the not very dissonant interval kempyung. Thus, at the end of a gatra, the gambang player may choose to play the lagu tone, but in certain contexts he may choose the balungan tone or something different from either lagu or balungan.

Throughout the discussion above there has been an implicit assumption: that the tones of the lagu and balungan are available on the gambang as possible choices for the gambang player. Yet it has been pointed out that on Pélog gambangs the pitch vocabulary includes only five tones per octave, at any one time, and not the full seven tones of the Pélog octave. In most cases the lagu and balungan tones are available on the gambang, but not always. For example, in Ketawang Walagita the first kenongan of the final gongan (Corpus III:16) ends on balungan tone 4. This is not one of the pitch options available on the gambang, but neither is it a proper place for exerting independence, since it is the end of a musical sentence. As can be seen in the transcription, the gambang player chooses tone 3 at this point.

The lagu at this point is definitely 4, Suhardi told me. The gambang simply goes to the 'closest tone'. If we think in cent measurements however, tone 5 is 'closer' to tone 4 than is tone 3. The meaning of tone 4 in this context might be stated verbally as 'one degree lower than tone 5'. In some other contexts (rarer, I believe) tone 4 might mean 'one degree higher than tone 3'. On the gambang (and other similarly tuned instruments such as gendèr and celempung), 'one degree lower than tone 5' can only be interpreted as tone 3, and 'one degree higher than tone 3' as tone 5. Below are two examples Suhardi gave to illustrate his point.

	Balungan	Lagu	Gambang 'Interpretation'
Ketawang Walagita (Corpus III:16)	5 6 5 4	6 6 5 4	6 6 5 3
Gending Jangkung Kuning (not in corpus)	2 3 4 2	2 3 4 2	2 3 5 2

In both cases the pitch vocabulary of the balungan instruments enables them to sound the lagu tone precisely, while the gambang cannot.

In other cases the gambang may sound the lagu tone while the balungan instruments, because of their limitations, sound a tone very close but not identical with the lagu, as, for example, in the third kenongan of Ladrang Sembawa (Corpus V:6 and 7):

Balungan:	- 3 5 6 7 6 5 3
Lagu:	3 3 5 6 <i>i</i> 6 5 3
Gambang:	3 3 5 6 <i>i</i> 6 1 3

The lagu tone *i* is not available on the balungan instruments. The gambang is able to (and does) sound the lagu tone while the balungan instruments sound a tone very close but not identical: 7. It might

be said that both gambang and balungan instruments sound the tone one degree higher than 6. One might argue that the balungan instruments could sound degree 1 rather than 7 at this point, but according to Suhardi this would involve unnecessary and uncomfortable leaps in the balungan part: from 6 down to 1 and then up to 6 again. In its actual form, then, the balungan here exhibits an internal order which conflicts with the order of some other aspects of the whole gamelan fabric. In other words, the balungan must have some character itself; no part is slavishly dependent upon another.

Such internal 'harmony' (i.e., with itself) is important enough to be chosen over a situation in which internal harmony is sacrificed for external harmony (i.e., with others). This account is couched in socio-cultural terms because of what I feel to be an important similarity between music structure and social structure. Just as the Javanese value harmony with oneself as well as harmony with others in society, so it appears that 'individual' parts within the gamelan 'society' must have individual identities by themselves as well as in relation to the other parts. To the best of its 'ability', each part works in harmony with the others. The individuality, which is determined by the particular nature and idioms of a certain part, should not be sacrificed and sometimes brings about points of conflict. Kartomi (1970) has mentioned that these points of conflict are essential to the Javanese aesthetic. I might add that so is their resolution, seen most basically at the end of a gending, where musical conflict is always (to my knowledge) at an absolute minimum, and to a lesser extent at the end of each musical sentence. Continuing social-musical analogy one

step further, just as society and the individuals within it change over time, so does Javanese gamelan music and the individual parts played within it. This is discussed in the following section.

### Change in Lagu and Garapan

The several acceptable ways that garapan instruments might 'treat' a given passage, as discussed above, constitute changes in garapan with no change in lagu. Yet there are cases where one lagu or another is possible. It is the rebab that must signal the other musicians which lagu passage is about to come. For example, the number of times the umpak-umpak section of Ketawang Puspawarna is played before proceeding to the ngelik section is determined by the rebab player. When the performance is to proceed to the ngelik, the rebab will sound tone 6 near the end of the penultimate gatra (Corpus I:7). In this case there is no change in the balungan: the tones of the final gatra are the same, whether proceeding to the ngelik or repeating the umpak-umpak. The lagu and garapan, however, change radically in both register and pitch degree. (The gambang garapan is chosen for display here; rebab, gendèr and pesindèn parts are also markedly different depending on whether the umpak-umpak is to be repeated or the ngelik is to be played).

If repeating umpak-umpak:  
(Corpus I:4)

Balungan: - 1 - 6

Lagu: 3 1 2 6

Gambang: 6 1 3 6

If proceeding to ngelik:  
(Corpus I:8)

Balungan: - 1 - 6

Lagu: 6 2̇ 1̇ 6

Gambang: 6 2̇ 3 6

In this passage, all the instruments important to the lagu, as well as the pesindèn, must demonstrate within their own idioms whether to repeat

the umpak-umpak or proceed to the ngelik. In other words, once the rebab player has made the choice there should be no ambiguity as to what section comes next. The change in lagu communicates musically to performers and audience; the flow of the performance does not have to be set previously.

Another type of change in garapan occurs in some compositions, for example Ketawang Subakastawa (not in the corpus of this study). The first time I heard this gending, I was surprised to notice what appeared to me to be an ambiguous point with respect to register at the end of the ngelik section. The final balungan tone is 5. The gambang and rebab played in the low register (5), but both the pesindèn and gérong sang in the middle register (5). After the performance I questioned Suhardi and found an important aspect of what he and most musicians consider to be correct gambang playing. He told me that no one was wrong in this case. If the rebab is in the lower register the gambang should also be in the lower register, even if the vocal parts are not. His conceptualization of the lagu was low (5). Only at the end of the entire performance did the gérong and pesindèn sing in the low register for the final passage of the ngelik. This change in register of the vocal parts confirms that the performance is ending, but it does not signal the ending. Instead it is a response to a drum signal, given earlier, that communicates to performers and audience. The lagu, according to Suhardi, has not changed; only the garapan of the singers has changed.

After pondering this for a few minutes, Suhardi brought up another example: Ladrang Sri Rejeki (not in the corpus of this study).

Formerly, he said, the register of both the gambang and rebab were low in much of the fourth gongan; he did not recall the register of the pesindèn part. Currently it is in the middle and high registers, and many rebab players choose to play in the same register as the pesindèn part. This leaves the gambang player with a choice, which for a Javanese musician may be somewhat of a dilemma. By Javanese musical tradition the rebab and gambang should be in the same register, but the traditional register of the portion of the gending in question is not manifest on the rebab. Or, as Suhardi asked rhetorically, where is the lagu? He decided that the lagu was formerly low and hypothesized that in five years it will be high; but now there is some question as to just where it is. The gambang is not wrong in either choice, but neither is it completely right. For the gambang to play in the low register in this case is to 'argue' musically with the rebab player, but to play in the middle and high register is to give in to the rebab player's ideas, thereby confirming his departure from tradition. Such situations are rare enough that Suhardi felt a general rule could be stated: the rebab and gambang should be in the same register as the lagu, with the assumption that both may and should have some degree of freedom from the lagu and from each other except at the end of a musical sentence. This is certainly true for the gambang playing in the corpus of this study and points to the importance of individuality as well as group 'harmony' in Javanese music.

### Summary

Concerning lagu and its ramifications in Javanese gamelan music, much is yet to be learned. Further analysis of musical practice and extensive discussion with other prominent musicians are necessary before anything definite can be said, on a wide basis, concerning this aspect of Javanese musical thinking. What has been discussed above is the concept as explained by one prominent musician, and for him the lagu of a given gending may be different in a few years. This should not deter discussion and analysis of his ideas. Each gending to be discussed and analyzed was performed by Suhardi at a particular point in time in 1974; if performed in a different year, month, day, or time of day, some aspects of his playing would have been different. Since no single performance is 'definitive'--nor is it expected to be--especially in an oral/aural tradition, neither can any theory based on musical practice be definitive in all details.

With this in mind, I offer a summary of the lagu concept as I understand it from Suhardi in the context of gendings:

1. It is a conceptual abstraction and synthesis of performance practice, particularly (in order of importance) the playing of the rebab, gambang, and gendèr, and the singing (gérong and pesindèn). It is not manifest in pure form by any of these.
2. It is conceptualized as four tones per gatra regardless of the irama in which the gatra is played, but the same passage may differ in lagu from one irama to another.
3. It is multi-octave in nature and may include tones not available on the balungan instruments or on the garapan instruments



of fixed pitch (gendèr and gambang).

4. Strict adherence to the lagu at all times is not artistically desirable, even by the garapan instruments. Instead, the garapan parts should exhibit some aspects of the lagu and some pleasing deviation from it. The norms for such artistic playing, while somewhat prescribed by tradition, allow for individual interpretation.

5. Lagu and garapan may change over time (both macro- and micro-) for a portion of a gending. Micro-: The lagu of the final gatra of the umpak-umpak of Ketawang Puspawarna may be 3 1 2 6̇ or 6 2̇ 1̇ 6̇, depending on whether the umpak-umpak is to be repeated. Macro-: The lagu of the fourth gongan of Ladrang Sri Rejeki was formerly low in register but now appears to be changing. In five years, perhaps, it may be unambiguously in the middle and high registers. In both the micro- and macro- examples it is the part played by the rebab that determines a change in the lagu.

## CHAPTER VI

## METHODOLOGY IN THE ANALYSIS

Rationale

As E. T. Hall has stated, "(1) Information out of context is meaningless and cannot be reliably interpreted. (2) The separation of information from context, as though the two were unrelated is an artifact of Western science and Western thought" (1974:21). He also finds that some cultures are more 'contextual' than others. I believe Javanese culture is highly 'contextual', as pointed out in Chapter I. Javanese musical behavior is no exception; thus, to try to understand gambang playing only in terms of itself is not justifiable. With this in mind, aspects of the gambang's socio-cultural and musical contexts have been discussed before focusing on the gambang part itself. The analytical portion of this study attempts not to separate information from context any more than necessary, and, while following systematic and scientific procedures, assumes indigenous criteria in its orientation.<sup>1</sup>

I have chosen to investigate a number of musical characteristics about which aesthetics-related remarks were made by my informants. I hasten to add that the remarks were not made in response to the particular examples transcribed but were of a more general nature. The purpose of the analysis is not to test the validity of these remarks but rather to use them as guidelines for what kind of data to subject to statistical analysis. In so doing, a more precise understanding of gambang playing, as represented in an admittedly small sample, may

emerge. The analysis is grouped under three headings: non-thematic (dealing with aspects of the left- and right-hand parts separately); motivic (dealing with the gambang part monophonically, in regular units); and integrative (dealing with the relation between each lagu tone and the gambang tone sounded simultaneously with it). In the first two headings, the analysis is concerned with the gambang as an 'individual'; in the final heading the analysis is concerned with the gambang as a part of the gamelan 'society'.

### Non-Thematic Analysis

#### Total Melodic Range

My informants tell me that the total range of the gambang part (left and right hands) for any given gending should be wide, whether or not the range of the lagu of the gending is as wide. In the following example, from the first kenongan of the second statement of the umpak-umpak in Ketawang Puspawarna (Corpus I:6), already the gambang part is a full octave above the lagu:

Lagu: (3) (2)

Gambang: 6 6 6 2̣ 2̣ i 2̣ 3̣ 3̣ 3̣ 2̣ i 3̣ 2̣ 6 3

The range of each hand in each of the examples will be stated with the purpose of determining what is a sufficiently "wide range" in gambang playing.

#### Maximum Stepwise Motion

While the total range should be wide, stepwise motion in either hand in either direction, I was told, should be "not much more than

one octave" (octave=five keys) in successive steps. The following passage, a hypothetical example, should not occur in good gambang playing: 2 3 5 6 1 2 3 5 6 1 2. The limits of stepwise motion in each of the examples will be stated with the purpose of determining more specifically the meaning of "not much more than one octave".

#### Maximum Repetition of a Single Tone

Stating a single tone several times in succession is common in gambang playing. However, "too many" repetitions of a single tone are not considered aesthetically desirable. From my experience, the perceived limits of acceptability differ from one gambang player to another. Assuming the transcribed examples to be representative of Suhardi's gambang playing, the maximum number of successive statements of a single tone in his style may be determined.

#### Non-Octave Playing

Despite the fact that gambang playing is frequently described and thought of as octave playing, I found that playing only in octaves is a mark of a beginner. The more experienced player, I was told, plays with some independence of left and right hands. This is, to my understanding, less important in Surakarta, where even the best gambang players may play almost entirely in octaves. However, occasional independence of left and right hand is found in Solonese gambang playing as well.<sup>2</sup> In Jogjakarta, the independence of hands is more highly valued. This may take the form of a rest in one hand while the other plays, or a non-octave interval resulting from the right hand playing

something other than the tone one octave higher than that played by the left.

As I began to analyze the transcriptions with respect to non-octave playing, I soon became aware of trends in the rhythmic 'location' of rests and non-octave intervals. Rather than simply present the total number of rests or non-octave intervals for each example, it seems more meaningful to quantify each type of non-octave playing with respect to its rhythmic location. The smallest meaningful unit in gambang playing, as far as I am able to determine, consists of eight gambang beats. This is the smallest unit used in teaching gambang. Even when I made a mistake on one or two gambang beats, my teacher would correct me by singing or playing at least the eight-gambang-beat unit in which my mistake occurred. The importance of units of eight in Javanese music is well known and has been discussed and demonstrated by Susilo (1967:62). It appeared to be the most meaningful unit for the motivic analysis, discussed below.

#### Motivic Analysis

Susilo (1967) and Becker (1972) have used a motivic approach to the analysis of Javanese drumming and balungan respectively. Becker has pointed out that Javanese music is essentially motivic in nature and that motifs may be classified meaningfully by contour. Gambang playing is certainly motivic; aspects of its motivic organization deserve analytical investigation.

## Classification System

### Choice of Unit

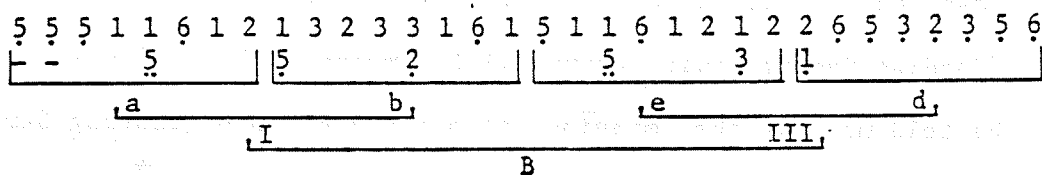
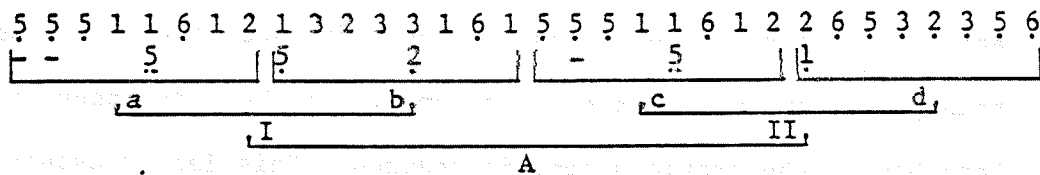
Not only did the unit of eight gambang beats appear to be significant in terms of patterns of octave and non-octave playing but also as the unit of motif. Becker's study of balungans was based on groups of four balungan beats. In a preliminary analysis of two gendings in the corpus of the present study, a unit of four gambang beats was used. This revealed the common elements in the following two passages from Ladrang Pangkur:

$\dot{2} \ 7 \ \dot{2} \ 7 \ 6 \ 6 \ 6 \ \dot{2} \ \dot{2} \ 7 \ \dot{2} \ \dot{3} \ - \ \dot{3} \ \dot{2} \ \dot{3}$ $\underline{\dot{6}} \quad \quad \quad \underline{\dot{6}} \quad \quad \quad \underline{\dot{6}} \quad \quad \quad \underline{5}$ $\quad \underline{a} \quad \quad \quad \underline{b} \quad \quad \quad \underline{c} \quad \quad \quad \underline{d}$	(Corpus VI:42)
$\underline{\dot{6}} \ \underline{\dot{6}} \ \underline{\dot{6}} \ \underline{2} \ \underline{2} \ \underline{7} \ \underline{2} \ \underline{3} \ \underline{6} \ \underline{7} \ \underline{\dot{2}} \ \underline{\dot{3}} \ \underline{\dot{2}} \ \underline{6} \ \underline{5} \ \underline{3}$ $\quad \underline{\dot{6}} \quad \quad \quad \underline{\dot{6}} \quad \quad \quad \underline{\dot{6}} \quad \quad \quad \underline{\dot{6}}$ $\quad \underline{b} \quad \quad \quad \underline{c} \quad \quad \quad \underline{e} \quad \quad \quad \underline{f}$ $\quad \quad \quad \text{III} \quad \quad \quad \quad \quad \quad \text{IV}$	(Corpus VI:16)

Using the eight-gambang-beat unit, each passage would consist of two motifs (I and II; III and IV), with no motifs in common. What I believe the Javanese ear would discern as a unit is the eight-gambang-beat combination of unit b with unit c. However, in most cases the four-beat unit proves impractical since it suggests a grouping that the Javanese would not discern as a meaningful unit.

In singing the gambang part (for instructional purposes), my teachers sometimes used larger groupings: frequently 16, and occasionally 32 gambang beats. In a preliminary analysis of two gendings, these longer units tended to obscure important similarities. The following two passages from Ketawang Mijil Wedaring Tyas may serve as

examples:



(First passage from Corpus IV:7;  
second passage from Corpus IV:9.)

The use of a 32-beat unit would obscure the obvious similarity between these two passages (A and B). The use of a 16-beat unit would show that the first halves of the two passages (I and I) are identical, but would obscure the similarity between the second halves (II and III). The use of an eight-beat unit points to the difference between the third eight-beat units in each passage (c and e), while showing the identity of the others (a, b, and d, appearing in both passages).

#### Motif Code

To be able to talk about the eight-beat units, a system of classification and nomenclature had to be developed: a means of coding the motifs. I constructed a code which differentiates one eight-beat unit from another without obscuring certain similarities. The system which I chose is based heavily on what was communicated to me both verbally and musically by my informants. Since the gambang part is talked about as essentially a monophonic phenomenon, and since the left-hand part is

demonstrated to be the more important, it is the left-hand part that is analyzed motivically. In keeping with the Javanese perception mentioned earlier, in the case of a rest in the left hand, the right-hand tone, transposed down one octave, is assumed. In the rare cases of a rest in both hands, the previous tone is assumed. This latter assumption is based on verbalization by Suhardi, who said that the unit 2 - 2 1 2 6̣ 1 2 (Gending Gambir Sawit, Corpus II:5) 'means' 2 2 2 1 2 6̣ 1 2. Similarly, he told me that the 'meaning' of 5 6 6̣ 5 6 3 5 6 (Ladrang Sembawa, Corpus V:13) is 5 6 6 5 6 3 5 6. The delayed tone 6̣ is part of his idiolect but not essential to an 'emic' representation of the eight-beat unit. The code, then, assumes a monophonic unit of eight evenly spaced gambang beats.

One of the most important aspects in learning to play the gambang is learning passages as physical processes which may be transposed to various pitch levels within one tuning system and from one tuning system to another. Two eight-beat units which differ in sound product but are identical in process are considered the same by the Javanese, for example the following two units:

2 3 1 6̣ 5 1 6̣ 5 (Gending Gambir Sawit, Corpus II:5)

3 5 2 1 6̣ 2 1 6̣ (Ketawang Puspawarna, Corpus I:19)

To the eye these two units look different, but the process involved is identical. The first begins on 2 and the second on 3. The movement of the beaters, in octaves, is as follows:

right 1 key  
left 2 keys  
left 1 key  
left 1 key



right 2 keys  
 left 1 key  
 left 1 key

The identical unit occurs in both types of Pélog (Bem and Barang) as well:

3 5 2 7 6 2 7 6 (Ladrang Pangkur, Corpus VI:6)

3 5 2 1 6 2 1 6 (Ketawang Walagita, Corpus IV:9)

In coding the eight-beat units the process orientation is adopted, so that the above four examples are given a single designation.

#### Capital Letter: First Element

In discussing gambang playing with my informants, I found that the most important part of an eight-beat motif is its final three or four beats. In all cases the final three beats appeared to be the most meaningful. During lessons, a mistake in the beginning of a motif was more forgivable than one near the end. For this reason, the classification of motifs takes as its first criterion the final three beats (i.e., the final two processes). For this component of the code, distinction is made between steps and leaps, but not between leaps of different sizes. Five possible processes are identified:

- a. leap downward (to the left)
- b. step downward (to the left)
- c. repeat preceding tone
- d. step upward (to the right)
- e. leap upward (to the right)

Combinations of these yield 25 possibilities, each designated by a capital letter as follows:

<u>Designation</u>	<u>Final 2 processes</u>
A	a a
B	b a
C	c a
D	d a
E	e a
F	a b
G	b b
H	c b
I	d b
J	e b
K	a c
L	b c
M	c c
N	d c
O	e c
P	a d
Q	b d
R	c d
S	d d
T	e d
U	a e
V	b e
W	c e
X	d e
Y	e e

Of these, C, E, O, X, and Y do not occur in the corpus of this study.

Although for some motifs this designation seemed sufficient, for others a further designation was necessary to show important similarities and differences.

#### Lowercase Letter or Numeral: Second Element

From discussion with Suhardi, it appeared that motifs whose lowest tone is the motif final should be differentiated from motifs whose lowest tone is lower than the motif final. For the former, the process immediately preceding the final two processes is indicated by a lower case letter following the capital letter. The following combinations occur in the transcribed examples:

Ab	(a=leap downward
Ad	b=step downward
Bb	c=repetition of preceding tone
Bc	d=step upward
Bd	e=leap upward)
Db	
Fb	
Fd	
Ga	
Gb	
Gd	
Ge	
Hb	
Kb	
Kc	(Note: only motifs with capital
Lb	letter designations A through M
Lc	could fall under the category
Mc	'lowest tone = final')

For those motifs whose lowest tone is lower than the final the distance from the lowest to the final appeared to be an important aspect of the motif--far more important than the approach to the final two processes. Hence, for motifs whose low is lower than the final, a numeral follows the capital letter and represents the distance (in keys) from the lowest to the final tone. This deserves some elaboration below, since this aspect of gambang playing relates to the modal concept 'paṭet'.

#### Accession Number: Third Element

In a number of cases, there is more than one motif designated by the same capital letter and lowercase letter or numeral. For example, within the category 'S3' (i.e., the last two processes are a step upward followed by a step upward, and the distance from lowest tone to final is three keys), there are 20 individual motifs. Their similarity is shown in the common designation 'S3'. In addition to this, each motif is given a numerical designation separated from the previous

two elements by a dash. Thus, the complete designation includes an accession number, thereby identifying each one as a specific motif, for example, S3-1, S3-2, S3-3, and so on. All motifs with the same first two elements (i.e., without accession number) are considered to be one 'motif type'.

#### Extended Motifs

In four cases--the last motifs of Gending Gambir Sawit (Corpus II:104), Ketawang Puspawarna (Corpus I:20), Ketawang Walagita (Corpus III:18), and the final motif of irama I in Ketawang Mijil Wedaring Tyas (Corpus IV:2-3)--the motif is extended, and I questioned Suhardi concerning their 'identity' as motifs. In all four cases, he pointed out that they are identical in meaning to non-extended motifs. The following example shows the last portion of Ketawang Puspawarna (Corpus I:20) as played and as conceived.

3 5 3 55663565 6666 as played

                  - - 1 - -

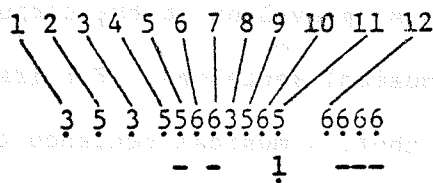
3 5 3 5 6 3 5 6 as conceived (S2-17)

For non-thematic analysis, the gambang part is analyzed as played.

Since there was discussion of its conceptualization as motif, the motivic analysis is based on that conceptualization. Such playing is represented in the motivic transcription with an x after the accession number, but treated in the motivic analysis as if not extended. (For example, the above is S2-17x but analyzed as S2-17.)

By the definition of irama given in Chapter II, the final motifs of Ketawang Puspawarna, Gending Gambir Sawit, and Ketawang Walagita

might be interpreted as changes to irama III from irama II, since the density of the gambang changes in relation to the balungan beat. I was told, however, that this is not felt as irama III, nor is it conceptualized as irama III, as may be seen in the above example. Since this is an ambiguous point, in the non-thematic analysis the above example is considered to consist of twelve gambang beats:



Since the analysis of octave playing assumes a grouping of eight gambang beats, the above example will be grouped as follows:

Gmb. beat no.	1	2	3	4	5	6	7	8
Gmb. part	3	5	3	5				
Gmb. part	5	6	6	3	5	6	5	6
	-	-					1	

As in many musics, the ending is a special case. The doubling results from a slackening of tempo and contributes to the feeling of cadence by its difference from other playing in the given irama. The reiteration of the final tone is optional and in these examples is done perhaps to compensate for the absence of the gong, whose decay is much slower than that of the gambang. For this reason, the reiteration is not given analytical consideration.

Motivic Transcription

The transcription of each gending is translated into a motivic transcription to facilitate the motivic analysis with respect to motif finals and sentence position (rhythmic position in the musical sentence). Each line of these motivic transcriptions allows for eight motifs. This unit corresponds to a musical sentence in iramas II and III, which are the two iramas most prevalent in the corpus. For irama I, each line allows for two musical sentences. For irama IV, each line allows for one gatra, and, thus, a musical sentence consists of two lines of motivic transcription. For irama seseg, the initial irama in all but one of the corpus items, a motivic orientation in playing is not operative.

The same principles involved in the cipher transcription are used in the motivic transcription, except that in the latter a single line can accommodate 64 gambang beats (eight motifs) rather than 32 (four motifs). Changes in irama are represented by a solid vertical bar at which point the eye should immediately shift to the line below. The motif final and the colotomic structure are given in the line above the motivic designations. Below, the gambang part, balungan, and colotomic structure of the first kenongan of Ketawang Puspawarna (Corpus I:2) are given along with the 'translation' into motivic transcription.

B&C	-	2t	-	3w	-	2t	-	ln																								
Gmb	6	1	6	1	2	6	1	2	2	1	2	1	6	1	2	3	5	6	3	2	1	2	6	5	3	3	3	6	6	5	6	1
					6													3														
					2t					3w					5t					ln												
	S2-17				S3-16				Fd-3				S3-12																			

### Content of Motivic Analysis

The motif code and the motivic transcription allow several important features to be analyzed.

#### Total Number of Motifs Used

In the evaluation of some gambang players, I frequently heard Suhardi comment that someone had too few motifs in his vocabulary ("variasiné kurang"). The word variasi, which is clearly related to, if not derived from, the English term 'variation', is used at several levels of specificity including the eight-gambang-beat unit. It referred not to the concept 'variation' but to an identifiable unit. The use of this term assumes a motivic orientation for gambang playing in general. For each gending, the total number of motifs used will be compared with the total number hypothetically possible (i.e., the number of eight-gambang-beat spaces that are filled by motifs). The results will give an indication of how much similarity and how much variety Suhardi finds aesthetically desirable.

For all aspects of the analysis, the data for each irama is given separately. This seems necessary for several reasons. First, the density of the gambang beat to the balungan beat is different in each irama. The gambang density with respect to lagu beat is the same in irama II and III, which might seem to justify combining these two iramas in the analysis. I was told however, that the type of drum used is an important contextual determinant of proper gambang playing. Since the use of the ciblon drum was assumed for irama III (and IV) in the two corpus items which contain playing in irama III (Gending Gambir

Sawit and Ladrang Pangkur), each irama is kept separate, at least for the initial compilation of data.<sup>3</sup>

There are certain motifs that are appropriate only in the context of ciblon drumming. Outside this context, such motifs should occur rarely. These motifs will be enumerated and discussed in the analysis. They are referred to by my informants as ugal-ugalan (lit. mischievous; i.e., playful, joking). The 'non-ugal-ugalan' motifs are categorized as more alus (refined) than the ugal-ugalan motifs, reflecting the Javanese tendency to view behavior within continuums. The ugal-ugalan motifs are not kasar (coarse) motifs, but are simply less alus than the others.

#### Motif Final and Motif Low

The lowest tone of a motif apparently stands out and conveys some feeling of paṭet to the attuned Javanese listener. Two Sléndro paṭets, Sanga and Manyura, serve as examples. The enemy degree of paṭet Manyura is 5, while that of paṭet Sanga is 3. In playing the gambang, it is important not to give emphasis to the enemy when the motif final itself is not the enemy. The following example shows two ways of approaching degree 1.



3 3 3 6 6 5 6 1 (Ketawang Puspawarna, Sléndro  
paṭet Manyura, Corpus I:6)



5 6 5 6 1 5 6 1 (Gending Gambir Sawit, Sléndro  
paṭet Sanga, Corpus II:6)

Although the enemy degree 5 is sounded in the first passage, it is masked by the fact that the lowest tone is 3. Thus, the contour of the



passage is heard as 3 to 1. In the second passage, the enemy degree 3 is avoided entirely, and degree 5, prominent in paṭet Sanga, is stressed. To play the first passage in a gending in paṭet Sanga, or the second in paṭet Manyura, would, according to Suhardi, destroy the sense of paṭet.

In addition to avoidance of the enemy, there are other factors that determine motif low. If, for purposes of discussion, the choice is limited to the two motifs above, but transposable, it should be clear that the first should be chosen over the second for the approach of final 6 in paṭet Sanga. This is Suhardi's choice, for example, in Gending Gambir Sawit (Corpus II:9):

2 2 2 5 5 3 5 6 (=S3-12)  
2

The second would have emphasized the enemy. By the principle of avoiding the enemy, either choice should be acceptable in paṭet Manyura, since the lowest tone in either case would not be 5. However, because the first passage is the preferable choice for paṭet Sanga, the second is more commonly chosen in paṭet Manyura, for example in Ketawang Puspawarna (Corpus I:8):

3 5 3 5 6 3 5 6 (=S2-17)

Hence, to give a feeling of paṭet Manyura, not only is the enemy of paṭet Manyura avoided, but the enemy of paṭet Sanga is given prominence.

With this principle in mind, it follows logically that the approach to degree 2 in paṭet Sanga might emphasize the paṭet Manyura enemy. The first passage is transposed to end on 2, as, for example, in Gending Gambir Sawit (Corpus II:43):

5 5 5 1 1 6 1 2 (=S3-12)

5

And, as might be expected, the approach to 2 in paṭet Manyura avoids the enemy, so that the second passage is found, for example, transposed to end on 2 in Ketawang Puspawarna (Corpus I:2):

6 1 6 1 2 6 1 2 (=S2-17)

However, there are passages approaching degree 2 in paṭet Sanga whose lowest degree is 6 rather than 5, for example:

5 6 5 3 2 6 1 2 (=S2-4)

1

This passage occurs in Gending Gambir Sawit (Corpus II:7) but also in Ketawang Puspawarna (Corpus I:7) indicating that the enemy of the other paṭet need not always be emphasized. In the course of the analysis of each of these gendings in their entirety, the player's preference will be shown.

Concerning motif lows in approach to finals 5 and 3, the enemies of paṭet Manyura and Sanga respectively, still another aspect of the difference between paṭet Manyura and paṭet Sanga is demonstrated. In Javanese conception, it is often said that paṭet Manyura is paṭet Sanga transposed up one key. From what has been discussed above, the approaches to degree 3 in paṭet Manyura and 5 in paṭet Sanga should be derivable. The approach to degree 2 in paṭet Sanga should be transposed up one key to become the approach to degree 3 in paṭet Manyura; the approach to degree 6 in paṭet Manyura, should be transposed down one key to become the approach to degree 5 in paṭet Sanga. The only

remaining question is how to approach degree 3 in paṭet Sanga and 5 in paṭet Manyura, for which I can offer only conjecture. Given that degree 6 becomes the preferred low for the approach to degree 3 in Manyura, in order to show a difference between paṭets Sanga and Manyura, degree 1 might become preferable to degree 6 as the low (limiting the choices to either two or three keys below the final). However, if this is transposed up one key for approach to degree 5 in paṭet Manyura, the result is 2 to 5, which is also the preferred approach to 5 in paṭet Sanga. One could start with the approach to degree 5 in paṭet Sanga (2 to 5) and deduce that, for a difference between the two paṭets, the approach to degree 5 in paṭet Manyura should be 1 to 5. But this is not a transposition up from the Sanga approach to 3 (1 to 3). Neither choice can be completely rationalized by principles of enemy avoidance or emphasis in motif lows. In short, Suhardi indicated to me that the more usual performance practice involves 1 to 3 rather than 6 to 3 for approaching degree 3 in paṭet Sanga and 2 to 5 rather than 1 to 5 for approaching degree 5 in paṭet Manyura. The predictions are summarized below:

Motif Final	Theoretically Preferred Approach	
	Paṭet Sanga	Paṭet Manyura
<u>6</u>	<u>2</u> up to <u>6</u>	<u>3</u> up to <u>6</u>
<u>5</u>	<u>2</u> up to <u>5</u>	<u>2</u> up to <u>5</u>
<u>3</u>	<u>1</u> up to <u>3</u>	<u>6</u> up to <u>3</u>
<u>2</u>	<u>5</u> up to <u>2</u>	<u>6</u> up to <u>2</u>
<u>1</u>	<u>5</u> up to <u>1</u>	<u>3</u> up to <u>1</u>

The incorporation into the motif code of the distance from lowest to final will allow discussion of modal restrictions in each gending.

Above I have discussed only two possibilities (two keys or three keys)

in only two pačets. Distances of one, four, five, and seven keys also occur, and their implications for the pačet of each gending in the corpus of this study is discussed in the analysis.

#### Motif Final and Motif Type

The types of motifs used to approach each motif final will be investigated. For this portion of the analysis, motifs with the same designation but different accession numbers will be grouped together since remarks about aesthetic considerations were specific only to this level.

#### Sentence Position and Motif Type

Position within the musical sentence may be another determinant of motif type. Perhaps because this is assumed by the Javanese, no explicit comments were made to me about it. At this point, it is useful to examine the penultimate eight-gambang-beat unit in score 14 of the cipher transcription of Ladrang Pangkur (Corpus VI:14), a passage which the player deemed unacceptable and is therefore left out of the analysis. Something can be learned from an error, however. Had this passage been given a motivic designation, it would have been S2 (followed by an accession number). The final tone is 6, and the passage falls in the third sentence position. The motif type S2 for the approach to tone 6 is found fairly frequently throughout the corpus, but not once is motif type S2 found in the third sentence position. It seems probable, therefore, that Suhardi's identification of this as an error is based on an intuitive feeling that motif type S2, which may fit (cocog) with final tone 6 in some contexts, does not fit in the context of the third

sentence position, no matter what the final tone.

