OVERLAPPING TIME STRUCTURES IN A CENTRAL AUSTRALIAN WOMEN'S CEREMONY

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A great performer in any tradition, through manipulation of the time-based structures of the performing arts, can transform the everyday sense of time and the perceptual frames of those present at the performance. In traditional Aboriginal cultures, it is held that the Dreaming is a timeless zone in which the creation and re-creation of the universe, including the daily world of the people, takes place. As we have argued elsewhere (Ellis 1984; Ellis and Barwick 1989b), the time consciousness of the Dreaming is cyclical, based presumably on the cyclical events of the natural world, and in all ritual performances there are many interlocking and overlapping cyclical structures which are, as a whole, intended to preserve and maintain connection with the timelessness of the Dreaming. These delicate structurings are among the most fragile and least understood when contact with other cultures occurs.

In this paper we will be discussing in some detail overlapping cyclical structures in music and movement found in one Central Australian women's ceremony, recorded at Indulkana in northern South Australia by a team of women researchers including Ellis and Hercus in 1967. This analysis will be introduced by a brief history of the fieldwork leading up to the recording. Finally, we will draw on our analysis to present some preliminary findings relating to the pitch organisation of the melody, the interrelationship of music and dance, and a musical comparison of this ceremony with an open men's ceremony, *inma ngintaka,* which has been extensively analysed in recent years by Ellis and Barwick (1987, 1988, 1989b; Barwick 1989).

HISTORY OF FIELDWORK

It is perhaps surprising, in retrospect, that the time bound linear thinking of any Western scholars of Aboriginal traditions allowed for sufficient material to be recorded in a way that now enables constructive research of this element of time consciousness. To those of us engaged in research with Aboriginal people in the 1960s, the time frame for fieldwork seemed dangerously constrained, linear, and requiring immense hard work.

Ellis and Hercus were among the earliest of the then 'younger' researchers to take a serious interest in the declining traditions of Aboriginal people who had been in contact with other traditions for many years. Earlier researchers (Abbey, Barrett, Mountford, Strehlow, Tindale, to name a few

of the Adelaide-based scholars) believed that they had seen the last uninfluenced performances, and their fieldwork, by the 1960s, was much reduced. Their early films and recordings, dating back to the 1920s, are fine demonstrations of the invaluable work they were able to complete. These did not, however, provide much usable data for research on time-based elements of performance because the technical and practical difficulties of the fieldwork meant that the recordings were done in such a way as to minimise the actual time the recorder or camera was operating. Thus, singing sessions, for example, were edited by turning off the recorder between items, and it is not possible now to reconstruct what overall time span was involved in any given performance.

These factors led Ellis, who was then working with T.G.H. Strehlow, to investigate first the remnants of traditional performance practice still existing along the Murray River in South Australia, Victoria and southern New South Wales. Only one recording of the traditional music of this area existed (made by Tindale in 1937). Very shortly after her commencement of this work in 1962, she made contact with Hercus, whose own recovery fieldwork with those few speakers of the local languages of this area resulted in her monumental work *The languages of Victoria: a late survey* (Hercus 1969). Hercus's subsequent work with Strehlow meant that Ellis and Hercus shared many common experiences from the very outset of their separate and joint fieldwork.

Once Ellis had recorded sufficient material among the sparsely retained traditions of the Murray regions to convince others to work there, she sought to establish contacts in northern South Australia with performers still actively maintaining the full spectrum of their traditional performance practice, as opposed to recalling the songs out of ceremonial context. She aimed wherever possible to record material that would fill in the musical gaps evident in earlier recordings, which had been made to serve the non-musical interests of earlier researchers.

Both the recovery work and the need to record still living traditions before it was too late meant that time constraints were extreme on fieldworkers. Fieldworkers never knew when the most knowledgeable performers and speakers might no longer be able to help; but it was known that they were not teaching the children their traditions, and therefore these performance occasions could well be the last possible point for recording intact language and ritual. Recordings made at that time are now regarded by performers as coming from a distant past *(iriti)*. As a result of the fieldwork, women in northern South Australia often began reviving ceremonies which had not been performed for many years.

Ellis's first priority was to record songs on high quality recorders (Nagra IIIP machines were used) to enable precise measurements of the time-based structures of pitch and duration, in the hope that the intervallic and rhythmic systems could be studied systematically. It seemed to her that a tradition that had lasted for such a very long period of time, and that was known over vast geographical regions, must have stable systems binding it, yet these had never been satisfactorily described. She soon discovered a new problem: the men's repertoire had been much more extensively recorded and analysed than that of the women because most previous researchers had been male. It was in fact the male traditional performers who asked her to become closely involved in the women's performances, which were still actively presented. Only Catherine Berndt in the 1940s (see Berndt 1989) had previously worked on these women's ceremonies and she was not remembered in most of the areas covered by Ellis.

Ellis therefore commenced recording women's performances and, after her first visit in January 1963, her recording work became well known to the women. She was flooded with vast amounts of recordings and other information and it soon became clear that without the help of other researchers

she, too, would fail to provide an accurate time-based record of these important performances. The essential problem that had to be addressed in recording the songs was that an enormous amount happens in the very short period of time involved in the performance of one item, and crucial information was not only musical in nature, but crossed many disciplinary boundaries. Fieldworkers could not spend years finding out through lived experience how the songs had occurred within the tradition when it was under less stress. As the old women were dying many traditions were being lost. Furthermore, the material was not structured in the linear way Ellis had anticipated and she found, for example, that it was commonplace for a substantial difference to exist between the **translation** of a song text and the **explanation** of that same text. Meanings conveyed through song are multi-levelled and closely tied to social and kinship structures.

As a result of these experiences, Ellis conceived the Group Project on Andagarinja (Antikirinya) Women, which got underway in 1966 with a team of women researchers, the core members being Ellis (ethnomusicologist/recordist), Hercus (linguist), anthropologist Isobel White, and photographer Rhonda Buckley (later Toussaint). Three of the team met the requirements for exposure to secret women's ceremonies, i.e. having given birth to at least two children. They began assembling comprehensive documentation, including sound recordings, 16mm films, still photographs, and linguistic and anthropological information that seemed likely to provide data that could address some of the time-based structural issues in these apparently timeless performances (see Ellis and Barwick 1989a for further information on the Group Project).

The project sought and received funding from the Australian Institute of Aboriginal Studies and the University of Adelaide. Unfortunately, the grants did not provide gear to allow synchronisation of sound and film recordings, despite the fact that the Nagra was equipped with the necessary additions from the perspective of sound. Had the team been prepared to accept a male photographer it would have been assured of such assistance, but it chose to remain an all-female group and so was denied the opportunity. Many male researchers at the time considered that women's ceremonies were insignificant, an attitude deriving perhaps from the Aboriginal men with whom they worked (Strehlow 1971:392-5; Ellis and Barwick 1989a:33). In Central Australia the separation of women's and men's cultural domains has entailed an attitude that it was inappropriate for either group to profess interest in the other's secret life (Hamilton 1980).

The practice of giving false front explanations – the deliberate obscuration of secret information – was an important factor in the desire to retain the research group as an all women's one. False front meanings are commonly given when the other sex is present, either at discussions of the meaning of a particular closed performance, or at the performance itself. The only means of ensuring that the information is from the most profound level of the system is to be able to converse with the most knowledgeable performers about it, once those performers have accepted the qualifications and sincerity of the fieldworkers.

At the peak of this group work, the senior Indulkana women asked the team to film and record an important ceremony, the first seen performed at the actual sites represented in the song. The performance lasted for three days, from 16 to 18 May 1967. The body designs, which are painted out of view of the main group of singers, were very elaborate and took a long time to execute. During that period the women responsible for the singing had to keep the relevant painting song present in the minds of the performers. A form of antiphonal singing arose when the women who were being painted also sang these songs. This part of the ceremonial performance sometimes took up to three hours, while the actual dance that showed the design, and locked the dance representation to the textual and musical structure, might take only two minutes. It is important to realise, however,

that the actual performance must be defined as lasting from the minute the women occupied the ceremonial ground until they left it at the end of each day, not just for the time the dancers and singers were performing.

ACCURACY AND FLEXIBILITY

As years of analysis (most recently in collaboration with Barwick) have helped Ellis to understand more about the parameters of construction of this style of music, she has been able to show that music itself operates as a form of 'fixing' code which locks together information of different types in a structure which cannot readily be performed incorrectly without the whole system collapsing, but which nevertheless allows considerable flexibility and creativity in performance. It has been the intention of Ellis's work to allow non-randomness of occurrence of structural features to identify structural parameters. The latter can then be checked against performers' statements to ascertain their cultural validity. Ellis and Barwick's work has shown that different ritual structures are interlocked by a system of cueing, which means that an almost infinite variability in performance detail goes hand in hand with very accurate conservation of the key elements of melody, text and rhythm (see Barwick 1989). Now that many of the musical and textual cues are understood, we are in a position to investigate the ways in which dance is incorporated.

The incorporation of Morais's perspective as a dance ethnologist has allowed us to extend our analysis of multi-dimensionality in time structuring of traditional Central Australian Aboriginal performance to a degree that has never before been possible. It is important for the reader to bear in mind that this work on dance analysis has not been carried out over the same prolonged period as that on music, and that the identification of structural interrelationships between various hierarchical levels of text, music and dance structures has not been previously attempted. The dance analysis drawn on in this paper is based solely on data recorded on silent black and white film during the 1967 group expedition, and cannot yet be correlated with performers' statements. It is regrettable that we cannot be certain of the synchronisation of the short snippets of filming with the sound, even though we have a continual sound recording for most of this important ceremony. The following analysis attempts to overcome these limitations as far as possible and make explicit the various hierarchical levels of cyclical structures in performance, showing how these convey information in different ways and are interlocked at different levels in different systems. Since the correlation of dance analysis with musical structures is still provisional and ongoing, we have decided to signal any points at which the three authors disagreed on structural interpretation.

CYCLICAL STRUCTURES IN CENTRAL AUSTRALIAN CEREMONIES

Central Australian ceremonies are based on numerous cyclical structures, i.e. sequences of events that repeat over time. These cyclical structures have durations ranging from the largest scale of periodic ceremonial performances taking place at intervals of a year or more, through to the smallest scale of periodic sound vibrations of the order of 40-500 cycles per second producing the distinct pitches of the melody (see Ellis 1985; Ellis and Barwick 1988, 1989b). In order to discuss how these repeating time structures overlap and interlock within one ceremonial performance, it will be necessary to describe the ceremonial structures, including music and dance, in more detail.

As mentioned, the Antikirinya women's ceremony under discussion took place over three days, and the largest scale periodic structure within the overall ceremony was the sequence formed by each

day's movement between the everyday space of the camp and the ritual space of the women's ceremonial ground. This represents a segmentation of the daily cycle into stretches of time devoted mainly to everyday activities and to ritual activities respectively. There appear to have been specific activities marking the beginning and ending of the ritual time frame, including the creation and erasing of tracks on the ground. Humming of the melody was an indicator that activities were taking place within the ritual time frame.

Figure 1 shows the overall organisation of the ceremony into sessions and subsessions. Each day's ritual activity was ordered into one or more sessions organised around preparation for and presentation of a formalised ritual dance with body design. There was thus a repeating sequence over time of preparation, formal dance, preparation, formal dance etc.

The preparatory subsessions during which the dancers separated from the rest of the group and went off to a screen of bushes to prepare their body designs for the formal dance were further divided into two segments. The first was an introduction during which informal dancing with no body design often occurred, and the second was a painting segment (the dancers actually separated from the rest of the group towards the end of the introductory segment). Day 1's activities did not proceed to the painting stage.

The formal dancing subsessions consisted of at least one dance with body design, during which the dancers moved from the screen of bushes to finish in front of the seated group of singers. A complete formal dance takes place over several song items, usually all using the same text, although on one occasion the dancing was performed to two distinct texts. We will return to this exception in later discussion. In session 2 of Day 2 (for its organisation see Figure 2) there were two pairs of dancers, each painted with different body designs. The first pair performed dance 9, then the second pair, who presented the formal dances in all other sessions, performed dance 10.[1] Before the second pair appeared there was a brief pause during which a painting song was performed. The two dances in this subsession were also performed to different texts.