### Variety Coefficients

To be able to discuss and compare the extent of variety in motif types used for a given final or a given sentence position, variety coefficients are derived. A minimum of one motif type must be used for the approach to each tone. For a tone approached exclusively by one motif type, there is no variety (.00). For a tone approached  $y$  times by  $y$  number of motif types, there is complete variety (1.00). The variety coefficient is computed as follows:

$$\frac{(\text{Number of motif types used for a final}) - 1}{(\text{Number of occurrences of the final}) - 1}$$

Hence, if a final occurs only once, no variety coefficient may be computed. For a given irama, or for a whole performance, the extent to which motif final may be a determinant of the type of motif used is computed as follows:

$$\frac{(\text{Sum of number of motif types used for each final}) - (\text{number of finals})}{(\text{Number of occurrences of all these finals}) - (\text{number of finals})}$$

The variety coefficient with respect to final tone may then be compared with the variety coefficient for the extent to which a sentence position may be a determinant of motif type, computed as follows:

(Number of motif types used for a position) minus 1  
divided by

(Number of occurrences of the position) minus 1

Again, if a position occurs only once, no variety coefficient may be computed. For a given irama, or for a whole performance, the extent to which the position may be a determinant of the motif type used is computed as follows:

(Number of motif types used for each position)  
minus (number of positions)  
divided by

(Number of occurrences of all positions)  
minus (number of positions)

#### Prominent Motif Types

Each motif type which accounts for more than 2.5% of the total motif positions in a gending is analyzed in attempt to determine whether some motif types are more final-specific and others more position-specific.

#### Integrative Analysis: Gambang and Lagu

The emphasis must be shifted at this point to an inquiry into how the gambang part integrates into the group. Since the time required to transcribe all the parts for each gending would have further limited the number of gendings in the corpus of this study, the analysis cannot offer a complete picture of the relation of the gambang part to each instrument and voice of the ensemble. As has been pointed out in Chapter IV and V, what my informants consider to be the gambang's

'core context' is the rebab, gendèr, gérong, and pesindèn parts. Since I heard more comments about the gambang part's relation to the lagu than to any of the individual parts actually played, I have chosen to investigate the nature of this relationship. It is worth noting, nevertheless, that my informants mention the frequent similarity between gambang and gendèr parts--a subject which merits further study.

#### Intervallic Relationship

The tone played on the gambang simultaneously with each lagu beat is a focus of attention. As demonstrated in Chapter V, sometimes the gambang tone is the same (unison) as the lagu tone but sometimes not. Within the first eight lagu beats of the first gending to be analyzed (Ketawang Puspawarna, Corpus I:2) already there are instances of non-unison. One of the concerns of the analysis is to discover trends in the rhythmic 'location' of such non-unisons within the context of the musical sentence and to show what types of non-unisons occur.

Comments on the gambang part's relation to the lagu are within what in the West would be identified as the realm of consonance--dissonance. As is the case with other aspects of Javanese thought, a binary division such as consonance vs. dissonance (if something is not consonant, it is dissonant) is not operative. Instead there is a continuum from consonant to dissonant. The word commonly used by my informants for 'consonant' is 'harmonis'. The foreign origin of the word 'harmonis' is acknowledged by my informants, but they nevertheless make frequent use of the term in discussing musical relationships, and occasionally social relationships.<sup>4</sup>

'Harmonis-ness' in music is talked about at several levels of specificity. For example, one whole performance might be described as more harmonis than another. While a musicological explanation of what makes one performance more harmonis than another is beyond the scope of this study, it seems safe to say that, at this level, the more harmonis the better. To my understanding, this might be comparable to a comment in English that one performance is more 'together', 'clean', or 'polished' than another.

More specific is the Javanese conception of intervals between tones, which deserves explanation here. At this more specific level, maximum 'harmonis-ness' is not desirable in each sentence location; too much consonance would be dull.

#### Interval Terminology

Javanese terminology for intervals is not based on cent differences, but on distance between two keys on the gambang (as well as gendèr, gendèr panerus). The interval between two tones is referred to as if they were played on these instruments. Thus 3 and 5 in pélog would be considered adjacent tones, even though they are not physically adjacent on all instruments. A particular interval may vary in cent measurement depending on what tones are present on a given instrument. Using the sample Pélog intervallic structure in Figure 2 and keeping in mind that only five tones per octave are found on the gambang at any one time, one finds, for example, that the interval resulting from striking two keys separated by one key may yield very different intervals as measured in cents.



<u>Keys Struck, Lower First</u>	<u>Resultant Intervals in Cents</u>
bem and dada (1 and 3)	242 [sic]
gulu and lima (2 and 5)	593
dada and nem (3 and 6)	559
lima and bem (5 and 1)	552

The remarkable difference between the bem to dada interval (242 cents) and the others (each over 500 cents) shows in one way the process (kinetic) orientation in Javanese musical thinking and performance. As pointed out in discussing motifs, the player goes through certain physical processes as he plays the instrument; if produced by the same process, the resultant sound products are considered 'the same' even if acoustical science would indicate otherwise. Aware that this orientation is important, if not primary, to Javanese music making, I have chosen to discuss consonance-dissonance and non-unison intervals from the Javanese point of view, in hope of discovering certain trends (i.e., in musical process) that might not appear from treating this matter in an acoustical-scientific framework.

There are certain inconsistencies and ambiguities in the Javanese terminology, as may be seen in the following:

<u>I</u>	<u>Javanese Terminology</u>	
	<u>II</u>	<u>III</u>
interval of one key	kempyang	- - - -
interval of two keys	kembyung	let 1
interval of three keys	kempyung	let 2
interval of four keys	kembyung	let 3
interval of five keys (one octave)	gembyang	let 4

The terminology in the second column does not show a difference between intervals of two keys and intervals of four keys. The terminology in the third column shows this difference but lacks a term for intervals of one key (i.e., two adjacent keys, kempyang). Furthermore, for intervals greater than five keys, a compound of the existing terms in the second column would need to be used. Extrapolation from the third column would be possible. Yet since the analysis focuses on the relation of the gambang to the lagu, it will be facilitated by the use of positive and negative numerals representing the distance in keys from the lagu tone to the gambang tone sounded at that point.

If the gambang tone is an interval of two lower than the lagu (for example, lagu tone is 3, gambang tone is 1) the relationship is called -2 (minus two). If the gambang tone is an interval two higher than the lagu (for example, lagu tone is 5, gambang tone is 1) the relationship is called +2 (plus two). If the gambang tone is the same as the lagu, the relationship is called 0 (zero). This system shows not only the resultant interval but also whether the gambang tone is above or below the lagu.

#### Consonance-Dissonance Coefficient

The intervals discussed above (under the heading 'Interval Terminology') fit into a continuum of relative 'harmonis-ness'. I have assigned numerals to a ranking of intervallic relationships between gambang tone and lagu tone on the basis of verbalizations by informants: from unison (no dissonance) to kempyang (maximum dissonance). The assignment of numerals to this ranking is arbitrary, but the sequence

of the ranking is not. I have chosen a scale from zero to four, given below:

Cons.-Diss. Rank:	0	1	2	3	4
Interval:	unison	gembyang	kempyung	kembyung	kempyang
(Representation in the analysis)	(=0)	(=+5,-5)	(=+3,-3)	(=+2,-2) (=+4,-4)	(=+1,-1)

Of course, it is questionable whether in musical perception two kempyungs are equal to one kempyang in amount of consonance-dissonance, since the interval kempyang is more dissonant than kempyung no matter how many times the kempyung is played. The intervals are qualities unto themselves; the amount of consonance-dissonance associated with each one falls at some point along a continuum. Therefore, this ranking is not intended to be a quantification but merely to serve as an analytical tool in discussing consonance-dissonance. Fully realizing the unreliability of averages, I have chosen to represent the extent of consonance-dissonance for a given sentence location as follows:

Sum of Cons.-Diss. Rankings in that location

divided by

Number of occurrences of that location

The minimum possible dissonance (if only unisons occur) is 0. The maximum possible dissonance (if only kempyangs occur) is 4.

#### Aspects not Discussed in the Analysis

If what has been proposed for analytical investigation to this point might be subsumed under the Western musicological headings of melody and harmony--though harmony as practiced in Western music is not

part of traditional Javanese music--then some consideration of rhythmic aspects might be expected also. In fact, since consideration is given to the rhythmic location of non-octave playing within the eight-beat unit and of motif types and intervals between the gambang and lagu in the musical sentence, rhythmic aspects are incorporated into the analysis. Furthermore, the division of data by irama is a rhythmic division.

Several aspects of rhythm might seem to merit analytical consideration, such as the occasional delayed tones (indicated in the transcriptions by a superscript arrow). To the best of my knowledge, these are part of Suhardi's idiolect and are not considered important by him. Similarly, the numerous instances of one hand playing slightly before the other, indicated in the transcriptions by a diagonal line, were never talked about. It should be noted that in cases where the hands do not strike the keys simultaneously, only once in the performances transcribed for this study does the left hand precede the right. Thus a tendency in Suhardi's idiolect to strike with the right hand before the left emerges. In lessons I experimented, unbeknownst to Suhardi, by playing the same motif once with the left hand preceding the right hand on some beats, once with the hands striking simultaneously, and once with the right hand preceding the left hand. Since the difference elicited no comments, I choose to omit this feature of Suhardi's playing from further analysis.

Clearly, tempo is an important aspect of gambang playing. As one of the instruments supplying the density referent, one important function of gambang playing is to provide a steady pulse "within the rather narrow limits of the fastest possible but physically comfortable,

density" (Hood 1971:115), regardless of what tones are produced. Since the examples were taperecorded without drum accompaniment, exact metro-nome markings are not sufficiently reliable as indications of usual performance practice to allow analytical investigation. Judging from the numerous times I have heard these and similar gendings performed in Java, I am confident that the points at which Suhardi initiates changes of tempo, the points at which he changes the gambang density, and the tempo at which he changes this density are within the bounds of Javanese musical consensus. A consideration of the first of these is actually a study of Javanese treatment of tempo in general. Since other instruments change their density relationship with the balungan beat and not necessarily at exactly the same point as the gambang, the second and third of these is specific to the gambang. However, these would be better investigated with a much wider sample from full gamelan performance situations.

#### Data Display

Summary and selected data is presented in Chapter VII and the full data is presented in tables in Appendix B. Several conventions adopted for the display of the data are explained here.

Percentages are rounded to the nearest integer, except where less than 1%. Occasionally the sum of percentages, which would equal 100 if not rounded off, equals 98, 99, or 101. In such cases, the sum of the rounded percentages is given, with 100 written in parentheses underneath to indicate that all the data is accounted for.

The order of items in tables is determined by several criteria. Cases where frequency of occurrence is the criterion are clear. For the tables containing data on motif finals and motif lows or motif types (Tables 5 and 6), I have arbitrarily chosen the highest final tone in the corpus item for the first item in the table.<sup>5</sup> Tones of the same pitch degree are grouped together. Hence, the following order (from Table 6-A) means that the highest motif final in Corpus I is 3; no other information is conveyed by the order.

- 3
- 3
- 3
- 2
- 2
- 1
- 1
- 6
- 6
- 5
- 5

The order of items in tables relating to sentence position or sentence location is from first position to last, across the page.

The first two corpus items are discussed in detail. For the remaining four corpus items the data is presented, but discussed only when commentary specific to the particular item is necessary and not derivable from the discussion of the first two corpus items.

## Notes to Chapter VI

- <sup>1</sup>See further in this regard Trimillos 1972.
- <sup>2</sup>See Suparno 1973.
- <sup>3</sup>In the cipher transcription the entrance of the ciblon drum precedes the beginning of irama III by six lagu beats, but Suhardi assured me that the gambang playing appropriate in the context of this drum would not be initiated immediately upon its entrance. This 'ciblon style' does not begin immediately with a change to irama III either, nor is it consistently different from the 'non-ciblon style'.
- <sup>4</sup>Whether non-musicians use the word 'harmonis' in discussing non-musical relationships, I cannot say. During my stay in Java I did not notice it being used by anyone other than musicians, but most of my verbal interaction was with musicians.
- <sup>5</sup>Table 5-D does not follow this system but, instead, the same order of motif finals as in Table 5-B to facilitate comparison of Sléndro paṭet Sanga and Pélog paṭet Nem, 'Sanga' type.

CHAPTER VII

ANALYSIS

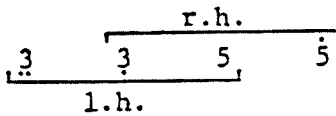
Corpus I: Ketawang Puspawarna, Sléndro Patet Manyura

This gending was played on a gambang consisting of 19 keys (1̣ to 5̣). The performance consists of 33 gambang beats (an initial plus eight lagu beats) in irama I, and 580 gambang beats (72 lagu beats, one of which is extended) in irama II.

Non-Thematic Analysis

Total Melodic Range

The total melodic range for the whole performance covers all but the lowest two keys on the gambang on which it is performed: in the left hand from 3̣ to 5̣ and in the right hand the same but one octave higher (3̣ to 5̣), as shown below.



For the ranges in each irama, see Table 1.

Maximum Stepwise Motion

For the whole performance, the maximum stepwise motion is six keys: in ascent in the left hand. Maximum stepwise descent is four keys: in the left hand. The maximum stepwise motion in each direction in the right hand is one key less than that of the left hand, as shown below.



	Ascent	Descent
r.h.	5 keys=1 octave	3 keys=1 octave minus 2 keys
l.h.	6 keys=1 octave plus 1 key	4 keys=1 octave minus 1 key

The maximum stepwise motion in each irama is given in Table 2.

#### Maximum Repetition of a Single Tone

For the whole performance, the maximum repetition of a single tone is four successive statements of tone 3 in the right hand. In the left hand no tone is stated more than three times in succession. The maximum repetition of a single tone in each irama is given in Table 3.

#### Non-Octave Playing

Of a total of 613 gambang beats in the whole performance, 79 (13%) are non-octave. The non-octave playing consists of 50 (63%) non-octave intervals, 26 (33%) rests in the left hand, and three (4%) rests in the right hand.

For the total of 79 instances of non-octave playing, 35 (44%) occur on the first gambang beat of an eight-gambang-beat unit and only one (1%) on the eighth. Only on the first gambang beat do all three types of non-octave playing occur.

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total	Percent
Rests in r.h.	3	0	0	0	0	0	0	0	3	4%
Rests in l.h.	8	5	3	1	3	2	3	1	26	33%
Non-oct. Int.	24	0	0	1	21	0	4	0	50	63%
Total	35	5	3	2	24	2	7	1	79	100%
Percent	44%	6%	4%	3%	30%	3%	9%	1%	100%	

The non-octave playing in each irama is given in Table 4-A.

## Motivic Analysis

Motivic Transcription

## Ketawang Puspawarna, Sléndro Pačet Manyura

## Umpak-umpak

	2t	3w	5t	1n						
S2-17	S3-16	Fd-3	S3-12							
irama I										
3	6t	6	2p	6	1t	3	6ng			
S3-7	Ge-3	S5-6	S2-4	Ge-8	Ge-3	Gb-9	G2-3			
irama II										
1	2t	6	3w	3	3t	5	1n			
R1-1	S2-13	S5-1	S2-4	S3-2	Ab-1	Fd-3	S3-12			
3	6t	6	2p	6	2t	3	6ng			
S3-7	Ge-3	S5-6	S2-4	S5-7	Q2-4	Fd-5	S2-17			
Ngelik										
6	6t	6	iw	2	3t	5	in			
I2-6	I2-3	Gd-1	Q1-10	N2-1	S3-15	Fd-5	S3-12			
3	2t	2	5p	5	6t	1	3ng			
S3-7	Q1-3	Gb-1	S2-17	W2-3	S3-15	Fd-3	S3-12			
6	1t	3	2w	3	3t	5	1n			
S2-18	S3-16	S3-7	S2-15	S3-2	Bb-1	Fd-3	S3-12			
3	6t	6	2p	5	1t	3	6ng			
S3-7	Ge-3	S5-6	S2-4	Lc-2	Ge-2	Gb-9	G2-3			
6	2t	6	3w	3	3t	5	1n			
S5-6	S2-4	S5-1	S2-4	S3-2	Ab-1	Fd-3	S3-12			
3	6t	1	2p	5	1t	3	6ng			
S3-7	Ge-3	R1-1	S2-13	L4-1	Ge-2	Gb-9	S2-17x			

### Total Number of Motifs Used

In the whole performance, a total of 34 motifs are used in the total 76 motif positions. Of these, 18 motifs are used more than once and account for 59 of the motif positions.

In irama I, each of the four motif positions is accounted for by a different motif. None of these is exclusive to irama I.

In irama II, 17 motifs are used more than once, accounting for 55 of the total 72 positions. That 14 of these are exclusive to irama II in this performance is more likely due to the fact that most of the performance is in irama II, rather than to a difference in contextual appropriateness between irama I and II.

The three most frequently used motifs are S2-4, S3-7, and S3-12, each used six times. Hence no one motif accounts for more than 8% of the whole performance.

### Motif Final and Motif Low

As discussed in Chapter VI, the motif low in motifs whose low is lower than the final (referred to as LLF motifs) may be a function of the part of the composition in which the motifs are used. Since my informants indicate that octave register is not important for this aspect of part, this portion of the analysis does not differentiate register.

In the whole performance, 51 (67%) of the 76 motif positions are accounted for by LLF motifs. The degree of motif lows, the degree of their corresponding finals, and their frequency of occurrence are presented in Table 5-A. In each case the pattern predicted in

Chapter VI for paṭet Manyura is prominent, as summarized below.

Degree Motif Final	Most Frequent Tonal Motion Low to Final	Other Tonal Motion Low to Final	Predicted Tonal Motion Low to Final
<u>3</u>	<u>6</u> up to <u>3</u> (x12)	<u>1</u> up to <u>3</u> (x2)	<u>6</u> up to <u>3</u>
<u>2</u>	<u>6</u> up to <u>2</u> (x10)	<u>1</u> up to <u>2</u> (x1)	<u>6</u> up to <u>2</u>
<u>1</u>	<u>3</u> up to <u>1</u> (x5)	<u>6</u> up to <u>1</u> (x3)	<u>3</u> up to <u>1</u>
<u>6</u>	<u>3</u> up to <u>6</u> (x7) <u>6</u> up to <u>6</u> (x7)	<u>2</u> up to <u>3</u> (x1)	<u>3</u> up to <u>6</u>
<u>5</u>	<u>2</u> up to <u>5</u> (x2)	<u>6</u> up to <u>5</u> (x1)	<u>2</u> up to <u>5</u>

In no case is the enemy degree 5 used as the low of an LLF motif.

Degree 6 is the most frequently used motif low, found more often than all other motif lows combined, as shown below.

Degree of Motif Low	No. of Occur.	Percent
<u>6</u>	33	65%
<u>3</u>	12	24%
<u>2</u>	3	6%
<u>1</u>	3	6%
( <u>5</u> )	0	0%
Total:	51	101% (100%)

The prominence of degrees 6 and 3 as motif lows and the absence of degree 5 appear to give rise to a sense of modality (paṭet). Degrees 6 and 3 are the only two degrees discussed by my informants as typical and 'comfortable' genḍing finals in paṭet Manyura. For the whole performance, the most frequent motif finals are also 6 and 3. Degree 5, never used as a motif low, is found nine times as the motif final, as shown below.

Degree of Motif Final	No. of Occur.	Percent
<u>6</u>	21	28%
<u>3</u>	21	28%
<u>1</u>	13	17%
<u>2</u>	12	16%
<u>5</u>	9	12%
Total:	76	101% (100%)

That the occurrences of degrees 6 and 3 account for only 56% of motif finals but 89% of motif lows, and that the enemy degree 5 accounts for 12% of motif finals but no motif lows, indicates that motif lows may be more important indicators of patet than motif finals.

#### Motif Final and Motif Type

For the whole performance, there are 11 motif finals. Below are given the number of motif types used for the approach to each motif final, the number of occurrences of the final, and the resulting variety coefficient (as explained in Chapter VI).

Motif Final	No. of Motif Types/ No. of Occur. of Final			Variety Coefficient		
	Ir. I	Ir. II	Whole Perf.	Ir. I	Ir. II	Whole Perf.
<u>3</u>	---	1/5	1/5	---	.00	.00
<u>3</u>	1/1	5/12	5/13	---	*.36	.33
<u>3</u>	---	1/3	1/3	---	.50	.50
<u>2</u>	---	4/4	4/4	---	1.00	1.00
<u>2</u>	1/1	2/7	2/8	---	*.17	.14
<u>i</u>	---	2/2	2/2	---	1.00	1.00
<u>1</u>	1/1	4/10	4/11	---	*.33	.30
<u>6</u>	---	6/14	6/14	---	.38	.38
<u>6</u>	---	3/7	3/7	---	.33	.33
<u>5</u>	---	5/5	5/5	---	1.00	1.00
<u>5</u>	1/1	1/3	1/4	---	*.00	.00
Summary for all Finals	4/4	34/72	34/76	---	*.38	.35

\*Variety coefficient not computable, since there is only one occurrence of a final.

A complete listing of each motif type used for the approach to each final is given in Table 6-A. The extent to which the motif final may be a determinant of the type of motif used is represented by an overall coefficient of .35 for the whole performance. The tones approached with the greatest variety in motif type are tones 2, 1, and 5 (each with a coefficient of 1.0: maximum variety). The tones approached with the least variety are tones 3 and 5 (each with a coefficient of 0: only one motif type used).

#### Sentence Position and Motif Type

The number of motif positions per musical sentence is not the same for all iramas; therefore, this portion of the analysis can deal only with each irama separately. The complete data for each irama is found in Table 7-A. Below are presented the most frequently used motif type(s) and the variety coefficient for each position in irama II. No variety coefficient is computable for irama I, since only one musical sentence occurs.

irama I		Position No.			
	1	2	3	4	
	S2	S3	Fd	S3	

irama II		Position No.							
	1	2	3	4	5	6	7	8	
Most Freq. Motif Type	S3(x5)	Ge(x4)	S5(x5)	S2(x8)	S3(x3)	Ge(x3)	Fd(x6)	S3(x5)	
Variety Coefficient	.50	.50	.50	.13	.75	.50	.13	.25	

Variety coefficient for irama II: .41

The position of greatest variety is the fifth position (.75). The fourth and seventh have the least variety (.13). There is less variety

in the eighth position than in all but the fourth and seventh positions. The limitation in variety in the fourth position may be due to the appropriateness of only certain motif types for ending a gatra. The limitation in variety in both the seventh and eighth positions, furthermore, may indicate a preference for only certain motif types to end a musical sentence, 'preparing' in the penultimate (seventh) position and 'confirming' in the final (eighth) position. The prominence of motif type Fd in the penultimate position and motif type S3 in the final position in irama II is paralleled by the use of these two motif types in the penultimate and final positions in the only musical sentence in irama I. Although motif type S3 is the most frequently used motif in the first and fifth positions in irama II, the use of motif type Fd preceding the use of type S3 appears to mark the end of a musical sentence. Another pattern, the preference for type S3 in the first and fifth and type Ge in the second and sixth positions reflects the unit smaller than musical sentence: gatra. (Fifth and sixth positions in a musical sentence are the first and second positions in a gatra, the second gatra of that musical sentence.)

Below, the overall variety coefficients for motif final and for sentence position are compared.

	Motif Final and Motif Type	Sentence Position and Motif Type
irama I	(not computable)	
irama II	.35	.41

From this data, it appears that both motif final and the sentence position are determinants of the choice of motif type. The difference

of .06 is not statistically significant for such a short performance. Had the variety coefficient for motif final been .10 and for sentence position .90, we might conclude that final and not position is an important determinant of motif type. The data above reflects what I suspected—that both final and position are significant determinants of motif type.

#### Prominent Motif Types

Of the 61 motif types identified from the corpus of this study, 18 are used in this performance. Of these, 11 motif types are used more than once: S3(x19), S2(x14), Ge(x8), Fd(x7), S5(x7), Gb(x4), Ab(x2), G2(x2), I2(x2), Q1(x2), and R1(x2). Each of these motif types accounts for more than 2.5% of the whole performance and therefore merits discussion. Together, they account for 69 of the total 76 motif positions. The following (on page 247) shows the finals for which these motif types are used and the sentence positions in which they occur. Irama I is excluded, since there are only four sentence positions in irama I. This is a summary of the complete data given in Table 8-A.

The motif type with the greatest number of finals is S2 (with six finals). Motif types S5, Ab, G2, I2, and R1 have only one final. Of these, S5 occurs seven times (each time with final tone 6) and is most significant, while the others occur only twice. Motif type S3 occurs in all but the fourth and seventh positions. Motif types Fd, Ab, and G2 are each restricted to only one position (the seventh, sixth, and eighth respectively). Of these, Fd is the most significant, since it occurs seven times (six times in irama II) while the others occur only



Motif Type	Most Freq. Final(s)	Other Finals	Most Freq. Position(s)	Other Positions
S3	3	3,1,1,6	1 and 8	2,3,5,6
S2	2	3,2,6,6,5	4	1,2,8
Ge	6	1,6	2	5,6
Fd	5	3,1,5	7	none
S5	6	none	3	1,5
Gb	3	2	7	3
Ab	3	none	6	none
G2	6	none	8	none
I2	6	none	1 and 2 (each xl)	
Q1	2 and 1 (each xl)		2 and 4 (each xl)	
R1	1	none	1 and 3 (each xl)	

twice. The data indicates that the choice of some motif types (such as Fd) is determined more by position than by final, while the choice of others (such as S5) is determined more by final than by position.

With the exception of the fifth position, each of the eight positions appears as the most frequent location of one or more of these motif types. The distribution of these may well, through expectancies within the culture, give rise to the feeling of a musical sentence as a musical unit. The use of type Fd in the penultimate position has been discussed under the heading "Sentence Position and Motif Type", above. It does not occur in the final position of either a gatra or a musical sentence. Motif types S3 and G2 appear frequently in the final position but never in the penultimate. Some motif types appear only in even-numbered positions (Ab, G2, Q1, and, with one exception each, S2

and Ge). Others appear only in odd-numbered positions (Fd, S5, Gb, and R1). These and other trends are more meaningfully discussed in summarizing the analysis of all the corpus items.

### Integrative Analysis: Gambang and Lagu

#### Intervals and Sentence Location

It has been suggested above that the choice and arrangement of motif types is, to some extent, due to position in the musical sentence. The locations of unisons and non-unisons of gambang with the lagu also seem to reflect the importance of musical sentence as a meaningful unit. The data from Table 9-A is given in summary form below.

	Lagu Beat No.	1	2	3	4	5	6	7	8
Irama I	No. of Unisons	1	1	1	1	0	0	0	2
	No. of Non-Uni.	0	0	0	0	1	1	1	0
Irama II	No. of Unisons	7	5	2	8	1	7	0	9
	No. of Non-Uni.	2	4	7	1	8	2	9	0
Whole Perf.	No. of Unisons	8	6	3	9	1	7	0	11
	No. of Non-Uni.	2	4	7	1	9	3	10	0

In a total of ten sentences plus the initial beat of the performance, the gambang is always in unison with the lagu on the eighth (final) lagu beat. At no other point is the gambang always in unison with the lagu. With one exception the fourth lagu beat (the end of a gatra) is also a point of unison of gambang and lagu. In a total of ten occurrences of seventh lagu beat, the gambang is never in unison with the lagu, and with two exceptions the third lagu beat (penultimate beat of a gatra) is also a point of non-unison of gambang and lagu. In irama II and in the whole performance (irama I and II combined) the gambang is more

often in unison with the lagu than not on beats 1, 2, 4, 6, and 8. The single musical sentence in irama I does not adhere to this trend. In irama II and for the whole performance the tendency for unison of gambang and lagu on even-numbered beats and for non-unison on odd-numbered beats emerges. The only exception is the first lagu beat.

Nine types of intervallic relationships occur between gambang and lagu in the whole performance. These are represented in Table 9-A with negative and positive integers as discussed in Chapter VI: -4, -3, -1, 0, +1, +2, +3, +4, and +5. On only two of the eight lagu beats of a musical sentence is the most typical interval something other than unison: beats 5 and 7, with intervals -1(minus one, i.e., kempyang below lagu) and -4(minus four, i.e. kembyung below lagu), respectively. On lagu beat 3 the interval +3(plus three, i.e., kempyung above lagu) and 0 (unison) occur with equal frequency. Overall, then, the most typical musical sentence would involve a gambang-to-lagu relationship of unison on beats 1, 2, 4, 6, 8, and possibly beat 3, with an interval of -1 on beat 5, -4 on beat 7 and possibly +3 on beat 3. This pattern would give rise to a feeling of tension on the fifth, seventh, and possibly third beats which would be resolved on the subsequent beat. With the exception of irama I, various types of tension (from non-unisons) occur on the first seven beats of a musical sentence; it is only the eighth beat where tension is completely absent.

#### Consonance-Dissonance and Sentence Location

Using the system of ranking consonance-dissonance explained in Chapter VI, the eight lagu beats of a musical sentence may be compared and a pattern of progression shown. (Maximum consonance possible = 0;

maximum dissonance possible = 4.) The tabulation of consonance-dissonance coefficients is given in Table 10-A. Below is given the consonance-dissonance coefficient for each lagu beat in each irama and for the whole performance.

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama I	0	0	0	0	4	2	2	0
Irama II	.56	.89	2.00	.44	2.11	.89	2.56	0
Whole Perf.	.50	.80	1.80	.40	2.30	1.00	2.50	0

For the whole performance, the beat of greatest dissonance (the seventh) immediately precedes the beat of greatest consonance (the eighth). This might be seen as the 'period' on the musical sentence: greatest tension on the seventh beat, always resolved on the eighth. This same pattern is found in irama II which accounts for most of the whole performance.

If irama I is excluded from the discussion, an interesting pattern of regular alternation emerges. Beginning with the second beat, the consonance-dissonance, as indicated by the coefficients, varies in a regular oscillating manner. The following shows the relation of each beat to the one immediately preceding and the one immediately following with respect to amount of dissonance in irama II and for the whole performance:

1st < 2nd < 3rd > 4th < 5th > 6th < 7th > 8th

With the exception of the second beat, all the even-numbered beats involve less dissonance than the (odd-numbered) beats immediately preceding and immediately following. This would seem to indicate that, in addition to the clear tendency to resolve tension on the final beat, there is a tendency for some extent of tension resolution on even-numbered beats and for tension to build again on odd-numbered beats.

This same pattern occurs from the fourth through sixth beats and from the seventh through eighth beats in irama I, but not throughout. As was pointed out in the explanation of the system of ranking, the consonance-dissonance coefficient is intended as a ranking rather than a quantification. However, it demonstrates patterns of tension and resolution which I believe are important to the nature of gambang playing and its musical context, gamelan music.

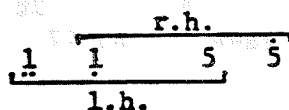
Corpus II: Gending Gambir Sawit, Keçuk 2 Kerep,  
Nçawah Keçuk 4, Sléndro Paçet Sanga

This gending was played on a gambang consisting of 19 keys (1̣ to 5̣). The performance consists of 21 gambang beats (an initial plus ten lagu beats) in irama seseg, 200 gambang beats (50 lagu beats) in irama I, 1211 gambang beats (151 lagu beats, one extended) in irama II, and 1744 gambang beats (218 lagu beats) in irama III.

Non-Thematic Analysis

Total Melodic Range

The total melodic range for the whole performance covers the total range of the gambang on which it is performed. The range in the left hand is 13 keys (1̣ to 5̣), and in the right hand is the same but one octave higher (1̣ to 5̣).



For the ranges in each irama, see Table 1.

Gmb. beat no.	1	2	3	4	5	6	7	8	Total	Percent
Rests in r.h.	20	1	4	2	7	4	4	0	42	8%
Rests in l.h.	45	23	7	13	11	4	7	23	133	26%
Non-oct. int.	138	3	19	7	132	3	37	0	339	66%
Total	203	27	30	22	150	11	48	23	514	100%
Percent	39%	5%	6%	4%	29%	2%	9%	4%	98%	(100%)

The non-octave playing in each irama is given in Table 4-B.

### Motivic Analysis

Playing in irama seseg is not motivic in orientation and is therefore not discussed under this heading.

### Motivic Transcription

Gending Gambir Sawit, Keçuk 2 Kerep, Ndawah Keçuk 4  
Sléndro Paçet Sanga

Mérong	5t	5	ln	1	2t	3	6w
Ge-3 Irama I	S5-6	S2-3	I2-6	S3-16	Fd-3	S3-12	
2 S3-7 Irama II	2 S2-12	2 I2-6	2 Ge-3	5t S5-6	5 J1-1	3 Fd-5	5 S2-17
1 I2-6	1 I2-6	5 S5-1	2t S2-4	5 S4-1	1 S4-1	2 Fd-5	5w S2-17
5 L2-2	2 S3-7	3 Fd-5	6 S3-12	2 S3-3	6 S3-14	1 Fd-4	3n S2-17
2 Q1-3	2 I2-6	2 S5-6	5t Ge-4	6 Lc-1	2 Ad-1	5 Gb-8	lw S2-17
3 S4-1	5 S3-16	6 Fd-4	2t S3-12	2 I2-6	1 Q1-3	2 Fd-5	5ng S2-17
5 S2-12	2 S5-1	2 Fd-3	5t S2-17	1 V4-1	2 Q3-1	3 Fd-3	6w S3-12
2 S3-19	2 I2-5	2 Fd-3	5t G2-3	2 S3-7	3 J1-2	5 Fd-4	ln S2-17



Gending Gambir Sawit, Keçuk 2 Kerep, Ndawah Keçuk 4  
Sléndro Paçet Sanga (Continued)

					2	1	2	5ng
				S3-12	Q1-3	Fd-5	G2-3	
				Irama III				
Ndawah								
S3-7	I2-5	Bb-6	S3-14	S3-7	Q1-3	Fd-5	G2-3	5w
S2-17	I2-6	Q1-13	S2-13	S3-2	Bb-1	Bb-6	S3-14	6w
S3-8	S2-20	S5-6	S2-4	S3-11	Bb-3	Bb-6	S3-5	6w
S3-17	I2-5	V5-1	S3-14	M3-2	Bd-3	Gb-8	N4-1	ln
V5-1	V3-4	Ga-8	S2-20	S3-7	G2-1	Gb-4	S5-9	lw
I2-6	R6-1	P1-3	S3-1	Ge-7	Ga-4	Bb-6	S3-5	6w
S3-17	S5-11	Kc-1	L4-3	S3-16	Bb-3	Bb-6	S3-14	6w
S3-7	I2-5	V4-1	M3-1	D1-1	I2-2	Gb-4	L4-3	ln
V5-1	V3-3	Gb-12	S2-20	S5-5	Gb-4	S5-6	Gb-9	lw
S5-7	S3-2	Fd-5	S3-20	S3-7	Q1-3	Fd-5	G2-3	5w
L4-2	I2-6	Q1-13	S2-13	S3-16	S2-11	Fd-5	S3-20	6w
S3-7	S2-15	Gb-1	S2-17	S3-16	S2-6	Fd-4	S3-12	2n
S5-7	S3-14	Gb-2	S3-16	S3-7	Q1-3	Fd-5	G2-3	5w



Gending Gambir Sawit, Keçuk 2 Kerep, Ndawah Keçuk 4  
Sléndro Paçet Sanga (Continued)

V2-2	i	2	2	6t	i	2	5	1w
S3-16			I2-5	S3-14	D2-1	Ad-3	Gb-8	L4-3
V5-1	5	5	6	5t	2	5	5	1w
V3-3			Gb-12	S2-20	S3-17	S5-10	Gb-4	L4-3
S3-16	2	2	6	6t	5	1	2	5ng
S3-17			U3-1	Ga-6	S5-4	S2-19	Fd-4	G2-3
S3-7	2	2	2	6t	5	1	2	5w
Bb-4			Bb-6	S3-14	S5-5	S2-19	Fd-5	S2-17
S5-9	1	5	5	1t	2	2	2	6w
S5-2			Fd-3	S2-17	S3-2	Bb-1	Bb-6	S3-14
S3-17	2	5	5	1t	2	2	3	6w
S2-20			S5-6	S2-4	S3-16	Bb-3	Fd-3	S3-16
S3-17	2	2	2	6	i	5	5	1n
I2-5			V5-1	Lc-1	Ge-7	Fd-1	S5-6	S2-19
V5-1	5	5	6	5t	2	5	5	1w
V3-3			Gb-12	S2-20	S3-7	G2-1	Gb-4	S2-17
I2-6	1	6	6	2t	i	2	2	6w
S3-6			I1-2	S3-2	Ge-7	Ga-4	Bb-5	S3-5
S3-7	2	5	2	1t	2	2	2	6w
G2-2			Ad-1	N4-1	S3-16	S3-17	Bd-4	S3-5
S3-7	2	2	2	6t	2	5	5	1n
S2-12			S5-6	S3-14	M3-2	S2-1	Gb-4	S5-9
I2-6	1	5	6	5t	2	5	5	1w
V5-1			Gb-12	S2-20	S3-7	G2-1	Gb-4	S2-17
S5-7	5	2	3	6t	2	i	2	5w
S3-2			Gb-13	S3-12	S3-7	Q1-3	Fd-5	S2-17
S2-17	i	i	6	1t	2	2		
I2-6			Q1-13	S2-13	V3-5	Q3-3		
S3-14	6w				i	3t	6	2n
R2-2					S2-10	Gb-9		S3-12
Irama II								

Gending Gambir Sawit, Keçuk 2 Kerep, Ndawah Keçuk 4  
Sléndro Paçet Sanga (Continued)

11-3	3	6t	2	5w	i	5t	5	lw
	Q3-1	Gb-11	S2-17	Q1-12	Gb-6	S5-6	S2-4	
12-6	1	2t	5	lw	1	2t	2	5ng
	Q3-1	Gb-8	S2-17	Fb-1	Ge-3	S5-6	S2-3x	

Total Number of Motifs Used

In the whole performance, a total of 114 motifs are used in the total 394 motif positions. Of these, 55 motifs are used more than once and account for 335 of the motif positions.

In irama I, five motifs are used more than once, accounting for 11 of the total 25 positions. None of these five is exclusive to irama I.

In irama II, 27 motifs are used more than once, accounting for 124 of the total 151 positions. Of these, six are exclusive to irama II: L2-2, Q1-12, Q3-1, S3-19, S4-5, and Gb-7.

In irama III, 38 motifs are used more than once, accounting for 172 of the total 218 positions. Of these, 16 are exclusive to irama III: Bb-1, Bb-3, Bb-6, Ga-4, Ge-7, L4-3, M3-2, Q1-13, S2-19, S2-20, S3-5, S3-20, S5-5, S5-9, V3-3, Gb-4, Gb-12, G2-1.

This points to the different character of irama III, in which the ciblon drum is used; as compared with irama I and II. Seven of the motifs used more than once exclusively in irama III were identified by Suhardi as 'ugal-ugalan' (playful, joking): Bb-1, Bb-3, Bb-6, L4-3, S2-20, S5-9, and V3-3. The following motifs, exclusive to irama III but used only once, were identified as ugal-ugalan: Bb-4, Bb-5, Bd-4, Ga-6, Kc-1, L4-2, N4-1, N4-2, S5-10, S5-11, U3-1, and V3-4. Some of

the other motifs used exclusively in irama III might also be felt as somewhat ugal-ugalan but were not discussed with my informants. The motif V5-1, identified as ugal-ugalan and played seven times in irama III, is used twice in irama II. With this one exception, however, the use of ugal-ugalan motifs exclusively in irama III indicates the appropriateness of their appearance in the context of ciblon drumming. Their use elsewhere is rare and, although not completely inappropriate, certainly less so. Of the 218 motif positions in irama III, 46 (21%) are filled with motifs identified as ugal-ugalan.

The most frequently used motif is S2-17, used 23 times. Hence, no one motif accounts for more than 6% of the whole performance.

#### Motif Final and Motif Low

As discussed in Chapter VI, the motif low in motifs whose low is lower than the final (referred to as LLF motifs) may be a function of the paṭet of the composition in which the motifs are used. Since my informants indicate that octave register is not important for this aspect of paṭet, this portion of the analysis does not differentiate register.

In the whole performance, 284 (72%) of the 394 motif positions are accounted for by LLF motifs. The degree of motif lows, the degree of their corresponding finals, and their frequency of occurrence in each irama is presented in Table 5-B. In each case, the pattern predicted in Chapter VI for paṭet Sanga is prominent, and, with the exception of final 3, occurs more than all others combined, as summarized below.

Degree of Motif Final	Most Frequent Tonal Motion Low to Final	Other Tonal Motion Low to Final	Predicted Tonal Motion Low to Final
<u>2</u>	<u>5</u> up to <u>2</u> (x65)	<u>6</u> up to <u>2</u> (x17) <u>2</u> up to <u>2</u> (x9) <u>1</u> up to <u>2</u> (x2)	<u>5</u> up to <u>2</u>
<u>1</u>	<u>5</u> up to <u>1</u> (x46)	<u>6</u> up to <u>1</u> (x12) <u>2</u> up to <u>1</u> (x11) <u>1</u> up to <u>1</u> (x3)	<u>5</u> up to <u>1</u>
<u>6</u>	<u>2</u> up to <u>6</u> (x31)	<u>5</u> up to <u>6</u> (x6) <u>6</u> up to <u>6</u> (x1)	<u>2</u> up to <u>6</u>
<u>5</u>	<u>2</u> up to <u>5</u> (x36)	<u>5</u> up to <u>5</u> (x26) <u>1</u> up to <u>5</u> (x6) <u>6</u> up to <u>5</u> (x2)	<u>2</u> up to <u>5</u>
<u>3</u>	<u>1</u> up to <u>3</u> (x4) <u>2</u> up to <u>3</u> (x4)	<u>5</u> up to <u>3</u> (x2) <u>6</u> up to <u>3</u> (x1)	<u>1</u> up to <u>3</u>

In no case is the enemy degree 3 used as the low of an LLF motif.

Degree 5 is the most frequently used motif low, found more than all other motif lows combined, as shown below.

Degree of Motif Low	No. of Occur.	Percent
<u>5</u>	145	51%
<u>2</u>	91	32%
<u>6</u>	33	12%
<u>1</u>	15	5%
( <u>3</u> )	0	0%
<b>Total:</b>	<b>284</b>	<b>100%</b>

The prominence of degrees 5 and 2 as motif lows and the absence of degree 3 appear to give rise to a sense of modality (paṭet). Degrees 5 and 2 are the only two degrees discussed by my informants as typical gending finals in paṭet Sanga. Of these, 5 is identified as the most 'comfortable' gending final, more so than 2. For the whole performance,

the most frequent motif final is degree 2 (136 occurrences). Degree 3, never used as a motif low, is found 22 times as motif final, as shown below.

<u>Degree of Motif Final</u>	<u>No. of Occur.</u>	<u>Percent</u>
<u>2</u>	136	35%
<u>5</u>	102	26%
<u>1</u>	80	20%
<u>6</u>	54	14%
<u>3</u>	22	5%
<b>Total:</b>	<b>394</b>	<b>100%</b>

Hence, the motif low appears to be a more important indicator of patet than the motif final.

#### Motif Final and Motif Type

For the whole performance, there are 11 motif finals. Below (on page 261) are given the number of motif types used for the approach to each motif final, the number of occurrences of the final, and the resulting variety coefficient (as explained in Chapter VI). The extent to which the motif final may be a determinant of the type of motif used is represented by an overall coefficient of .21 for the whole performance. The tone approached with the greatest variety in motif type is tone i (variety coefficient = .52). The tone approached with the least variety is tone 3 (variety coefficient = 0: only one motif type used).

In irama I, there are eight motif finals with an overall variety coefficient of .53. In iramas II and III, there are 11 motif finals, with overall variety coefficients of .32 and .25 respectively.

Motif Final	No. of Motif Types/ No. of Occur. of Final				Variety Coefficient			
	Ir. I	Ir. II	Ir. III	W.P.	Ir. I	Ir. II	Ir. III	W.P.
2̇	1/1	3/6	8/22	9/29	---	.40	.33	.29
2	4/7	9/37	9/53	14/97	.50	.22	.15	.13
2̇	1/1	3/5	1/4	3/10	---	.50	.00	.22
i	---	5/7	9/17	13/24	---	.67	.50	.52
1	3/4	6/25	7/27	10/56	.67	.21	.23	.16
6	---	6/9	8/17	11/26	---	.63	.44	.40
6̇	2/3	3/7	5/18	6/28	.50	.33	.22	.19
5	3/4	9/22	7/33	11/59	.67	.38	.18	.17
5̇	2/3	6/19	4/21	6/43	.50	.28	.15	.12
3	---	7/12	3/5	8/17	---	.55	.50	.44
3̇	1/2	1/2	1/1	1/5	.00	.00	---	.00
Summary for All Finals	17/25	58/151	62/218	92/394	.53	.34	.25	.21

\*Variety coefficient not computable, since there is only one occurrence of the final.

W.P. = Whole Performance

A complete listing of each motif type used for the approach to each final in each irama is given in Table 6-B.

Irama III, with the greatest number of motif positions (218), has a much smaller variety coefficient than does irama I (with only 25 motif positions). It is quite possible that such wide differences in variety coefficients would not occur if the sample from the three iramas were more equal.

#### Sentence Position and Motif Type

The number of motif positions per musical sentence is not the same for all iramas; therefore, this portion of the analysis can deal only with each irama separately. The complete data for each irama is found in Table 7-B. The most frequently used motif type(s) and the variety

coefficient for each position in each irama are given in summary form below.

Irama I	Position no.			
	1	2	3	4
Most Frequent Motif Types	S5(x2)	Ge(x3)	Fd(x4)	S2(x3) S3(x3)
Variety coefficient	.75	.50	.33	.20

Variety coefficient for Irama I: .43.

Irama II	Position no.							
	1	2	3	4	5	6	7	8
Most Frequent Motif Types	I2(x6)	I2(x7)	Fd(x7)	S2(x7)	S3(x3)	Q1(x4)	Fd(x11)	S2(x14)
Variety coefficient	.33	.28	.29	.17	.61	.56	.22	.11

Variety coefficient for Irama II: .32.

Irama III	Position no.							
	1	2	3	4	5	6	7	8
Most Frequent Motif Types	S3(x12)	I2(x7)	Gb(x7)	S2(x12)	S3(x17)	Bb(x5) S2(x5) Q1(x5)	Fd(x10)	S3(x10)
Variety coefficient	.23	.31	.50	.23	.22	.44	.15	.23

Variety coefficient for Irama III: .29.

The positions of greatest variety in each irama are the first (.75) in irama I, the fifth (.61) in irama II, and the third (.50) in irama III.

The position of least variety is the fourth position in irama I, the eighth position in irama II, and the seventh position in irama III. A trend emerges, however, in the approach to the end of a musical sentence. In iramas I and II, the final position is the position of the least variety; the penultimate has greater variety than the final position but less than the antepenultimate; and the antepenultimate has

less variety than the position immediately preceding it. The pattern of decreasing variety appears once for the musical sentences in irama I; the nearer the end of the musical sentence, the less variety in the choice of motif types. In irama II, a pattern of decreasing variety occurs twice;<sup>1</sup> from the first to the fourth position (first gatra), and from the fifth to the eighth position (second gatra). A sense of gatra may be indicated by these patterns of decreasing variety in irama II, but not in irama I. In both iramas, however, a sense of musical sentence may be indicated by these patterns.

In irama III, the pattern is somewhat different, perhaps because of the use of ugal-ugalan motifs. As is the case with motif final and motif type, the variety coefficient decreases as the number of occurrences of motif positions increases. Below the variety coefficients for motif final and sentence position are compared.

	Motif Final Motif Type	Sentence Position and Motif Type
Irama I	.53	.43
Irama II	.34	.32
Irama III	.25	.29

From this data, it appears that both motif final and sentence position are determinants of the choice of motif type. The difference of .10 in irama I is probably attributable to the small sample of that irama.

#### Prominent Motif Types

Of the 61 motif types identified from the corpus of this study, 40 are used in this performance. Of these, ten motif types are used more than ten times: S3(x88), S2(x58), Fd(x36), S5(x31), I2(x29), Gb(x26),



Q1(x17), Bb(x14), Ge(x13), and G2(x11). Each of these accounts for more than 2.5% of the whole performance and therefore merits discussion. Together, they account for 323 of the total 394 motif positions. The following shows the finals for which these motif types are used and the sentence positions in which they occur. Irama I is excluded, since there are only four sentence positions in irama I.

Motif Type	Most Frequent Final(s)	Other Finals	Most Frequent Position(s)	Other Positions
S3	2	2̇, 6, 6̇, 5	5	all
S2	1	2̇, 2, i, 5, 5̇, 3	4 and 8	1, 2, 6
Fd	2	2, 1, 6, 5, 3, 3̇	7	3, 6
S5	5	2̇, 2, 1, 6	3	all except 4
I2	1	2̇, 2, i, 5, 5̇	2	1, 3, 4, 6
Gb	5̇	2, 1, 6, 6̇, 3	7	3, 6, 8
Q1	i	2, 1, 6, 6̇, 3	6	1, 2, 3, 5
Bb	2 (exclusive)		7	2, 3, 6
Ge	i and 5	2̇, 6, 5̇	4	5, 6
G2	5	5̇	8	2, 4, 6

This is a summary of the complete data given in Table 8-B.

The motif types with the greatest number of finals are S2 and Fd (each with seven different finals). Motif type Bb has only one final (2). Motif type S3 is the only motif type which appears in all eight positions of the musical sentence. Motif types Fd and Ge are both restricted to only three positions, yet Fd is found with a greater number of finals than Ge or even S3. The data indicates that the

choice of some motif types (such as Fd) is determined more by position than by final, while the choice of others (such as Bb) is determined more by final than by position.

With the exception of the first position, each of the eight positions appears as the most frequent location of one or more of these motif types. The distribution of these may well give rise to a sense of musical sentence through expectancies within the culture. For example, with the exception of one occurrence in the sixth position, motif type Fd occurs only in the penultimate position in a gatra (third) or musical sentence (seventh). It does not occur in the final position of either a gatra or a musical sentence. S2, on the other hand, is never found in the penultimate positions of either a gatra or a musical sentence. Other patterns emerge as well, such as the use of motif type G2 only in even-numbered positions, the restriction of motif types I2, G3, and Q1 from either the penultimate or the final positions. These and other trends are more meaningfully discussed in summarizing the analysis of all the corpus items.

#### Integrative Analysis: Gambang and Lagu

##### Intervals and Sentence Location

It has been suggested above that a feeling of musical sentence may arise from the choice and arrangement of motif types. The locations of unisons and non-unisons of gambang with the lagu also seem to reflect the importance of musical sentence as a meaningful unit. The data from Table 9-B is given in summary form below.

	Lagu Beat No.	1	2	3	4	5	6	7	8
Ir.	No. of Unisons	2	2	1	1	1	1	1	2
Ses.	No. of Non-Uni.	0	0	0	0	0	0	0	0
Ir. I	No. of Unisons	1	3	0	5	2	1	2	6
	No. of Non-Uni.	4	2	7	2	5	6	4	0
Ir. II	No. of Unisons	16	16	3	16	9	14	1	19
	No. of Non-Uni.	3	3	15	3	10	5	18	0
Ir. III	No. of Unisons	12	19	3	19	6	18	0	27
	No. of Non-Uni.	15	8	24	8	22	10	27	0
Whole	No. of Unisons	31	40	7	41	18	34	4	54
Perf.	No. of Non-Uni.	22	13	46	13	37	21	49	0

In a total of 53 sentences plus the initial beat of the performance, the gambang is always in unison with the lagu on the eighth (final) lagu beat. At no other point is the gambang always in unison with the lagu. Although some unisons occur on each beat, the seventh and, to a lesser extent, the third beats rarely involve unisons.

In irama seseg, unlike any other irama, the gambang is always in unison with the lagu and thus demonstrates no independence from it. The gambang is more often in unison with the lagu than not on beats 2, 4, and 8 in irama I; 1, 2, 4, 6, and 8 in irama II, and 2, 4, 6, and 8 in irama III. Hence, in all cases, the gambang and lagu are likely to be in unison on beat 2 and at the ends of gattras (beats 4 and 8). For iramas I, II, and III, with one exception in irama I and irama II, a more general trend emerges for gambang and lagu to be in unison on even-numbered beats and not on odd-numbered beats. For the whole performance, the only exception to this is the first beat.

Eleven types of intervallic relationships occur between gambang and lagu in the whole performance. These are represented in Table 9-B with

the negative and positive integers -5(minus five) to +5(plus five), including 0. On only two of the eight beats in a musical sentence is the most typical interval something other than unison: on beats 3 and 7, with the interval -3(minus three, i.e., kempyung, below the lagu). Overall, then, the most typical musical sentence would involve a gambang-to-lagu relationship of unison on beats 1, 2, 4, 5, 6, and 8, but -3 on beats 3 and 7. This pattern would give rise to a feeling of tension on the third and seventh beats which is resolved on the fourth and eighth beats, the ends of the first and second gattras of a musical sentence. However with the exception of irama seseg, various types of tension (from non-unisons) occur on the first seven beats of a musical sentence; it is only the eighth beat where tension is completely absent.

#### Consonance-Dissonance and Sentence Location

Using the system of ranking degrees of consonance-dissonance explained in Chapter VI, the eight beats in a musical sentence may be compared and a pattern of progression shown. (Maximum consonance possible = 0; maximum dissonance possible = 4.00) The tabulation of consonance-dissonance coefficients is given in Table 10-B. Below is given the consonance-dissonance coefficient for each lagu beat in each irama and for the whole performance.

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama Seseg	0	0	0	0	0	0	0	0
Irama I	2.20	1.00	3.14	0.57	2.43	2.29	1.67	0
Irama II	0.47	0.32	1.67	0.16	1.79	0.68	2.31	0
Irama III	1.93	0.48	2.19	0.78	2.54	1.37	2.59	0
Whole Performance	1.36	0.45	2.09	0.52	2.22	1.22	2.34	0

For the whole performance, the beat of greatest dissonance (the seventh) immediately precedes the beat of greatest consonance (the eighth). This might be seen as the 'period' on the musical sentence: greatest tension on the seventh beat always resolved on the eighth. This same pattern emerges in iramas II and III, which account for most of the whole performance. In irama I, although the eighth beat has the greatest degree of consonance, it is the third rather than the seventh beat where the greatest dissonance occurs. As pointed out above, irama seseg is a special case, with absolute consonance on every beat.

If irama seseg is excluded from the discussion, an interesting pattern of regular alternation emerges. For iramas II and III, as well as the performance overall, moving from the first to the eighth beats, the consonance-dissonance, as indicated by the coefficients, varies in a regular, oscillating manner. The following shows the relation of each beat to the one immediately preceding and the one immediately following with respect to amount of dissonance:

1st > 2nd < 3rd > 4th < 5th > 6th < 7th > 8th

The second beat is less dissonant than the first and third; the third is more dissonant than the second and fourth; the fourth is less dissonant than the third and fifth, and so on. This would seem to indicate that, in addition to the clear tendency to resolve tension on the final beat of a musical sentence, there is a tendency for some amount of tension resolution on even-numbered beats and for tension to build again on odd-numbered beats. This same pattern is indicated for irama I, with the exception that from the sixth to the seventh beats

dissonance decreases rather than increases. But in all iramas (except irama seseg) the amount of dissonance in even-numbered positions is less than in the preceding (odd-numbered) position. As was pointed out in the explanation of the system of ranking, the consonance-dissonance coefficient is intended as a ranking rather than a quantification. However, it demonstrates patterns of tension and resolution which I believe are important.

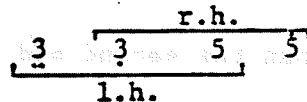
Corpus III: Ketawang Walagita, Pélog Patet Nem  
('Manyura' Type)

This gending was played on a gambang consisting of 21 keys (6 to 6̇). The performance consists of nine gambang beats (an initial plus four lagu beats) in irama seseg, 25 gambang beats (six lagu beats plus one gambang beat) in irama I, and 432 gambang beats (54 lagu beats, one abbreviated and one extended) in irama II.

Non-Thematic Analysis

Total Melodic Range

The total melodic range for the whole performance is 3̣ to 5̇:



For the ranges in each irama, see Table 1.

Maximum Stepwise Motion

For the whole performance, the maximum stepwise motion is five keys:

	Ascent	Descent
r.h.	5 keys=1 octave	4 keys=1 octave minus 1 key
l.h.	5 keys=1 octave	5 keys=1 octave

The maximum stepwise motion in each irama is given in Table 2.

#### Maximum Repetition of a Single Tone

The maximum repetition of a single tone is six successive statements in the right hand and five in the left. The maximum repetition of tones in each irama is given in Table 3.

#### Non-Octave Playing

Of a total of 466 gambang beats in the whole performance, 57 (12%) are non-octave playing, of which 65% are non-octave intervals, 26% rests in the left hand, and 9% rests in the right hand. Of the non-octave playing, 35% occurs on the first gambang beat and none on the eighth.

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total	Percent
Rests in r.h.	1	1	1	0	1	1	0	0	5	9%
Rests in l.h.	6	3	1	1	2	0	2	0	15	26%
Non-Oct. Int.	13	0	5	2	10	1	6	0	37	65%
Total	20	4	7	3	13	2	8	0	57	100%
Percent	35%	7%	12%	5%	23%	4%	14%	0%	100%	

The non-octave playing in each irama is given in Table 4-C.





In irama II, ten motifs are used more than once, accounting for 32 of the 54 motif positions. That nine of these are exclusive to irama II is more likely due to the fact that most of the performance is in irama II, rather than to a difference in contextual appropriateness between iramas I and II.

The most frequently used motif is S2-17, occurring nine times. The next two most prominent motifs are S2-13, occurring five times, and Fd-5, occurring four times. No one motif accounts for more than 16% of the performance.

#### Motif Final and Motif Low

Predictions were made in Chapter VI only about the motif lows in two Sléndro paṭets. In the analysis of the two gendings in Sléndro (Ketawang Puspawarna and Gending Gambir Sawit) above, these predictions were confirmed. Although no specific predictions were made for Pélog paṭet Nem, it should be expected that the present gending Ketawang Walagita, whose paṭet is described as Pélog paṭet Nem, 'Manyura' type, exhibit the same features predicted for Sléndro paṭet Manyura.

In the whole performance, 41 (72%) of the 57 motif positions are accounted for by LLF motifs. The degree of motif lows, the degree of their corresponding finals, and their frequency of occurrence are presented in Table 5-C. With some exceptions, the patterns predicted in Chapter VI for Sléndro paṭet Manyura are prominent, as summarized below.

Degree of Motif Final	Most Frequent Tonal Motion Low to Final	Other Tonal Motion Low to Final	Predicted Tonal Motion Low to Final
<u>3</u>	<u>1</u> up to <u>3</u> (x6)	<u>6</u> up to <u>3</u> (x5)	<u>6</u> up to <u>3</u>
<u>2</u>	<u>6</u> up to <u>2</u> (x8)	<u>1</u> up to <u>2</u> (x1)	<u>6</u> up to <u>2</u>
<u>1</u>	<u>3</u> up to <u>1</u> (x4)	<u>6</u> up to <u>1</u> (x3) <u>5</u> up to <u>1</u> (x2)	<u>3</u> up to <u>1</u>
<u>6</u>	<u>3</u> up to <u>6</u> (x5)	<u>6</u> up to <u>6</u> (x3) <u>1</u> up to <u>6</u> (x2)	<u>3</u> up to <u>6</u>
<u>5</u>	<u>3</u> up to <u>5</u> (x2)	none	<u>2</u> up to <u>5</u>

The enemy degree of Sléndro paṭet Manyura (5), while never prominent, nevertheless occurs as motif low in approach to final 1 (twice). The most prominent motif low for the approach to final 1 in Sléndro paṭet Manyura (3) is the most prominent low for the approach to tone 1 in this performance—more so than 5, which was shown to be the most prominent low for the approach to 1 to Sléndro paṭet Sanga. There is only a slight preference for low 1 (six occurrences) over low 6 (five occurrences) in the approach to final 3, which indicates ambiguity: low 1 is more characteristic of Sléndro paṭet Sanga and low 6 more characteristic of Sléndro paṭet Manyura. The exclusive choice of low 3 for the approach to final 5, although it does not occur in either the Sléndro paṭet Manyura or Sléndro paṭet Sanga examples in the corpus of this study, would be more appropriate in Sléndro paṭet Manyura, since 3 is the enemy tone of paṭet Sanga. The approaches to finals 2 and 6 are clearly 'Manyura' in character.

The most frequent motif lows in the whole performance are 6 and 3 (each occurring 11 times). These are the two most frequently used motif

lows for the example in Sléndro paṭet Manyura and contribute to the feeling my informants express that this gending is a 'Manyura' type of Pélog paṭet Nem.

Degree of Motif Low	No. of Occur.	Percent
<u>6</u>	11	27%
<u>3</u>	11	27%
<u>1</u>	9	22%
<u>2</u>	8	20%
<u>5</u>	2	5%
Total:	41	101% (100%)

The hierarchy of motif lows is similar to that in the example in Sléndro paṭet Manyura (page 242), but no single low is used more than all others, as is the case with low 6 in paṭet Manyura and low 5 in paṭet Sanga. If one degree is to be identified as the enemy it is clearly degree 5. Yet the examples in Sléndro paṭet Manyura and Sléndro paṭet Sanga involve no instances of the enemy as the motif low. In this performance, none of the five degrees available on the gambang is completely avoided as motif low.

The hierarchy of motif finals given below is similar to that in the example in Sléndro paṭet Manyura with the important exception that final 5 occurs as frequently as final 2.

Degree of Motif Final	No. of Occur.	Percent
<u>3</u>	16	28%
<u>6</u>	13	23%
<u>1</u>	10	18%
<u>5</u>	9	16%
<u>2</u>	9	16%
Total:	57	101% (100%)

That the paṭet of this gending is not merely a Pélog transposition of Sléndro paṭet Manyura is demonstrated by the more prominent use of degree 5 as motif low and motif final and the less clearly delineated rankings in the hierarchy of motif lows in this performance than in the Sléndro paṭet Manyura example. Yet, it is clearly more 'Manyura' than 'Sanga'.

#### Motif Final and Motif Type

The number of occurrences of each of the 11 finals, its approach, and the resulting variety coefficient are:

Motif Final	No. of Motif Types/ No. of Occur. of Final			Variety Coefficient		
	Ir. I	Ir. II	Whole Perf.	Ir. I	Ir. II	Whole Perf.
ḍ	---	1/1	1/1	---	---	---
3	1/1	6/12	6/13	---	.45	.42
ḍ	---	2/2	2/2	---	1.00	1.00
ḍ	---	3/4	3/4	---	.67	.67
2	---	1/5	1/5	---	.00	.00
i	---	1/1	1/1	---	---	---
1	1/1	5/8	5/9	---	.57	.50
6	---	4/8	4/8	---	.43	.43
ḍ	---	4/5	4/5	---	.75	.75
5	---	4/6	4/6	---	.60	.60
ḍ	1/1	1/2	1/3	---	.00	.00
Summary for All Finals	3/3	32/54	32/57	---	.49	.46

\*Variety coefficient not computable, since there is only one occurrence of a final.

See Table 6-C for complete listing.

Final 3 is approached with the greatest variety (variety coefficient = 1.00) but occurs only twice. More significant is the final 6 which occurs five times with four different motif types (variety coefficient = .75). Finals 2 and 5 have 0 variety coefficient.

#### Sentence Position and Motif Type

The complete data for each position in each irama is given in Table 7-C. The most frequently used motif type(s) and the variety coefficient for each position in irama II are presented below. No variety coefficient is computable in irama I, since less than a complete musical sentence occurs in that irama.

Irama I	Position No.			
	1	2	3	4
	S3	---	Fd	S3

Irama II	Position No.							
	1	2	3	4	5	6	7	8
Most Frequent Motif Types	S2(x2)	S2(x2)	Fd(x2) Gb(x2)	S2(x5)	S5(x2)	S2(x3)	Fd(x5)	S2(x6)
Variety Coefficient	.80	.80	.67	.17	.83	.50	.33	.17

The position of greatest variety is the fifth (.83). The fourth and eighth have the least variety (.17).

Below, the overall variety coefficients for motif final and for sentence position are compared.

	Motif Final and Motif Type	Sentence Position and Motif Type
Irama I	(not computable)	-----)
Irama II	.49	.52

From this data, it appears that both motif final and the sentence position are determinants of the choice of motif type. The difference of .03 is not statistically significant for such a short performance.

#### Prominent Motif Types

Of the 61 motif types identified from the corpus of this study, 15 are used in this performance. Of these, nine motif types are used more than once: S2(x18), Fd(x8), S3(x8), Q1(x4), Gb(x3), R1(x3), S5(x3), I2(x2), and Q3(x2). Each of these motif types accounts for more than 2.5% of the whole performance; together they account for 51 of the total 57 motif positions. The following shows the finals for which these motif types are used and the sentence positions (in irama II) in which they occur.

Motif Type	Most Freq. Final(s)	Other Finals	Most Freq. Position(s)	Other Positions
S2	2	3,2,1,1,6,6	8	1,2,4,6
Fd	5	3,3,1,6,5	7	3
S3	3 and 1	none	4	1,2,6,8
Q1	5	2	6	2,5
Gb	6,5,3 (each x1)		3	7
R1	1	5	1,3,7 (each x1)	
S5	6	none	5	3
I2	3	none	5 and 6 (each x1)	
Q3	3 and 3 (each x1)		2 and 5 (each x1)	

This is a summary of the data given in Table 8-C.

The motif type with the greatest number of finals is S2 (with seven finals). Motif types S5 and I2 have only one final. The two motif types appearing in the greatest number of positions are S2 and S3 (each appearing in five positions: 1, 2, 4, and 8). Of these two, S3 is limited to only two finals: 3 and 1. None of these nine motif types is limited to a single sentence position. Of those limited to two positions (Fd, Gb, S5, I2, and Q3), motif type Fd is the most significant. In eight occurrences, with six different finals, it appears only in the third and seventh positions, that is, in the penultimate position of the first and second gstras of a musical sentence. The data indicates that the choice of some motif types (such as Fd) is determined more by position than by final, while the choice of others (such as S3) is determined more by final than by position.

Six of the eight positions (all but the initial two) appear as the most frequent location of one or more of these motif types. The use of type Fd has been discussed above. It does not occur in the final position of a musical sentence (or a gatra). Motif type S2 appears frequently in the final position of a musical sentence and type S3 in the final position of a gatra, but neither of these appears in the penultimate position of either a musical sentence or a gatra. With the exception of their use in the first position, motif types S2 and S3 are restricted to even-numbered positions. Other motif types, such as Fd, Gb, R1, and, with one exception, Q1, appear only in odd-numbered positions.

Integrative Analysis: Gambang and Lagu

Intervals and Sentence Location

The data from Table 9-C is given in summary form below.

		Lagu Beat No.	1	2	3	4	5	6	7	8
Irama	No. of Unisons		1	1	1	1				1
Seseg	No. of Non-Uni.		0	0	0	0				0
Irama I	No. of Unisons		0	1			0	0	0	1
I	No. of Non-Uni.		1	0			1	1	1	0
Irama II	No. of Unisons		5	5	1	7	4	6	1	7
II	No. of Non-Uni.		1	1	6	0	3	1	6	0
Whole	No. of Unisons		6	7	2	8	4	6	1	9
Perf.	No. of Non-Uni.		2	1	6	0	4	2	7	0

In a total of eight sentences plus the initial beat, the gambang is always in unison with the lagu on the fourth and eighth lagu beats. At no other point is the gambang always in unison with the lagu. In a total of eight occurrences of the seventh lagu beat, the gambang is only in unison with the lagu once. For irama II and for the whole performance, the gambang is more often in unison with the lagu than not on beats 1, 2, 4, 6, and 8. On the fifth beat, there is a slight preference for unison in irama II but an equal number of unisons and non-unisons in the whole performance. In neither irama seseg nor irama I is there a complete musical sentence; of the lagu beats in these iramas, only beats 2, 4, 7, and 8 show the trend found in irama II and the whole performance.

Nine types of intervallic relationships occur between gambang and lagu in the whole performance. These are represented in Table 9-C with negative and positive integers. On only two of the eight lagu beats of



a musical sentence is the most typical interval something other than unison: beats 3 and 7, each with intervals -3 (minus three; i.e., kemyung below lagu). Overall, then, the most typical musical sentence would involve a gambang to lagu relationship of unison on beats 1, 2, 4, 5, 6, and 8 and -3 on beats 3 and 7. This pattern would give rise to a feeling of tension on the third and seventh beats which would be resolved on the subsequent beats (the ends of the first and second gatrass of a musical sentence). With the exception of irama seseg, various types of tension (from non-unisons) occur on all but the fourth and eighth beats.

#### Consonance-Dissonance and Sentence Location

The tabulation of consonance-dissonance coefficients is given in Table 10-C. Below is given the consonance-dissonance coefficient for each lagu beat in each irama and for the whole performance.