The ceremony is articulated throughout by alternating stretches of singing and informal talking. In this article we term one such stretch of singing a **song item.** The same text may be repeated in a number of consecutive song items (up to 34), and we term such a grouping of song items a **small song** (see Ellis 1985; Ellis and Barwick 1987). The same text may recur at different places in the ceremony, and individual song texts have been allocated **song text** numbers. There are 19 different song texts used in the whole ceremony, which consists of 53 small songs.

DANCE ORGANISATION

The 11 filmed dances that occurred during the ceremony have been classified into three categories: **informal dances** (dances 1, 2, 3, 5, 7, 8), **painted dances** (dances 6, 9, 10), and **painted closing dances** (dances 11, 13/14[2]). We also refer more generally to the category of **formal dance**, which includes both painted dances and painted closing dances. Figure 3 shows the placement of dances within the ceremony. For convenience of reference we have numbered the dances consecutively without differentiating between the various categories. We have no film record of two dances referred to in the fieldnotes (Informal Dances 4 and 12), and it is evident from the audio tapes that at least two other informal dances occurred on Day 1 before dance 1.
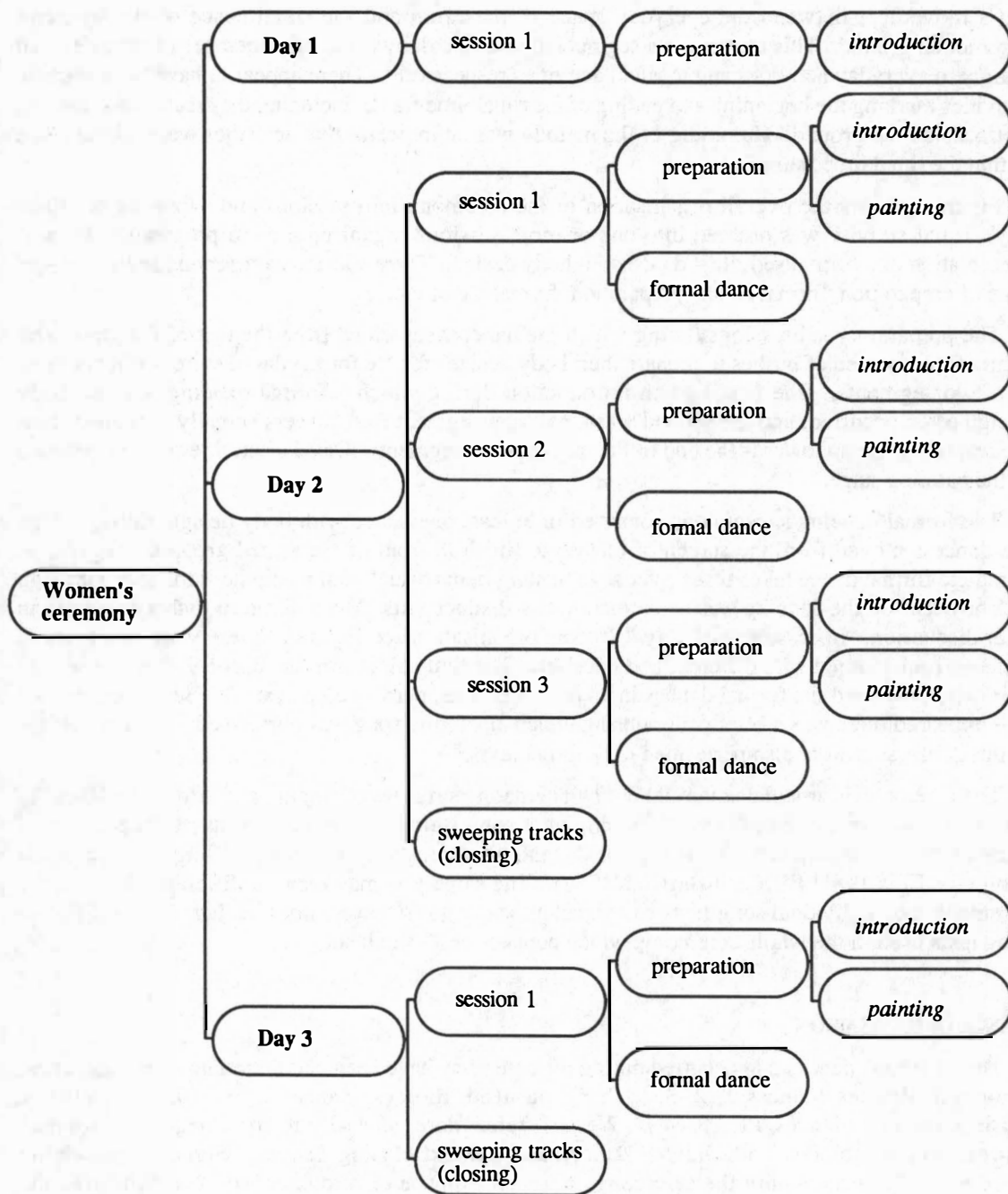
FIGURE 1: OVERALL ORGANISATION OF THE WOMEN'S CEREMONY HELD OVER THREE DAYS ON 16 TO 18 MAY 1967 AT INDULKANA, SHOWING THE DIVISION INTO SEVERAL SESSIONS INVOLVING PREPARATION FOR AND PRESENTATION OF DANCE WITH ASSOCIATED BODY DESIGN.
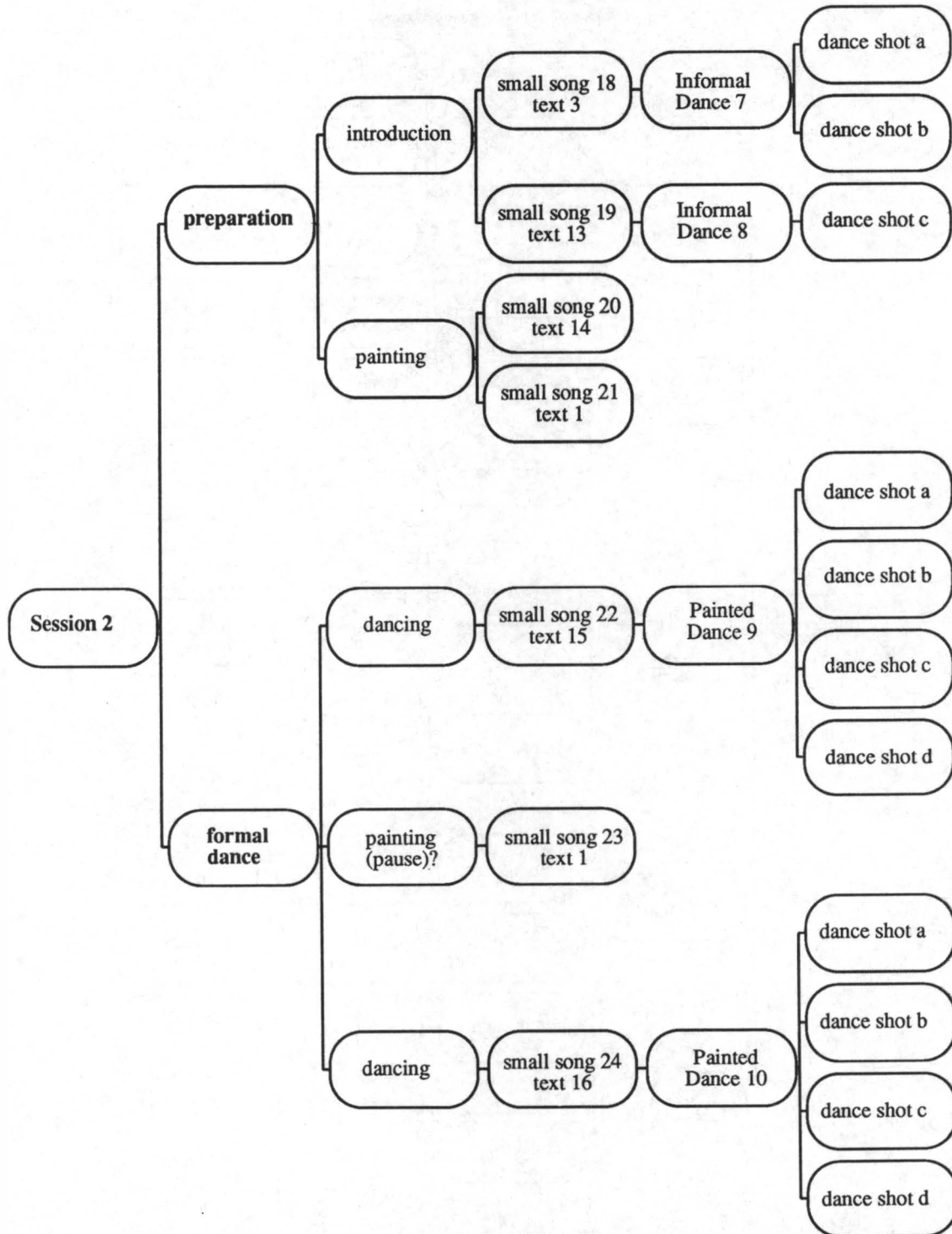
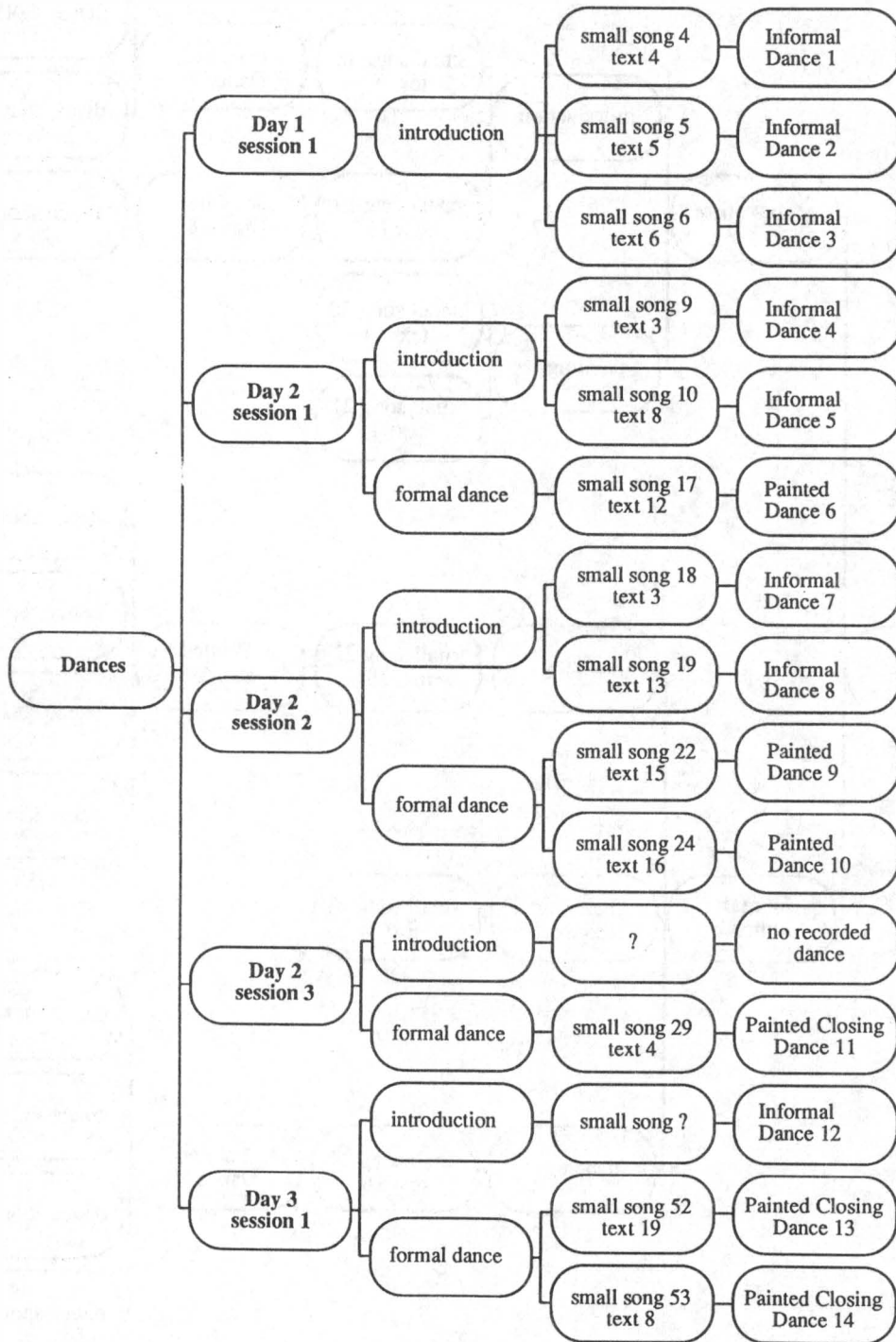FIGURE 2: THE INTERNAL ORGANISATION OF SESSION 2 ON DAY 2 OF THE CEREMONY, SHOWING THE DANCE SHOTS RECORDED.