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama Seseg	0	0	0	0				0
Irama I	4	0			4	2	1	0
Irama II	.33	.33	2.43	0	1.29	.43	2.0	0
Whole Perf.	.75	.25	2.13	0	1.63	.63	1.88	0

For the whole performance, the beat of greatest dissonance (the third) immediately precedes one of the two beats of greatest consonance (the fourth). The other beat of greatest consonance (the eighth) is preceded by the beat of second most dissonance (the seventh). Hence, the two most marked points of resolution of tension are the ends of gatrass and the ends of musical sentences. This same pattern emerges for irama II which accounts for most of the performance.

From the data for the whole performance, the pattern of alternating of tension and resolution identified in Gending Gambir Sawit is found here as well. The even-numbered beats involve less dissonance than the (odd-numbered) beats immediately preceding and immediately following:

1st > 2nd < 3rd > 4th < 5th > 6th < 7th > 8th

This would seem to indicate that, in addition to the clear tendency to resolve tension on the fourth and eighth beats, there is a tendency for some extent of tension resolution on even-numbered beats and for tension to build again on odd-numbered beats. This same pattern occurs in irama II, with the minor exception that the dissonance on the first two lagu beats is the same. In irama I and irama seseg there is too little data to be significant.

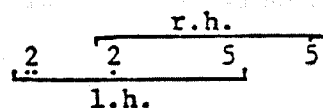
Corpus IV: Ketawang Mijil Wedaring Tyas,  
Pélog Pačet Nem ('Sanga' Type)

This gending was played on a gambang consisting of 21 keys (6̣ to 6̇). The performance consists of nine gambang beats (an initial plus four lagu beats) in irama seseg, 14 gambang beats (three lagu beats plus two gambang beats) in irama I, and 580 gambang beats (72 lagu beats plus four gambang beats) in irama II.

Non-Thematic Analysis

Total Melodic Range

The total melodic range for the whole performance is 2̣ to 5̇:



For the ranges in each irama, see Table 1.

#### Maximum Stepwise Motion

For the whole performance, the maximum stepwise motion is five keys:

	<u>Ascent</u>	<u>Descent</u>
r.h.	5 keys=1 octave	4 keys=1 octave minus 1 key
l.h.	5 keys=1 octave	5 keys=1 octave

The maximum stepwise motion in each irama is given in Table 2.

#### Maximum Repetition of a Single Tone

The maximum repetition of a single tone is five successive statements in both the left and the right hands. The maximum repetition of tones in each irama is given in Table 3.

#### Non-Octave Playing

Of a total of 603 gambang beats in the whole performance, 91 (15%) are non-octave playing, of which 70% are non-octave intervals, 27% rests in the left hand, and 2% rests in the right hand. Of the non-octave playing, 36% occurs on the fifth gambang beat and none on the sixth.

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total	Percent
Rests in r.h.	0	1	0	0	1	0	0	0	2	2%
Rests in l.h.	9	10	0	3	1	0	1	1	25	27%
Non-oct. Int.	21	0	4	1	31	0	7	0	64	70%
Total	30	11	4	4	33	0	8	1	91	99%
Percent	33%	12%	4%	4%	36%	0%	9%	1%	99%	(100%)

The non-octave playing in each irama is given in Table 4-D.

## Motivic Analysis

Motivic TranscriptionKetawang Mijil Wedaring Tyas, Pélog Patet Nem  
(‘Sanga’ Type)

## Umpak-umpak

		1t		5n					
		N1-1	S2-5	Irama I	Irama II				
S3-10	2	1t	3	6p	2	1t	2	5ng	
		Q1-3	Gb-9	S3-12	S3-7	Q1-3	Fd-4	S2-17	
S3-12	2	1t	2	6w	2	1t	2	5n	
		Q1-3	S3-12	S3-14	S3-7	Q1-3	Fd-5	G2-3	
S3-12	2	1t	2	6p	5	1t	2	5ng	
		Q1-3	I3-2	S3-14	S5-7	S2-17	Fd-5	S2-17	
S3-12	6	6t	6	6w	6	5t	5	in	
		I2-5	Gd-1	S3-17	P1-4	M3-1	Gb-10	S2-17	
S4-1	3	6t	i	2p	2	1t	2	5ng	
		Gb-9	R1-1	S2-13	I2-6	Q1-3	Fd-5	G2-3	
S2-16	i	2t	3	6w	i	2t	3	6n	
		Q3-1	Fd-5	S3-12	R2-1	Ad-2	Fd-3	S3-12	
S3-7	2	5t	6	1p	6	2t	3	6ng	
		Ge-3	R1-1	S2-13	I1-5	Q3-1	Fd-3	S3-12	
S5-7	5	5t	3	6w	i	6t	6	2n	
		I2-5	Gb-13	S3-12	S2-21	Q1-9	Fd-3	S3-12	
R1-1	3	5t	3	6p	2	1t	2	5ng	
		Q1-5	Fd-2	S3-12	S3-19	Q1-2	Fd-5	G2-3	

### Total Number of Motifs Used

A total of 37 motifs are used, of which 14 are used more than once and account for 51 of the 74 motif positions.

In irama I, each of the two motif positions is accounted for by a different motif. Both of these are exclusive to irama I.

In irama II, 14 motifs are used more than once, accounting for 51 of the 72 motif positions. That all of these are exclusive to irama II is more likely due to the fact that most of the performance is in irama II, rather than to a difference in contextual appropriateness between iramas I and II.

The most frequently used motif is S3-12, occurring 12 times. The next two most prominent motifs are Q1-3, occurring six times, and Fd-5, occurring five times. No one motif accounts for more than 17% of the performance.

### Motif Final and Motif Low

Although no specific predictions were made for motif lows in Pélog paṭet Nem, it should be expected that the present gending, whose paṭet is described as Pélog paṭet Nem 'Sanga' Type exhibit the same features predicted for Sléndro paṭet Sanga.

In the whole performance, 57 (77%) of the 74 motif positions are accounted for by LLF motifs. The degree of motif lows, the degree of their corresponding finals, and their frequency of occurrence are presented in Table 5-D. With some exceptions, the patterns predicted in Chapter VI for Sléndro paṭet Sanga are prominent, as summarized below.

Degree of Motif Final	Most Frequent Tonal Motion Low to Final	Other Tonal Motion Low to Final	Predicted Tonal Motion Low to Final
<u>2</u>	<u>5</u> up to <u>2</u> (x11)	<u>6</u> up to <u>2</u> (x3)	<u>5</u> up to <u>2</u>
<u>1</u>	<u>6</u> up to <u>1</u> (x8)	<u>5</u> up to <u>1</u> (x6)	<u>5</u> up to <u>1</u>
<u>6</u>	<u>2</u> up to <u>6</u> (x10)	<u>5</u> up to <u>6</u> (x4) <u>3</u> up to <u>6</u> (x1)	<u>2</u> up to <u>6</u>
<u>5</u>	<u>2</u> up to <u>5</u> (x8)	<u>5</u> up to <u>5</u> (x2) <u>1</u> up to <u>5</u> (x1) <u>3</u> up to <u>5</u> (x1)	<u>2</u> up to <u>5</u>
<u>3</u>	<u>2</u> up to <u>3</u> and <u>5</u> up to <u>3</u> (each x1)		<u>1</u> up to <u>3</u>

The enemy degree of Sléndro paṭet Sanga (3), while never prominent, nevertheless occurs as motif low in approach to finals 6 and 5 (but only once for each of these). The most prominent motif low for the approach to final 1 is 6, found in both Sléndro paṭet Manyura and paṭet Sanga. The other low (5) used in this performance is the predicted low for approach to final 1 in Sléndro paṭet Sanga (and is the most prominent low in the example in that paṭet). It does not occur in the example in Sléndro paṭet Manyura. Neither of the two lows used for approaching final 3 are predicted in Chapter VI for either Sléndro paṭet Sanga or paṭet Manyura. In the examples in those paṭets, motif low 2 occurs in both paṭets, but motif low 5 only in paṭet Sanga. The most prominent motif lows for approaching finals 2, 6, and 5 (5, 2 and 2, respectively) are the same as those predicted for Sléndro paṭet Sanga and found to be most prominent in the example in that paṭet.

The most frequent motif low in the whole performance is 5, and the second most frequent 2. These are the two most frequently used

motif lows (in the same order) for the example in Sléndro paṭet Sanga, and contribute to the feeling my informants express that this genḡing is a 'Sanga' type of Pélog paṭet Nem.

Degree of Motif Low	No. of Occur.	Percent
<u>5</u>	24	42%
<u>2</u>	19	33%
<u>6</u>	11	19%
<u>3</u>	2	4%
<u>1</u>	1	2%
Total:	57	100%

The hierarchy of motif lows is similar to that in the example in Sléndro paṭet Sanga, with several interesting exceptions. First, and probably most important, all five degrees available on the gambang are used at least once as motif lows. Second, motif low 1, third or fourth in frequency in the three previously discussed examples, is used only once in the present example and occurs less than any other motif low, including the hypothesized enemy. I suspect that in a larger sample of genḡings in Pélog paṭet Nem 'Sanga' type, degree 3 as motif low would occur less than degree 1, but further research is necessary to test the hypothesis.

The hierarchy of motif finals, given below, is rather different from any of the examples discussed above, although the prominence of final 5 over final 3 is more characteristic of paṭet Sanga than paṭet Manyura.

Degree of Motif Final	No. of Occur.	Percent
<u>2</u>	20	25%
<u>6</u>	18	24%
<u>1</u>	15	20%
<u>5</u>	13	18%
<u>3</u>	8	11%
Total	74	100%

That the paṭet of this geṅg is not merely a Pélog transposition of Sléndro paṭet Sanga is demonstrated by the more prominent use of degree 3 as motif low and motif final and the less clearly delineated rankings in the hierarchy of motif lows in this performance than in the Sléndro paṭet Sanga example. Yet, it is clearly more 'Sanga' than 'Manyura'.

#### Motif Final and Motif Type

The number of occurrences of each of the 13 finals, its approach, and the resulting variety coefficient are:

Motif Final	No. of Motif Types/ No. of Occur. of Final			Variety Coefficient		
	Ir. I	Ir. II	Whole Perf.	Ir. I	Ir. II	Whole Perf.
ḥ	---	1/1	1/1	---	---	---
5	---	6/7	6/7	---	.83	.83
5	1/1	3/4	3/5	---	.67	.50
ḥ	---	1/1	1/1	---	---	---
3	---	3/3	3/3	---	1.00	1.00
3	---	2/4	2/4	---	.33	.33
2	---	3/3	3/3	---	1.00	1.00
2	---	5/14	5/14	---	.31	.31
2	---	1/3	1/3	---	.00	.00
i	---	4/7	4/7	---	.50	.50
1	1/1	2/7	3/8	---	.17	.29
6	---	6/9	6/9	---	.63	.63
ḥ	---	4/9	4/9	---	.38	.38
Summary All Fin.	2/2	41/72	42/74	---	.49	.48

\*Variety coefficient not computable, since there is only one occurrence of a final.

See Table 6-D for complete listing.



Finals 3 and 2 are approached with the greatest variety (variety coefficient = 1.00) but occur only three times. More significant is the final 5 which occurs seven times with six different motif types (variety coefficient = .83). Final 2 has 0 variety coefficient.

#### Sentence Position and Motif Type

The complete data for each position in each irama is given in Table 7-D. The most frequently used motif type(s) and the variety coefficient for each position in irama II are presented below. No variety coefficient is computable in irama I, since less than a complete musical sentence occurs in that irama.

Irama I	Position No.			
	1	2	3	4
	---	---	N1	S2

Irama II	Position No.							
	1	2	3	4	5	6	7	8
Most Frequent Motif Types	S3(x5)	Q1(x4)	Fd(x2) Gb(x2) R1(x2)	S3(x7)	S3(x3)	Q1(x5)	Fd(x8)	G2(x3) S2(x3) S3(x3)
Variety Coefficient	.50	.50	.63	.13	.75	.50	.13	.25

The position of greatest variety is the fifth (.75). The fourth and seventh have the least variety (.13). There is less variety in the eighth position than in all but the fourth and seventh. The prominence of motif type S3 in four positions (first, fourth, fifth and eighth) may make it insufficient in itself to mark the end of a musical sentence or a gatra, but the use of motif type Fd before it would seem to prepare the listener for the end of a gatra--more typically the end of a musical sentence.

Below, the overall variety coefficients for motif final and for sentence position are compared.

	Motif Final and Motif Type	Sentence Position and Motif Type
Irama I	(not computable)	(not computable)
Irama II	.49	.42

From this data, it appears that both motif final and sentence position are determinants of the choice of motif type. The difference of .07 is not statistically significant for such a short performance.

#### Prominent Motif Types

Of the 61 motif types identified from the corpus of this study, 20 are used in this performance. Of these, ten motif types are used more than once: S3(x20), Fd(x10), Q1(x9), S2(x9), Gb(x3), G2(x3), I2(x3), R1(x3), Q3(x2), and S5(x2). Each of these motif types accounts for more than 2.5% of the whole performance; together they account for 64 of the total 74 motif positions. The following shows the finals for which these motif types are used and the sentence positions (in irama II) in which they occur.

Motif Type	Most Freq. Final(s)	Other Finals	Most Freq. Position(s)	Other Positions
S3	2	6, 6	4	1,3,5,8
Fd	2 and 3	2, 6, 3	7	3
Q1	1	1, 6, 5	6	2
S2	1	2,1,5,5	8	1,4,5,6
Gb	6,3,3 (each x1)		3	2
G2	5	5	8	none
I2	2,6,5 (each x1)		2	1
R1	1,6,3 (each x1)		3	1
Q3	2 and 2 (each x 1)		2 and 6 (each x1)	
S5	5	none	1 and 5 (each x1)	

This is a summary of the data given in Table 8-D.

The motif type with the greatest number of finals is S2 (with five finals). Motif type S5 has only one final. The two motif types appearing in the greatest number of sentence positions are S2 and S3 (each appearing in five positions). Only type G2 is limited to a single sentence position; it occurs with either final 5 or 5̣. Motif types Fd and Q1, with five and four different finals respectively, each occur only in two positions. In ten occurrences Fd appears only in the third and seventh positions, that is, in the penultimate position of the first and second gatras of a musical sentence. Type Q1, also occurring ten times, appears only in the second and sixth positions (the second position in a gatra). The data indicates that the choice of some motif types (such as Fd and Q1) is determined more by position than by final, while the choice of others (such as S5) is determined more by final than by position.

Six of the eight positions (all but the first and fifth) appear as the most frequent location of one or more of these motif types. The use of type Fd has been discussed above. It does not occur in the final position of a musical sentence (or a gatra). Motif types S2, S3, and G2 appear frequently in the final sentence position, and, with one exception for S3, do not occur in the penultimate position of gatra or musical sentence. Along with type Fd, types R1 and S5 appear in odd-numbered positions; and along with type Q1, type Q3 appears only in even-numbered positions.

## Integrative Analysis: Gambang and Lagu

Intervals and Sentence Location

The data from Table 9-D is given in summary form below.

	Lagu Beat No.	1	2	3	4	5	6	7	8
Irama	No. of Unisons	1	1	1	1				1
Seseg	No. of Non-Uni.	0	0	0	0				0
Irama	No. of Unisons					1	1	1	
I	No. of Non-Uni.					0	0	0	
Irama	No. of Unisons	8	8	4	9	4	7	0	10
II	No. of Non-Uni.	1	1	5	0	5	2	9	0
Whole	No. of Unisons	9	9	5	10	5	8	1	11
Perf.	No. of Non-Uni.	1	1	5	0	5	2	9	0

In a total of ten sentences plus the initial beat, the gambang is always in unison with the lagu on the fourth and eighth lagu beats. At no other point is the gambang always in unison with the lagu. In a total of ten occurrences of the seventh lagu beat, the gambang is only in unison with the lagu once: in irama I. For the whole performance and for irama II, the gambang is more often in unison with the lagu than not on beats 1,2,4,6 and 8. On the third and fifth beats there is a slight preference for unison in irama II, but an equal number of unisons and non-unisons occur in the whole performance. In neither irama seseg nor irama I is there any non-unison of gambang and lagu.

Nine types of intervallic relationships occur between gambang and lagu in the whole performance. These are represented in Table 9-D with negative and positive integers. Only on the seventh lagu beat of a musical sentence is the most typical interval something other than unison: -3 (minus three; i.e., kempyung below lagu). Overall, then, the most typical musical sentence would involve a gambang-to-lagu

relationship of unison on beats 1,2,3,4,5,6, and 8, and -3 on beat 7. This pattern would give rise to a feeling of tension on the seventh beat which would be resolved on the subsequent beat (the end of a musical sentence). However, with the exception of irama seseg and irama I, various types of tension (from non-unisons) occur on all but the fourth and eighth beats.

#### Consonance-Dissonance and Sentence Location

The tabulation of consonance-dissonance coefficients is given in Table 10-D. Below is given the consonance-dissonance coefficient for each lagu beat in each irama and for the whole performance.

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama Seseg	0	0	0	0				0
Irama I					0	0	0	
Irama II	.22	.22	1.67	0	1.89	.44	2.22	0
Whole Perf.	.20	.20	1.50	0	1.70	.40	2.00	0

For the whole performance, the beat of greatest dissonance (the seventh) immediately precedes one of the two beats of greatest consonance (the eighth). The other beat of greatest consonance (the fourth) is preceded by the beat of third most dissonance (the third). Hence the two most marked points of resolution of tension are the ends of gatrass and the ends of musical sentences. This same pattern emerges for irama II which accounts for most of the performance.

From the data for the whole performance, and for irama II, the pattern of alternating tension and resolution identified in Gending Gambir Sawit and Ketawang Walagita is found here as well. With the minor exception that the consonance-dissonance coefficients on the first two beats are the same, the even-numbered beats involve less dissonance

than the (odd-numbered) beats immediately preceding and immediately following: 1st = 2nd < 3rd > 4th < 5th > 6th < 7th > 8th. This would seem to indicate that, in addition to the clear tendency to resolve tension on the fourth and eighth beats, there is a tendency for some extent of tension resolution on even-numbered beats and for tension to build again on odd-numbered beats. In iramas I and seseg, no tension is built by gambang-to-lagu relationships, but there is too little data to be significant.

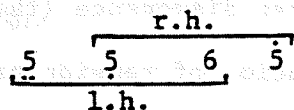
#### Corpus V: Ladrang Sembawa, Pélog Pačet Lima

This gending was played on a gambang consisting of 21 keys (6̣ to 6̇). The performance consists of five gambang beats (an initial plus two lagu beats) in irama seseg, 24 gambang beats (six lagu beats) in irama I, and 1472 gambang beats (184 lagu beats) in irama II.

#### Non-Thematic Analysis

##### Total Melodic Range

The total melodic range for the whole performance is 5̣ to 5̇:



For the ranges in each irama, see Table 1.

##### Maximum Stepwise Motion

For the whole performance, the maximum stepwise motion is five keys:

	<u>Ascent</u>	<u>Descent</u>
r.h.	5 keys=1 octave	3 keys=1 octave minus 2 keys
l.h.	5 keys=1 octave	5 keys=1 octave

The maximum stepwise motion in each irama is given in Table 2.

### Maximum Repetition of a Single Tone

For the whole performance, the maximum repetition of a single tone is ten successive statements in the right hand and five in the left. The maximum repetition of tones in each irama is given in Table 3.

### Non-Octave Playing

Of a total of 1501 gambang beats in the whole performance, 174 (12%) are non-octave playing of which 77% are non-octave intervals, 19% rests in the left hand, and 4% rests in the right hand. Of the non-octave playing, 34% occurs on the first gambang beat and only 0.6% on the eighth.

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total	Percent
Rests in r.h.	5	1	0	0	1	0	0	0	7	4%
Rests in l.h.	10	5	2	2	7	3	4	0	33	19%
Non-oct. Int.	45	3	6	1	34	0	44	1	134	77%
Total	60	9	8	3	42	3	48	1	174	100%
Percent	34%	5%	5%	2%	24%	2%	28%	0.6%	100.6%	(100%)

The non-octave playing in each irama is given in Table 4-E.

### Motivic Analysis

#### Motivic Transcription

#### Ladrang Sembawa, Pélog Paçet Lima

##### Umpak-umpak

	1t		3t		1n				
	S2-8	S4-3		S2-5					
	Irama I								
1	1t	1	1p	3	6t	1	3n		
I2-6	I2-6	I2-6	I2-6	S2-17	Q4-1	Fd-5	S3-12		
Irama II									
3	3t	5	6p	i	6t	1	3n		
S2-12	I2-6	R1-1	S2-13	Q3-1	Q1-3	Fd-5	S3-12		

Ladrang Sembawa, Pélog Paṭet Lima  
(Continued)

I2-6	3	6t	2	3p	5	5t	6	ing
I2-6	Q2-4	W2-1	Q3-1	Ga-1	S5-6	R1-1	S2-13	
Ngelik								
I2-6	i	it	6	2w	2	it	2	5n
I2-6	I2-6	Gb-12	S2-17	I2-6	Q1-3	Fd-5	S2-17	
S2-17	i	2t	3	6p	6	3t	5	6n
S2-17	Q3-1	Fd-5	S3-12	I2-6	S2-5	R1-1	S2-13	
I2-6	6	6t	1	3p	6	it	2	5n
I2-6	S3-19	Fd-5	S3-12	S2-17	Q3-1	Fd-5	S2-17	
S4-1	i	2t	3	6p	2	6t	2	3ng
S4-1	Q3-1	Fd-5	S3-12	Q2-1	Q2-2	W2-1	S3-16	
I2-6	3	3t	3	3w	5	5t	5	ln
I2-6	I2-3	I2-6	I2-6	N1-2	Gb-4	S5-6	S2-2	
I2-6	1	1t	1	1p	3	6t	1	3n
I2-6	L2-1	I2-6	I2-6	S4-1	Q4-1	Fd-5	S2-17	
I2-6	3	3t	5	6p	i	6t	1	3n
I2-6	I2-6	R1-1	S2-13	Q3-1	Q1-3	Fd-5	S3-12	
I2-6	3	3t	2	3p	5	5t	6	ing
I2-6	S2-6	Q1-13	S2-13	Q1-12	Gb-4	R1-1	S2-13	
Umpak-umpak								
I2-6	1	1t	1	1w	3	3t	5	ln
I2-6	I2-6	I2-6	I2-6	S2-17	I2-6	Fd-5	S2-17	
I2-6	1	1t	6	1p	3	6t	1	3n
I2-6	I2-6	Q1-13	S2-13	S4-1	Q4-1	Fd-5	S3-12	
I2-5	3	3t	5	6p	i	6t	1	3n
I2-5	I2-6	R1-1	S2-13	Q3-1	Q1-3	Fd-5	S3-12	
W2-2	2	6t	1	3p	i	5t	6	ing
W2-2	S5-1	Fd-5	S2-17	S5-7	Ge-5	R1-1	S2-13	



Ladrang Sembawa, Pélog Paçet Lima  
(Continued)

Ngelik	i	it	5	2w	2	it	2	5n
I2-6	I2-6	S3-3	S2-5	I2-6	Q1-3	Fd-5	S2-17	
	i	2t	3	6p	6	3t	5	6n
S2-17	Q3-1	Fd-3	S3-12	S2-12	S2-5	R1-1	S2-13	
	6	6t	1	3p	6	it	2	5n
I2-6	S2-11	Fd-5	S3-12	S2-17	S2-9	Fd-5	S2-17	
	i	2t	3	6p	2	6t	2	3ng
S2-17	I1-6	Fd-5	S3-12	P2-1	Lc-1	W2-1	S3-16	
	3	3t	3	3w	5	5t	6	1n
I2-5	S3-19	I1-5	I2-3	Q1-12	Gb-4	R1-1	S2-13	
	1	1t	6	1p	3	6t	1	3n
I2-6	I2-6	Q1-13	S2-13	S4-1	S4-1	Fd-5	S3-12	
	3	3t	5	6p	i	6t	1	3n
I2-5	S3-19	R1-1	S2-13	Q3-1	Q1-3	Fd-5	S3-12	
	3	3t	2	3p	5	5t	6	1ng
I2-5	Ge-6	Q1-13	S2-13	Q1-12	Gb-3	R1-1	I2-4	

Total Number of Motifs Used

A total of 46 motifs are used, of which 21 are used more than once and account for 162 of the 187 motif positions.

In irama I, each of the three motif positions is accounted for by a different motif. Two of these (S2-8 and S4-3) are exclusive to irama I.

In irama II, 21 motifs are used more than once, accounting for 161 of the 184 motif positions. That 20 of these are exclusive to irama II is more likely due to the fact that most of the performance is in irama II, rather than to a difference in contextual appropriateness

between iramas I and II.

The most frequently used motif is I2-6, occurring 34 times. The next two most prominent motifs are Fd-5, occurring 19 times, and S2-17, occurring 15 times. No one motif accounts for more than 19% of the performance.

#### Motif Final and Motif Low

No predictions have been made in this study for motif lows in Pélog paṭet Lima. Rather, from the data under this heading for this performance, predictions may be made for comparison with a larger sample of gambang playing in Pélog paṭet Lima.

In the whole performance, 157 (84%) of the 187 motif positions are accounted for by LLF motifs. The degree of motif lows, the degree of their corresponding finals, and their frequency of occurrence are presented in Table 5-E. Neither of the paṭet predictions made in Chapter VI (for Sléndro paṭets Sanga and Manyura) are prominent, but instead an ambiguous mixing of the two, as summarized below (see page 298). Looking, for the moment, at only the most frequent tonal motion for each degree, one finds an even split between motif lows characteristic of Sléndro paṭet Sanga and Sléndro paṭet Manyura. Motif finals 3 and 1 are most often approached from motif low 1 and 5 respectively; motif finals 2 and 6 are most often approached from motif lows 6 and 3 respectively. Final 5 is approached most often from motif low 3, unlike either of the Sléndro paṭets mentioned. Taking into consideration the "Other Tonal Motion" one finds that the tonal motion to each final includes motion predicted (and found in this corpus) for both Sléndro paṭet Manyura and paṭet Sanga.

Degree of Motif Final	Most Frequent Tonal Motion Low to Final	Other Total Motion Low to Final
<u>5</u>	<u>3</u> up to <u>5</u> (x10)	<u>2</u> up to <u>5</u> (x4) <u>5</u> up to <u>5</u> (x2) <u>1</u> up to <u>5</u> (x1)
<u>3</u>	<u>1</u> up to <u>3</u> (x27)	<u>6</u> up to <u>3</u> (x14) <u>5</u> up to <u>3</u> (x4)
<u>2</u>	<u>6</u> up to <u>2</u> (x10)	<u>5</u> up to <u>2</u> (x3) <u>1</u> up to <u>2</u> (x3)
<u>1</u>	<u>5</u> up to <u>1</u> (x35)	<u>3</u> up to <u>1</u> (x5) <u>6</u> up to <u>1</u> (x2) <u>2</u> up to <u>1</u> (x1) <u>1</u> up to <u>1</u> (x1)
<u>6</u>	<u>3</u> up to <u>6</u> (x15)	<u>5</u> up to <u>6</u> (x11) <u>2</u> up to <u>6</u> (x5) <u>1</u> up to <u>6</u> (x3) <u>6</u> up to <u>6</u> (x1)

It may be that this performance involves some kind of paṭet modulation, a concept discussed for Sléndro gendings by McDermott and Sumarsam (1975:239-43). One might characterize the performance as modulating between 'Sanga' type and 'Manyura' type in the Pélog Bem tuning system, yet none of my informants characterized Pélog paṭet Lima in this way. It is the lack of any definite 'Sanga' or 'Manyura' feeling, or an ambiguous mixing of the two, which gives Pélog paṭet Lima its 'during gembira' (not yet happy; i.e., intangible) feeling.

That the feeling is intangible does not imply that the gambang part wanders aimlessly. The performance in question involves a restatement of each of the three gongans. In restatement of the 12 musical sentences, only one ends with different tonal motion from low to final in the eighth motif: the second kenongan of the third (and in restatement sixth) gongan. Tonal motion 1 up to 3 is used in the first

statement and 6 up to 3 in the restatement. The other seven sentence positions also show remarkable similarity between first and second statements. This indicates that in most cases, tonal motion from low to final may be determined by something more than the degree of the final and the paṭet of the gending: perhaps by the location of the motif within the entire structure of the gending. Clearly there is a need for further research into the nature of this paṭet.

The most frequent motif low in the whole performance is 5 and the least frequent 2, as shown below.

Degree of Motif Low	No. of Occur.	Percent
<u>5</u>	55	35%
<u>1</u>	35	22%
<u>3</u>	30	19%
<u>6</u>	27	17%
<u>2</u>	10	6%
Total:	157	99% (100%)

As has been the case with other examples, the most prominent motif lows (in this case, 5, 1, and 3) are also the degrees identified by my informants as the most comfortable gending finals. Degrees 6 and 2 have figured more prominently as motif lows in the other examples but do not seem from this data to merit the label 'enemy' in Pélog paṭet Lima. This may bear relation to the special tuning of the rebab for Pélog paṭet Lima. In all other paṭets, the open strings are turned to 2 and 6 but in Pélog paṭet Lima to 1 and 5.

The hierarchy of motif finals is rather different from any of the examples discussed above.

Degree of Motif Final	No. of Occur.	Percent
$\frac{1}{3}$	55	29%
$\frac{3}{6}$	50	27%
$\frac{6}{5}$	38	20%
$\frac{5}{2}$	24	13%
$\frac{2}{2}$	20	11%
Total:	187	100%

Degree 2 occurs least frequently as motif final (as well as motif low). Slightly more frequent is motif final 5, identified as an important degree in Pelog paṭet Lima. It appears from this data, then, that motif lows are more important indicators of paṭet than motif finals.

#### Motif Final and Motif Type

The number of occurrences of each of the ten finals, its approach, and the resulting variety coefficient are:

Motif Final	No. of Motif Types/ No. of Occur. of Final			Variety Coefficient		
	Ir. I	Ir. II	Whole Perf.	Ir. I	Ir. II	Whole Perf.
$\dot{5}$	---	1/1	1/1	---	---	---
5	---	6/17	6/17	---	.31	.31
$\underset{\cdot}{5}$	---	3/6	3/6	---	.40	.40
3	1/1	7/49	7/50	---	.13	.12
$\dot{2}$	---	6/10	6/10	---	.56	.56
2	---	3/10	3/10	---	.22	.22
$\dot{i}$	---	7/23	7/23	---	.27	.27
1	1/2	4/30	4/32	.00	.10	.09
6	---	11/33	11/33	---	.31	.31
$\underset{\cdot}{6}$	---	2/5	2/5	---	.25	.25
Summary All Fin.	2/3	50/184	50/187	.50	.23	.23

\*Variety coefficient not computable, since there is only one occurrence of a final.

See Table 6-E for complete listing.

Final 2 is approached with the greatest variety (variety coefficient = .56). The tone approached with the least variety is tone 1, with a variety coefficient of .09 for the whole performance.

#### Sentence Position and Motif Type

The complete data for each position in each irama is given in Table 7-E. The most frequently used motif type(s) and the variety coefficient for each position in irama II are presented below. No variety coefficient is computable in irama I, since less than a complete musical sentence occurs in that irama.

Irama I		Position No.			
	1	2	3	4	
	—	S2	S4	S2	

Irama II		Position No.							
	1	2	3	4	5	6	7	8	
Most Frequent Motif Type	I2(x17)	I2(x10)	Fd(x7)	S2(x11)	S2(x5)	Q1(x6)	Fd(x13)	S2(x13)	
Variety Coefficient	.14	.36	.27	.14	.41	.45	.14	.09	

The position of greatest variety is the sixth (.45), and of least variety the eighth (.09). The prominence of motif type S2 in three positions (fourth, fifth, and eighth) may make it insufficient in itself to mark the end of a musical sentence or a gatra, but the use of motif type Fd (prominent in the third and seventh positions) before it would seem to prepare the listener for the end of a gatra—more typically the end of a musical sentence.

Below, the overall variety coefficients for motif final and for sentence position are compared.

	Motif Final and Motif Type	Sentence Position and Motif Type
Irama I	.5	not computable
Irama II	.23	.25

From this data, it appears that both motif final and sentence position are determinants of the choice of motif type. The difference of .02 is not statistically significant.

#### Prominent Motif Types

Of the 61 motif types identified from the corpus of this study, 20 are used in this performance. Of these, nine motif types are used more than four times: I2(x42), S2(x40), Fd(x20), S3(x19), Q1(x13), R1(x11), Q3(x9), S4(x6), and Gb(x5). Each of these motif types accounts for more than 2.5% of the whole performance; together they account for 165 of the total 187 motif positions. The following shows the finals for which these motif types are used and the sentence positions (in irama II) in which they occur.

Motif Type	Most Freq. Final(s)	Other Finals	Most Freq. Position(s)	Other Positions
I2	3	2, i, 1, 6	1	2, 3, 5, 6, 8
S2	3 and 6	5, 2, i, 1	8	1, 2, 4, 5, 6
Fd	1	5, 3, 2, i	7	3
S3	3	5, 6	8	2, 3, 4
Q1	6	5, 2, i, 6	6	3, 5
R1	5	6, 6	7	3
Q3	i	3, 2	5	2, 4, 6
S4	3	i, 6	5	1, 6
Gb	5	6	6	3

This is a summary of the data given in Table 8-E.

The motif type with the greatest number of finals is S2 (with six finals). With the fewest finals is motif type Gb (two finals). Motif types Fd and Q1, each with five different finals, are limited to two and three positions respectively. The number of positions in which motif types I2, S2, S3, and Q3 appear is greater than the number of finals for which each is used, but the difference is slight in each case.

Five of the eight positions (1,5,6,7 and 8) appear as the most frequent location of one or more of these motif types. The use of motif type Fd has been discussed above. It does not occur in the final position of a musical sentence or gatra. Motif types S2 and S3 appear frequently in the final sentence position and, with one exception for S3, do not occur in the penultimate position of gatra or musical sentence. Along with motif type Fd, R1 appears only in odd-numbered positions. The most frequent motif type (I2) figures most prominently in the first portion of a musical sentence. It is used most frequently in the first position, never in the seventh, and only once in the eighth.

#### Integrative Analysis: Gambang and Lagu

##### Intervals and Sentence Location

The data from Table 9-E is given in summary form below.

	Lagu Beat No.	1	2	3	4	5	6	7	8
Irama	No. of Unisons	1	1						1
Seseg	No. of Non-Uni.	0	0						0
Irama	No. of Unisons			1	1	1	1	1	1
I	No. of Non-Uni.			0	0	0	0	0	0
Irama	No. of Unisons	19	21	10	23	11	17	2	23
II	No. of Non-Uni.	4	2	13	0	12	6	21	0
Whole	No. of Unisons	20	22	11	24	12	18	3	25
Perf.	No. of Non-Uni.	4	2	13	0	12	6	21	0



In a total of 24 sentences plus the initial beat, the gambang is always in unison with the lagu on the fourth and eighth lagu beats. At no other point is the gambang always in unison with the lagu. In a total of 24 occurrences of the seventh lagu beat, the gambang is in unison with the lagu only three times. For irama II and for the whole performance, the gambang is more often in unison with the lagu than not on beats 1,2,4,6, and 8. On the fifth beat there is a slight preference for non-unison in irama II, but an equal number of unisons and non-unisons occur in this position for the whole performance. In neither irama seseg nor irama I is there any non-unison of gambang and lagu.

Seven types of intervallic relationships occur between gambang and lagu in the whole performance. These are represented in Table 9-E with negative and positive integers. Only on the seventh lagu beat of a musical sentence is the most typical interval something other than unison: -3 (minus three; i.e., kempyung below lagu). Overall, then, the most typical musical sentence would involve a gambang-to-lagu relationship of unison on beats 1,2,3,4,5,6, and 8, and -3 on beat 7. This pattern would give rise to a feeling of tension on the seventh beat which would be resolved on the subsequent beat (the end of a musical sentence). However, with the exception of irama seseg and irama I (which together account for only one of the 24 musical sentences) various types of tension (from non-unisons) occur on all but the fourth and eighth beats.

#### Consonance-Dissonance and Sentence Location

The tabulation of consonance-dissonance coefficients is given in Table 10-E. Below is given the consonance-dissonance coefficient for

each lagu beat in each irama and for the whole performance.

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama Seseg	0	0						0
Irama I			0	0	0	0	0	
Irama II	.65	.26	1.65	0	1.78	.87	2.17	0
Whole Perf.	.63	.25	1.58	0	1.71	.83	2.08	0

For the whole performance, the beat of greatest dissonance (the seventh) immediately precedes one of the two beats of greatest consonance (the eighth). The other beat of greatest consonance (the fourth) is preceded by the beat of third most dissonance (the third). Hence, the two most marked points of resolution of tension are the ends of gattras and the ends of musical sentences. This same pattern emerges in irama II.

From the data for the whole performance and for irama II, the pattern of alternating tension and resolution identified in Gending Gambir Sawit and Ketawang Walagita is found here as well. The even-numbered beats involve less dissonance than the (odd-numbered) beats immediately preceding and immediately following, as follows:

1st > 2nd < 3rd > 4th < 5th > 6th < 7th > 8th.

This would seem to indicate that, in addition to the clear tendency to resolve tension on the fourth and eighth beats, there is a tendency for some extent of tension resolution on even-numbered beats and for tension to build again on odd-numbered beats. In iramas I and seseg, no tension is built by gambang-to-lagu relationships, but there is too little data to be significant.

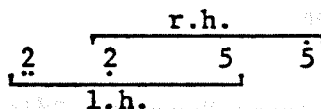
Corpus VI: Ladrang Pangkur, Pélog Patet Barang

This gending was performed on a gambang consisting of 21 keys (6̣ to 6̣̣). The performance consists of all gambang beats (an initial plus five lagu beats) in irama seseg, 28 gambang beats (seven lagu beats) in irama I, 376 gambang beats (47 lagu beats) in irama II,<sup>2</sup> 1177 gambang beats (147 lagu beats plus one gambang beat) in irama III, and 782 gambang beats (49 lagu beats minus two gambang beats) in irama IV.

Non-Thematic Analysis

Total Melodic Range

The total melodic range for the whole performance is 2̣ to 5̣̣:



For the ranges in each irama, see Table 1.

Maximum Stepwise Motion

For the whole performance, the maximum stepwise motion is six keys:

	Ascent	Descent
r.h.	5 keys=1 octave	3 keys=1 octave minus 2 keys
l.h.	6 keys=1 octave plus 1 key	5 keys=1 octave

The maximum stepwise motion in each irama is given in Table 2.

Maximum Repetition of a Single Tone

The maximum repetition of a single tone is six successive statements in the right hand and five in the left. The maximum repetition of a single tone in each irama is given in Table 3.

Non-Octave Playing

Of a total of 2374 gambang beats in the whole performance, 406 (17%) are non-octave playing, of which 66% are non-octave intervals, 22% rests in the left hand, and 12% rests in the right hand. Of the non-octave playing, 38% occurs on the first gambang beat and only 2% on the sixth.

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total	Percent
Rests in r.h.	20	3	3	1	15	4	1	2	49	12%
Rests in l.h.	32	22	6	3	7	4	7	8	89	22%
Non-oct. Int.	103	3	18	13	101	2	27	1	268	66%
Total	155	28	27	17	123	10	35	11	406	100%
Percent	38%	7%	7%	4%	30%	2%	9%	3%	100%	

The non-octave playing in each irama is given in Table 4-F.

Motivic Analysis

Motivic Transcription

Ladrang Pangkur, Pélog Pačet Barang

Lamba

		2		6n		6t		2p		
			I2-7		S5-6		S2-17			
			Irama I							
					3		3t		5	
					S3-12		Ga-2		Fd-3	
					Irama II					7n
		3		6t		7		2p		
S3-7	Ge-3		R1-1		S2-13		Q3-1		Ge-1	
							6t		6	
									S5-6	
									S2-4	
		7		3t		3		2t		
I1-3	Q3-1		Bd-4		S3-14		S3-7		Q1-3	
									Fd-4	
									S2-17	
		3		2t		3		7w		
S3-7	Q1-3		S3-12		S3-14		S3-17		Q1-3	
									Fd-4	
									S2-17	
		3		6t		3		2p		
I3-4	G2-1		M3-1		S2-18		I1-3		7	
									3t	
									5	
									Fd-3	
									S3-12	
									7n	

Ladrang Pangkur, Pélog Paçet Barang  
(Continued)

S3-7	3	G2-1	6t	---	6	---	2p	3	Q3-1	G2-2	Gb-4	6	S2-17	2n
S3-12	3	Ga-3	3t	Bd-4	3	S3-14	7p	3	I3-3	Q1-4				
								3	S3-12	S3-14	Gb-9	3	S2-17	6ng
									Irama III					
Mulur														
P1-2	5	Ab-2	3	Gb-8	6	S5-9	2t	3	S4-2	Bb-1	Bc-1	3	S3-14	7w
S3-7	3	Ge-3	6	R1-1	7	S2-13	2t	5	Lc-2	Ge-2	Gb-9	3	S2-17	6n
S3-12	7	S5-7	7	S3-3	3	S3-14	7t	3	S3-7	Ge-3	R1-1	7	S2-13	2p
I2-6	2	I2-6	2	Fb-2	5	S3-13	3t	3	V3-2	Bb-1	Fd-3	5	S3-12	7n
Gb-12	5	S3-12	7	I1-1	7	Q3-1	3t	7	I3-1	Bd-2	Gb-8	6	S5-9	2p
I2-6	2	V5-1	6	Gb-12	7	S2-20	6t	3	S3-7	G2-1	Gb-4	6	S3-12	2n
S5-7	6	S3-6	7	S3-18	3	S2-15	2t	3	S3-2	Bb-1	Fd-3	5	S3-12	7p
S3-7	3	Ge-3	6	R1-1	7	S2-13	2t	2	S5-6	Ge-5	R1-1	7	S2-13	2ng
Ngelik														
I2-6	2	I2-6	2	Q1-13	7	S2-13	2t	3	Q3-1	Gb-12	R1-1	2	S2-13	3w
I2-6	3	S3-19	3	Fd-5	5	S3-16	7t	3	S3-3	S2-14	Fd-5	3		
												3		
										S5-6	Ge-3			6n
										Irama IV				

S2-17	I2-6	I2-6	I2-6	I2-6	Ge-5	R1-1	S2-13
W2-3	Q3-1	S3-17	Q1-6	Fd-5	I1-5	I1-5	Q3-1
I1-1	S3-20	Gb-11	S2-17	H1-1	Hb-1	R1-1	S2-13
S3-16	S3-17	S2-11	S3-17	S2-7	I2-1	W2-1	S3-16
S2-11	S3-17	S3-17	S2-11	S3-17	Gd-1	Gb-12	S2-17
I2-6	Q3-1	R1-1	S2-13	M2-1	Q1-3	Fd-5	S2-17
Lb-1	S3-17	S3-17	S3-17	Fd-5	I1-5	I1-5	Q3-1
I1-1	M3-1	D1-1	I2-2	Gb-4	S5-6	Fd-3	S5-9
S5-7	K2-1	F1-1	S3-16	V2-1	S3-16	Gb-5	S2-17
I1-3	Q3-1	V3-1	Bb-2	Bb-6	Fd-3	I1-5	Q3-1
V2-1	S3-16	Fd-3	G2-3	J4-1	Fd-1	S5-6	S2-4
S3-16	S3-17	Fd-3	S3-12	S3-7	Q1-3	Fd-4	S2-17
P1-2 Irama III	Ab-2	Gb-8	N4-2	S3-2	Ga-2	Bc-1	S3-14
S3-7	Ge-3	S5-8	L4-3	Db-1	Ge-3	S5-6	S2-3
S3-12	S3-12	I1-4	S3-16	Q3-2	Ge-3	R3-1	S2-13
I2-6	I2-6	Kb-1	Q1-1	S3-2	Ga-7	T3-1	G1-1

Q3-1	<sup>3</sup>	S3-14	<sup>7</sup>	I1-1	<sup>7</sup>	Q3-1	<sup>3t</sup>	S5-3	<sup>3</sup>	Ge-4	<sup>6</sup>	Gb-3	<sup>6</sup>	L4-3	<sup>2p</sup>
V5-1	<sup>6</sup>	V3-3	<sup>6</sup>	Gb-12	<sup>7</sup>	I2-2	<sup>6t</sup>	S3-7	<sup>3</sup>	Q1-7	<sup>5</sup>	Fd-4	<sup>6</sup>	N4-2	<sup>2n</sup>
S5-7	<sup>6</sup>	S3-6	<sup>7</sup>	S3-18	<sup>3</sup>	S2-15	<sup>2t</sup>	M3-3	<sup>3</sup>	Ga-2	<sup>3</sup>	Fd-3	<sup>5</sup>	S3-20	<sup>7p</sup>
S3-7	<sup>3</sup>	S2-3	<sup>6</sup>	R1-1	<sup>7</sup>	S2-13	<sup>2t</sup>	U6-1	<sup>7</sup>	Ga-5	<sup>7</sup>	R1-2	<sup>5</sup>	S2-13	<sup>6ng</sup>

#### Total Number of Motifs Used

A total of 108 motifs are used of which 47 are used more than once and account for 234 of the 295 motif positions.

In irama I, each of the three motif positions is accounted for by a different motif, one of which (I2-7) is exclusive to irama I.

In irama II, ten motifs are used more than once, accounting for 30 of the 47 motif positions. None of these is exclusive to irama II.

In irama III, 33 motifs are used more than once, accounting for 110 of the 147 motif positions. Of these, 15 are exclusive to irama III: Ab-2, Bb-1, Bc-1, L4-3, N4-2, P1-2, S2-3, S2-15, S3-2, S3-3, S3-6, S3-18, V5-1, Gb-8, and Gb-9.

In irama IV, 14 motifs are used more than once, accounting for 61 of the 98 motif positions. Of these, three are exclusive to irama IV: I1-5, S2-11, and V2-1.

The use of motifs exclusively in irama III or IV points to the special character of gambang playing in the context of ciblon drumming. Six of the motifs used more than once, but exclusively in irama III, were identified by Suhardi as 'ugal-ugalan' (playful) motifs: Ab-2, Bb-1, Bc-1, L4-3, N4-2, and V5-1. None of the motifs used more than

once exclusively in irama IV was specifically identified by Suhardi as 'ugal-ugalan'. If iramas III and IV are combined for comparison with gambang playing in non-ciblon context, there are ten motifs (in addition to the ones mentioned above) used more than twice in the whole performance but occurring only in the context of ciblon drum (i.e., irama III or IV): Fd-5, Ge-5, Il-1, I2-2, I2-6, S3-16, S3-20, S5-7, S5-9, and Gb-12. Of these, only S5-9 was identified as 'ugal-ugalan'. The following 13 motifs, used only once in the context of ciblon, were identified as 'ugal-ugalan' by Suhardi: Bb-2, Bb-6, Fl-1, Ga-5, Ga-7, K2-1, R3-1, S2-20, S5-8, U6-1, V3-1, V3-2, and V3-3. Some of the other motifs used exclusively in irama III and IV might also be felt as somewhat 'ugal-ugalan' but were not discussed with my informants.

The motif Bd-4, identified as 'ugal-ugalan' and played in irama III in Gending Gambir Sawit, appears twice in Ladrang Pangkur: in irama II. In Gending Gambir Sawit, one ugal-ugalan motif (V5-1) was found in irama II twice. With this in mind, I feel it is probable that some motifs are more 'ugal-ugalan' in nature than others, although the discussion of ugal-ugalan motifs with my informants did not involve a continuum. Perhaps motifs V5-1 and Bd-4 are less 'ugal-ugalan' than some of the other motifs. If, in a larger sample, these two (and several other) 'ugal-ugalan' motifs reappeared outside of the ciblon context, while others did not, it might be concluded that the evaluation of this aspect of the nature of motifs operates within a continuum rather than the dichotomy implied by the labelling of some motifs as 'ugal-ugalan' and the others as 'not ugal-ugalan'.



A total of 29 (12%) of the 245 motif positions in irama III and IV are accounted for by motifs identified as 'ugal-ugalan'. I strongly suspect that other motifs used in these two iramas are felt to be 'ugal-ugalan', but were not explicitly pointed out during discussions with my informants.

#### Motif Final and Motif Low

No predictions have been presented concerning motif lows in Pélog paṭet Barang. This paṭet is considered by many Javanese, including my informants, to be a transposition to the Pélog Barang scale of Sléndro paṭet Manyura, although exceptions are recognized. Of particular importance is the mention of gendings in Pélog paṭet Barang which may comfortable end on degree 5, the enemy in Sléndro paṭet Manyura and never (to my knowledge) the final of a gending in Sléndro paṭet Manyura. Nevertheless, the present example, Ladrang Pangkur, is considered a transposition from Sléndro paṭet Manyura and is often played in Sléndro paṭet Manyura. (The names of the five principal pitch degrees in the Pélog Barang system are the same as the names of the five Sléndro pitch degrees; the numerical representation differs for 'barang': 1 in Sléndro; 7 in Pélog. The tonal motion predicted (and supported by the data) for Sléndro paṭet Manyura should be prominent in this performance, and not the tonal motion predicted for Sléndro paṭet Sanga.

In the whole performance, 221 (75%) of the 295 motif positions are accounted for by LLF motifs. The degree of motif lows, the degree of their corresponding finals, and their frequency of occurrence in each irama are presented in Table 5-F. In each case, the pattern predicted in Chapter VI for Sléndro paṭet Manyura is prominent, and with the

exception of final 3, occurs more than all others combined, as summarized below.

Degree of Motif Final	Most Frequent Tonal Motion Low to Final	Other Tonal Motion Low to Final	Predicted Tonal Motion Low to Final
<u>3</u>	<u>6</u> up to <u>3</u> (x56)	<u>7</u> up to <u>3</u> (x5) <u>2</u> up to <u>3</u> (x3) <u>3</u> up to <u>3</u> (x3) <u>5</u> up to <u>3</u> (x1)	<u>6</u> up to <u>3</u>
<u>2</u>	<u>6</u> up to <u>2</u> (x38)	<u>7</u> up to <u>2</u> (x9) <u>3</u> up to <u>2</u> (x5) <u>2</u> up to <u>2</u> (x4)	<u>6</u> up to <u>2</u>
<u>7</u>	<u>3</u> up to <u>7</u> (x29)	<u>6</u> up to <u>7</u> (x18) <u>7</u> up to <u>7</u> (x1)	<u>3</u> up to <u>7</u>
<u>6</u>	<u>3</u> up to <u>6</u> (x21)	<u>6</u> up to <u>6</u> (x9) <u>2</u> up to <u>6</u> (x5)	<u>3</u> up to <u>6</u>
<u>5</u>	<u>3</u> up to <u>5</u> (x11)	<u>2</u> up to <u>5</u> (x3)	<u>2</u> up to <u>5</u>

In only one case (approaching motif final 3) is degree 5, the enemy in Sléndro paṭet Manyura, found as motif low. Otherwise, degree 5 seems to be identifiable as enemy for the paṭet of this gendhing. Since degree 5 may figure prominently in some Pélog paṭet Barang gendhings, presumably it is not the enemy for paṭet Barang but for one type of paṭet Barang. My informants do not verbally distinguish 'Manyura' and 'Sanga' types of paṭet Barang. Similarity to 'Manyura' of some gendhings, including Ladrang Pangkur, is acknowledged; but gendhings in which degree 5 is more prominent are not described as Pélog paṭet Barang 'Sanga' type. A future study with a larger corpus, including such gendhings as Gending Sinom and Ladrang Winangun (both featuring degree 5 at the end of musical sentences and as finals), might lead to the identification

of another type of Pélog paṭet Barang.

Degree 6 is the most frequently used motif low, found more than all other motif lows combined, as shown below.

Degree of Motif Low	No. of Occur.	Percent
<u>6</u>	121	55%
<u>3</u>	69	31%
<u>2</u>	15	7%
<u>7</u>	15	7%
<u>5</u>	1	--
Total:	221	100%

The hierarchy of motif lows is identical to that in the example in Sléndro paṭet Manyura, including the equal number of occurrences of 7 (=1) and 2.

The hierarchy of motif finals is quite similar to that of the example in Sléndro paṭet Manyura, as shown below.

Degree of Motif Final	No. of Occur.	Percent
<u>3</u>	96	33%
<u>6</u>	60	20%
<u>2</u>	58	20%
<u>7</u>	54	18%
<u>5</u>	27	9%
Total	295	100%

As in the Sléndro paṭet Manyura example, both degrees 3 and 6 are prominent as motif lows and finals but account for a greater percentage of motif lows than motif finals, and degree 5 accounts for a greater percentage of motif finals than motif lows. The use of degree 7, of course, makes the paṭet clearly identifiable as paṭet Barang. Assuming that there are sub-types of paṭet Barang, and that this example is 'Manyura' type, the sense of paṭet sub-type arises more from motif low

than from motif final.

### Motif Final and Motif Type

The number of occurrences of each of the 11 finals, its approach, and the resulting variety coefficient are:

Motif Final	No. of Motif Types/ No. of Occur. of Final					Variety Coefficients				
	Ir. I	Ir. II	Ir. III	Ir. IV	W.P.	Ir. I	Ir. II	Ir. III	Ir. IV	W.P.
3̇	---	2/2	8/17	7/13	10/32	---	1.00	.47	.50	.29
3	---	5/16	11/27	6/15	15/58	---	.27	.38	.35	.25
3̇	---	1/2	1/2	1/2	2/6	---	.00	.00	.00	.20
2̇	1/1	1/1	4/16	7/15	9/33	---	---	.20	.42	.25
2	---	2/7	5/10	7/8	10/25	---	.17	.44	.86	.38
7	---	1/1	9/15	4/8	11/24	---	---	.57	.43	.43
7̇	---	3/7	7/21	2/2	8/30	---	.33	.29	1.00	.24
6	1/1	2/4	6/11	9/17	13/33	---	.33	.50	.50	.38
6̇	1/1	3/5	5/16	4/5	6/27	---	.50	.27	.75	.19
5	---	---	6/7	5/11	9/18	---	---	.83	.40	.47
5̇	---	1/2	3/5	2/2	4/9	---	.00	.50	1.00	.38
Summary All Fin.	3/3	21/47	65/147	54/98	97/295	---	.30	.40	.49	.31

\*Variety coefficient not computable, since there is only one occurrence of a final.

W.P. = Whole Performance

See Table 6-F for complete listing.

Final 5 is approached with the greatest variety in motif type (variety coefficient = .47). Final 6̇ is approached with the least variety (variety coefficient = .19).

Despite the far greater number of motif positions in irama III than in irama II, the variety coefficient with respect to motif final is greater in irama III than in irama II. With fewer motif positions than

irama III, irama IV has a variety coefficient of .49. In comparison with each other, then, irama III and IV show the same trend found in *Gending Gambir Sawit*: the greater the number of motif positions, the less variety. It is irama II in this performance of *Ladrang Pangkur* which deviates from the trend. With fewer motif positions than either irama III or IV, it has the least variety with respect to motif final, implying that the choice of motif type is significantly more limited (at least by motif final) in irama II than in iramas III and IV. The data for irama I is insufficient for any trend to be identified.

#### Sentence Position and Motif Type

The complete data for each position in each irama is given in Table 7-F. The most frequently used motif type(s) and the variety coefficient for each position in each irama are given below (see page 317). No variety coefficient is computable for Irama I. The positions of greatest variety in each irama are the second (.80) in irama II, the third (.47) in irama III, and fifth, sixth, eleventh, and thirteenth (1.0) in irama IV. The positions of least variety are the end of a musical sentence in iramas II and III and the midpoint of a musical sentence (end of first *gatra*) in irama IV: in each case the eighth position. The limitation of variety in the final position in iramas II and III may be due to the appropriateness of only certain motifs for ending a musical sentence. The limitation of variety in the eighth position in irama IV may indicate that only certain motifs are appropriate for ending the first *gatra* of a musical sentence. That the variety coefficient is not small in the final (sixteenth) position may

Irama I Position No.

1	2	3	4
S5	S2	---	I2

Irama II Position No.

1	2	3	4	5	6	7	8
S3(x4)	G2(x2)	Bd(x2)	S3(x3)	S3(x3)	Q1(x3)	Fd(x4)	S2(x4)
Most Freq. Motif Type			.25	.50	.60	.40	.20
Variety Coefficient			.80	.75			

Irama III Position No.

1	2	3	4	5	6	7	8
S3(x5)	S3(x6)	Gb(x4)	S2(x7)	S3(x8)	Ge(x6)	Fd(x5)	S2(x9)
Most Freq. Motif Type			.41	.44	.44	.33	.29
Variety Coefficient			.35	.41	.47		

Irama IV Position No.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
S2(x2)	S3(x4)	S3(x2)	S2&S3(x2)	---	---	Gb&R1(x2)	S2(x5)	I1&S3(x2)	Q3(x3)	---	S3(x2)	---	Q1(x2)	Fd(x3)	Q3&S2(x2)
Most Freq. Motif Type															
Variety Coefficient			.80	.40	.50	.60	.20	.40	.40	1.0	.80	1.0	.80	.50	.67

be indicative of a special characteristic of irama IV, but I suspect that in a larger sample of playing in irama IV this position would also have a small variety coefficient in comparison with most of the others.

In each irama, motif type S2 is prominent in the final position. In irama III it is also prominent in the fourth position, and in irama IV it is also prominent in positions 1, 4, and 8. In each irama, motif type Fd is prominent in the penultimate position, preparing the listener for the end of a musical sentence.

Below, the overall variety coefficients for motif final and sentence position are compared.

	Motif Final and Motif Type	Sentence Position and Motif Type
Irama I	(not computable -----)	
Irama II	.30	.49
Irama III	.40	.40
Irama IV	.49	.68

From this data, it appears that both motif final and sentence position are determinants of the choice of motif type. For Iramas II and IV, the motif final seems to be a greater determinant than sentence position. In irama III the two variety coefficients are identical. This reflects the trend found in all the other examples in the corpus of this study, for which there is not a significant difference between the two variety coefficients.

#### Prominent Motif Types

Of the 61 motif types identified from the corpus of this study, 43 are used in this performance. Of these, 11 motif types are used more than nine times: S3(x65), S2(x39), Fd(x19), I2(x17), Gb(x16),

S5(x16), Q3(x14), Ge(x13), I1(x13), R1(x11), and Q1(x10). Each of these motif types accounts for more than 2.5% of the whole performance; together they account for 233 of the total 295 motif positions. The following shows the finals for which these types are used and the sentence positions (excluding irama I) in which they occur (see page 320).

The motif types with the greatest number of finals are S2, I2, Gb, S5, and Q1 (each with six different finals). The motif type with the smallest number of finals is Ge (with only three different finals). The motif type occurring in the greatest number of positions is S3: seven positions in iramas II and III (all but the seventh), and eleven positions in irama IV. Each of the motif types Fd, Ge, and R1 occurs only in two positions in irama II and III. Of these, Fd and R1 are particularly significant, since they both occur with five different finals. In irama IV, R1 is used in only two positions, but Fd occurs in seven positions. Motif type S2, limited to even-numbered positions in iramas II and III, occurs in three odd-numbered positions in irama IV. Further differences between use of motif types in iramas II and III and in irama IV may be identified with a larger sample of gambang playing in irama IV. As is the case in the other examples in the corpus of this study, the choice of some motif types (such as S3) is determined more by motif final than motif position, while the choice of others (such as Fd), at least in iramas II and III, is determined more by position than by motif final.

For iramas II and III, this data shows several trends for the positions of these motif types. With the exception of positions 2 and



Motif Type	Most Freq. Final	Other Finals	Most Freq. Position		Other Positions	
			Ir: II & III	IV	Ir: II & III	IV
S3	3	3, 7, 7, 6	5	2	1, 2, 3, 4, 6 and 8	3, 4, 5, 6, 9, 10, 11, 12, 13, 16
S2	2	3, 3, 2, 6, 6	8	8	2, 4, 6	1, 4, 11, 12, 13 and 16
Fd	5	3, 3, 6, 5	7	15	3	3, 5, 6, 11, 13 and 14
I2	2	3, 2, 6, 6, 5	1	none	2, 4	2, 3, 4, 5, 9, 12 and 13 (each x1)
Gb	6	3, 2, 7, 7, 6	7	6	1, 3, 6	3, 13
S5	6	3, 3, 2, 2, 7	1 and 5	none	2, 3, 4, 7, 8	1, 7, 14, 15 and 16 (each x1)
Q3	3	3, 7, 7, 6	4 and 5	10	1 and 2	8 and 16
Ge	6	7 and 6	6	none	2	6, 16 (each x1)
I1	5	7, 7, 5	3	9 & 15	1 and 5	1, 6, 7, 14
R1	7 and 7	3, 2, 5	3 and 7	7	none	11
Q1	2	3, 3, 2, 7, 5	6	14	2, 3, 4	12

This is a summary of the data given in Table 8-F.

4, each of the eight positions appears as the most frequent location of one or more of these motif types. The use of Fd in the penultimate position of musical sentence and gatra has been discussed above. It occurs in only these positions in iramas II and III. Motif type S2 occurs most frequently in the final position (of musical sentence and gatra) and not once in the penultimate position. Motif type Ge, along with S2, appears only in even-numbered positions. Motif Type I1, along with R1 and Fd, appears only in odd-numbered positions.

It is significant that only five of the 98 motif positions in irama IV are filled by motif types not used elsewhere in the corpus of this study: F1, Hb, H1, K2, Lb, and M2. Even at the specific level of motif (with accession number), only 12 motifs are exclusive to irama IV;<sup>3</sup> hence 86 (88%) of the motif positions are accounted for by motifs found also in iramas I, II, and III. This means that most of the playing in irama IV involves rearrangement rather than a new set of motif types or motifs. My informants talked of irama IV as an "extended irama III". It is in the process of extension that the components of gambang playing, the motifs, are rearranged. If irama IV were simply a doubling of irama III, motif type Fd, for example, should occur only in the sixth (=2x3) and fourteenth (=2x7) positions, since it is restricted to the third and seventh positions in irama III (with one exception in Gending Gambir Sawit). Instead, it occurs in seven different positions, most frequently the fifteenth (not the fourteenth) position.

It has been suggested in the analysis of the other examples in the corpus of this study that motif type Fd prepares the listener for the end of a musical sentence or gatra. The following seven excerpts from

the motivic transcription show several ways in which motif type Fd is used to signal the end of a musical sentence or gatra in irama IV.

(The other two occurrences of this motif type in irama IV apparently do not function this way, but instead appear in the position preceding the middle of a gatra: a use not found in any other irama.)

1. Fd to Il to Il to Q3 (end of musical sentence)
2. (M2 to Q1 to) Fd to S2 (end of musical sentence)
3. Fd to Il to Il to Q3 (end of gatra)
4. (Gb to S5 to) Fd to S5 (end of musical sentence)
5. (Bb to) Fd to Il to Q3 (end of musical sentence)
6. (J4 to) Fd to S5 to S2 (end of gatra)
7. (S3 to Q1 to) Fd to S2 (end of musical sentence)

In the second, fourth, and seventh excerpts Fd appears in the penultimate position, as is the case in irama III (and irama II). Motif type Fd is separated from the final motif type of the gatra or musical sentence by one motif unit in the fifth and sixth excerpts, and by two motif units in the first and third excerpts. With the exception of the use of motif type S5 in the sixth example, motif type Il appears to be the motif type chosen for 'filling in' the musical time between motif type Fd and the final motif unit of the musical sentence or gatra. In the first and third excerpts, Il is repeated, and accounts for both the penultimate and the antepenultimate positions.

From this data, it seems that in irama IV, unlike any other irama, motif type Fd is not restricted to the penultimate position of musical sentence or gatra but often occurs in one of the three positions preceding the end of a musical sentence or gatra. As in the other iramas, it does not occur in the final position. Extension may occur before (second, fourth, and seventh excerpts), after (first and third excerpts), or both before and after (fifth and sixth excerpts) motif type Fd, but

its function remains to prepare the listener for the end of a musical sentence or gatra.

I have chosen motif type Fd as an example for comparison of trends in iramas II and III with trends in irama IV. Detailed discussion of other motif types requires a larger sample of playing in irama IV. Further research may provide additional insight into the special nature of gambang playing in this irama.

#### Integrative Analysis: Gambang and Lagu

##### Intervals and Sentence Location

The data from Table 9-F is given in summary form below.<sup>4</sup>

		Lagu Beat No.							
		1	2	3	4	5	6	7	8
Irama	No. of Unisons	1	1	1	1	1			1
Seseg	No. of Non-Uni.	0	0	0	0	0			0
Irama I	No. of Unisons	0	1	1	1		1	0	1
	No. of Non-Uni.	1	0	0	0		0	1	0
Irama II	No. of Unisons	4	4	1	5	3	5	0	6
	No. of Non-Uni.	2	2	4	0	4	1	6	0
Irama III	No. of Unisons	10	16	4	18	6	17	4	18
	No. of Non-Uni.	8	2	14	0	13	2	15	0
Irama IV	No. of Unisons	5	6	2	6	4	6	1	7
	No. of Non-Uni.	1	0	4	0	2	0	5	0
Whole Perf.	No. of Unisons	20	28	9	31	14	29	5	33
	No. of Non-Uni.	12	4	22	0	19	3	27	0

In a total of 32 occurrences of the eighth lagu beat plus the initial beat and 31 occurrences of the fourth lagu beat, the gambang is always in unison with the lagu. At no other point is the gambang always in unison with the lagu. Although some unisons occur in each position, the seventh, and, to a lesser extent, the third positions

rarely involve unisons. For the whole performance, and for iramas II and III, the gambang is more often in unison with the lagu than not on beats 1,2,4,6, and 8. On the fifth beat, the gambang and lagu are more often in unison in irama IV, but not in iramas II and III nor for the whole performance. In irama seseg no non-unisons occur, and in irama I non-unisons occur only on the first and seventh beats.

Eleven types of intervallic relationships occur between gambang and lagu in the whole performance. These are represented in Table 9-F by the negative and positive integers. Only on the seventh lagu beat of a musical sentence is the most typical interval something other than unison: -3 (minus three; i.e., kempyung below lagu). On the third beat there is an equal number of unisons and the interval -2 (minus two; i.e., kembyung below lagu); if irama seseg and irama I are excluded, the interval -2 would be the most prominent in the third position (for iramas II, III, and IV combined). Thus the most typical musical sentence would involve a gambang-to-lagu relationship of unison on beats 1,2,4,5, 6, and 8, -3 (kempyung below lagu) on beat 7, and unison or -2 (kembyung below lagu) on beat 3. This pattern would give rise to a feeling of tension on the seventh, and (if not unison) the third beats, which would be resolved on the subsequent beat (the end of a musical sentence or gatra). However, with the exception of irama seseg and irama I (which together account for less than two of the 32 musical sentences) various types of tension (from non-unison) occur on all but the fourth and eighth beats.

Consonance-Dissonance and Sentence Location

The tabulation of consonance-dissonance coefficients is given in Table 10-F. Below is given the consonance-dissonance coefficient for each lagu beat in each irama and for the whole performance.

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama Seseq	0	0	0	0	0			0
Irama I	3.0	0	0	0		0	2.0	0
Irama II	.83	.33	2.80	0	1.71	.17	2.17	0
Irama III	1.17	.33	2.50	0	1.42	.37	2.05	0
Irama IV	.33	0	1.33	0	.83	0	2.50	0
Whole Perf.	.97	.25	2.16	0	1.33	.25	2.16	0

For the whole performance the two beats of greatest dissonance (the third and seventh) immediately precede the beats of greatest consonance (the fourth and eighth). This same pattern emerges in iramas II, III, and IV. The greatest tension, arising from dissonance, is resolved (by unison) at the ends of musical sentences and gatrang. In irama I, there is resolution of tension on the second and eighth beats. There is a lack of tension from dissonance in irama seseq. This conforms to the pattern found in all other examples: the gambang and lagu are always in unison in irama seseq.

From the data for the whole performance and for iramas II, III and IV, the pattern of alternating tension and resolution identified in Gending Gambir Sawit, Ketawang Walagita, and Ladrang Sembawa is found here as well. The even-numbered beats involve less dissonance than the (odd-numbered) beats immediately preceding and immediately following:

$$1st > 2nd < 3rd > 4th < 5th > 6th < 7th > 8th.$$

This would seem to indicate that, in addition to the clear tendency to resolve tension on the fourth and eighth beats, there is a tendency for

some extent of tension resolution on even-numbered beats. The data for irama I does not yield this pattern, but, given a larger sample, I would not be surprised to find it in irama I as well. To my knowledge, irama seseg is a special case, in which no dissonance of gambang and lagu occurs.

### Summary

#### Non-Thematic Analysis

Four aspects of gambang playing subjected to analytical investigation are non-thematic.

#### Total Melodic Range

The total melodic range is greatest in Gending Gambir Sawit (13 keys in each hand) and smallest in Ladrang Sembawa (ten keys in the right hand and 11 keys in the left hand). This constitutes a range of at least two octaves and at most two octaves plus three keys for the part of each hand. Presumably, then, a range of ten keys in one hand is sufficiently wide by current standards.

#### Maximum Stepwise Motion

The maximum stepwise motion in the same direction occurs in Gending Gambir Sawit: seven keys (=one octave plus two keys) in ascent in the left hand part. In each composition, stepwise motion of at least five keys (=one octave) occurs. Presumably, then, stepwise motion of seven keys is within the limits indicated by my informants' "not much more than an octave".