FIGURE 3: DIAGRAM SHOWING THE PLACEMENT OF DANCES WITHIN THE CEREMONY.

Informal dances have no body paint, are performed in a small area in front of the singers, and take place entirely within the boundary of one song item; that is, they do not appear to have larger scale organisation over more than one song item. Dancers are facing towards the singers at all times. Painted dances have body paint, and in the course of the dancers' travel from behind a screen of bushes to a position in front of the seated group of singers they frequently use large ground patterns involving various orientations towards the singers (e.g. curving or diagonal travel), which are realised over a number of song items. Painted closing dances are similar to painted dances in use of body paint and dance area and are similar to informal dances in the duration and complexity of the dance. Other distinguishing characteristics of these three dance forms will become apparent when discussing the internal structures of a dance.

SMALL SCALE CYCLICAL ORGANISATION

Turning now to the internal structure of one item, we can identify a number of cyclical elements. A text is always set to a fixed syllabic rhythm, which may be repeated a number of times in the course of one item (syllabic isorhythm). This text is typically ordered into two text lines, each of which is repeated once or twice, giving the text repetition patterns AABB or AAABBB, although there are a number of variations on the repetition patterns, including two texts with the simpler text repetition pattern ABB.

The text cycle is thus made up of the repeating sequence of text line pairs or triplets: AAA, BBB, AAA, BBB etc., each element of which is internally isorhythmic with the repeat of each line: A, A, A; B, B, B. In addition to the isorhythms formed by the whole text cycle and by the repeating text lines within it, there may also be repeating **rhythmic** units if the two text lines A and B are set to the same rhythm Z:

A/Z, A/Z, A/Z; B/Z, B/Z, B/Z. Such a text cycle thus has a six-fold internal isorhythm.

There are two texts in which not only are the text lines A and B rhythmically identical at the level of the line, but they can also be further subdivided into two identical rhythmic segments (x), each of which corresponds to a discrete text phrase:

A/xx, A/xx, A/xx; B/xx, B/xx, B/xx. Such a text cycle thus has a twelve-fold internal isorhythm.

In this ceremony the rhythms are accentual and divisive, resulting in regularly spaced textual accentuation. In other Central Australian music that we have studied accentuation is not always regular, being determined predominantly by syllable length (i.e. quantity) (see Barwick 1989); accented long syllables may occur at irregular intervals in additive rhythmic constructions, and the picture may be further complicated by the overlaying of textual accentuation tied to a regular beating accompaniment. In this ceremony, however, long syllables in almost all rhythms coincide with the beginning of the regular accentual units we shall term **cells**.

A **rhythmic segment** is made up of a whole number of cells (from 2 to 5), and is set to a meaningful text phrase. Because the rhythms in this ceremony are based around accentual cells, a number of small songs have segments ending with a short note, a situation contrasting with that found in other ceremonies we have studied closely, in which segments almost always end with a long note.

The rhythms in this ceremony fall clearly into two groups. In the first, which is used exclusively in painting subsessions, the rhythms are organised around duple cells of two crotchet values or single

minim values (such rhythms will be referred to henceforth as **painting rhythms**). The second group is organised around triple cells consisting most frequently of either three crotchet values, one minim plus a crotchet, or a dotted minim (more rarely two dotted crotchets or a crotchet and a minim) and occurs in both introduction and formal dancing subsessions. It appears that it is only these triple rhythms that are used for dancing, whether informal or formal, and they will accordingly be referred to as **dancing rhythms**. We have defined the introductory part of a preparatory subsession as a group of small songs set to dancing rhythms, and the painting part as a group of small songs set to painting rhythms.

Painting rhythms are usually performed unaccompanied, but on occasion they are accompanied by beating (clapping, lap-slapping or percussion of objects such as sticks, tins or shoes against each other or the ground). In such cases, the beating marks the beginning of the duple text beat (i.e. it falls at the beginning of the minim or on the first of the two crotchets). (Again there is a contrast with the *ngintaka* ceremony, in which the additive painting rhythms are never accompanied by beating.)

Dancing rhythms in this ceremony are always accompanied by beating, which may be placed on the text in one of two ways. 'Fast' evenly accented beating occurs at the rate of two percussive strokes to every three crotchet beats of text, the first dotted crotchet beat marking the beginning of a triple group and the second dotted crotchet beat always placed between syllables (this is equivalent to the category of 'very fast' in our *ngintaka* analysis; see Ellis and Barwick 1987). 'Uneven' differentiated beating follows the same placement of the beats, but the first one is much weaker, and may even be omitted, while the second beat is stronger (this is equivalent to the category of 'fast' in our *ngintaka* analysis). Placement of the second beat may also be slightly delayed so that it falls closer to the third crotchet position of the group and the proportional durations of the two strokes approach 2:1 (see McCardell 1976; Pritam 1980).

Most small songs use either one or the other type of beating accompaniment, but when dancing is performed there may be a mix of the two types of beating, each of which is associated with specific dance movements, in the course of one item (we will be discussing one such item in more detail below). When these texts appear outside the context of dance they are always accompanied by fast beating. In general, introductory subsessions begin with small songs with fast beating and finish with small songs with uneven beating. Formal dances occur with small songs of both beating types.

The characteristic melody associated with the ancestral being celebrated in this ceremony occurs in two different forms: a linear melody used exclusively for painting rhythms (i.e. in painting segments) and a cyclical melody used for dancing rhythms (i.e. in introductory segments and formal dancing subsessions). Unlike the *ngintaka* melody (extensively discussed in Ellis and Barwick 1987, 1988, 1989b), which has four melodic sections, this melody appears to have only one melodic section, subdivided into a descent plus a period of repetition of the lowest note (the tonic). The linear form of the melody begins on a main note a major third above the tonic, to which it returns after briefly ascending to a secondary note approximately a fifth above the tonic, before descending via intermediate notes to the tonic. The cyclical melody begins on a note a fourth above the tonic, lingers on the main note a major third higher than the tonic, and descends via a series of intermediate steps to the tonic, before repeating the same sequence. The melodic cycle can be expressed in its simplest form as segmented into descent, tonic repetition, descent, tonic repetition etc. We will return later to detailed discussion of the pitch organisation of this melody.

DANCE

Throughout the formal dance subsessions pauses occur in the singing and dancing during which the dancers reportedly turn their backs to the singers to hide their body designs, which may only be displayed in conjunction with a song item. These pauses mark the boundaries of a **dance item**, which is performed within the boundaries of a song item. The film record rarely includes a complete dance item and we term the portion of dance included in one film shot a **dance shot**. A dance item is defined by the boundaries of dance versus non-dance and may consist of one or more dance phrases or sequences.

A dance sequence consists of two or more dance phrases, which may be duplicates of each other, alternating repetitions of each other, or completely different from each other. The dance shots indicate that the most frequent choreographic patterns used in dance sequences are as follows:

informal dances	A, AA or AB
painted dances	ABB, BAB or BBA
painted closing dances	A, AA or AB

A dance phrase consists of repeating leg and arm movements, torso and head movements (or positions) and a locomotive pattern.[3] A new phrase is indicated by a change in one or more of these features. Dance shots indicate that the most frequent types of change are, in respective order:

informal dances
    (1)   locomotive pattern – mirrored
    (2)   arm movement (or position) – mirrored
    (3)   arm and/or leg movement – new

painted dances
    (1)   leg movement – new
    (2)   locomotive pattern – new or mirrored
    (3)   arm and/or body movement (or position) – new

painted closing dances
    (1)   locomotive pattern – new
    (2)   arm and/or leg movement – new

The average number of phrases recorded in dance shots varies according to dance form:

informal dances	4.5
painted dances	8.7
painted closing dances	2.5

The repeating body-part movements (and positions) and locomotive patterns of a dance phrase are actually repeating dance motifs.

A motif is an unrepeated total body movement pattern and locomotive pattern. It may include as many features as two arm movements (one large and accented, the other a reduced, unaccented replication), two leg movements and one locomotive pattern (e.g. arms bouncing at waist and skipping with forward travel). Or it may include as few features as one arm position, two leg movements and no locomotive pattern (e.g. hands holding implement and quick knee bounce in

place). The average number of motifs used per dance is two and each motif essentially consists of two or more morphokines.

A morphokine is basically a single movement pattern (or position) of the legs, arms or body; it is also a single locomotive pattern.[4] The movement pattern of a morphokine consists of either a mirrored repetition of a single movement or two different movements. The average number of morphokines recorded in a dance shot varies according to dance form:

informal dances	3
painted dances	5
painted closing dances	2.5

The locomotive morphokine consists of one type of tracks (e.g. straight line to right, or snake-like pattern in a forward direction). The number of locomotive patterns used per dance is as follows:

informal dances   one per dance
   (1)   travel sideways (right/left)
   (2)   travel straight (forward/back)

painted dances   one or two per dance
   (1)   travel sideways (right/left)
   (2)   travel straight (forward)
   (3)   travel curved (snake/circle)

painted closing dances   one or two per dance
   (1)   travel sideways (right/left)
   (2)   travel curved (snake/circle)

The sequential combination of locomotive morphokines in an entire dance results in a ground pattern. In informal dances the ground pattern is small and simple: the dancers perform immediately in front of and facing the singers. In painted dances the ground pattern is large (covering many square metres) and more complex (e.g. two dancers travelling straight forward from opposite sides of the performing area may create the ground pattern shown in Figure 4). In painted closing dances the area covered is the same as in painted dances, but the ground pattern is simpler. Previous evidence indicates these ground patterns reflect the travels of the ancestors (Dail-Jones [Morais] 1984: 104-5). The tracks made are very powerful and must be swept clean at the end of each day's ceremonial activity.

A chart of the morphokines used in the ceremony is located in the Preliminary Findings section (Figure 14). A morphokine can be broken down further into kinemes.

Kinemes are the smallest units of movement. They are significant to this research in that the movement is frequently mirrored to form a morphokine. The dances in the ceremony include the following mirrored repetitions of kinemes: in/out, up/down, right/left, forward/back. These repetitions are applied to legs, arms, body or locomotive pattern.
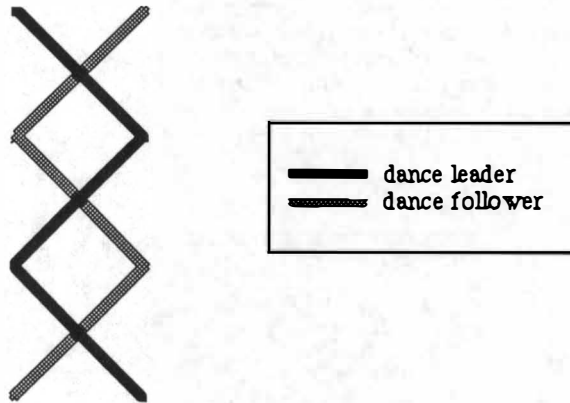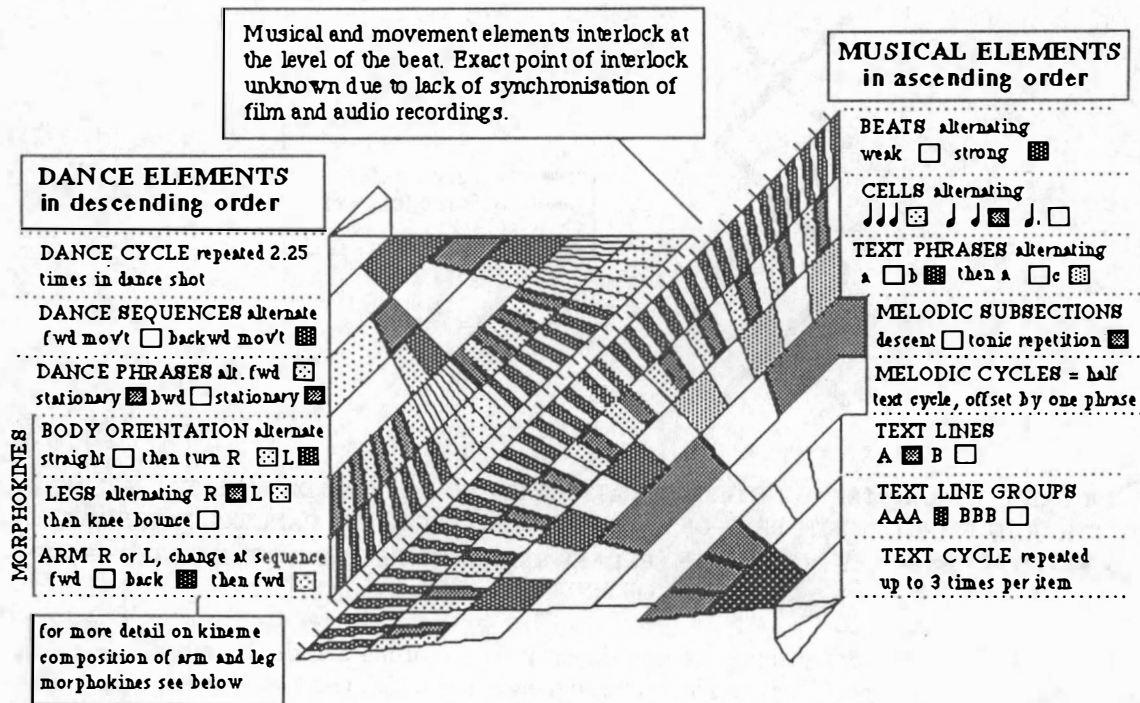
FIGURE 4: DIAGRAM SHOWING GROUND PATTERN CREATED BY TWO DANCERS TRAVELLING
STRAIGHT FROM OPPOSITE SIDES OF THE PERFORMING AREA. THE DANCERS' PATHS ARE
ORIENTED ALTERNATELY DIAGONALLY LEFT AND RIGHT WITH RESPECT TO THE SEATED GROUP
OF SINGERS.

Figure 5 shows the organisation of one dance item (Informal Dance 3) into dance cycle, sequences, phrases, morphokines and kinemes, and the ways in which these structures interlock with the musical structures of the relevant song item. It also provides an example of the involved overlapping of repeated movement patterns of different body parts, and repeated choreographic patterns.

OVERLAPPING OF CYCLES

We now turn to discussing the ways in which the various repeating patterns we have identified in the organisation of the music and the dance are interwoven. Overlapping of various cycles occurs in a number of different ways. **Simultaneous overlap** refers to the simultaneous presentation of repeating patterns in two or more modes of organisation (e.g. at the broadest level patterned movement occurs simultaneously with patterned sound, although the patterning in the two modes may segment time in quite different ways). **Sequential overlap** refers to the time lag resulting from cueing practices, which means that changes in a repeated pattern do not take place simultaneously with all performers in a group, or in all modes of performance. **Backtracking overlap** refers to the re-establishment of a pattern after a break by initial reiteration of the last element performed before the break. These types of overlap can be identified at many different levels of organisation.

Actions occurring in individual sessions, in one day's ritual activities, and in the ceremony as a whole, display distinct opening and/or closing markers (see Figure 6). Presentation of formal dancing marks the ending of a session, presentation of a closing dance followed by erasure of the dancers' footprints marks the end of a day's activities, and the closing dance on the final day is also marked by the participation of the song's owner whose role is otherwise primarily song leader. (Dance participation by song owner at the end of the ceremony as a whole is also found in other Antikirinya ceremonies recorded by Ellis.) The opening of the ceremony as a whole on the first day

Musical and movement elements interlock at the level of the beat. Exact point of interlock unknown due to lack of synchronisation of film and audio recordings.

MUSICAL ELEMENTS in ascending order

BEATS alternating weak ☐ strong ▦

CELLS alternating ♪♪♪ ▦ ♩ ♩ ▦ ♩. ☐

TEXT PHRASES alternating a ☐ b ▦ then a ☐ c ▦

MELODIC SUBSECTIONS descent ☐ tonic repetition ▦

MELODIC CYCLES = half text cycle, offset by one phrase

TEXT LINES A ▦ B ☐

TEXT LINE GROUPS AAA ▦ BBB ☐

TEXT CYCLE repeated up to 3 times per item

DANCE ELEMENTS in descending order

DANCE CYCLE repeated 2.25 times in dance shot

DANCE SEQUENCES alternate fwd mov't ☐ backwd mov't ▦

DANCE PHRASES alt. fwd ▦ stationary ▦ bwd ☐ stationary ▦

BODY ORIENTATION alternate straight ☐ then turn R ▦ L ▦

LEGS alternating R ▦ L ▦ then knee bounce ☐

ARM R or L, change at sequence fwd ☐ back ▦ then fwd ▦

MORPHOKINES

for more detail on kineme composition of arm and leg morphokines see below

Note that the number of beats (and therefore the number of repeated morphokines) making up each dance phrase and dance sequence may vary.

L E G S
morphokines alternating R ▦ L ▦ then knee bounce ☐
kinemes alternating in ▦ out ▦ then knee up ■ down ☐

A R M S
morphokines alternating fwd of body ☐ back ▦ then bounce fwd of body ▦
kinemes alternating fwd ▦ then up ☐ down ▦

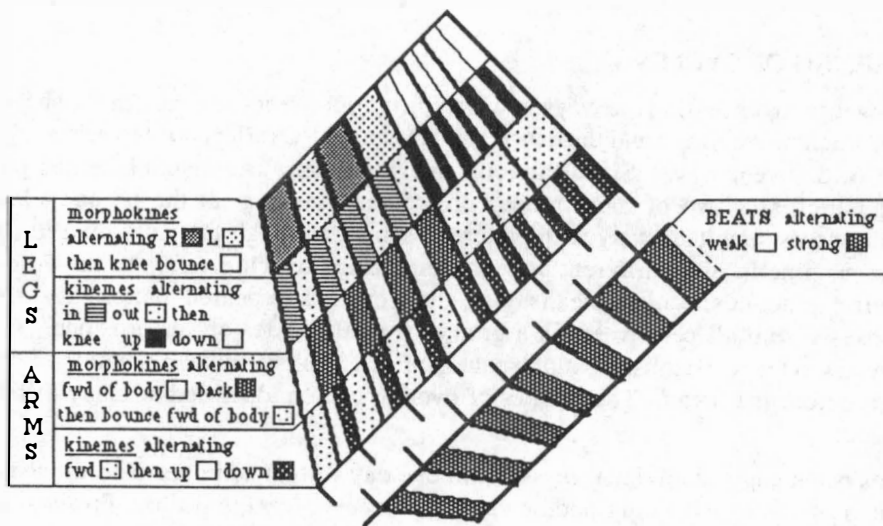BEATS alternating weak ☐ strong ▦

FIGURE 5: INTERRELATIONSHIP OF MUSICAL AND DANCE STRUCTURES IN INFORMAL DANCE 3.

consists entirely of informal singing and dancing, which does not proceed to painting and presentation of formal dance. The overall structure of the ceremony thus consists of a nested series of frames for the action, all of which coincide in the last dancing subsession of the ceremony. That subsession which is marked as the close of **the session** by the presentation of formal dance, as the close of **the day's activities** by the fact that the dance is a closing dance and subsequent erasure of the dancers' footprints, and as the close of **the ceremony** as a whole by the participation of the song owner in the last portion of the dance.

Entire ceremony: *(p)* (p d p d p cd) (p cd+*o*)
(3 days)

2nd day of ceremony: *p* d p d p *cd*

one   session   p *d*

(p=preparation; d=formal dance; cd=closing dance; o=participation of owner). The feature marking opening and/or closing of the relevant structure is marked in italic script.

FIGURE 6: FEATURES MARKING OPENING AND CLOSING OF THREE LEVELS OF THE RITUAL STRUCTURE: THE ENTIRE CEREMONY, ONE DAY'S ACTIVITIES, AND A SINGLE SESSION.

In a formal dance, the dancers' body designs often represent different story elements from those suggested by their actions and the props being used, and still different aspects of the story may be referred to in the song texts, which often differ yet again from the spoken explanations given by performers (see Ellis 1970). This simultaneous presentation of different story elements reflects a holistic conception of the Dreaming events; unlike the linear narratives common in European culture (in which events in the story are causally linked in such a way that the narrative sequence maps onto the sequence of events in the 'real time' of the story), the different elements of this story are clearly not considered to be chained in a linear fashion, but rather to have multiple interconnections with each other. A feature of the ceremony related to the simultaneous presentation of different meanings in different media is that at various times the same meanings will recur in different media so that, for example, a story element originally presented in dance form will later recur in the song words. Meanings in the different signifying systems thus overlap both simultaneously and sequentially, yielding a constant interplay and reinforcement of the important elements of the story in a way that is not time-bound.

Just as there are multiple levels of meaning, there are also multiple levels of structural organisation of text, music and movement, whose interplay may foster a similar sense of timelessness by the ways in which specific formal elements of music and movement recur in different combinations throughout the ceremony. For example, Informal Dance 5 on Day 2 is a near duplication of Informal Dance 2 of Day 1; Informal Dance 8 on Day 2 appears to have many elements, both textual and dance, in common with Informal Dance 3 on Day 1; and the dance elements of Painted Closing Dance 11 on Day 2 are almost exactly duplicated in Painted Closing Dance 13/14 on Day 3 (in this case, however, there is no textual similarity between the small songs employed for the respective dances). Backtracking overlap occurs here, in that the informal dancing in the first session on Day 2 backtracks to that performed in the introductory session on Day 1, and the painted closing dance

(13/14) performed on Day 3 echoes the painted closing dance performed as the last dance (11) on Day 2.

The analytical divisions we have made between different sessions are based on certain formal elements consistently present in the large-scale organisation. At the same time there may be a continuity of other (often smaller scale) elements in the performance across the divides between sessions. For example, although the beginning of a new session contrasts with the formal dance that concluded the previous session by its dramatic relaxation of tension and focus, this introductory/interlude portion nevertheless has many elements in common with the preceding formal dance. These include the fact that the formal dance subsessions and the introductory/interlude sections employ the same type of rhythms in the song texts (i.e. the triple dancing rhythms) optionally accompanied by informal dancing in the interlude sections, and although there is a relaxation of tension there is often an audible carrying over of the excitement generated by the formal dancing, with the energy and noise level gradually falling off until the quietest point is reached during the slow painting section of the session. Similarly, the actual activity of painting often seems to begin towards the end of the introductory/interlude section, that is, before the painting rhythms themselves are introduced. Such overlappings of mood and activity between sessions and subsessions contribute to a sense of fuzzy boundaries at the transitions between the highly formalised activities of painting and formal dancing.

There is another sense in which sessional structures may overlap. Session 2 of Day 2 concludes with the presentation of two different dances by two different pairs of dancers, who have been painting up simultaneously. The otherwise anomalous inclusion of a painting rhythm in a dancing subsession may be explained by considering session 2 to actually consist of two overlapping sessions. Activities for both pairs proceed simultaneously until the first pair presents dance 9, while the second pair continue painting. The single interspersed painting rhythm represents the end of their painting subsession, which is then followed by the second pair presenting dance 10 (see Figure 7).
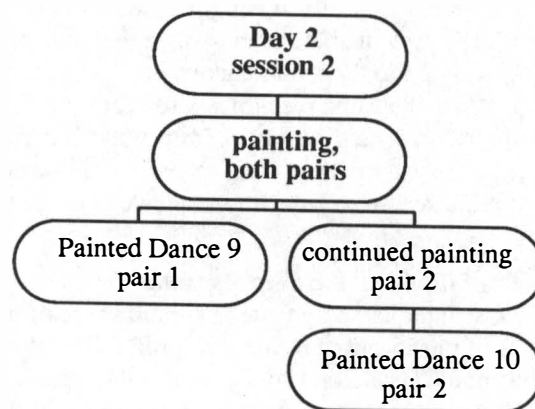

FIGURE 7: DIAGRAM ILLUSTRATING THE SEQUENCE OF PAINTING AND DANCING FOR THE TWO PAIRS OF DANCERS WHO PERFORM IN SESSION 2 ON DAY 2. DANCING PERFORMED BY PAIR 1 OVERLAPS WITH CONTINUED PAINTING OF PAIR 2.