### Maximum Repetition of a Single Tone

The maximum repetition of a single tone occurs in Ladrang Sembawa: ten successive statements in the right hand part. In each composition, at least one tone is stated four or more times in succession. Presumably, then, ten successive statements is within the range of acceptability and does not constitute "too many" repetitions.

### Non-octave Playing

The greatest percentage of non-octave playing (consisting of right hand rests, left hand rests, and non-octave combinations of right and left hands) occurs in Ladrang Pangkur: 17% of the gambang beats are non-octave. The smallest percentage of non-octave playing occurs in Ladrang Sembawa and Ketwang Walagita: 12% of the gambang beats are non-octave. Thus, each performance is at least 83% octave playing, which justifies the characterization of gambang playing as essentially 'octave-oriented'. However, it has been pointed out that some non-octave playing is aesthetically desirable. Presumably, then, 12% non-octave playing is sufficient independence of hands by current Jogjanese standards.

In each performance, non-octave intervals account for more non-octave playing than either right or left hand rests. Rests are more frequent in the left hand than in the right. Within an eight-gambang-beat unit, the greatest amount of non-octave playing occurs in the first or fifth beats, and the greatest amount of octave playing occurs on the sixth or eighth beats.



### Motivic Analysis

Gambang playing in all iramas but irama seseg is organized motivically into process (kinetic) units which may be transposed within one tuning system or to another tuning system.

#### Total Number of Motifs Used

In the entire corpus of this study, 206 different eight-gambang-beat motifs account for the total 1083 motif positions. The greatest number of times a single motif is used in a single composition is 34 occurrences (of motif I2-6, accounting for 18% of the 187 motif positions in the performance of Ladrang Sembawa). This motif (I2-6) is also the most frequently used motif in the entire corpus, with 78 occurrences. Probably because of the relatively small size of the corpus, more than half (112 of 206) the motifs are used only once in the entire corpus. Some of these I have heard in other performances; none, I feel, is 'composition-specific'. From the data at hand, it may be stated that the performer's 'vocabulary' of motifs is no less than 206. Presumably, this total is sufficiently great to provide ample variety. In a larger sample, even more motifs would be used; situations appropriate for some of the motifs in the performer's 'vocabulary' do not appear in the corpus of this study.

For the two corpus items with ciblon drumming (Gending Gambir Sawit and Ladrang Pangkur), the importance of context in the choice of motifs is demonstrated by the nearly exclusive use of certain motifs, identified as 'ugal-ugalan', in the context of ciblon drumming. Two of the ugal-ugalan motifs (V5-1 and Bd-4) appear in non-ciblon contexts as

well, and--positing a continuum from 'ugal-ugalan' to 'non-ugal-ugalan'--may be only marginally ugal-ugalan.

#### Motif Final and Motif Low

Verbalization by my informants suggests that the motif low in motifs whose low is lower than the final may be an important indicator of paṭet. Comparisons of motif lows and motif finals in each corpus item indicate that a sense of paṭet arises more from motif lows than from motif finals.

#### Sléndro Paṭets

The predictions made concerning motif lows in Sléndro paṭet Manyura and Sléndro paṭet Sanga are confirmed in the Sléndro examples (first two corpus items). Principles underlying the choice of certain motif lows include: avoidance of enemy pitch degree; emphasis of the pitch degree of 'the other' paṭet; and the definition of paṭet Manyura as paṭet Sanga 'transposed up one key'. Of particular significance is the absence of the enemy pitch degree as motif low in both Sléndro examples.

#### Pélog Paṭets

No explicit predictions were made concerning motif lows in any of the Pélog paṭets. For Pélog paṭet Nem, the sub-type categories 'Sanga' and 'Manyura' imply the same predictions made for these two Sléndro paṭets. For each example in Pélog paṭet Nem, the motif lows predicted for Sléndro are prominent, but not as clearly so as in the Sléndro examples. Degree 3 (enemy in Sléndro paṭet Sanga) appears twice as

motif low in the Pélog paṭet Nem, 'Sanga' type, example; and degree 5 (enemy in Sléndro paṭet Manyura) appears twice as motif low in the Pélog paṭet Nem, 'Manyura' type example.

For Pélog paṭet Lima, the data indicates ambiguity. Some finals are more frequently approached from 'Sanga' type lows and others from 'Manyura' type lows.

Javanese conception of Pélog paṭet Barang as a transposition from Sléndro paṭet Manyura (for most compositions) implies the same predictions made for Sléndro paṭet Manyura. These predictions are confirmed in the data, although not as clearly as in the corpus item in Sléndro paṭet Manyura. (Sléndro paṭet Manyura enemy degree 5 appears as motif low in the corpus item in Pélog paṭet Barang, but only once.)

#### Motif Type

Motifs with the same capital-letter and lower-case letter/numeral designation (but different accession numbers) are considered to belong to one motif type.

Choice of motif type in most of the corpus appears to be determined more or less equally by motif final and by position in a musical sentence. Significant exceptions occur in iramas II and IV in Ladrang Pangkur, where motif final appears to be the more significant determinant than sentence position.

Certain motif types are more prominent than others. Those which account for more than 2.5% of each of the corpus items are, in order of frequency, S3, S2, Fd, I2, Gb, and Q1. Each of these motif types is used in each irama, with the exception of Gb, which does not occur in

irama I. This is most likely due to the limited sample, rather than any inappropriateness of motif type Gb in irama I.

Most motif positions in this corpus occur in irama II and III, in which there are eight positions per musical sentence. Only motif type S3 is found in each of these positions. In no performance is this the motif type with the greatest number of finals. Hence, motif type S3 appears to be more 'final-specific' than 'position-specific'. Motif type Fd is found (with one exception in Gending Gambir Sawit) in only the third and seventh positions, yet with from four to seven different finals. Hence motif type Fd appears to be more position-specific than final-specific. Motif type S2 is not found in the third or seventh positions. Motif types Q1 and (with one exception in Ladrang Sembawa) I2 appear only in the first six positions. Motif type Gb appears in all but the fourth and fifth positions, but is most prominent, like Fd, in the third and seventh. The data is too limited in iramas I and IV for the patterns of motif type use in these iramas to be statistically significant.

#### Integrative Analysis: Gambang and Lagu

Verbalization concerning the gambang part's integration into the total gamelan sound fabric most frequently focuses on the intervallic relationships of gambang to the multi-octave conceptualized melodic outline called 'lagu'. Several important trends emerge from the data.

### Intervals and Sentence Location

For each corpus item, the gambang is always in unison with the lagu on the eighth beat of a musical sentence, and is more often than not in unison with the lagu on beats 1,2,4,6, and 8.

The most typical interval between gambang and lagu on the penultimate beat of a musical sentence is -3 (kempyung below lagu) in all corpus items except Ketawang Puspawarna (Corpus I), in which the most typical interval on the penultimate beat is -4 (kembyung below lagu). On the third and fifth beats of a musical sentence, the most typical gambang to lagu interval may be unison or non-unison.

The importance of musical sentence as a meaningful unit is demonstrated by the fact that only on the eighth (final) beat of a musical sentence is the gambang always in unison with the lagu, and only on the seventh (penultimate) beat is it most typically an interval other than unison. The end of the first gatra of a musical sentence is less clearly evident from patterns of gambang-to-lagu relationships.

### Consonance-Dissonance and Sentence Location

The relative extent of consonance-dissonance, although represented by arbitrary rankings, reveals a pattern of tension resolution--not only from penultimate to final beat in a musical sentence, but also from odd-numbered beats to even-numbered beats. The relation of consonance-dissonance coefficients for each of the eight lagu beats to the one immediately preceding and the one immediately following yields the following pattern in four of the six corpus items:

1st > 2nd < 3rd > 4th < 5th > 6th < 7th > 8th.

In the other two (Corpus I and Corpus IV) the pattern is the same, except that the coefficients for the first beat are either equal to (in Corpus IV) or less than (in Corpus I) the coefficients for the second beat.

In the following chapter, some of the implications of the findings of this study are discussed from a broader perspective.

## Notes to Chapter VII

<sup>1</sup>The second position actually has slightly less variety than the third (.28 and .29, respectively) but is not considered significantly different.

<sup>2</sup>This excludes 24 gambang beats (= three lagu beats) identified as 'trouble spots' by the performer.

<sup>3</sup>The 12 motifs exclusive to irama IV in this study are the following: Bb-2, F1-1, Hb-1, H1-1, I2-1, K2-1, Lb-1, M2-1, Q1-6, S2-7, V3-1, and Gb-5. Each is used only once.

<sup>4</sup>The totals vary since there are two 'trouble spots' in the lamba section (irama II); see note 2 to Chapter VII.

## CHAPTER VIII

## SUMMARY AND CONCLUSION

The gambang in contemporary Java is a multi-octave xylophone consisting of 17 to 23 keys of graduated length and played primarily in octaves. It is an integral part of the 'soft' instrumentation of a Javanese gamelan and may be played in compositions in both strict and free forms, and in a number of performance contexts. This study has investigated gambang practice in compositions in three strict forms frequently heard at uyon-uyon performances. As a framework for the understanding of the gambang and its music, aspects of Javanese socio-cultural and musical contexts have been discussed.

The findings and implications of the musical analysis have been summarized at the end of Chapter VII. Here, several specific matters not articulated in previous writings are listed.

1. Balungan is a single-octave melodic outline manifested on certain instruments, each confined to one octave; it is not always perceived by the Javanese as 'the melody'.
2. Lagu is a multi-octave melodic outline (i.e. its range spans more than one octave) which is not manifest on any one instrument, but is conceptualized.
3. Lagu is the melodic outline which serves as the best guide to gambang playing, although some pleasing deviation from it (i.e., some independence of garapan from lagu) is aesthetically desirable. Balungan may provide a good guide for playing the gambang in some instances, but not in all.



4. Kalimat lagu (musical sentence) is a perceptual unit. Without exception, at least in the corpus of this study and in my listening experience, the gambang part and the lagu are in unison at the end of musical sentences. Gatra is a smaller perceptual unit (two gatra = one musical sentence). The gambang part and the lagu are usually in unison at the end of gatra, but not always.
5. The Pélog tuning system consists of two overlapping pentatonic systems, Bem and Barang, with an auxiliary pitch 4. The application of pačet subdivisions to the heptatonic Pélog system obscures this fundamental subdivision.
6. The importance of gambang and other 'soft' instruments for pačet indication is suggested by verbalization within the culture, and corroborated by data from this study.
7. The process (kinetic) orientation in playing gambang and other gamelan instruments bears clear relation to Javanese pitch interval terminology and to the aesthetics of Javanese gamelan music.

The Javanese viewpoint is important to an understanding of both the gambang's physical properties and its music--not as entities distinct from the wider socio-cultural context, but as constituents of that context. Several aspects of this viewpoint introduced in Chapter I have been integral to the entire study.

First, appropriateness of objects and behavior has been shown to be contextual. For example, a difference in shape distinguishes a resonator appropriate for a Jogjanese gambang from one appropriate for a Solonese gambang. In musical performance, contextual determinants of the gambang player's choice have been discussed. Some approaches to a

certain tone in one pačet are not appropriate for the approach to that tone in another pačet. Within one pačet, some motifs are appropriate only in the context of one style of drumming. Furthermore, within a musical sentence, certain motifs may be appropriate only in some rhythmic positions. Thus, there are musical manifestations of the Javanese feeling that most behavior is not intrinsically right or wrong, good or bad, but may be appropriate in some contexts and not in others.

Second, continuums, rather than dichotomies, characterize Javanese world view, including their approach to music. I have suggested that the pačet concept may be understood as continuums, rather than a set of rigid categories into which each composition may be neatly classified. The evaluation of a gambang involves a series of gradations along a continuum from 'insufficient' to 'very complete'--a binary division of 'complete or incomplete' being alien to the indigenous view. Verbalization by informants suggests a continuum from maximum consonance to maximum dissonance in intervallic relationships. Investigations of the gambang part's relationship to the lagu, employing a ranking based on this continuum, reveals patterns that would not emerge from investigation based on dichotomous categories such as 'consonant or dissonant'.

Third, 'harmony' (in the sense of 'harmonious', not of chords) has been identified as an important Javanese value, particularly harmony with the self and harmony with others. A gambang performance that is valued highly exhibits intrinsic logic (harmony with itself) and integrative logic (harmony with other instrumental and vocal parts and with the lagu). More specifically, harmony with the self is a prerequisite for and contributes to harmony with others. Yet, harmony through rigid

conformity is not aesthetically desirable. The gambang part should not adhere 'slavishly' to the lagu or to any instrumental or vocal part. At the conceptual level, unity is highly valued to insure overall harmony. At the manifest level, multiplicity--coordinate rather than identical parts--is what pleases the listener and gives Javanese music its sophistication. The multiplicity operates within a 'harmonious' universe and should not be jarring, nor should it draw such attention to one individual as to conflict with communal 'harmony'. Since the gambang part is not predetermined by a composer, the player must understand the composition to play a part appropriate to his own musical sensibilities and to those of the players of other instruments. For the gambang part to have intrinsic and integrative logic, the player must be in harmony with himself and with the other players. Future study to investigate the extent to which conceptualization is similar and manifestation is variable from one musician to another is of particular importance.

In musico-technical aspects of the gambang part, this study has suggested that the horizontal, sequential organization of motifs combines with patterns of progression in consonance-dissonance to contribute to the overall logic of gamelan ensemble music.

Choice of motif finals in gambang playing follows conventions of consonance-dissonance relationships between gambang and lagu. In this study I have investigated the vertical, simultaneous relationship of gambang and lagu tones. Future research is needed to evaluate to what extent horizontal organization determines vertical organization. I strongly suspect that neither one is clearly predominant, each depending

somewhat on the other.

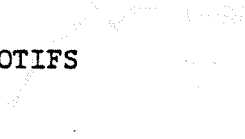
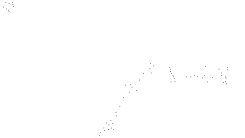
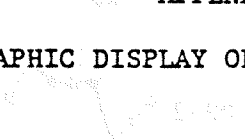
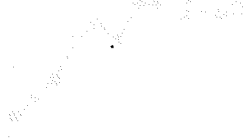
Choice of motif operates within a two dimensional framework, based on the final tone of the motif (with modal restrictions) and on its position within the 'musical sentence' (with rhythmic restrictions). Malm has suggested that laws of progression in the nagauta tradition of Japan function in a way comparable to Western chordal harmony in providing "forward driving motion" (1963:217). He stresses the horizontal organization, particularly of drum rhythms, in nagauta. I propose that in Javanese music, at least in the gambang part and probably in most of the other parts, both horizontal and vertical organization combine to provide the "forward driving motion", although the vertical element, in contrast to Western harmony, is not chordal. That a "forward driving motion" seems to be fundamental to three musics as diverse as Western music, Japanese nagauta, and Javanese karawitan—but generated differently in each—invites a study with broader scope designed to discover to what extent it is found in other of the world's music and by what means it is generated. The value placed on multiplicity at the manifest level in Javanese music may arise partially from the musico-technical 'need' for forward driving motion.

Above, I have offered a summary and proposed several topics for future research; to draw conclusions at this point would be premature, as the nature of this study is exploratory. My intention has been to offer the reader a 'thorough introduction' to the gambang and its music. In the course of this 'introduction' a number of questions about the gambang and its musical and socio-cultural contexts have been raised. With the recent popularity of Javanese gamelan music outside of Java

and continued performance and scholarly investigation by the Javanese, the present study has attempted to inform further those already involved and to catalyze new interest. If the outsider is to conduct further investigation, whether for insiders or outsiders to Javanese culture, the music must be approached 'on its own terms'--requiring participant observation and a conscious search for the concept behind the manifest. This is a growing trend in the field of ethnomusicology, and one which promises exciting and meaningful research in the future.

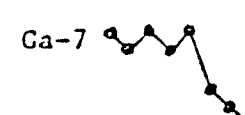
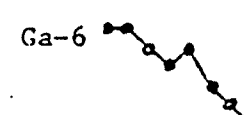
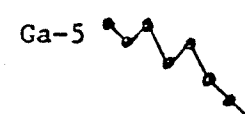
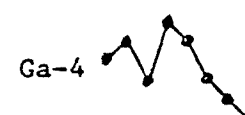
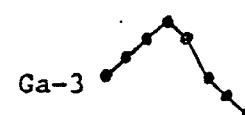
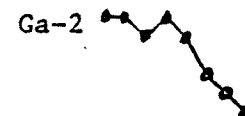
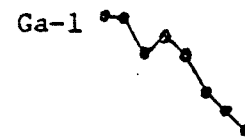
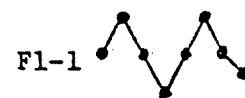
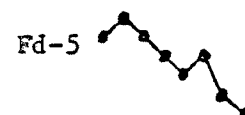
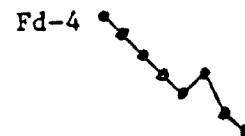
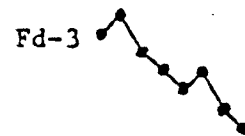
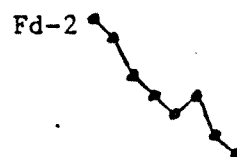
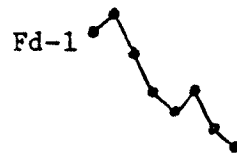
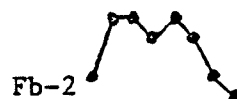
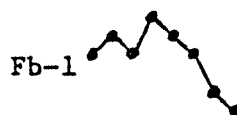
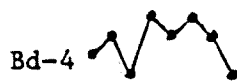
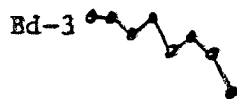
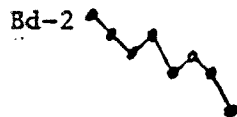
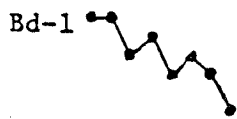
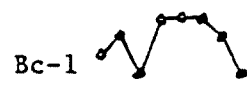
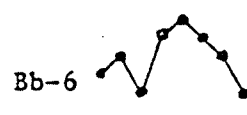
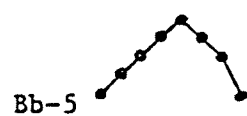
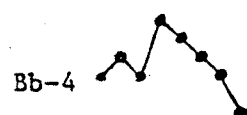
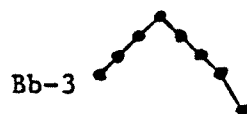
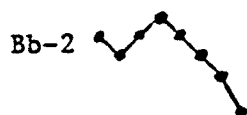
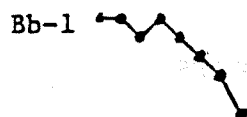
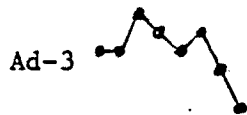
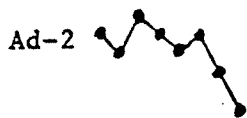
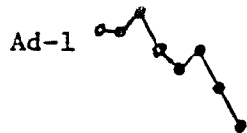
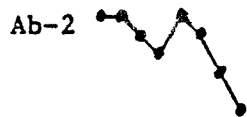
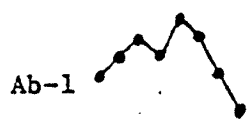
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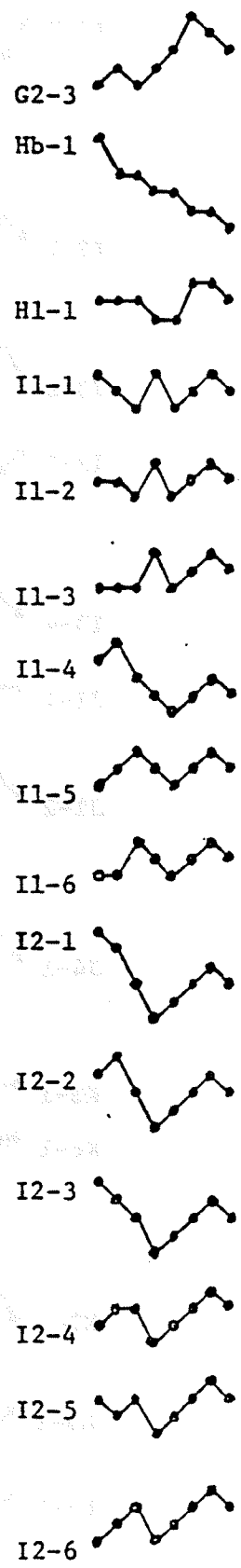
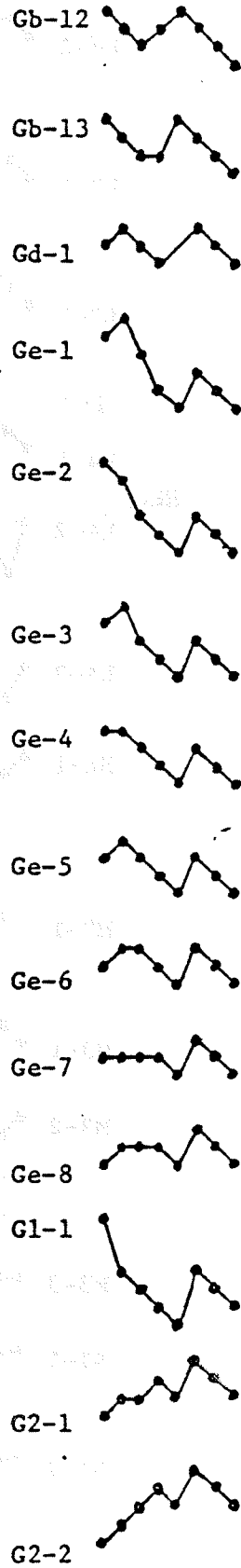
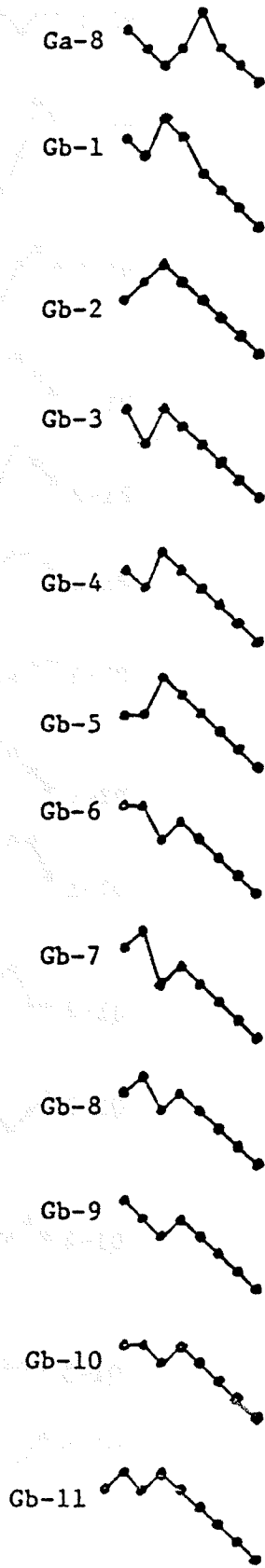


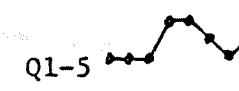
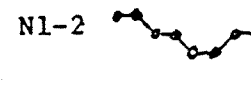
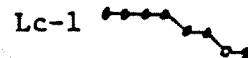
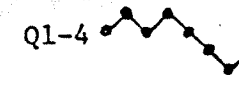
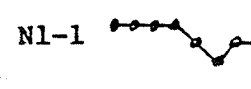
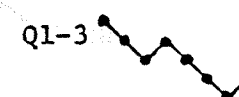
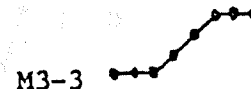
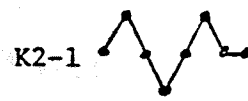
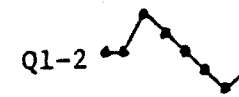
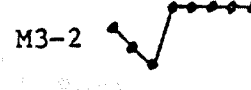
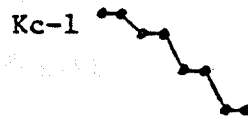
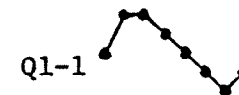
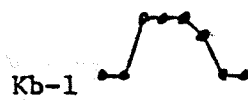
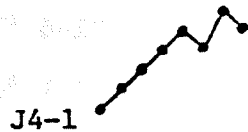
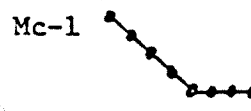
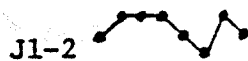
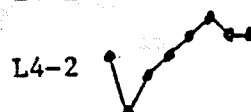
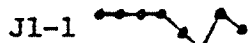
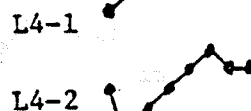
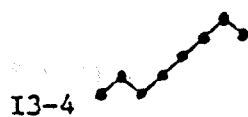
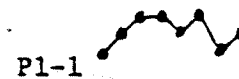
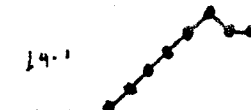
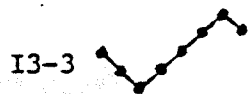
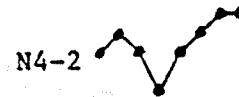
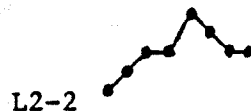
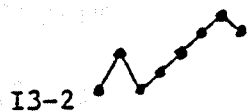
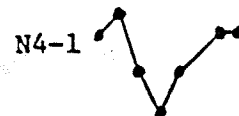
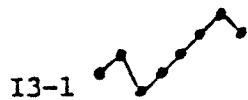
APPENDIX A

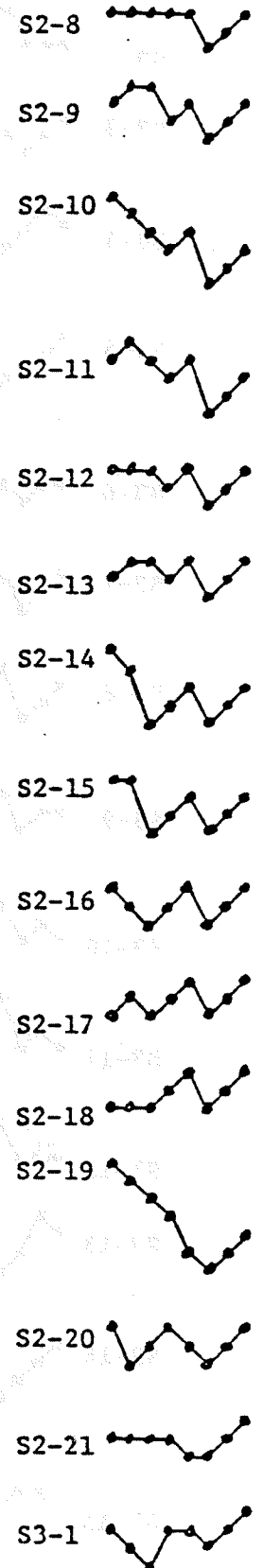
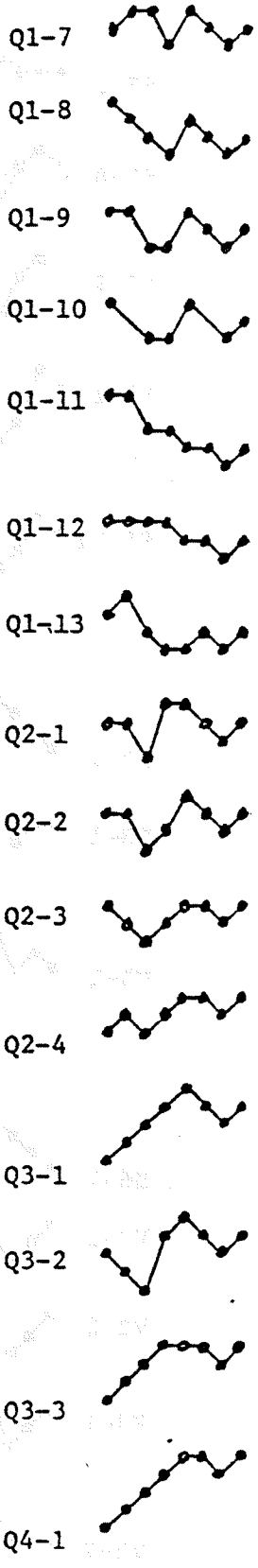
GRAPHIC DISPLAY OF GAMBANG MOTIFS



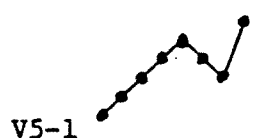
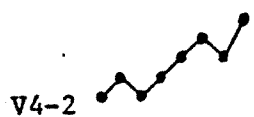
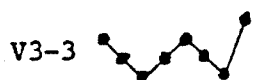














APPENDIX B

TABLES: DISPLAY OF ANALYTICAL DATA

Table 1: Total Melodic Ranges

		Ketawang Puspawarna	Gending Gambir Sawit	Ketawang Walagita
Ir. Ses.	r.h.		2̣ to 2̣ = 5 keys	6̣ to 3̣ = 3 keys
	l.h.		2̣ to 2̣ = 5 keys	6̣ to 3̣ = 3 keys
Ir. I	r.h.	3̣ to 6̣ = 7 keys	2̣ to 2̣ = 10 keys	3̣ to 5̣ = 6 keys
	l.h.	3̣ to 6̣ = 7 keys	2̣ to 2̣ = 10 keys	3̣ to 5̣ = 6 keys
Ir. II	r.h.	3̣ to 5̣ = 11 keys	2̣ to 3̣ = 11 keys	3̣ to 5̣ = 11 keys
	l.h.	3̣ to 5̣ = 11 keys	2̣ to 3̣ = 11 keys	3̣ to 5̣ = 11 keys
Ir. III	r.h.		1̣ to 5̣ = 13 keys	
	l.h.		1̣ to 5̣ = 13 keys	
Total	r.h.	3̣ to 5̣ = 11 keys	1̣ to 5̣ = 13 keys	3̣ to 5̣ = 11 keys
	l.h.	3̣ to 5̣ = 11 keys	1̣ to 5̣ = 13 keys	3̣ to 5̣ = 11 keys

		Ketawang Mijil Wedaring Tyas	Ladrang Sembawa	Ladrang Pangkur
Ir. Ses.	r.h.	5̣ to 2̣ = 3 keys	(only 1 key struck)	6̣ to 3̣ = 3 keys
	l.h.	5̣ to 2̣ = 3 keys	(only 1 key struck)	6̣ to 3̣ = 3 keys
Ir. I	r.h.	2̣ to 2̣ = 5 keys	5̣ to 3̣ = 4 keys	3̣ to 2̣ = 9 keys
	l.h.	2̣ to 2̣ = 5 keys	5̣ to 3̣ = 4 keys	3̣ to 2̣ = 9 keys
Ir. II	r.h.	2̣ to 5̣ = 12 keys	5̣ to 5̣ = 10 keys	3̣ to 3̣ = 10 keys
	l.h.	2̣ to 5̣ = 12 keys	5̣ to 6̣ = 11 keys	3̣ to 3̣ = 10 keys
Ir. III	r.h.			2̣ to 5̣ = 12 keys
	l.h.			2̣ to 5̣ = 12 keys
Ir. IV	r.h.			2̣ to 5̣ = 12 keys
	l.h.			2̣ to 5̣ = 12 keys
Total	r.h.	2̣ to 5̣ = 12 keys	5̣ to 5̣ = 10 keys	2̣ to 5̣ = 12 keys
	l.h.	2̣ to 5̣ = 12 keys	5̣ to 6̣ = 11 keys	2̣ to 5̣ = 12 keys

Table 2: Maximum Stepwise Motion

	Ketawang Puspawarna	Gending Gambir Sawit	Ketawang Walagita	Ketawang Milil Wedaring Tyas	Ladrang Sembawa	Ladrang Pangkur
r.h.		1 key (varied)	3 keys (6̇ to 3)	1 key (1 to 2)	none	1 key (2 to 3)
Accent		1 key (varied)	3 keys (6̇ to 3)	1 key (1̇ to 2̇)	none	1 key (2̇ to 3̇)
Irama Seseg . . . . .		1 key (5̇ to 3̇)	none	1 key (2 to 1)	none	1 key (3 to 2)
r.h.		1 key (5̇ to 3̇)	none	1 key (2̇ to 1̇)	none	1 key (3̇ to 2̇)
Descent		5 keys (varied)	4 keys (6̇ to 5)	1 key (varied)	2 keys (varied)	5 keys (6̇ to 6)
r.h.	5 keys (6̇ to 6)	6 keys (5̇ to 6̇)	4 keys (6̇ to 5̇)	1 key (6̇ to 1̇)	3 keys (6̇ to 3̇)	5 keys (6̇ to 6̇)
Accent		3 keys (varied)	3 keys (5 to 1)	2 keys (2 to 6̇)	3 keys (5 to 1)	2 keys (varied)
Irama I . . . . .	2 keys (varied)	4 keys (varied)	3 keys (5̇ to 1̇)	2 keys (2̇ to 6̇)	3 keys (5̇ to 1̇)	2 keys (varied)
Descent		6 keys (1 to 2)	5 keys (6̇ to 6)	5 keys (5̇ to 5)	5 keys (5̇ to 5)	5 keys (6̇ to 6)
r.h.	5 keys (6̇ to 6)	7 keys (6̇ to 2)	5 keys (6̇ to 6̇)	5 keys (varied)	5 keys (5̇ to 5̇)	6 keys (6̇ to 7̇)
Accent		3 keys (varied)	4 keys (6 to 1)	4 keys (2 to 3)	3 keys (varied)	3 keys (7 to 3)
Irama II . . . . .	3 keys (varied)	5 keys (varied)	5 keys (varied)	5 keys (varied)	5 keys (varied)	5 keys (varied)
Descent		5 keys (varied)	6 keys (varied)			5 keys (varied)
r.h.		6 keys (varied)	4 keys (varied)			5 keys (varied)
Accent		4 keys (1 to 2)	4 keys (1 to 2)			5 keys (varied)
Irama III . . . . .		5 keys (varied)	6 keys (varied)			5 keys (varied)
Descent		4 keys (1 to 2)	4 keys (1 to 2)			5 keys (varied)
r.h.		5 keys (varied)	5 keys (varied)			5 keys (varied)
Accent						6 keys (6̇ to 7̇)
Irama IV . . . . .						3 keys (varied)
Descent						5 keys (varied)
r.h.						5 keys (varied)
Accent						5 keys (varied)
Irama V . . . . .						5 keys (varied)
Descent						5 keys (varied)
r.h.						5 keys (varied)
Accent						5 keys (varied)
Whole Performance						5 keys (varied)
r.h.	5 keys	6 keys	5 keys	5 keys	5 keys	5 keys
Accent		7 keys	5 keys	5 keys	5 keys	6 keys
Irama VI . . . . .	6 keys	4 keys	4 keys	4 keys	3 keys	3 keys
Descent						
r.h.						
Accent						
Whole Performance						



Table 3: Maximum Repetition of a Single Tone

	Ketawang Puspawarna	Gending Gambir Sawit	Ketawang Walagita	Ketawang Wedaring Tyas	Ladrang Sembawa	Ladrang Pangkur
Ir. Ses.	r.h.	4 st. (v.)	2 st. (v.)	2 st. (v.)	5 st. (1)	2 st. (v.)
	l.h.	4 st. (2)	2 st. (v.)	2 st. (v.)	5 st. (1)	2 st. (v.)
Ir. I	r.h.	3 st. (2)	5 st. (3)	4 st. (2)	5 st. (1)	2 st. (v.)
	l.h.	4 st. (2)	5 st. (3)	4 st. (2)	3 st. (1)	2 st. (v.)
	r.h.	7 st. (2)	6 st. (3)	5 st. (v.)	4 st. (v.)	5 st. (3)
Ir. II	l.h.	5 st. (5)	4 st. (v.)	5 st. (v.)	4 st. (6)	5 st. (3)
	r.h.	5 st. (v.)				5 st. (v.)
Ir. III	l.h.	5 st. (v.)				5 st. (v.)
	r.h.					6 st. (3)
Ir. IV	l.h.					5 st. (3)
	r.h.	7 st.	6 st.	5 st.	10 st.***	6 st.
Whole Perf.	l.h.	5 st.	5 st.	5 st.	5 st.	5 st.