During the preparatory subsessions the dancers go off to a separate area to paint up for the formal dance, while the singers stay seated. This creates two separate groups, both singing (usually) the same song text although often 'out of phase' with each other (i.e. the two groups do not synchronise to the level of a single song item, each group independently performing distinct song items; they do, however, apparently synchronise on a larger scale their periods of singing the same song text). Using a mixer, Ellis was able to record the simultaneous singing of both groups. Although on these recordings the dancers' singing was usually considerably fainter, and could scarcely be distinguished if the singers were also performing, it is clear that the dancers were in effect giving the lead to the singers. After a considerable period of repetition of the same song text, it was always the dancers who first changed to a new small song. The singers sometimes continued singing the old song text for one or two song items before becoming aware of the dancers' change of text. On one occasion the singers did not accurately pick up the rhythm of a song text, and it is evident that some individuals in the singers' group were trying to pick up the dancers' version of the rhythm, although the singing group as a whole continued to sing the different rhythm. When the same song text recurred in two later sessions the rhythm originally proposed by the dancers was sung by both groups.

This raises some interesting questions about the roles of dancers and singers. The individual said to be the owner of the ceremony usually led the singing, including on the occasion just described. The two women who danced in all but one formal dance belonged to the opposite generational moiety from the song owner. In the remaining formal dance the song owner danced following the lead of another woman of her own generational moiety. Dancing including members of both generational moieties occurred only in informal dancing and in the dancing at the very end of the ceremony in which the owner (still dressed) joined the pair of painted dancers who had just finished the progressing section of Painted Closing Dance 13/14. It is noticeable that on all occasions the owner follows the lead of other dancers, in particular that of the leader of the opposite moiety pair. The possibility is raised that the role of the dancers is something like the role of 'managers' described by Morais (see Dail-Jones 1984) for the Warlpiri women, in which the 'managers' take responsibility for the correct realisation of the dance, and lead the 'owners' of the dance (see also Moyle 1986; Bell 1983). In the areas in which these ritual roles have been most clearly documented, the kinship system by which the roles are initially determined is considerably more complex than the generational moiety system used by Antikirinya women at the time this material was recorded (Hamilton 1982).

In performance of a single song item, there is a division of roles between a song leader and the rest of the group resulting in various types of overlap. The song leader initiates the singing of an item, with the rest of the group joining in after a few syllables when they have identified the text and its melodic placement. The song leader is also usually the one to finish an item. Because the singing may start at any point in the text cycle, it may take performers unfamiliar with a particular text longer to be able to join in. The group may also lag behind the leader slightly in changes to a new pitch in the melody or from one melodic cycle to another, so that the group's presentation of the melody is in effect a 'shadow' of the leader's, lagging behind it by a quaver or two (see Figure 8). In song items in which the beating style changes from 'uneven' to 'fast' there is an apparent period of lag in transition before all singers are beating in the new style, giving an aural effect of a fuzzy boundary between the two clearly defined beating styles. Such structures are common in musical systems that operate according to cueing principles. Backtracking overlap is also common at a number of levels; for example, when beginning a new text phrase after a breath (and cueing the entry of the rest of the group) the leader frequently repeats the last vowel of the previous text phrase, thus tying the textual cycle across the break. Similarly, when the same text is used in successive items, the last text phrase used in one item will be the first text phrase used in the next item.
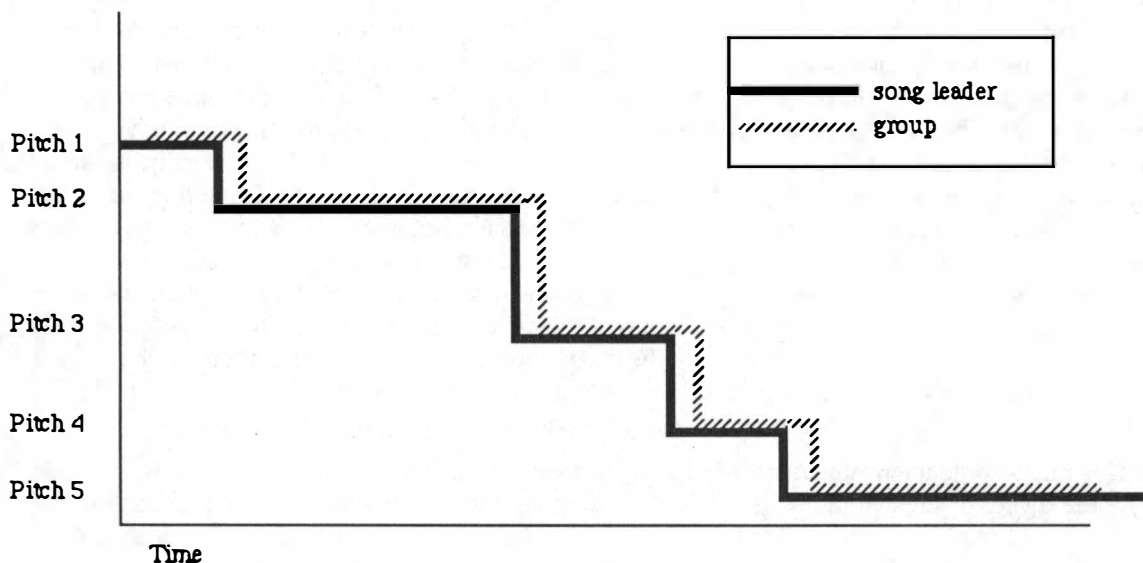
FIGURE 8: SCHEMATIC ILLUSTRATION OF HOW THE SEQUENCE OF PITCHES PERFORMED BY THE
SONG LEADER IS 'SHADOWED' BY THE GROUP, WHO ENTER LATER AND FINISH EARLIER.

On a few occasions the person who starts the singing is corrected by another on matters of text or
melodic placement. In such cases the correction may partially overlap the original item, and the group
usually concurs with the placement suggested by the second singer. With one particular text there
were numerous disagreements about one particular phrase of the text (b2) , and on one occasion after
the wrong text phrase had been persistently sung by one singer throughout a song item the leader
truncated the usually strict text cycle in order to sing very emphatically the correct wording
immediately after the incorrect wording (see Figure 9).

Patterns being sung simultaneously throughout item up to point of correction
leader & group: a1   a2   a1   a2   a1   a2   b1   b2   b1   b2   b1   b2
one individual: ."   "   "   "   "   "   "   b2v   "   b2v   "   b2v

(b2v=variant [incorrect] realisation of text phrase b2)

Leader's truncation of cycle to correct variant
leader: a1   a2   a1   a2   a1   a2   b1   b2   b1   b2   b2 (a1 a2 a1 a2 a1 a2 ... etc)
variant: "   "   "   "   "   "   "   b2v   "   b2v

FIGURE 9: AN EXAMPLE OF THE SONG LEADER'S CORRECTION OF A VARIANT FORM OF ONE TEXT
PHRASE B Y TRUNCATING THE USUALLY STRICT TEXT CYCLE TO PERFORM THE CORRECT VERSION
OF THE PHRASE IMMEDIATELY AFTER THE INCORRECT VERSION.

In the dance the same general patterns can be seen. In this performance there are usually two dancers, one of whom is the leader initiating dance items and changes in dance phrases, and always taking precedence when the dancers cross paths or are in single file. Frequently the 'follower' ends the dance item one beat ahead of the 'leader'. Dancers often perform a movement slightly differently from each other and so in addition to the initial sequential overlap caused by the follower beginning the phrase one or two beats behind the leader, there is a simultaneous overlapping of minimally variant performance details by the two dancers throughout a dance. The multiple overlapping of dance phrases within a dance item is indicated in Figure 10. This patterning is structurally parallel to the lag of the group behind the song leader in presentation of the melody.
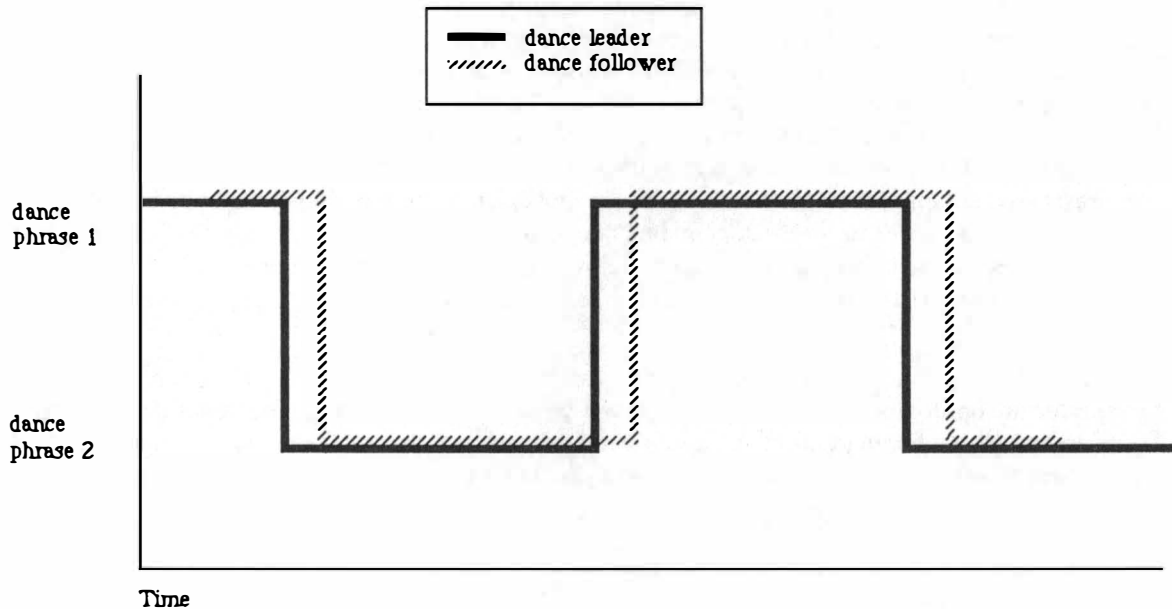

FIGURE 10: SCHEMATIC ILLUSTRATION OF HOW THE SEQUENCE OF DANCE PHRASES PERFORMED BY THE DANCE LEADER IS 'SHADOWED' BY THE FOLLOWER, WHO BEGINS LATER AND FINISHES EARLIER.

Ground patterns created by the dancers' movements are considered to be very important, and are carefully erased at the end of each day's performance. Dancers frequently overlap locomotive and ground patterns. Most commonly this is a result of travelling forward in a single file line or travelling to the side while dancing side by side. In these cases both dancers are following the same track with a slight time delay. However, in a few dances the dancers' paths cross. In each case the crossing is similar in effect: starting from opposite sides of the dance area the dancers travel towards the opposite side and simultaneously cross the centre of the dance area, although in each dance the created ground pattern, the means of locomotion and the direction travelled are quite different.

In two of the dances (Informal Dance 3 and Painted Dance 6) there were instances in which the follower, having begun a two-part movement after the leader, found herself out of phase with the leader, that is performing the accented part of the movement when the leader was performing the unaccented part and vice versa. In each case this occurred during an uneven beating cycle. In order to be able to change the accent she started on and be on the same accent as the leader, the follower had to extend the duration of the movement pattern and ignore several beats. In Painted Dance 6 when the follower reached the point of synchronising accents with the leader, she was then on the opposite leg to the leader. Apparently while synchronisation of accent did matter, right and left body distinctions did not.

Commonly dance movements (morphokines) display simultaneous overlap of different time periods for different body parts. For example, usually dancers have a stable body position with infrequent torso movement and they move their arms with numerous small bouncy movements (infrequent and frequent movement overlaps). Periodic arm movements may correspond to one, two or three periodic leg movements (e.g. one swing of the arms over three jumps in Informal Dance 2[5]), or a differentiated accentual cycle in one body part (e.g. alternating large and small arm movements) may be coupled with undifferentiated movement in another (e.g. evenly accented jumping). Such contrasts are perhaps at their most extreme in the movement pattern in which the body is motionless while the knees quiver in a vibratory manner (no movement with exceedingly fast and frequent movement). Occasionally a dancer sequentially overlaps the transition from one motif to another; for example, in Painted Dance 6 one dancer changed her arm movement a couple of beats after she changed her leg movement.