\*st. = statements: for example "3 st.(3)" = 3 statements of tone 3.

\*\*v. = varied (more than one tone is stated the indicated number of times).

\*\*\*In Ladrang Sembawa, from irama seseg to irama I, tone 1 is stated ten times in succession.

Table 4-A: Non-Octave Playing in Ketawang Puspawarna

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. I	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	1	0	0	0	0	0	0	0	1
	Non-oct. Int.	1	0	0	0	1	0	0	0	2
	<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>

(Non-Oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. II	Rests in r.h.	3	0	0	0	0	0	0	0	3
	Rests in l.h.	7	5	3	1	3	2	3	1	25
	Non-oct. Int.	23	0	0	1	20	0	4	0	48
	<b>Total</b>	<b>33</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>23</b>	<b>2</b>	<b>7</b>	<b>1</b>	<b>76</b>

(Non-Oct. Play.)

.....

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Whole Perf.	Rests in r.h.	3	0	0	0	0	0	0	0	3
	Rests in l.h.	8	5	3	1	3	2	3	1	26
	Non-oct. Int.	24	0	0	1	21	0	4	0	50
	<b>Total</b>	<b>35</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>24</b>	<b>2</b>	<b>7</b>	<b>1</b>	<b>79</b>

(Non-Oct. Play.)

Table 4-B: Non-Octave Playing in Gending Gambir Sawit

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. Ses.	Rests in r.h.	1	0	0	0	0	0	0	0	1
	Rests in l.h.	2	0	2	0	2	0	2	0	8
	Non-oct. Int.	no occurrence - - - - -								0
	Total	3	0	2	0	2	0	2	0	9

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. I	Rests in r.h.	1	0	0	0	0	0	0	0	1
	Rests in l.h.	3	2	1	0	0	1	0	0	7
	Non-oct. Int.	7	0	1	0	6	0	2	0	16
	Total	11	2	2	0	6	1	2	0	24

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. II	Rests in r.h.	9	1	2	0	2	0	1	0	15
	Rests in l.h.	18	14	4	4	3	1	1	6	51
	Non-oct. Int.	52	3	0	0	38	1	15	0	109
	Total	79	18	6	4	43	2	17	6	175

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. III	Rests in r.h.	9	0	2	2	5	4	3	0	25
	Rests in l.h.	22	7	0	9	6	2	4	17	67
	Non-oct. Int.	70	0	18	7	88	2	20	0	214
	Total	110	7	20	18	99	8	27	17	306

(Non-oct. Play.)

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	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Whole Perf.	Rests in r.h.	20	1	4	2	7	4	4	0	42
	Rests in l.h.	45	23	7	13	11	4	7	23	133
	Non-oct. Int.	138	3	19	7	132	3	37	0	339
	Total	203	27	30	22	150	11	48	23	514

(Non-oct. Play.)

Table 4-C: Non-Octave Playing in Ketawang Walagita

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. Ses.	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	no occurrence - - - - -								0
	Non-oct. Int.	no occurrence - - - - -								0
	Total	0	0	0	0	0	0	0	0	0

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. I	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	1	0	0	0	0	0	0	0	1
	Non-oct. Int.	no occurrence - - - - -								0
	Total	1	0	0	0	0	0	0	0	1

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. II	Rests in r.h.	1	1	1	0	1	1	0	0	5
	Rests in l.h.	5	3	1	1	2	0	2	0	14
	Non-oct. Int.	13	0	5	2	10	1	6	0	37
	Total	19	4	7	3	13	2	8	0	56

(Non-oct. Play.)

.....

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Whole Perf.	Rests in r.h.	1	1	1	0	1	1	0	0	5
	Rests in l.h.	6	3	1	1	2	0	2	0	15
	Non-oct. Int.	13	0	5	2	10	1	6	0	37
	Total	20	4	7	3	13	2	8	0	57

(Non-oct. Play.)

Table 4-D: Non-Octave Playing in Ketawang Mijil Wedaring Tyas

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. Ses.	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	no occurrence - - - - -								0
	Non-oct. Int.	no occurrence - - - - -								0
	Total	0	0	0	0	0	0	0	0	0

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. I	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	1	0	0	0	0	0	0	0	1
	Non-oct. Int.	0	0	0	0	0	0	1	0	1
	Total	1	0	0	0	0	0	1	0	2

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. II	Rests in r.h.	0	1	0	0	1	0	0	0	2
	Rests in l.h.	8	10	0	3	1	0	1	1	24
	Non-oct. Int.	21	0	4	1	31	0	6	0	63
	Total	29	11	4	4	33	0	7	1	89

(Non-oct. Play.)

.....

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Whole Perf.	Rests in r.h.	0	1	0	0	1	0	0	0	2
	Rests in l.h.	9	10	0	3	1	0	1	1	25
	Non-oct. Int.	21	0	4	1	31	0	7	0	64
	Total	30	11	4	4	33	0	8	1	91

(Non-oct. Play.)

Table 4-E: Non-Octave Playing in Ladrang Sembawa

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. Ses.	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	no occurrence - - - - -								0
	Non-oct. Int.	no occurrence - - - - -								0
	Total	0	0	0	0	0	0	0	0	0

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. I.	Rests in r.h.	no occurrence - - - - -								0
	Rests in l.h.	1	0	1	0	1	0	0	0	3
	Non-oct. Int.	0	0	0	0	1	0	0	0	1
	Total	1	0	1	0	2	0	0	0	4

(Non-oct. Play.)

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. II	Rests in r.h.	5	1	0	0	1	0	0	0	7
	Rests in l.h.	9	5	1	2	6	3	4	0	30
	Non-oct. Int.	45	3	6	1	33	0	44	1	133
	Total	59	9	7	3	40	3	48	1	170

(Non-oct. Play.)

.....

	Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Whole Perf.	Rests in r.h.	5	1	0	0	1	0	0	0	7
	Rests in l.h.	10	5	2	2	7	3	4	0	33
	Non-oct. Int.	45	3	6	1	34	0	44	1	134
	Total	60	9	8	3	42	3	48	1	174

(Non-oct. Play.)

Table 4-F: Non-Octave Playing in Ladrang Pangkur

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. Ses. Rests in r.h.	no occurrence - - - - -								0
Rests in l.h.	no occurrence - - - - -								0
Non-oct. Int.	no occurrence - - - - -								0
Total	0	0	0	0	0	0	0	0	0

(Non-oct. Play.)

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. I Rests in r.h.	no occurrence - - - - -								0
Rests in l.h.	1	0	0	0	1	0	0	0	2
Non-oct. Int.	0	0	0	0	0	0	1	0	1
Total	1	0	0	0	1	0	1	0	3

(Non-oct. Play.)

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. II Rests in r.h.	6	1	0	0	2	1	0	0	10
Rests in l.h.	6	7	1	0	1	0	1	0	16
Non-oct. Int.	21	3	3	0	20	0	4	0	51
Total	33	11	4	0	23	1	5	0	77

(Non-oct. Play.)

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. III Rests in r.h.	6	2	2	0	2	3	0	1	16
Rests in l.h.	15	11	2	2	4	1	3	6	44
Non-oct. Int.	38	0	5	3	44	1	14	0	105
Total	59	13	9	5	50	5	17	7	165

(Non-oct. Play.)

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Ir. IV Rests in r.h.	8	0	1	1	11	0	1	1	23
Rests in l.h.	10	4	3	1	1	3	3	2	27
Non-oct. Int.	44	0	10	10	37	1	8	1	111
Total	62	4	14	12	49	4	12	4	161

(Non-oct. Play.)

.....

Gmb. Beat No.	1	2	3	4	5	6	7	8	Total
Whole Rests in r.h.	20	3	3	1	15	4	1	2	49
Rests in l.h.	32	22	6	3	7	4	7	8	89
Non-oct. Int.	103	3	18	13	101	2	27	1	268
Total	155	28	27	17	123	10	35	11	406

(Non-oct. Play.)

Table 5-A: Motif Final and Motif Low in  
Ketawang Puspawarna (Sléndro paḡet Manyura)

(Predicted Degree of Motif Low)	Degree of Motif Final	Degree of Motif Low	No. of Occur.			Low to Final (Distance in Keys)
			I	II	W.P.	
<u>6</u>	<u>3</u>	<u>6</u>	1	11	12	3
		<u>1</u>	0	2	2	2
.....	.....	.....	.....	.....	.....	.....
<u>6</u>	<u>2</u>	<u>6</u>	1	9	10	2
		<u>1</u>	0	1	1	1
.....	.....	.....	.....	.....	.....	.....
<u>3</u>	<u>1</u>	<u>3</u>	1	4	5	3
		<u>6</u>	0	3	3	1
.....	.....	.....	.....	.....	.....	.....
<u>3</u>	<u>6</u>	<u>3</u>	0	7	7	2
		<u>6</u>	0	7	7	5
.....	.....	<u>2</u>	0	1	1	3
.....	.....	.....	.....	.....	.....	.....
<u>2</u>	<u>5</u>	<u>2</u>	0	2	2	2
		<u>6</u>	0	1	1	4



Table 5-B: Degree of Motif Low and Degree of Motif Final in Gending Gambir Sawit (Sléndro paṭet Sanga)

(Predicted Degree of Motif Low)	Degree of Motif Final	Degree of Motif Low	No. of Occur.				Low to Final (Distance in Keys)
			I	II	III	W.P.	
<u>5</u>	<u>2</u>	<u>5</u>	5	20	40	65	3
		<u>6</u>	0	10	7	17	2 (and 7)
		<u>2</u>	1	5	3	9	5
		<u>1</u>	0	2	0	2	1
.....							
<u>5</u>	<u>1</u>	<u>5</u>	3	21	22	46	2
		<u>6</u>	1	5	6	12	1
		<u>2</u>	0	3	8	11	4
		<u>1</u>	0	0	3	3	5
.....							
<u>2</u>	<u>6</u>	<u>2</u>	2	9	20	31	3
		<u>5</u>	0	1	6	6	1 (and 6)
		<u>6</u>	0	0	1	1	5
.....							
<u>2</u>	<u>5</u>	<u>2</u>	2	13	21	36	2
		<u>5</u>	2	7	17	26	5
		<u>1</u>	0	3	3	6	3
		<u>6</u>	0	2	0	2	4
.....							
<u>1</u>	<u>3</u>	<u>1</u>	0	3	1	4	2
		<u>2</u>	0	4	0	4	1
		<u>5</u>	0	2	0	2	3
		<u>6</u>	0	1	0	1	4

Table 5-C: Motif Low and Motif Final in  
Ketawang Walagita (Pélog paçet Nem, 'Manyura' Type)

Degree of Motif Final	Degree of Motif Low	No. of Occur.			Low to Final (Distance in Keys)
		I	II	W.P.	
	<u>1</u>	0	6	6	2
<u>3</u>	<u>6</u>	1	4	5	3
.....	.....	.....	.....	.....	.....
	<u>2</u>	0	8	8	2
<u>2</u>	<u>1</u>	0	1	1	1
.....	.....	.....	.....	.....	.....
	<u>3</u>	1	3	4	3
<u>1</u>	<u>6</u>	0	3	3	1
.....	<u>5</u>	0	2	2	2
.....	.....	.....	.....	.....	.....
	<u>3</u>	0	5	5	2
<u>6</u>	<u>6</u>	0	3	3	5
.....	<u>1</u>	0	2	2	4
.....	.....	.....	.....	.....	.....
<u>5</u>	<u>3</u>	0	2	2	1

Table 5-D: Motif Final and Motif Low in Ketawang  
Mijil Wedaring Tyas (Pélog paçet Nem, 'Sanga' Type)

Degree of Motif Final	Degree of Motif Low	No. of Occur.			Low to Final (Distance in Keys)
		I	II	W.P.	
	<u>2</u>	1	7	8	2
	<u>5</u>	0	2	2	5
<u>5</u>	<u>1</u>	0	0	1	3
	<u>3</u>	0	0	1	1
.....	.....	.....	.....	.....	.....
	<u>2</u>	0	1	1	1
<u>3</u>	<u>5</u>	0	1	1	4
.....	.....	.....	.....	.....	.....
	<u>5</u>	0	11	11	3
<u>2</u>	<u>6</u>	0	3	3	2
.....	.....	.....	.....	.....	.....
	<u>6</u>	1	7	8	1
<u>1</u>	<u>5</u>	0	6	6	2
.....	.....	.....	.....	.....	.....
	<u>2</u>	0	10	10	3
<u>6</u>	<u>5</u>	0	4	4	1
	<u>3</u>	0	1	1	2

Table 5-E: Motif Low and Motif Final in Ladrang Sembawa (Pélog pačet Lima)

Degree of Motif Final	Degree of Motif Low	No. of Occur.			Low to Final (Distance in Keys)
		I	II	W.P.	
<u>5</u>	<u>3</u>	0	10	10	1
	<u>2</u>	0	4	4	2
	<u>5</u>	0	2	2	5
	<u>1</u>	0	1	1	3
.....	.....	.....	.....	.....	.....
<u>3</u>	<u>1</u>	0	27	27	2
	<u>6</u>	0	14	14	3
	<u>5</u>	1	3	4	4
.....	.....	.....	.....	.....	.....
<u>2</u>	<u>6</u>	0	10	10	2
	<u>5</u>	0	3	3	3
	<u>1</u>	0	3	3	1
.....	.....	.....	.....	.....	.....
<u>1</u>	<u>5</u>	2	33	35	2
	<u>3</u>	0	5	5	3
	<u>6</u>	0	2	2	1
	<u>2</u>	0	1	1	4
	<u>1</u>	0	1	1	5
.....	.....	.....	.....	.....	.....
<u>6</u>	<u>3</u>	0	15	15	2
	<u>5</u>	0	11	11	1
	<u>2</u>	0	5	5	3
	<u>1</u>	0	3	3	4
	<u>6</u>	0	1	1	5

Table 5-F: Motif Low and Motif Final  
in Ladrang Pangkur (Pélog paçet Barang)

Degree of Motif Final	Degree of Motif Low	No. of Occur. Irama					W.P.	Low to Final (Distance in Keys)
		I	II	III	IV			
<u>3</u>	<u>6</u>	0	14	25	17	56	3	
	<u>7</u>	0	0	2	3	5	2	
	<u>2</u>	0	0	1	2	3	1	
	<u>3</u>	0	0	2	1	3	5	
	<u>5</u>	0	0	1	0	1	4	
<u>2</u>	<u>6</u>	1	4	18	15	38	2	
	<u>7</u>	0	4	1	4	9	1	
	<u>3</u>	0	0	4	1	5	4	
	<u>2</u>	0	0	3	1	4	5	
	<u>3</u>	0	5	19	5	29	3	
<u>7</u>	<u>6</u>	0	3	10	5	18	1 (and 6)	
	<u>7</u>	0	0	1	0	1	5	
	<u>3</u>	1	5	8	7	21	2	
<u>6</u>	<u>6</u>	1	1	4	3	9	5	
	<u>2</u>	0	0	1	4	5	3	
	<u>3</u>	0	0	5	6	11	1	
<u>5</u>	<u>3</u>	0	0	5	6	11	1	
	<u>2</u>	0	0	0	3	3	2	

Table 6-A: Motif Final and Motif Type in Ketawang Puspawarna

Motif Final	Motif Type and No. of Occur.		Most Frequent Motif Type in Whole Perf.
	Irama I	Irama II	
3̇	---	S3(x5)	S3 (exclusive x5)
3	S3	S3(x6), S2(x2), Ab(x2), Bd, Fd	S3(x7)
3̇	---	Gb(x3)	Gb (exclusive x3)
2̇	---	N2, Q1, Q2, S2	(none more than x1)
2	S2	S2(x6), Gb	S2(x7)
1̇	---	S3, Q1	(none more than x1)
1	S3	S3(x4), Ge(x3), R1(x2), Fd	S3(x5)
6	---	S5(x7), I2(x2), S2(x2), Gd, Ge, S3	S5(x7)
6̇	---	Ge(x4), G2(x2), S2	Ge(x4)
5	---	Fd, Lc, L4, S2, W2	(none more than x1)
5̇	Fd	Fd(x3)	Fd (exclusive x4)

Table 6-B: Motif Final and Motif Type  
in Gending Gambir Sawit

Motif Final	Motif Type and No. of Occur.			Most Frequent Motif Type in Whole Perf.
	Irama I	Irama II	Irama III	
2̇	S5	S3(x3), S5(x2) S7	S3(x12), M3(x3) V5(x2), I2, S5, V3 Q3, S2	S3(x15)
2	S3(x4), S5 M3, Bd	S3(x14), I2(x7) S2(x3), S5(x3) Fd(x3), Q3(x3) Q1(x2), Gb, Ad	S3(x24), Bb(x14) I2(x4), Fd(x3) Ad(x2), Ga(x2) Bd(x2), S2, Kc	S3(x42)
2̇	Fd	Fd(x3), Mc, Ge	Fd(x4)	Fd(x8)
i̇	---	Q1(x3), Q2, S4, J4, R2	S2(x4), Ge(x3) Q1(x3), I2(x2) D2, D1, L4, V2, V4	Q1(x6)
1	S2(x2), I2 Q1	S2(x11), I2(x8) Fd(x2), Q1(x2) V4, Fb	S2(x10), I2(x4) L4(x4), S5(x3) Gb(x2), N4(x2) Q1(x2)	S2(x23)
6	---	S3(x4), Q3 Lc, Ge, Gb, Q1	S3(x9), Q1(x2) S5, R6, U3, I1, Lc P1	S3(x13)
6̇	S3(x2), Fd	Fd(x3), S3(x3) R1	S3(x10), Gb(x4) Ga(x2), Fd, Q1	S3(x15)
5	S5(x2), S2 Ge	S5(x5), S2(x4) Ge(x3), S3(x2) S4(x2), L2(x2) V5(x2), G2, Q3	S5(x12), G2(x6) V5(x5), V3(x4) S2(x4), I2, S3	S5(x19)
5̇	Ge(x2), S2	Gb(x7), S2(x5) Fd(x3), Ge(x2) I2, G2	Gb(x9), S2(x7), G2(x3), Fd(x2)	Gb(x16)
3	---	S2(x3), S4(x2) Fd(x2), J1(x2) Q1, Q3, I1	Fd(x2), Gb(x2) S2	Fd and S2(x4)
3̇	Fd(x2)	Fd(x2)	Fd	Fd (exclusive x5)

Table 6-C: Motif Final and Motif Type  
in Ketawang Walagita

Motif Final	Motif Types and No. of Occur.		Most Frequent Motif Type in Whole Perf.
	Irama I	Irama II	
3	---	Q3	Q3(only x1)
3	S3	S2(x4), S3(x3), I2(x2) Fd, Gd, Q3	S2(x4)
3	---	Fd, Gb	Fd and Gb(only x1)
2	---	S2(x2), P2, Q1	S2(x2)
2	---	S2(x5)	S2 (exclusive x5)
1	---	S2	
1	S3	S3(x3), R1(x2), Fd P1, S2	S3(x3)
6	---	S2(x3), S5(x3), S4, V4	S2 and S5(x3)
6	---	S2(x2), Fd, Gb, Ge	S2(x2)
5	---	Q1(x3), Fd, Gb, R1	
5	Fd	Fd(x2)	Fd (exclusive x2)



Table 6-D: Motif Type and Motif Final in  
Ketawang Mijil Wedaring Tyas

Motif Final	Motif Types and No. of Occur.		Most Frequent Motif Type in Whole Perf.
	Irama I	Irama II	
5	---	M3	M3(only x1)
5	---	S5(x2), Gb, G2, I2 Q1, S2	S5(x2)
5	S2	G2(x2), Ge, S2	G2 and S2(x2)
3	---	S4	S4(only x1)
3	---	Fd, Gb, R1	Fd, Gb, and R1(only x1)
3	---	Fd(x3), Gb	Fd(x3)
2	---	I2, Q3, S2	I2, Q3, S2(only x1)
2	---	S3(x9), Fd(x2), Ad, I3, Q3	S3(x9)
2	---	Fd(x3)	Fd (exclusive x3)
1	---	S2(x4), Q1, R1, R2	S2(x4)
1	N1	Q1(x6), S2	Q1(x6)
6	---	S3(x4), Gb, Gd, I2, P1, Q1	S3(x4)
6	---	S3(x6), Fd, I1, R1	S3(x6)

Table 6-E: Motif Final and Motif Type in Ladrang Sembawa

Motif Final	Motif Types and No. of Occur.		Most Frequent Motif Type in Whole Perf.
	Irama I	Irama II	
5	---	S3	S3(only x1)
5	---	R1(x6), S2(x4), Q1(x3) S5(x2), Ge, N1	R1(x6)
5	---	Gb(x4), Fd, Ga	Gb(x4)
3	S4	I2(x17), S3(x13), S2(x10) Fd(x4), S4(x3), Ge, Q3	I2(x17)
2	---	Q3(x3), I2(x2), S2(x2) I1, P2, Q2	Q3(x3)
2	---	Fd(x4), W2(x4), Q1(x2)	Fd and W2(x4)
i	---	S2(x6), Q3(x5), Fd(x4) I2(x4), Q1(x2), S4, S5	S2(x6)
1	S2(x2)	I2(x16), Fd(x7), S2(x6) L2	I2(x16)
6	---	S2(x10), S3(x5), Q1(x4) I2(x3), Q4(x3), Q2(x2) R1(x2), Gb, Lc, S4, S5	S2(x10)
6	---	R1(x3), Q1(x2)	R1(x3)

Table 6-F: Motif Final and Motif Type  
in Ladrang Pangkur

Motif Final	Motif Types and No. of Occurrences				Most Freq. Motif Type Whole Perf.
	Ir. I	Ir. II	Ir. III	Ir. IV	
3	---	M3, S3	S3(x9), Q3(x2) I2, M3, S2, S4 S5, V3	S3(x6), Q3(x2) M2, M3, Q1 S5, V3	S3(x16)
3	---	S3(x7) Q3(x3) Bd(x2) Ga(x2) I3(x2)	S3(x8), Bb(x3) Ga(x3), Q3(x3) Ab(x2), Bc(x2) Bd, Db, Fd, Q1, S5(x2)	S3(x8), Bb(x2) S2(x2), Fd, Gd R1	S3(x24)
3	---	Fd(x2)	Gb(x2)	Fd(x2)	Fd(x4)
2	S2	S2	S2(x8), I2(x6) R1, S5	S2(x6), I2(x4) D1, H1, J4, Q1 W2	S2(x16)
2	---	Q1(x4) S2(x3)	S2(x3), L4(x2) N4(x2), S5(x2) I2	V2(x2), Gb, Hb, Q1, S2, S5, W2	S2(x7)
7	---	I1	S3(x6), R1(x2) Gb, I3, Q1, R3 S5, T3, U6	I1(x3), Q3(x2) R1(x2), S3	S3(x7)
7	---	S3(x5) I1 R1	S3(x10), R1(x3) Gb(x2), Ge(x2) I1(x2), Ga, G1	Q3, S3	S3(x16)
6	S5	G2(x3) S5	Ge(x4), S5(x2) V5(x2), G2, Kb V3	S3(x3), S5(x3) Gb(x2), Ge(x2) I2(x2), S2(x2) K2, Lb, Q3	S5(x7)
6	I2	Ge(x2) S2(x2), Gb	S2(x6), Gb(x5) Ge(x3), Fd, I2	Fd(x2), Gb G2, S2	S2(x9)
5	---		P1(x2), Fb, Fd I1, Lc, Q1	I1(x4), Fd(x3) S2(x2), F1, I2	I1(x5)
5	---	Fd(x2)	Fd(x3), Gb, R1	Fd, I1	Fd(x6)

Table 7-A: Sentence Position of Motif Types in Ketawang Puspawarna

Irama I

Position No.			
1	2	3	4
S2	S3	Fd	S3

(Variety Coefficient not computable)

Irama II

Position No.							
1	2	3	4	5	6	7	8
S3(x5)	Ge(x4)	S5(x5)	S2(x8)	S3(x3)	Ge(x3)	Fd(x6)	S3(x5)
I2,R1	S2(x2)	Gb,Gd	Q1	Ge,Lc	Ab(x2)	Gb(x3)	S2(x2)
S2,S5	I2,Q1	RI,S3		L4,N2	S3(x2)		G2(x2)
	S3			S5,W2	Bb,Q2		
No. of Types/No. of Occur.							
5/9	5/9	5/9	2/9	7/9	5/9	2/9	3/9
Variety Coefficient							
.50	.50	.50	.13	.75	.50	.13	.25

Overall Variety Coefficient (Irama II):  $\frac{34-8}{72-8} = .41$

Table 7-B: Sentence Position of Motif Types  
in Gending Gambir Sawit

## Irama I

Position No.			
1	2	3	4
S5(x2)	Ge(x3)	Fd(x4)	S2(x3)
S3,M3	S3(x2)	S5(x2)	S3(x2)
I2	S2,Q1	Bd	
No. of Types/No. of Occur.			
4/5	4/7	3/7	2/6
Variety Coefficient			
.75	.50	.33	.20

Overall Variety Coefficient (Irama I):  $\frac{13-4}{25-4} = .43$

## Irama II

Position No.							
1	2	3	4	5	6	7	8
I2(x6)	I2(x7)	Fd(x7)	S2(x7)	S3(x3)	Q1(x4)	Fd(x11)	S2(x14)
S3(x4)	Q3(x4)	Gb(x3)	S3(x6)	Q1(x3)	Gb(x3)	Gb(x3)	S3(x4)
S2(x2)	S3(x4)	S3(x3)	Ge(x5)	S4(x2)	Ge(x2)	S5(x3)	G2
S4(x2)	V5(x2)	S5(x3)	G2	S5(x2)	S2(x2)	S3,R1	
Q1(x2)	S5,S2	S2,I2		I2(x2)	J1(x2)		
L2(x2)				Fb,Q3	S3,S4		
I1				Mc,R2	S5,Q3		
				Lc,V4	Ad,J4		
				Q2			
No. of Types/No. of Occur.							
7/19	6/19	6/18	4/19	12/19	11/19	5/19	3/19
Variety Coefficient							
.33	.28	.29	.17	.61	.56	.22	.11

Overall Variety Coefficient (Irama II):  $\frac{54-8}{151-8} = .32$

Table 7-B: (Continued) Sentence Position of Motif Types in Gending Gambir Sawit

Irama III							
Position No.							
1	2	3	4	5	6	7	8
S3(x12)	I2(x7)	Gb(x7)	S2(x12)	S3(x17)	Bb(x5)	Fd(x10)	S3(x10)
S5(x4)	S3(x6)	Q1(x3)	S3(x10)	S5(x3)	S2(x5)	Gb(x8)	S2(x5)
V5(x4)	V3(x4)	S5(x3)	Ga, Lc	Ge(x3)	Q1(x5)	Bb(x6)	G2(x5)
I2(x3)	S2(x4)	Bb(x2)	L4, M3	M3(x2)	G2(x3)	S5(x2)	L4(x3)
S2(x2)	S5(x2)	Fd(x2)	N4	D1, D2	Ga(x2)	Bd	S5(x2)
L4, V2	Bb, G2	V5(x2)		V3	Ad, Bd		Gb, N4
	R6, V5	Ad, Ga			Fd, Gb		
		I1, I2			I2, Q3		
		Kc, P1			S3, S5		
		U3, V4					
No. of Types/No. of Occur.							
7/27	9/27	14/27	7/27	7/28	13/28	5/27	7/27
Variety Coefficient							
.23	.31	.50	.23	.22	.44	.15	.23

Overall Variety Coefficient (Irama III):  $\frac{69 - 8}{218 - 8} = .29$

Table 7-C: Sentence Position of  
Motif Types in Ketawang Walagita

Position No.	Irama I			
	1	2	3	4
	S3	---	Fd	S3

(Variety Coefficient not computable)

Position No.	Irama II							
	1	2	3	4	5	6	7	8
S2(x2)	S2(x2)	Fd(x2)	S2(x5)	S5(x2)	S2(x3)	Fd(x5)	S2(x6)	
P1,R1	Ge,Q1	Gb(x2)	S3(x2)	I2,P2	Q1(x2)	Gb,R1	S3	
S3,S4	Q3,S3	Gd,R1		Q1,Q3	I2,S3			
		S5		V4				
No. of Types/No. of Occur.								
5/6	5/6	5/7	2/7	6/7	4/7	3/7	2/7	
Variety Coefficient								
.80	.80	.67	.17	.83	.50	.33	.17	

$$\text{Overall Variety Coefficient (Irama II): } \frac{32 - 8}{54 - 8} = .52$$

Table 7-D: Sentence Position of  
Motif Types in Ketawang Mijil Wedaring Tyas

Position No.	Irama I			
	1	2	3	4
	---	---	N1	S2

(Variety Coefficient not computable)

Position No.	Irama II							
	1	2	3	4	5	6	7	8
S3(x5)	Q1(x4)	Fd(x2)	S3(x7)	S3(x3)	Q1(x5)	Fd(x8)	G2(x3)	
R1,S2	I2(x2)	Gb(x2)	S2(x2)	I1,I2	Ad,M3	Gb(x1)	S2(x3)	
S4,S5	Gb,Ge, Q3	R1(x2)		P1,R2	Q3,S2		S3(x3)	
		Gd,I3		S2,S5				
		S3						
No. of Types/No. of Occur.								
5/9	5/9	6/9	2/9	7/9	5/9	2/9	3/9	
Variety Coefficients								
.50	.50	.63	.13	.75	.50	.13	.25	

$$\text{Overall Variety Coefficient (Irama II): } \frac{35 - 8}{72 - 8} = .42$$

Table 7-E: Sentence Position of Motif Types in Ladrang Sembawa

Irama I

Position No.			
1	2	3	4
---	S2	S4	S2

(Variety Coefficient not computable)

Irama II

Position No.							
1	2	3	4	5	6	7	8
I2(x17)	I2(x10)	Fd(x7)	S2(x11)	S2(x5)	Q1(x6)	Fd(x13)	S2(x13)
S2(x4)	Q3(x3)	I2(x5)	S3(x6)	Q3(x4)	Gb(x4)	R1(x7)	S3(x9)
S4	S3(x3)	Q1(x4)	I2(x5)	I2(x3)	Q4(x3)	W2(x2)	I2
W2	S2(x2)	R1(x4)	Q3	Q1(x3)	S2(x3)	S5	
	Ge, I1	Gb, S3		S4(x3)	Ge, I2		
	L2, Q2	W2		Ga, N1	Lc, Q2		
	S5			P2, Q2	Q3, S4		
				S5	S5		
No. of Types/No. of Occur.							
4/23	9/23	7/23	4/23	10/23	11/23	4/23	3/23
Variety Coefficient							
.14	.36	.27	.14	.41	.45	.14	.09

Overall Variety Coefficient (Irama II):  $\frac{52 - 8}{184 - 8} = .25$



Table 7-F: Sentence Position of  
Motif Types in Ladrang Pangkur

## Irama I

Position No.	1	2	3	4
	S5	S2	---	I2

(Variety Coefficient not computable)

## Irama II

Position No.	1	2	3	4	5	6	7	8
S3(x4)	G2(x2)	Bd(x2)	S3(x3)	S3(x3)	Q1(x3)	Fd(x4)	S2(x4)	
I1, I3	Ga, Ge	M3, R1	S2(x2)	Q3(x2)	Ga, Ge	Gb, S5	S3(x2)	
	Q1, Q3	S3		I1, I3	G2			
No. of Types/No. of Occur.	3/6	5/6	4/5	2/5	4/7	4/6	3/6	2/6
Variety Coefficient	.40	.80	.75	.25	.50	.60	.40	.20

Overall Variety Coefficient (Irama II):  $\frac{27-8}{47-8} = .49$

## Irama III

Position No.	1	2	3	4	5	6	7	8
S3(x6)	S3(x6)	Gb(x4)	S2(x7)	S3(x8)	Ge(x6)	Fd(x5)	S2(x9)	
I2(x5)	Ge(x3)	I1(x3)	S3(x4)	Q3(x2)	Ga(x4)	Gb(x5)	S3(x5)	
P1(x2)	I2(x3)	R1(x3)	Q3(x2)	S5(x2)	Bb(x3)	R1(x4)	G1, L4	
S5(x2)	Ab(x2)	S3(x3)	I2, L4	Db, I3	Bd, Gb	Bc(x2)	N4, S5	
Gb, Q3	S2, S5	Fb, Fd	N4, Q1	Lc, M3	G2, Q1	R3, S5		
V5	V3, V5	Kb, Q1	S5	S4, U6	S2, S3	T3		
		S5		V3				
No. of Types/No. of Occur.	7/18	8/18	9/18	8/18	9/19	9/19	7/19	6/18
Variety Coefficient	.35	.41	.47	.41	.44	.44	.33	.29

Overall Variety Coefficient (Irama III):  $\frac{63-8}{147-8} = .40$

Table 7-F: (Continued) Sentence Position of  
Motif Types in Ladrang Pangkur

Irama IV							
Position No.							
1	2	3	4	5	6	7	8
S2(x2)	S3(x4)	S3(x2)	S2(x2)	Fd,H1	Fd,Gd	Gb(x2)	S2(x5)
I1,Lb	I2,K2	Fd,F1	S3(x2)	J4,I2	Ge,Hb	R1(x2)	Q3
S5,V2		Gb,I2	G2,I2	S3,V2	I1,S3	I1,S5	
No. of Types/No. of Occur.							
5/6	3/6	5/6	4/6	6/6	6/6	4/6	2/6
Variety Coefficient							
.80	.40	.80	.60	1.0	1.0	.60	.20