Variations in a dancer's performance details result in a modulated use of space and body part; for example, an up/down action may be repeated in a general area with the repetitions slightly overlapping each other in terms of space, the same movement path rarely being exactly repeated. The movement flow within the space could be depicted as in Figure 11.
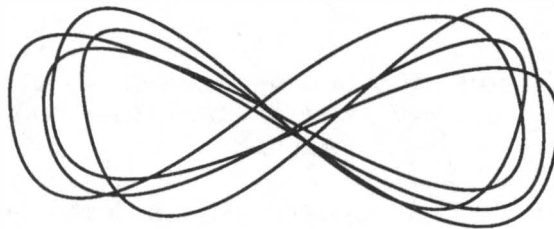

FIGURE 11: DIAGRAM DEPICTING MOVEMENT FLOW WITHIN A SPACE PRODUCED BY THE MODULATED REPETITION OF A PARTICULAR BODY-PART MOVEMENT.

ANALYSIS OF DANCE 6

To take a specific example of the ways in which musical and movement structures are interconnected, we have chosen Painted Dance 6. We chose this example because the film record included a complete dance item and it is one of the few items in which we can actually establish the synchronisation of the film with the audio tapes. The feature of this dance that made it possible to match up the film and audio recordings was the alternation of uneven and fast beating patterns in the music, corresponding to the alternation of dance phrases employing skipping and jumping movements. In the items of this dance for which we have film records, the following numbers of jumps and skips are performed by the dance leader:

[song item 1, no dance shot: consists entirely of uneven beating]

song item 2, dance shot 1:   5 jumps left, 9 jumps right, end

song item 3, dance shot 2:   start, 15 skips, 13 jumps left, 10 jumps right, end

song item 4, dance shot 3:   5 jumps right (possibly forward?[6]), 6 skips, 19 jumps left (follower 13 jumps left, 5 jumps right)

song item 5, dance shot 4:   3 jumps right, end (fragment)

The final song item for this dance (song item 5) is accompanied entirely by fast beating, indicating that this section of the dance does not contain skipping movements and consists entirely of jumping sideways in front of the singers.

It seems clear from these data that the dance sequence made up of the alternation of skipping and jumping phrases is not of fixed duration. The same general features are also found in the other dances of this ceremony.

Only one shot (dance shot 2) records a complete dance item, and Figure 12 shows how the different musical and movement structures overlap each other in this item. As can be seen from the diagram, the dance item is considerably shorter than the song item to which it is performed, but finishes at the same time. Within this item, none of the major cycles of text, melody and dance exactly coincide. The melodic cycle varies in duration, but consists in most cases of exactly seven rhythmic segments as against the textual cycle of six rhythmic segments; on only one occasion do the beginnings of textual and melodic cycles coincide. The dance structures similarly cannot be strictly matched with the textual or melodic cycles: the skipping phrase consists of just over six text segments (text lines B A A B plus one beat of the following B line), while the jumping phrase consists of four complete text segments plus a part segment either side of this (the remainder of the B line then A A and the first beat of the following B). The transition from jumping left to jumping right occurs just after the transition between the two A lines. Thus, although there seems to be some correlation of dance phrase changes with text segment boundaries (we will return to this point in the preliminary findings), there is no clear relationship with the larger scale musical structures of melodic and text cycles.
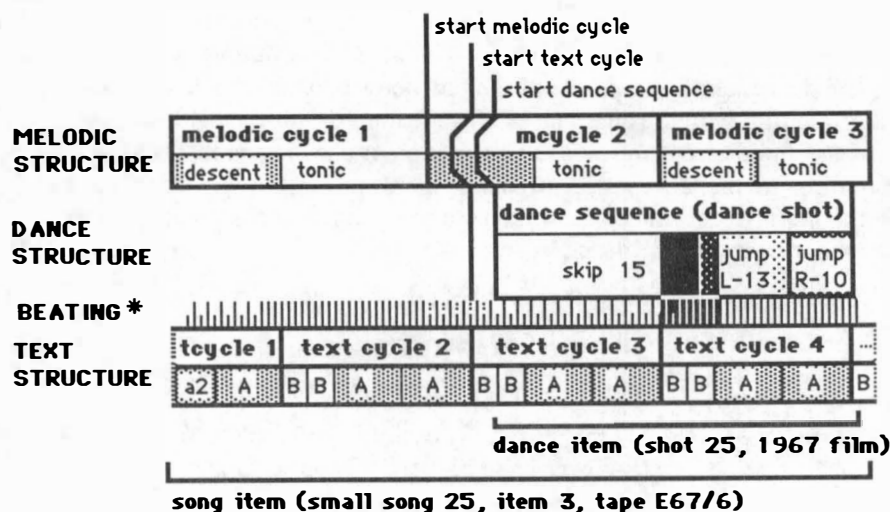
FIGURE 12: THE OVERLAY OF MELODIC, DANCE, BEATING AND TEXTUAL STRUCTURES IN ONE
ITEM OF PAINTED DANCE 6. THE TRANSITION FROM SKIPPING TO JUMPING DANCE PHRASE
(HIGHLIGHTED IN THE DIAGRAM) IS TREATED IN MORE DETAIL IN FIGURE 13.

Figure 13 shows some of the musical and movement detail occurring at the point of transition between the skipping dance phrase and the jumping dance phrase in the item just discussed. It can be seen that different elements of the music are in synchrony with movements of different body parts: specifically, the leg movements correspond to the beating accompaniment, while the arm movements are accentuated in synchrony with the textual accentuation. The leg movements change from skipping to jumping one skipping step after the beating changes from uneven style to fast style, indicating that changes in dance phrases are being cued by the singers; it is noteworthy that the singers' cue occurs at a text line boundary. Note the cross-rhythms resulting from the alternate accents of arm and leg movements in the skipping phrase of the dance.
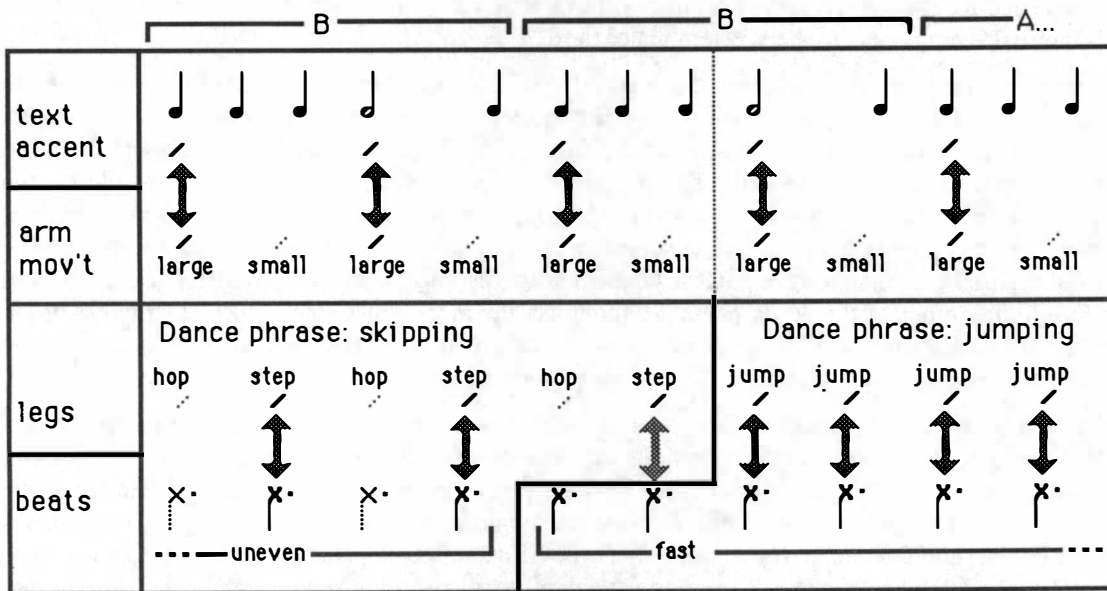
FIGURE 13: CORRESPONDENCE OF MOVEMENTS TO PERIODIC ACCENTUATION IN TEXT AND BEATING AT THE POINT OF CHANGE FROM UNEVEN TO FAST BEATING IN PAINTED DANCE 6 (DANCE CHANGE FROM SKIPPING TO JUMPING ACTION).

*Note text accentuation corresponds with the larger arm movements, and neither text nor arm movements change throughout.

*Leg movement changes from skipping to jumping one skip later than the change of beating from uneven to fast, indicating that dance movement changes may be cued by the singers. The skipping movement is divided into an unaccented hop followed by an accented step, and these correspond to the uneven beating cycle of a weak beat followed by a strong beat. The evenly accented jumping movement corresponds to the evenly accented beats of the fast beating style.

*In the skipping phrase, the accents of text and arm are opposite to the accents of beating and legs.

PRELIMINARY FINDINGS

PITCH STRUCTURES

The sound recordings from the Group Project provided extremely accurate reproduction for both pitch and duration, meaning that tonometric and rhythmic analyses could be undertaken with the expectation that the margin of error through recording and/or replay was very small indeed. Pitch measurements were made shortly after the fieldtrip; the system used is described fully in Ellis (1965, 1967). The measurements made were of three well-spaced presentations of the linear melody (each with slightly varied melodic detail, but they sounded as if they used basically the same intervallic structure) and three separate presentations of the cyclical melody, which was structured around the same basic intervals, although with a slightly smaller range and with less variation in notes used. The measurements show clearly that the two forms of the melody are variants of each other. The significant interval common to all six examples was one in which the frequencies (measured in Hertz)

of notes used for the longest period of time within a song item were in the mathematical ratio of 5:4. This interval is equivalent to the Western major third.

There are interesting differences in the degree of variation found in the linear melody as opposed to the cyclical melody. The linear form was performed repeatedly over long periods when a complex design was being painted on the bodies of the dancers. During this time little else was occurring. The singers in both the group being painted and the separately located group responsible for the singing, often improvised freely around the melody, transposing it at times to different pitches, singing it in the upper or lower octave or sometimes just using the melodic shape casually (even in the form of stylised conversation) as part of the process of keeping the musical/extramusical concept to the fore in the minds of the participants. By contrast, the more constrained musical structure of the dancing form of the melody, which must be coordinated with the step as well as the text, allows less space for ornamentation (and none at all for improvisation).

As was found in the extensively analysed measurements of *ngintaka* melodies, the measurements of this melody fit on consecutive positions of the harmonic series, showing both the important, frequently used interval (here 5:4) and lesser used adjacent small steps. The exact placement of the main interval and the lesser used notes on the harmonic series varies. For instance, frequencies related by the ratio 5:4 can be found not only at the fifth and fourth positions in the harmonic series, but also at the tenth and eighth positions and at any other two positions whose ratio can be reduced to 5:4.

Since there are no outside pitch references such as instruments of fixed pitch to account for the accuracy of selection of particular intervals in Central Australian Aboriginal singing, it seems likely that singers know how to resonate their voices so that the pitches they sing are part of a harmonic series contained within the voice itself, the actual position chosen at any given time being one which will generate the main interval between the lowest note and one other. This process requires an awareness of the pitch of the interval and the pitch of the main note in the series being used, **ahead of its actual use**, since the most used note is invariably the last note sung in any item, and the first note presented is one of the higher notes of the range, if not the highest. In the choice of this high note, there is evidence of selection of structural elements which lead to a given and understood final point, **in advance of** the presentation of that point.

This process of determining structural details in advance of their occurrences, and thereby pre-empting other choices at that point, also occurs in the placement of the melody on the text and rhythm. In the linear melody the length of time spent on melodic movement and on repetition of the final note is (with only one exception) equal. The division here may be based on the equality of length of the text lines when sung, or on the length of the entire text. Melodic movement and repetition of the lowest note can here be seen to be based on textual cues. This is not always the case with cyclical melodies. Some settings of song text 7 illustrate this. The melodic movement and the repetition of the final note both last for 24 crotchet-values; the first text line requires 9 crotchets for its setting (18 when repeated) and the second needs 15 crotchets (30 when repeated). Thus the entire text lasts for 48 crotchets-equivalent, and the division between melodic movement and repetition of the last note occurs after 24 crotchets. This falls mid-way through the second line of text if the melody commenced at the beginning of the first line. This again indicates thinking in advance of a total pattern, since the division of the melody length into two equal halves does not occur at a textual boundary, but at an **exact** division of the duration of the total pattern before that pattern has been presented in full. This is more difficult still when the division is not into two equal sections, but into fractions such as one third and two thirds or one quarter and three quarters. The process indicates

that the intervallic structuring suggested above, where the process itself is set in motion ahead of the key elements which define its final form, is not unique to pitch relationships but occurs in other areas of the structure of this performance.