Irama IV (Continued)							
Position No.							
9	10	11	12	13	14	15	16
I1(x2)	Q3(x3)	D1,Fd	S3(x2)	Bb,Fd	Q1(x2)	Fd(x3)	Q3(x2)
S3(x2)	S3(x2)	R1,S2	Bb,I2	Gb,M2	Fd,I1	I1(x2)	S2(x2)
I2,W2	M3	S3,V3	Q1,S2	S2,S3	I2,S5	S5,W2	Ge,S3 S5
No. of Types/No. of Occur.							
3/6	3/6	6/6	5/6	6/6	5/6	4/7	5/7
Variety Coefficient							
.40	.40	1.0	.80	1.0	.80	.50	.67

Overall Variety Coefficient (Irama IV):  $\frac{72 - 16}{98 - 16} = .68$

Table 8-A: Prominent Motif Types and Their  
Uses in Ketawang Puspawarna

Motif Type	Ir-ama	No. of Occur. with Final										No. of Occur. in Positions									
		3	3	3	2	2	1	1	6	6	5	5	1	2	3	4	5	6	7	8	
S3	I		1				1						1	1							
	II	5	6				1	4	1				5	1	1		3	2		5	
S2	I					1							1								
	II		2		1	6			2	1	1		1	2		8				2	
Ge	I	no occurrence																			
	II						3	1	4				4				1	3			
Fd	I										1			1							
	II		1				1			1	3								6		
S5	I	no occurrence																			
	II							7					1	5		1					
Gb	I	no occurrence																			
	II		3		1									1					3		
Ab	I	no occurrence																			
	II		2																2		
G2	I	no occurrence																			
	II							2												2	
I2	I	no occurrence																			
	II							2					1	1							
Q1	I	no occurrence																			
	II			1		1							1	1							
R1	I	no occurrence																			
	II						2						1	1							

Table 8-B: Prominent Motif Types and Their  
Uses in Gending Gambir Sawit

Motif Type	Ir-ama	No. of Occur. with Final									No. of Occur. in Positions										
		2	2	2	1	1	6	6	5	5	3	3	1	2	3	4	5	6	7	8	
S3	I		4					2					1	2	3						
	II	3	14				4	3	2				4	4	3	6	3	1	1	4	
	III	12	24				9	10					12	6	10	17	1		10		
S2	I					2			1	1			1		3						
	II		3			11			4	5	3		2	1	7			2		14	
	III	1	1		4	23			9	13	4		2	4	12			5		5	
Fd	I			1				1			2				4						
	II		3	3		2		3		3	2	2			7					11	
	III		3	4				1		2	3	1			2				1	10	
S5	I	1	1						2				2		2						
	II	2	3						5					1	3		2	1	3		
	III	1			3	1		12					4	2	3		3	1	2	2	
I2	I					1							1								
	II		7			8				1			6	7	1	2					
	III	1	4		2	4			1				3	7	1				1		
Gb	I	no occurrence																			
	II		1				1		7						3				3	3	
	III				2		4		9	2					7				1	8	1
Q1	I				1									1							
	II		2		3	2	1				1		2					3	4		
	III				3	2	2	1							3				5		
Bb	I	no occurrence																			
	II	no occurrence																			
	III		14												1	2			5	6	
Ge	I							1	2					3							
	II			1			1		3	2					5				2		
	III				3												3				
G2	I	no occurrence																			
	II								1	1						1				1	
	III								6	3				1				3		5	

Table 8-C: Prominent Motif Types and Their  
Uses in Ketawang Walagita

Motif Type	Ir- ama	No. of Occur. with Final						No. of Occur. in Positions												
		3	3	3	2	2	1	1	6	6	5	5	1	2	3	4	5	6	7	8
S2	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-
	II	4			2	5	1	1	3	2			2	2		5		3		6
Fd	I										1				1					
	II	1	1				1		1		1	2			2				5	
S3	I	1					1						1			1				
	II	3					3						1	1		2		1	1	
Q1	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	
	II				1						3			1			1	2		
Gb	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	
	II	1							1	1				2					1	
R1	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	
	II						2			1		1	1						1	
S5	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	
	II								3					1			2			
I2	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	
	II	2															1	1		
Q3	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	
	II	1	1										1				1			

Table 8-D: Prominent Motif Types and Their  
Uses in Ketawang Mijil Wedaring Tyas

Motif Type	Irama	No. of Occur. with Final						No. of Occur. in Positions													
		2	2	2	1	1	6	6	5	5	3	3	1	2	3	4	5	6	7	8	
S3	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II	9						4	6					5	1		7	3			3
Fd	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II	2		3				1				1		3		2				8	
Q1	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II				1			6	1	1				4				6			
S2	I									1						1					
	II	1				4		1	1		1		1		2		1		1		3
Gb	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II							1				1		1		1		2			
G2	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II									1		2								3	
I2	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II	1						1		1				2				1			
R1	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II				1			1				1		1		2					
Q3	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II	1		1										1				1			
S5	I	no occurrence						-	-	-	-	-	-	-	-	-	-	-	-	-	-
	II									2				1				1			

Table 8-E: Prominent Motif Types and Their  
Uses in Ladrang Sembawa

Motif Type	Ir-ama	No. of Occur. with Final										No. of Occur. in Positions							
		5	5	5	3	2	2	1	1	6	6	1	2	3	4	5	6	7	8
I2	I	no occurrence										-----							
	II				17	2		4	16	3		17	10	5	5	3	1		1
S2	I							2				1		1					
	II	4		10	2		6	6	10		4	2		11	5	3		13	
Fd	I	no occurrence										-----							
	II		1	4		4	4	7					7					13	
S3	I	no occurrence										-----							
	II	1		13					5			3	1	6				9	
Q1	I	no occurrence										-----							
	II	3				2	2		4	2			4		3		6		
R1	I	no occurrence										-----							
	II	6							2	3			4					7	
Q3	I	no occurrence										-----							
	II			1	3		5					3		1	4		1		
S4	I				1								1						
	II			3			1		1		1				3		1		
Gb	I	no occurrence										-----							
	II	4							1			1						4	





Table 9-A: Intervals Between Lagu and Gambang  
(in keys) in Ketawang Puspawarna

Lagu Beat No.		1	2	3	4	5	6	7	8
Irama I		0	0	0	0	-1	-3	-3	0(x2)
Irama II		0(x7)	0(x5)	+3(x3)	0(x8)	-1(x2)	0(x7)	-4(x5)	0(x9)
+3		-3(x4)	0(x2)	+1	+1(x2)	+1(x2)	-3(x4)		
+4			+4(x2)		+5(x2)				
			-3		0				
			-1		+2				
					+3				
Whole Performance		0(x8)	0(x6)	0(x3)	0(x9)	-1(x3)	0(x7)	-4(x5)	0(x11)
+3		-3(x4)	+3(x3)	+1	+1(x2)	+1(x2)	-3(x5)		
+4			+4(x2)		+5(x2)	-3			
			-3		0				
			-1		+2				
					+3				

Table 9-B: Intervals Between Lagu and Gambang  
(in keys) in Gending Gambir Sawit

Lagu Beat No.							
1	2	3	4	5	6	7	8
Irama Seseq							
0(x2)	0(x2)	0	0	0	0	0	0(x2)
Irama I							
-2(x2)	0(x3)	-2(x3)	0(x5)	-2(x2)	-3(x4)	-3(x3)	0(x6)
-5	-3	-3	-3(x2)	-1(x2)	+1(x2)	0(x2)	
-1	+2	-1		0(x2)	0	-1	
0		+1		+4			
		+2					
Irama II							
0(x16)	0(x16)	-3(x7)	0(x16)	0(x9)	0(x14)	-3(x11)	0(x19)
-2(x3)	+3(x2)	0(x3)	-5(x3)	+2(x4)	-3(x3)	+2(x3)	
	-3	+5(x3)		+1(x3)	-4	-2(x2)	
		-5(x2)		-4	-1	-4	
		+1(x2)		-1		0	
		-4		+4		+1	
Irama III							
0(x12)	0(x19)	-3(x9)	0(x19)	-1(x7)	0(x18)	-3(x18)	0(x27)
+1(x6)	+3(x5)	-2(x6)	-3(x5)	+2(x7)	+1(x6)	+1(x7)	
+2(x4)	+5(x3)	0(x3)	+1(x2)	0(x6)	-4(x2)	+2(x2)	
-1(x3)		+5(x3)	+2	-2(x4)	-1(x2)		
-3(x2)		+1(x2)		+3(x2)			
		+2(x2)		+4(x2)			
		+4(x2)					
Whole Performance							
0(x31)	0(x40)	-3(x17)	0(x41)	0(x18)	0(x34)	-3(x32)	0(x54)
+1(x6)	+3(x7)	-2(x9)	-3(x7)	+2(x11)	+1(x8)	+1(x8)	
-2(x5)	+5(x3)	0(x7)	-5(x3)	-1(x10)	-3(x7)	+2(x5)	
+2(x4)	-3(x2)	+5(x6)	+1(x2)	-2(x6)	-4(x3)	0(x4)	
-1(x4)	+2	+1(x5)	+2	+4(x4)	-1(x3)	-2(x2)	
-3(x2)		+2(x3)		+1(x3)		-4	
-5		-5(x2)		+3(x2)		-1	
		+4(x2)		-4			
		-4					
		-1					

Table 9-C: Intervals Between Lagu and Gambang  
(in keys) in Ketawang Walagita

Lagu Beat No.							
1	2	3	4	5	6	7	8
Irama Seseg							
0	0	0	0				0
Irama I							
-1	0			-1	-3	-5	0
Irama II							
0(x5)	0(x5)	-3(x3)	0(x7)	0(x4)	0(x6)	-3(x4)	0(x7)
-3	-3	-2		+2(x2)	+2	-4(x2)	
		-1		+4		0	
		0					
		+1					
Whole Performance							
0(x6)	0(x7)	-3(x3)	0(x8)	0(x4)	0(x6)	-3(x4)	0(x9)
-3	-3	0(x2)		+2(x2)	-3	-4(x2)	
-1		-2		-1	+2	-5	
		-1		+4		0	
		+1					

Table 9-D: Intervals Between Lagu and Gambang  
(in keys) in Ketawang Mijil Wedaring Tyas

Lagu Beat No.							
1	2	3	4	5	6	7	8
Irama Seseg							
0	0	0	0				0
Irama I							
				0	0	0	
Irama II							
0(x8)	0(x8)	0(x4)	0(x9)	0(x4)	0(x7)	-3(x8)	0(x10)
+3	-3	-3(x2)		+2(x2)	+2	-1	
		-1(x2)		-2	+5		
		-4		-1			
				+1			
Whole Performance							
0(x9)	0(x9)	0(x5)	0(x10)	0(x5)	0(x8)	-3(x8)	0(x11)
+3	-3	-3(x2)		+2(x2)	+2	-1	
		-1(x2)		-2	+5	0	
		-4		-1			
				+1			

Table 9-E: Intervals Between Lagu and Gambang  
(in keys) in Ladrang Sembawa

Lagu Beat No.							
1	2	3	4	5	6	7	8
Irama Seseg							
0	0						0
Irama I							
		0	0	0	0	0	0
Irama II							
0(x19)	0(x21)	0(x10)	0(x23)	0(x11)	0(x17)	-3(x15)	0(x23)
-1(x3)	+2(x2)	-3(x7)		+2(x5)	-2(x4)	-2(x3)	
-2		-1(x3)		+1(x3)	+1(x2)	-1(x2)	
		+1(x3)		-1(x2)		0(x2)	
				+4(x2)		+2	
Whole Performance							
0(x20)	0(x22)	0(x11)	0(x24)	0(x12)	0(x18)	-3(x15)	0(x24)
-1(x3)	+2(x2)	-3(x7)		+2(x5)	-2(x4)	-2(x3)	
-2		-1(x3)		+1(x3)	+1(x2)	0(x3)	
		+1(x3)		-1(x2)		-1(x2)	
				+4(x2)		+2	



Table 10-A: Consonance-Dissonance Between Lagu and Gambang in Ketawang Puspawarna

Lagu Beat No.	1	2	3	4	5	6	7	8
<b>Irama I</b>								
Sum of Rankings/ No. of Occur.	0/1	0/1	0/1	0/1	4/1	2/1	2/1	0/2
Cons-Diss. Coeff.	0	0	0	0	4	2	2	0
<b>Irama II</b>								
Sum of Rankings/ No. of Occur.	5/9	8/9	18/9	4/9	19/9	8/9	23/9	0/9
Cons-Diss. Coeff.	.56	.89	2.00	.44	2.11	.89	2.56	0
<b>Whole Performance</b>								
Sum of Rankings/ No. of Occur.	5/10	8/10	18/10	4/10	23/10	10/10	25/10	0/11
Cons-Diss. Coeff.	.50	.80	1.80	.40	2.30	1.00	2.50	0

Table 10-B: Consonance-Dissonance Between Lagu and Gambang in Gending Gambir Sawit

Lagu Beat No.	1	2	3	4	5	6	7	8
<b>Irama Seseg</b>								
Sum of Rankings/ No. of Occur.	0/2	0/2	0/1	0/1	0/1	0/1	0/1	0/2
Cons-Diss. Coeff.	0	0	0	0	0	0	0	0
<b>Irama I</b>								
Sum of Rankings/ No. of Occur.	11/5	5/5	22/7	4/7	17/7	16/7	10/6	0/6
Cons-Diss. Coeff.	2.20	1.00	3.14	.57	2.43	2.29	1.67	0
<b>Irama II</b>								
Sum of Rankings/ No. of Occur.	9/19	6/19	30/18	3/19	34/19	13/19	44/19	0/19
Cons-Diss. Coeff.	.47	.32	1.67	.16	1.79	.68	2.31	0
<b>Irama III</b>								
Sum of Rankings/ No. of Occur.	52/27	13/27	59/27	21/27	78/28	38/28	70/27	0/27
Cons-Diss. Coeff.	1.93	.48	2.19	.78	2.54	1.37	2.59	0
<b>Whole Performance</b>								
Sum of Rankings/ No. of Occur.	72/53	24/53	111/53	28/54	122/55	67/55	124/53	0/54
Cons.-Diss. Coeff.	1.36	.45	2.09	.52	2.22	1.22	2.34	0

Table 10-C: Consonance-Dissonance Between Lagu and Gambang in Ketawang Walagita

Lagu Beat No.	1	2	3	4	5	6	7	8
Irama Seseg								
Sum of Rankings/ No. of Occur.	0/1	0/1	0/1	0/1				0/1
Cons-Diss. Coeff.	0	0	0	0				0
Irama I								
Sum of Rankings/ No. of Occur.	4/1	0/1			4/1	2/1	1/1	0/1
Cons-Diss. Coeff.	4	1			4	2	1	0
Irama II								
Sum of Rankings/ No. of Occur.	2/6	2/6	17/7	0/7	9/7	3/7	14/7	0/7
Cons-Diss. Coeff.	.33	.33	2.43	0	1.29	.43	2.0	0
Whole Performance								
Sum of Rankings/ No. of Occur.	6/8	2/8	17/8	0/8	13/8	5/8	15/8	0/9
Cons-Diss. Coeff.	.75	.25	2.13	0	1.63	.63	1.88	0



Table 10-D: Consonance-Dissonance Between Lagu and  
Gambang in Ketawang Mijil Wedaring Tyas

Lagu Beat No.	1	2	3	4	5	6	7	8
<b>Irama Seseg</b>								
Sum of Rankings/ No. of Occur.	0/1	0/1	0/1	0/1				0/1
Cons-Diss. Coeff.	0	0	0	0				0
<b>Irama I</b>								
Sum of Rankings/ No. of Occur.					0/1	0/1	0/1	
Cons-Diss. Coeff.					0	0	0	
<b>Irama II</b>								
Sum of Rankings/ No. of Occur.	2/9	2/9	15/9	0/9	17/9	4/9	20/9	0/10
Cons-Diss. Coeff.	.22	.22	1.67	0	1.89	.44	2.22	0
<b>Whole Performance</b>								
Sum of Rankings/ No. of Occur.	2/10	2/10	15/10	0/10	17/10	4/10	20/10	0/11
Cons-Diss. Coeff.	.20	.20	1.50	0	1.70	.40	2.00	0

Table 10-E: Consonance-Dissonance Between Lagu and Gambang in Ladrang Sembawa

Lagu Beat No.	1	2	3	4	5	6	7	8
<b>Irama Seseg</b>								
Sum of Rankings/ No. of Occur.	0/1	0/1						0/1
Cons-Diss. Coeff.	0	0						0
<b>Irama I</b>								
Sum of Rankings/ No. of Occur.			0/1	0/1	0/1	0/1	0/1	0/1
Cons-Diss. Coeff.			0	0	0	0	0	0
<b>Irama II</b>								
Sum of Rankings/ No. of Occur.	15/23	6/23	38/23	0/23	41/23	20/23	50/23	0/23
Cons-Diss. Coeff.	.65	.26	1.65	0	1.78	.87	2.17	0
<b>Whole Performance</b>								
Sum of Rankings/ No. of Occur.	15/24	6/24	38/24	0/24	41/24	20/24	50/24	0/25
Cons-Diss. Coeff.	.63	.25	1.58	0	1.71	.83	2.08	0

Table 10-F: Consonance-Dissonance Between Lagu and Gambang in Ladrang Pangkur

Lagu Beat No.	1	2	3	4	5	6	7	8
<b>Irama Seseg</b>								
Sum of Rankings/ No. of Occur.	0/1	0/1	0/1	0/1	0/1			0/1
Cons-Diss. Coeff.	0	0	0	0	0			0
<b>Irama I</b>								
Sum of Rankings/ No. of Occur.	3/1	0/1	0/1	0/1		0/1	2/1	0
Cons-Diss. Coeff.	3.0	0	0	0		0	2.0	0
<b>Irama II</b>								
Sum of Rankings/ No. of Occur.	5/6	2/6	14/5	0/5	12/7	1/6	13/6	0/6
Cons-Diss. Coeff.	.83	.33	2.80	0	1.71	.17	2.17	0
<b>Irama III</b>								
Sum of Rankings/ No. of Occur.	21/18	6/18	45/18	0/18	27/19	7/19	39/19	0/18
Cons-Diss. Coeff.	1.17	.33	2.50	0	1.42	.37	2.05	0
<b>Irama IV</b>								
Sum of Rankings/ No. of Occur.	2/6	0/6	8/6	0/6	5/6	0/6	15/6	0/7
Cons-Diss. Coeff.	.33	0	1.33	0	.83	0	2.50	0
<b>Whole Performance</b>								
Sum of Rankings/ No. of Occur.	31/32	8/32	67/31	0/31	44/33	8/32	69/32	0/33
Cons-Diss. Coeff.	.97	.25	2.16	0	1.33	.25	2.16	0

## APPENDIX C

## GLOSSARY

alus	refined
alusan	'soft' playing (Jogjanese)
ancer	lit. 'mark', 'marker': metal pin for gambang keys
angklung	1. shaken bamboo idiophone 2. style of gambang playing: only on the off-beats of the density referent (alternate DR beats)
apik	good
arang	far apart
asing	foreign
balungan	lit. 'frame', 'skeleton': single-octave melodic outline played by slențem, demung, and saron barung
balungan beat	conceptualized pulse, usually manifested on balungan instruments (slențem, demung, and saron barung)
bambu	bamboo
banget	very
bantalan	lit. 'pillow-like': soft cloth or twine strip on which gambang keys rest (=kasuran)
banyumili	lit. 'flowing water': style of gambang playing: continuous motion in both left- and right-hand parts
barang	1. pitch degree in Sléndro (=1) and Pélog (=7) (l.c.) 2. subdivision of Pélog tuning system (cap.) 3. Pélog pațet (cap.)
barang miring	Pélog intervals in rebab or vocal parts in Sléndro composition
barléyan	lit. 'diamond': Jogjanese variant of "berléan" (?)
barung	sec 'bonang barung'; also see 'gendər barung' and 'saron barung'

batangan	middle-sized kendang (=kendang ciblon)
batik	process for dyeing cloth
bedayan	performance style in which vocal part is sung by chorus of men and women combined
bedug	double-headed tacked drum
bekel	court rank
beksan	dance (not in context of a drama)
bem	1. pitch degree in Pélog (=1) (l.c.) 2. subdivision of Pélog tuning system (cap.)
bénda	1. type of tree 2. wooden disc of gambang beater (?)
bentuk	lit. 'form', 'shape': macro-structure
berléan	type of wood used for gambang keys
blebed	soft padding around wooden disc of gambang (and gendèr) beaters
bonang	1. set of 10, 12, or 14 small kettle-gongs arranged in two rows: a gamelan instrument type 2. see 'bonang barung'
bonang barung	middle-register bonang
bonang panembung	lowest-register bonang
bonang panerus	highest-register bonang
bonangan	'loud' playing (Solonese)
Bondèt	gendèng normally classified Sléndro paṭet Nem (Jogjakarta) and Sléndro paṭet Sanga (Surakarta)
buka	lit. 'introduction': solo instrumental or vocal introduction
bumbang	tubular resonator for gendèr key
celempung	large zither, with 22-26 strings
cèngkok	melodic formula
ciblon	middle-sized kendang (=kendang ciblon)

cilik	lit. 'little': high register (=nduwur)
cocog	(adj.) appropriate, suitable, in agreement (v.) to agree, to fit
colotomic structure	regular recurring pattern of punctuation (manifested by certain instruments sounding at certain musical points)
cukupan	sufficient, acceptable
cungklik	kind of Balinese xylophone
dempling	gambang gangsa (Sundanese) (=kedempling)
demung	see 'saron demung'
density referent (DR)	the fastest pulse: conceptual construct, usually manifested (in 'soft' playing on gambang, gendèr panerus, and celumpung and in 'loud' playing on bonang panerus)
durung	not yet
ḍaḍa	pitch degree in Sléndro (=3) and Pélog (=3)
ḍalang	puppeteer for wayang kulit and wayang golèk (also, singer/narrator for wayang wong)
ḍéwé	by oneself, alone
enemy (pitch degree)	the pitch degree most avoided and least featured in a given paḥet
engkuk-kemong	set of two kettle-gongs used only for Sléndro
gabbang	kind of xylophone of Sulu Archipelago, Southern Philippines
gambang	1. multi-octave xylophone (=gambang kayu) 2. instrument consisting of 10 or more keys resting over trough resonator and held in place by metal pins: a gamelan instrument type
gambang beat	single pulse manifested on the gambang: usually same as density referent (DR)
gambang gangsa	lit. 'bronze gambang': multi-octave metal-keyed instrument (rare)
gambang kayu	lit. 'wood gambang': complete name for (Javanese) 'gambang', q.v.

gambang selukat	see 'selukat'
gambir	plant with betel leaves
Gambir Sawit	name of gending (in this study, Corpus II)
gamelan	set of predominantly percussion instruments
gandrung	lit. 'dragonfly'; 'passionately in love': name of gamelan at University of Hawaii Music Department
gantungan	pencon suspended vertically
garan	gambang beater stem, usually of water buffalo horn
garantang	gambang (ancient Javanese)
garapan	lit. 'workmanship', 'treatment': treatment of the lagu, especially by rebab, gambang, and gendèr (barung), but also by vocal parts
garapan instruments	rebab, gambang, and gendèr (barung)
gatra	(musical) measure: four lagu beats
gayor	large wooden frame for gantungan instruments
gedé	lit. 'big', 'large': low register (=ngisor)
gembira	happy
gembyang	interval of five keys (i.e., four keys between those sounded) = octave
gendèr	1. set of 6-15 thin metal keys suspended over individual resonators: a gamelan instrument type 2. see 'gendèr barung'
gendèr barung	middle-register gendèr
gendèr panembung	gendèr with largest keys, a balungan instrument (=slentem)
gendèr panerus	highest-register gendèr
gending	1. Javanese orchestral composition (l.c.) 2. orchestral composition with 16 or more balungan beats per kenongan (cap.) 3. see 'kendang gending'

Gending Keṭuk 2 Kerep, Nḍawah Keṭuk 4	formal structure characterized by four kenongans per gongan and 16 balungan beats per kenongan. First section (mérong) = 2 keṭuk strokes per kenongan; second section (nḍawah) = 4 keṭuk strokes per kenongan
gérong	male chorus
geter	gambang technique: ricochet
gita	song
glebeg	style of gambang playing: damping (stopping) keys with left hand and (?) with beater held in right hand
gong	short for gong ageng
gong ageng	lit. 'great gong': largest and lowest-register gantungan instrument; functions in colotomic structure
gong kemoḍong	instrument with two low-pitched metal keys suspended over a wooden box
gong suwukan	see 'siyem'
gongan	section of composition marked off by sounding of gong ageng (or siyem)
grantang	kind of Balinese xylophone
grobog	large storage box
grobogan	wooden trough resonator made from planks
grontolan	lit. 'like kernels of corn': style of gambang playing: frequent use of geter
gulu	pitch degree in Sléndro (=2) and Pélog (=2)
Guntur Sari	lit. 'Thunder of Flowers', 'Thunder of Essence': name of one gamelan in the Jogjakarta palace
harmonis	lit. 'harmonious': (musically) together, tight; consonant
irama	micro-subdivision: rhythmic relationship between balungan beat and parts which subdivide it



isèn-isèn	lit. 'having the nature of "filling in": instruments whose parts are low-level prescription and subdivide balungan beat
isih	still, even now
Jangkung Kuning	name of gending in Pélog paṭet Barang
janturan	lit. 'hanging': performance style in which balungan is not played
jati	type of wood used for gambang keys
Jogja	variant of Jogjakarta; 'Jogjanese' = usual adjectival form in English
Jogjakarta	city and court center in central Java
Kagok Respati	name of gending classified Pélog paṭet Nem, but with modulation to Pélog paṭet Barang
kalimat lagu	musical sentence: consists of 2 gattras (=8 lagu beats)
karawitan	Javanese gamelan music
kasar	coarse, rough
kasuran	lit. 'mattress-like': soft cloth or twine strip on which gambang keys rest (=bantalan)
kawat	lit. 'string': stringed instruments
kebukan	lit. 'that which is hit lightly': drums (membranophones)
kedempling	see 'dempling'
kembyung	interval of two or four keys (i.e., one key or three keys between those sounded)
kempul	smallest and highest-register gantungan instrument; functions in colotomic structure
kempyang	1. set of two kettle-gongs, used only for Pélog 2. interval of one key (i.e., two adjacent keys sounded)
kempyung	interval of three keys (i.e., two keys between those sounded)

kendang	double-headed laced drums: a gamelan instrument type
kendang ciblon	middle-sized kendang
kendang gending	largest kendang
kendang keꦠꦶꦥꦸꦁ	smallest kendang
kenong	largest of the kettle-gong instruments; functions in colotomic structure
kenongan	section of composition marked off by sounding of kenong
kepatihan	cipher notation system
kepénak	comfortable, pleasant
kerep	lit. 'close together': see 'Gending Keꦠꦸꦏ 2 Kerep Nðawah Keꦠꦸꦏ 4'
Ketawang	formal structure characterized by 2 kenongans per gongan
keꦠꦶꦥꦸꦁ	smallest kendang (=kendang keꦠꦶꦥꦸꦁ)
keꦠꦺꦥꦫꦏ	type of non-dance drama
keꦠꦸꦏ	small kettle-gong; functions in colotomic structure
klaꦤ꧀ꦠꦺ	string for hanging gantungan instruments
klenéꦁꦤ	1. 'soft' playing (Solonese) 2. informal gamelan concert (Solonese)
krama	polite Javanese language level
kraton	palace
kroncong	indigenous folk music, with acculturated Portuguese influence
kurang	not enough, not so --
kyai	lit. 'teacher': used to address Islamic religious leaders and venerated objects, including some gamelans
Ladrang	formal structure characterized by 4 kenongans per gongan, with 8 balungan beats per kenongan

lagu	lit. 'song', 'melody': multi-octave conceptualized melody
lagu beat	conceptualized pulse: 2 density referent (DR) beats in irama seseg, 4 DR beats in irama I, 8 DR beats in iramas II and III, and 16 DR beats in irama IV
lamba	non-mulur section of gending in Ladrang form which has a mulur section
lawas	old (of things)
let	lit. 'distance': number of keys between two keys sounded as an interval
lima	1. pitch degree in Sléndro (=5) and Pélog (=5) (l.c.) 2. Pélog paṭet (cap.)
'loud' playing	category of Javanese performance practice characterized by certain instrumentation
luhur	exalted
Manyura	1. Sléndro paṭet 2. (rare) Pélog paṭet (=Nyamat)
Mega Mendung	lit. 'Enormous cloud': name of gamelan in Jogjakarta (originally from Cirebon)
membuat	to make, making
mérong	first major section of gending with 16 (or more) balungan beats per kenongan
mijil	a poetic form
Mijil Wedaring	name of gending (in this study, Corpus IV)
Tyas	
minggah	lit. 'rise', 'ascent': see 'ndawah'
minir	flattening of fixed-pitch degree in vocal or rebab parts
mulur	lit. 'to stretch': section of gending in Ladrang form in irama III or IV
naga	mythical snake
nangka	type of wood used for grobogan and (?) for gambang keys

ndawah	lit. 'fall', 'descend': second major section of gending whose first major section has 16 (or more) balungan beats per kenongan (=Solonese 'minggah')
nduwur	lit. 'above', 'at the top': high register (=cilik)
nem	1. pitch degree in Sléndro (=6) and Pélog (=6) (l.c.) 2. Sléndro paṭet (cap.) 3. Pélog paṭet (cap.)
ngajengan	lit. 'that which is in front': 'soft' playing instruments
ngandap	polite Javanese word for ngisor (q.v.)
ngelik	lit. 'to go up': 1. section of gending characterized by singing and playing mostly in high register 2. also, high register (Kunst 1949)
ngisor	lit. 'below', 'at the bottom': low register (=gedé)
nglangut	removed, far off
ngoko	familiar Javanese language level
niyaga	gamelan musician
Nyamat	a (rare) Pélog paṭet (=Pélog paṭet Manyura)
orkès malayu	lit. 'Malayan orchestra': combo music from Jakarta and Malayan peninsula
paku	lit. 'nail': metal pins for gambang keys
Pakualaman	principality in central Java within Jogjakarta
pangkatndawah	transitional passage between mérong and ndawah sections (=Solonese 'umpak minggah')
pangkon	lit. 'like a lap': trough resonator, usually for saron
Pangkur	1. name of gending (in this study, Corpus VI) 2. poetic form
paṭet	mode
paṭetan	free rhythmic interluding by rebab, gendèr, gambang suling, and, in some contexts, male voice
peking	see 'saron peking'

pélog	1. tuning system: 7 tones to the octave, consisting of small and large intervals (cap.) 2. pitch degree in the Pélog tuning system (=4) (1.c.)
pencon	knobbed gong instruments
pernès	appealing, light-hearted
pesindèn	female vocal soloist
petung	thick-walled variety of bamboo, used (rarely) for gambang keys
plancak	metal rods holding saron keys in place
plangkan	wooden frame supporting kenong
pluntur	string suspending gendèr keys over resonator
Puspawarna	lit. 'types of flowers': name of gending (in this study, Corpus I)
rampung	finished, complete
rasamala	type of wood used for gambang keys
rawan	type of wood used for gambang keys
rebab	spike fiddle
renyah	crunchy, crisp
rukun	(n.) social harmony; (adj.) compatible
salindro	variant of Sléndro (q.v.)
Sambul Gending	name of gending classified Pélog paṭet Nem, but with modulation to Pélog paṭet Barang
Sanga	Sléndro paṭet
saron	1. set of 6-7 thick metal keys resting over trough resonator: a gamelan instrument type 2. see 'saron barung'
saron barung	middle-register saron, a balungan instrument
saron demung	lowest-register saron, a balungan instrument
saron peking	highest-register saron

sawit	type of batik garment with matching headdress (Horne 1974:530)
sebulan	lit. 'blown': wind instruments
sedih	sad
selantam	metallophone with 10 keys (rare)
selukat	1. formerly, gambang gangsa (Pélog?) 2. formerly, saron peking
semadi	religious concentration and meditation
Sembawa	lit. 'tiger'; 'subjunctive mood': name of gending (in this study, Corpus V)
sembir	type of wood used for gambang keys
Semarang	city on north coast of central Java
sendratari	dance drama without verbal dialogue
seseg	lit. 'close together': one of five iramas
sindèn	part sung by pesindèn
siter	small zither, with 10-26 strings
siyem	middle-sized and middle-register gantungan instrument (=gong suwukan)
slametan	ritual communal meal
slangkings	type of wood used for gambang keys
Sléndro	tuning system: 5 tones to the octave, consisting of nearly equidistant intervals
slentem	see 'gendèr panembung'
Solo	variant of Surakarta; 'Solonese' = usual adjectival form in English
'soft' playing	category of Javanese performance practise characterized by certain instrumentation
sora	loud
soran	'loud' playing (Jogjanese)

sorogan	exchange keys for Pélog gambang (in absence of separate gambang Pélog Bem and gambang Pélog Barang)
Sri Rejeki	name of gending in Pélog paṭet Nem
Subakastawa	name of gending in Sléndro paṭet Sanga (may be performed in Pélog paṭet Nem)
Sulawesi	large island northeast of Java
suling	end-blown bamboo flute
sumpilan	lit. 'rope-like': see 'bantalan' and 'kasuran'
Sunda	culture area: western third of the island of Java
Surakarta	city and court center in central Java
swara	voice; sound
tabuh	beater, mallet (for gamelan instrument)
tata krama	etiquette, manners
tawonan	1. rattan padding for keys of saron and gambang gangsa 2. see 'bantalan' and 'kasuran'
tengah	lit. 'middle', 'center': middle register
trenyuh	touched, moved
tumbengan	planks attached horizontally to top of the inside of a grobogan
tyas	emotion, feelings
tuṭukan	lit. 'stroke', 'beat': tuṭukan balungan = balungan beat (q.v.)
ugal-ugalan	lit. 'mischievous', i.e., playful, joking: motifs of a playful and humorous nature
umpak minggah	see 'pangkat ndawah'
umpak-umpak	section of gending in Ketawang or Ladrang form, characterized by singing and playing mostly in the middle and low registers and usually without gérong
urip	to live

uyon-uyon	performance in which karawitan is listened to and enjoyed for its own sake
variasi	lit. '(a) variation': melodic formula (motif)
wadah	lit. 'container', 'receptacle': frames or supports for primary vibrating parts of an instrument
wakil	second in command; representative; deputy
wala	"child"; "troops"; "stem from which a bunch of coconuts grows" (Horne 1974:703)
Walagita	name of gending (in this study, Corpus III)
wayang gedog	(rare) wayang kulit form which tells stories of the autochthonous hero Panji
wayang golèk	three-dimensional wooden puppet drama
wayang kulit	shadow puppet drama
wayang wong	dance drama with verbal dialogue
wedjar	to come out; to express
wela	colotomic rest
wilah	key (as in 'xylophone key')
wilahan	keyed instruments (metallophones and xylophones)



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