The stability of the three measured versions of the cyclical melody gives a good indication of the intervallic processes involved in this performance. The main interval (5:4) of the cyclical melody and the adjacent accurately repeated notes were measured as in Table 1.

TABLE 1: CYCLICAL MELODY: INTERVALS FORMED BETWEEN NOTES USED FOR THE GREATEST DURATION

Ex.C1	222hz		280hz	288hz
Ex.C2	218		278	288
Ex.C3	222		276	288
Average Hz for Ex.C1-3	221		278	288
Ratios	I--------------------5:4----------------I			
	I-------------------------13:10----------------I			

Positioning of all these measurements on the harmonic series fitted best by locating the interval 5:4 between harmonics 25 and 20. Theoretical frequencies, calculated on the best fit available encompassing the pitches of both notes of this interval, are shown below the listed harmonic series positions in Table 2, to indicate how accurately the actual measurements fit this theoretical model.

TABLE 2: CYCLICAL MELODY: ALL FREQUENCIES FITTED ON CONSECUTIVE POSITIONS OF THE HARMONIC SERIES

Positions on series	20	21	22	23	24	25	26	27	28
	I-------------------------5:4------------------I								
Theoretical Hz, starting from 222hz	222	233	244	255	266	277	288	299	310
Av. Hz for Ex.C1-3	221	234	241	258	266	278	288(294)		312(318)

Since all the steps except 294 and 318hz fall close to the theoretical readings, and we know the process of using intervals about 6hz above or below a significant note is common throughout the vocal range in men's singing from the same area, the reading at 294hz is presumed to be an ornamental note above 288hz and not an incorrect attempt at 299hz, the next step in the series (this step is missing from the measurements); and the reading at 318hz is presumed to be an ornamental note above 312hz.

The three measured examples of the linear melody indicate different processes of transposition of the melody. Table 3 shows that example L1 fits the cyclical model closely, and illustrates the slightly larger range characteristic of the linear melody.

TABLE 3: LINEAR MELODY, EXAMPLE L1, MAIN NOTES

Ex.L1	219	233			264	277				321
		--------------------------5:4------------------								
Harmonic series positions	20	21	22	23	24	25	26	27	28	29
Theoretical Hz, starting from 222hz	222	233	244	255	266	277	288	299	310	321

Note that this range does not actually reach the interval of a perfect fifth, which would occur between positions 30 and 20. The actual frequency of 3:2 for L1 would be 329-219hz. We may therefore postulate either that the women's singing is in error, or that they intended *not* to sing a perfect fifth. There is only one example (L3) in which the exact interval of 3:2 is present; in all others it is one step less in the harmonic series, suggesting once again that quite deliberate structuring is occurring in advance of the actual presentation which makes this structure clear (i.e. the pitch of the final note). This is in fact similar to measurements in the cyclical melody, where we expected an interval of a perfect fourth (4:3). What actually occurred in all examples was smaller, but there was more ambiguity about this pitch than any other. The perfect fourth in that position would be for C1 and C3, 296-222hz, and for C2, 291-218hz. There is no position on the harmonic series that produces the ratio 4:3 with position 20 (the tonic), since 20 is not divisible by 3.

In L2 of the linear melody (see Table 4), the note previously functioning as the tonic has not been used (or has been sung out of tune). The remainder of the notes conform closely to the preceding pattern, but there are more ornamental notes. It appears that the exact reproduction of the lowest note is sometimes delayed and if the singing ceases before that point, a measurement such as this one results. This situation appears to parallel the deliberate avoidance of the exact position of upper notes.

TABLE 4: LINEAR MELODY, EXAMPLE L2, ALL NOTES

Ex.L2	228		242(248)			278	288(292)	300	312	326
		----------------------5:4--------------------								
Harmonic series position	20	21	22	23	24	25	26	27	28	29
Theoretical Hz, starting from 222hz	222	233	244	255	266	277	288	299	310	321

The third measured example of the linear melody (Table 5) shows two different forms of transposition. Firstly, the main interval (5:4) is shifted to a new pitch level (no longer around 278-222hz, but now 312-248hz). Secondly, the whole pattern, unlike all the previous examples, can be fitted much lower in the harmonic series and still account for all notes used. Note the occurrence now of an exact perfect fifth between harmonics 24 and 16 (i.e. 3:2).

TABLE 5: LINEAR MELODY, EXAMPLE L3, ALL NOTES

Main Intervals	|--------------------5:4-----------|
	|--3:2----------------------|
	|--------------------6:5-------------|
Harmonic series position	16 17 18 19 20 21 22 23 24
Theoretical Hz, starting from 248hz	248 264 279 295 310 326 341 357 372
Ex. L3	248 266 278(286) (306) 324 360 372 312

DANCE STRUCTURES

In the dance shots the dancers perform 22 distinct body-part morphokines: five (possibly six) leg movements, four of which are used in locomotion; five arm movements; eight arm positions, six with props; two types of torso movements; two types of head movements. Additionally they use three locomotive patterns: travelling to the side (right or left), travelling straight (forward or backward), travelling forward in a curving progression (snake-like or circular). The relationship of these morphokines is shown in Figure 14, however it must be remembered that these statistics are preliminary due to the limitations of the film and the present lack of extensive data and discussion with the Antikirinya women.

There are a number of distributional features emerging from this table. Firstly, of the five leg movements used in the ceremony, two (slow slide and skip steps) occurred only with uneven beating, two (quick jump and quick small steps) only with fast even beating, and one (the quick knee bounce) occurred with both beating patterns. Because of limitations in the film it is difficult to see in Painted Dance 10 whether or not the dancers perform an additional leg movement (the knee quiver) or if there is just variation in performance of the quick knee bounce.[7]

Secondly, while curved travel occurs with both types of beating, sideways travel occurs only with fast beating and by means of the quick jump. The ambiguous[8] jumping phrase in Painted Dance 6 is the only instance in which straight travel might occur with fast beating; straight travel otherwise occurs only with uneven beating. If the jumps in this disputed phrase are in fact forward, the quick jump would be the only leg movement that utilizes two locomotive morphokines: sideways travel (left and right) and straight travel (forward). Morais has previously shown that for the Warlpiri the quick jump represents women's dance (Dail-Jones 1984:148-50) and as the basis of the shared dance style between sexes, is performed by both men and women (Dail-Jones in press).

locomotive morphokines	movements set to uneven beating	movements set to fast even beating
in place	**quick knee bounce** (C4<>) -(MBA-B) one arm bouncing at waist, other holding skirt **3** -(MBW) holding prop at waist or hands holding skirt **8** -(MDK) arms do digging movement with long stick, with (BLA) looking side to side (possibly with knee quiver) **10**	**quick knee bounce** (C4<>) -(PHS) bundle of sticks held under arm with (BBF) body bending forward and (BLA) looking side to side **9**
sideways travel mirrored (left and right) one direction only?		**quick jump** (SPB) -(MCR) arms crossing **2, 5**[1] -(PHN) arms hanging **1,[5]**[2] -(PHB) one arm supporting breasts **2** -(PHP) hands clasped behind back **2** -(PAH) alternate hands above head **7** -(MBW) holding prop at waist level **6** -(MBW) holding prop at waist level **11,14**
straight travel mirrored (forward and back) forwards only	slow slide (SSL) -(MBA) one arm moving forward and back, other holding skirt **3** [-(MBW) holding prop at waist level or holding skirt; only backwards travel recorded] **8** **skip** (SKP) (diagonally towards singers; alternately heading left and right) -(PHI-A and PHI-C) hands holding long stick **10**	 **quick jump** (SPB) -(MBW) holding prop at waist level[3] **6**
curved travel	**skip** (SKP) snakelike path -(MBW) holding prop at waist level **6,13** -(PSB) hands holding short stick behind back **11**	**quick small step** (SPC) snakelike path -(PHS) bundle of sticks held under arm with (BBF) body bending forward **9**

[1]The first dance shot of this dance shows mirrored movement; the second shorter dance shot shows movement only to the left.

[2]Only one phrase (3 jumps to left) recorded when this dancer joined the other dancer doing MCR.

[3]The direction of travel in this phrase is held by two of the authors to possibly be sideways rather than forward (see note 3 in paper).

FIGURE 14: CORRELATION OF MOVEMENTS WITH BEATING ACCOMPANIMENT PATTERNS FOR ALL DANCES.

Thirdly, unidirectional travel (whether sideways, straight or curved) appears to occur only with formal dances (which also use mirrored travel); informal dances appear to use predominantly[9] mirrored travel (left and right, or forward and back), the overall effect being to maintain the dancers' positions. This distributional characteristic is a reflection of the organisation of formal dances as an overall progression from the bushes to the singers. It is not clear from the data whether the unidirectional sideways travel recorded at the end of dances 11 and 14 may result simply from failure to record a mirroring phrase of the dance. It is possibly of relevance that in the last dance of the entire ceremony (dance 14) only jumping to the right is recorded, whereas jumping movements in other formal dances always seem to begin to the left.

Fourthly, curved travel (whether in a circular path or snake-like path) occurs only in formal dances. Dancing in place occurs only with informal and painted dances. Painted closing dances apparently only use travel. We hypothesise this may have something to do with putting the power back into the ground.

Arm movements are differentiated between informal and formal dances most obviously because informal dances may occur without props, whereas formal dances always include props. Accordingly, arm movements that do not involve holding anything (e.g. PHN, MCR, PHP) occur only in informal dances.

Data suggest that the informal and painted closing dances are simpler in structure than the painted dances, using fewer body-part and locomotive morphokines, fewer phrases, simpler choreographic patterns of sequences and simpler ground patterns. As opening and closing dance forms they flank the more complex painted dances.

We may now make some comments on Painted Closing Dance 13/14, whose uniqueness is manifested in a number of features. As previously mentioned, Painted Closing Dance 13/14 is performed to two song texts (texts 19 and 8), while all other dances (informal, painted and painted closing) are performed to one song text. This dance has structural parallels with two previous dances: Painted Closing Dance 11 and Painted Dance 6. It is almost identical to Painted Closing Dance 11 in choreographic patterns of sequences, phrases, body-part and locomotive morphokines, kinemes, duration and use of dancers. In fact the only choreographic differences between the two dances are in ground patterns and the use of an additional body-part morphokine in Painted Closing Dance 11.

Painted Closing Dance 13/14 is also a structurally condensed version of Painted Dance 6 – the first painted dance of Day 2 and of the entire ceremony. The same dancers perform the same body-part and locomotive morphokines in the same choreographic pattern (AB), using the same ground pattern. The only apparent differences between these two dances (13/14 and 6) are that the choreographic pattern is cyclical in Painted Dance 6 (and consequently the duration of the dance is longer) and Painted Dance 6 uses an additional locomotive morphokine.

Because of these structural parallels with both Painted Dance 6 and Painted Closing Dance 11, and because Painted Closing Dance 13/14 is performed to two song texts, we suggest that it can be perceived as being simultaneously one dance (the final closing dance of the day and of the ceremony) and two dances (the first painted dance of the day as well as the final closing dance). It overlaps time by being two dances simultaneously, and it overlaps dance forms by being a painted dance and painted closing dance simultaneously.

CORRELATION OF MUSIC AND DANCE

Since this is the first detailed analysis of the relationship between musical and dance structures in Antikirinya women's ceremonies, the following observations should be regarded as provisional.

At a morphokine level, dance movements are synchronised with the beating accompaniment. Except for the knee bounce, which takes one beat to complete a movement pattern and occurs with both types of beating, the leg movements can be categorised according to whether they take one beat to complete a pattern (i.e. quick walk, jump) in conjunction with undifferentiated (even) beating, or two beats to complete a pattern (i.e. skip and slow slide) in conjunction with differentiated (uneven) beating, which also takes two beats (a weak and a strong) to complete a cycle. Songs accompanying formal dances using both types of leg movement will use both types of beating accompaniment. Such variation in beating accompaniment within one song item appears to occur only in the context of dance.

At the level of dance phrase and sequence the correlation with musical structures is less clear. There is no clear synchronisation of dance phrase transitions with either melodic or textual cycles. It does however appear that jumping phrases are tied in some way to the rhythmic composition of the text and specifically to the occurrence of long notes in the rhythmic pattern. This point can be illustrated by comparing Painted Closing Dances 11 and 13/14, both of which consist of a skipping phrase involving forward travel in a snake-like path from the bushes to the singers, followed by a sideways jumping phrase in front of the singers. Painted Closing Dance 11 used the same song text for both these phrases of the dance, changing the style of beating accompaniment from uneven to fast at the point where the dancers changed from skipping to jumping movements. By contrast, Painted Closing Dance 13/14 used different song texts for the two dance phrases. The song text used for Dance 13 was the only song text of the 19 used in the ceremony to contain no long notes at all in its rhythmic pattern, and we hypothesise that this lack of long notes accounts for the fact that jumping movements and/or fast beating could not be performed to it. In order to complete the dance session with the jumping movements in front of the singers, a different song text containing long notes had to be used.

As previously mentioned, although the actual numbers of skipping or jumping movements performed in each dance phrase of Painted Dance 6 were variable, there was evidence that dance phrase changes were linked in some way to rhythmic segments. In two other dances (Painted Dances 9 and 14) it was possible to correlate the dance shots with the sound recordings because the sound of the camera's operation was accidentally recorded. This data indicates that changes in dance movements are indeed being governed by numbers of rhythmic segments. Specifically, phrases involving fast steps (i.e. quick small steps and sideways jumping) always occurred over four complete rhythmic segments. We do not have enough data to determine whether this characteristic is also measuring dance phrases consisting of quick knee bounces.

CORRELATION WITH MUSICAL FEATURES OF *ngintaka*

Although the current analysis is based on a very restricted sample, the musical organisation of this ceremony can be contrasted on a number of levels with Ellis and Barwick's previous analysis of the open *ngintaka* ceremony (see Ellis and Barwick 1987, 1988; Barwick 1989). The correlation is summarised in Figure 15. We feel it is important to signal such divergences as a first step towards constructing an overall picture of structural variation in Central Australian music (see Tunstill (1987) for similar information on a further three song series). We are not as yet in a position to clarify to what extent these divergences may be attributed to gender, geography or song-specific features.

As in *inma ngintaka*, doubled texts (AABB) are the most common. There are two further textual arrangements, AAABBB and AAABB, which do not occur in *ngintaka*. The latter (AAABB) is unstable and the two texts found with this arrangement also occur with the more common AABB shape, even within the one song item. The undoubled texts AB and ABC found in *ngintaka* do not occur here; in this women's ceremony all texts have at least one line repeated.

In this ceremony, texts are not always accompanied in the same way. Some painting texts occur occasionally with slow even beating every two crotchets, and some dancing texts occur with a mix of uneven and fast even beating (only in the context of dance). In *ngintaka*, by contrast, the same text only ever occurred with one style of accompaniment.

Both linear and cyclical melodic forms are found and, as in *ngintaka*, the linear melody occurs in conjunction with unaccompanied ('slow') texts used for painting while the cyclical melody occurs in conjunction with accompanied texts used for dancing. However, in *ngintaka* the categories are not absolutely differentiated as they are in the women's ceremony: *ngintaka's* linear melody is also used for some texts accompanied by 'fast' (differentiated) beating, and there is also a transposing cyclical melody used exclusively for texts accompanied by 'very fast' (fast even) beating.

The melody used for this women's ceremony consists of a single melodic section made up of a descent plus repetition of the lowest pitch (tonic repetition); in the linear melodic form the single melodic section is the only one performed, while in the cyclical melodic form the descending contour is performed repeatedly, recommencing after each breath. By contrast, the linear and cyclical forms of the *ngintaka* melody are quite complex, consisting of at least three melodic sections of the form outlined in Figure 15, and there are correspondingly at least two intakes of breath in the course of performing the complete melody. The linear and cyclical melodic forms of this women's ceremony are distinguished at the beginning of the contour by the characteristic rise occurring at the beginning of the linear melodic form (see discussion above of pitch structures), while in *ngintaka* the linear and cyclical melodic forms are not distinguished until the end of the melodic contour at which point the linear melodic form has a concluding section consisting mainly of tonic repetition while the cyclical melodic form has a transitional section performed on a pitch approximately a major second above the tonic. The construction of the two melodies is more similar however at the level of the composition of a melodic section as descent plus tonic repetition. Although more analysis needs to be done on the women's ceremony under discussion, it is clear that the descending section is usually of a fixed duration (often eight cells) while the tonic repetition is of varying length (often, though not always, of the same duration as the descent). In *ngintaka* the main descent is more frequently of seven cells, plus variable length of tonic (see Ellis and Barwick 1987). (The transposing cyclical form of the *ngintaka* melody consists of a single melodic section (apparently composed only of descent), repeated at a lower pitch range each cycle.)

WOMEN'S CEREMONY	NGINTAKA
Text repetition patterns	
AABB (9 texts) AAABBB (6 texts) AAABB, sometimes AABB (2 texts) ABB (2 texts)	**'doubled' texts** AABB (103 texts) **'undoubled' texts** ABB (27 texts) AB or ABC (60 texts)
Accompaniment patterns	
unaccompanied mix **unaccompanied** and **slow even differentiated** ('uneven') mix **differentiated** and **fast even** (only with dance) **fast even** ('fast')	**unaccompanied** ('slow') **differentiated** ('fast') **fast even** ('very fast')
Melodic forms	
linear cyclical	linear cyclical transposing cyclical
Melodic sections	
single section made up of descent plus tonic repetition; the descent usually being of a fixed duration (approximately 8 beating cells), while the tonic repetition is of more variable length (sometimes of the same duration as the descent)	**linear and cyclical**, four sections: 1) introductory 2) preliminary descent (not always present) 3) main descent, 4) transition (cyclical form) or conclusion (linear form). Within descending sections, subdivision into descent (approximately 7 beating cells) plus tonic repetition (variable length) **transposing cyclical**: single section, all descent
Pitch composition	
most used notes tonic and major third above **linear melody** range approximately 5th; much ornamentation and many pitches used **cyclical melody** range approximately 4th; less ornamentation and fewer pitches used	most used notes tonic, fourth and fifth above **linear melody** range approximately 5th; much ornamentation and many pitches used **cyclical melody** range approximately 6th; less ornamentation and fewer pitches used **transposing cyclical** melody range varies from 5th to major 3rd depending on text
Text-melody fit	
*text cycle sometimes longer than or equal to melodic cycle *melodic cycles may vary in length in one song item; not necessarily tied to text cycle *point of transition between cycles often does not occur at most important textual divisions (points of fit)	*text cycle always considerably shorter than melodic cycle (except for transposing cyclical melodic form) *melodic cycles always of fixed length within one item, made up of whole numbers of text cycles (for undoubled texts) or whole numbers of text line pairs (for doubled texts) *beginning of descending melodic sections consistently corresponds with textual points of fit (see Barwick 1989)

FIGURE 15: COMPARISON OF MUSICAL FEATURES OF THE WOMEN'S CEREMONY DISCUSSED IN THIS PAPER WITH VERSIONS OF *inma ngintaka* PREVIOUSLY ANALYSED BY ELLIS AND BARWICK (1987, 1988, 1989a; BARWICK 1989).

The pitch composition of the two melodies is quite distinct. In this women's ceremony the most used note after the tonic is a major third (5:4) above the tonic, while in *ngintaka* both the fourth (4:3) and the fifth (3:2) above the tonic are frequently used pitches, sometimes one and sometimes the other being used more often. Linear forms of both melodies are more ornamented and use more pitches than the cyclical forms.

Finally, the observed fitting of texts onto the melody is quite different in the two ceremonies. In the women's ceremony, the text cycle is sometimes longer than or equal to the melodic cycle, especially for some of the very long AAABBB texts, in which it commonly takes two melodic cycles to present the whole text. In *ngintaka,* by contrast, the text cycle is always shorter than the melodic cycle, except in the transposing cyclical melodic form (in which the text cycle and the melodic section/cycle are co-terminous). We attribute this difference to the less complex section structure of the women's ceremony melody. Melodic cycles in the women's ceremony may be variable in length (see for example the item documented in Figure 12); that is, comparison of different melodic settings of the same text reveals that the melodic cycle need not always cover the same amount of that text, even for successive melodic cycles within a single item. Furthermore, the point of transition between melodic cycles often does not coincide with the beginnings of text cycles or text line pairs ('points of fit' – see Barwick 1989). In *ngintaka,* melodic cycles are always of fixed length within an item and, because the beginnings of descending melodic sections consistently correspond with textual points of fit, melodic cycles are always made up of whole numbers of text cycles (for undoubled texts) or text line pairs (for doubled texts). One may speculate on the basis of this evidence that textual points of fit are only of relevance in the setting of multi-section melodies such as *ngintaka* (see Barwick 1990 for analysis of points of fit in a multi-section melody used by women).

CONCLUSION

As has been shown throughout this paper, the women's ceremony utilises overlapping cyclical structures at many levels, in many forms, including music and dance. By creating a holistic event that ignores linear time boundaries, the women create a sense of timelessness, thereby preserving and maintaining connection with the timelessness of the Dreaming; indeed, they manifest the Dreaming.

Although in this article our main concern has been to describe the formal structurings in ritual, which are at their most intense in the formal dances, it is important to see these relatively fixed elements in the context of the informal activities that permeate the performance. On the most fundamental level, the Dreaming itself (the power of which is tapped by such ritual performances) cannot be separated from the everyday world. This everyday world in turn gives present day expression to the timelessness of the Dreaming through the unfolding in real time of the performance. This is why it is important to recognise that the less formal aspects of the ritual time-frame – ranging from the informal talk and child-care in the breaks between song items, through to the various degrees of formality found in the humming of the melody, the informal dancing, the painting of the dancers and the explanations of the songs – are all just as real and necessary to the ritual as the most highly intensified formalisation present in the tightly interlocked and simultaneous presentation of text, melody, body design, and movement in the formal dances. Indeed, the highly formalised dances can only express their full meanings in the context of the less formal activities we have just mentioned, not only because of the latter's potential for more leisurely exegesis of the cryptically encoded information presented in the dances, but also because formality can only be recognised as such when it is juxtaposed with informality. The constant juxtaposition of performances formalised

in various modes and degrees draws attention to the continuum that exists between the formal and the informal, between the Dreaming and the everyday world, between holistic and analytical perspectives.

For us, analysing these recordings so many years later has been a process of discovery that is teaching us much about the complexity of Central Australian culture. The more closely we look, the more complexity is revealed, and yet there is a unity in the principles of construction that seems to us to be expressing a profound understanding of the nature of the world, recognising the creative power inherent in performance, while acknowledging the importance and power of time-tested tradition. In our 'performance' of this analysis our hope is that we too can use the methodologies of our academic traditions to share some of the insights we have gained through contact with the traditions that these Antikirinya women so generously shared with Ellis and her collaborators so many years ago. In doing so, we hope that non-Aboriginal Australians and others may be better enabled to appreciate aspects of this wonderful music and dance that they might not otherwise have known how to perceive, and thereby come to a better understanding of the profound potential that traditional Aboriginal culture has to offer to all the world's people as we confront the challenge of finding better ways to maintain our universe, our Dreaming, in the 21st century.

NOTES

1. Dance numbering is outlined in Figure 3 below.

2. For the purposes of the dance analysis, Painted Closing Dances 13 and 14 have been counted as one dance, although two texts are used.

3. See Dail-Jones [Morais] 1984: 112-115 for discussion of locomotive patterns.

4. Although Kaeppler (1967) has defined a morphokine as the smallest meaningful unit of movement in a dance, until the definitions and meanings of the movements can be obtained from the Antikirinya women we define morphokines according to body-part and locomotive usage.

5. The complete swing of the arms in this case can be broken down into two asymmetrical parts: the arms take one jump to move inward, and two jumps to move outward.

6. In this dance phrase the brevity of the phrase, the angle and movement of the camera and the poor light make it difficult to tell whether the movement is sideways or forward. All the authors watched this portion of film many times but doubt still remained. Morais maintains that these jumps are in a forward direction, but the fieldnotes taken at the time state that the dance consisted of alternating forward skips and sideways jumps.

7. Morais has expounded further on movement variations, boundaries and distinctions for Central Australian Aboriginal women's dances in Dail-Jones (1984: 65-66).

8. See note 6 above.

9. Some dance shots record only one phrase of what the context reveals is clearly an overall mirrored movement; for example, in Informal Dance 5 on Day 2 the first dance shot records one dancer performing a sideways jump mirrored right and left, and the second, shorter, dance shot records the same dancer jumping only to the left, with another dancer joining in for the last three jumps recorded.

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