

Fluctuant Grouping in a Silk-and-Bamboo Melody¹

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Many of world's enduring musical traditions center on a corpus of melodies, each distinguished as a succession of scale degrees in a regulated rhythm. For the rich "Silk-and-Bamboo" music (*jiangnan sizhu*) of the lower Yangzi region, a foundational melody is "Lao Liuban" ("Old Six Beats", henceforth simply "Liuban"), shown in Western notation on the top staff of Example 1. It is one of a constellation of old Chinese tunes (*qupai*) that are fairly fixed. Example 1 also includes a longer instrumental *qupai* called "Da Baban" ("Eight Great Beats") that is more widespread.²

Although notated versions of these melodies have existed for at least several hundred years, the scores do not adequately represent the actual sound of Silk-and-Bamboo music. They serve primarily as skeletal memory aids for small ensembles that perform them in a kind of improvised heterophony, and never exactly as written. Most melodies exist in several different versions—blurring their identity³—and different versions may be played simultaneously. Moreover, the notated tones are usually embellished and varied, or "flowered," as the Chinese say (Witzleben 1995, 89–103). Some common variations have become fixed in notation, but still each performer will embellish the scored pitches in

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² Lao Liuban is given in the authoritative version of Gan (1985, 22). The version of Da Baban is the one prevalent in the Chaozhou region of south China, according to Thrasher (1989, 75). For definitive English-language descriptions of *sizhu* repertoire and practice, see Jones (1995), Witzleben (1995), and Thrasher (2008).

³ Authenticity and identity in such "thinly" specified music are theorized in Davies (2003).

Example 1. Liuban and Baban

The musical score for Example 1, Liuban and Baban, is presented in four staves. The first staff, 'Lao Liuban', shows measures 9, 17, and 25 with annotations 'a', 'b', and 'a'' respectively. The second staff, 'Da Baban (Chaozhou version)', shows measures 22 and 23 with an asterisk. The third staff shows measures 33, 41, 45, 49, and 53 with annotations 'c', 'b'', 'cadential?', and 'a'' respectively. The fourth staff shows measures 56 and 58 with annotations '*' and '**'. There are also annotations like 'conjunctive?', 'd', and '(60 beats)' and '(68 beats)'.

slightly different ways.⁴ Typical variances are evident even in the relatively strict performance of Liuban in [Audio Example 1](#).⁵ The complicated relation of sound to score might give pause to anyone seeking to understand the music through its notation. But since the notated versions do specify and distinguish each melody, and since they guide these diverse realizations, it seems legitimate to analyze them. Indeed experts, both Chinese and Western, have done so to understand how different melodies are related to each other and how the melodies express aspects of Chinese culture.

Their analyses support classifying the melodies according to shared characteristics of pitch-class content, rhythm, and contour. For instance, in both Liuban and Baban there are only five pentatonic notes, nearly all of which receive some durational emphasis; attacks appear on every quarter note; and there is a remarkably even distribution of rises

⁴ The social dynamics of *sizhu* culture, and the “fissures” that it fosters, are treated in Chow-Morris (2004).

⁵ Performed by members of University of British Columbia Chinese Music Ensemble: Alan Thrasher, sheng; Sarah Kwok, erhu; Xu Duo, qunqin; and Charmaine Chan, pipa. Recorded 23 December 2009 by John Roeder.

and falls, whether one listens from note to note or from beat to beat. The entropy makes it difficult to apply Western methods of motivic and linear analysis.

These and related melodies also seem to organize time similarly. To describe this temporality scholars have employed a theory—formalized for Western tonal music (Lerdahl and Jackendoff 1983), but also manifest less formally in many analyses of non-Western music (e.g., Stock 2006)—which posits that series of musical events are organized hierarchically into “groups”, such as phrases and sections. So-called “final-state” grouping theory (Lerdahl 2008), by analogy to Gestalt theories of visual perception, treats a melody as a persistent fixed object, and represents its grouping in a way that one would conceive of a figure drawing to be constituted of parts. Musical form, in this view, involves the relations of time spans, such as contrast, parallelism (when a group repeats the events of a previous group), and symmetry (when two successive groups have the same duration).

Accordingly, the melodies have been analyzed as shown by brackets in Example 1.⁶ They begin symmetrically with two 8-beat parallel phrases (a + a'), each organized asymmetrically as 3+2+3. The next 8 beats (b) comprise smaller groups that contrast with the opening material. Another asymmetrical 8-beat phrase (a'') follows, recalling the asymmetrical subgrouping and pitch patterns of the second phrase. Beginning on the second system of the example, however, it becomes more difficult to decide group boundaries and affix appropriate labels. The next 8 beats constitute a group (c) subdivided asymmetrically like the preceding a-type phrases but contrasting with them in pitch. There follow three 4-beat groups, after which the melodies diverge. In Liuban,

⁶ This analysis paraphrases and combines the accounts of Thrasher (2008) and Xue (1999), who treat slightly different versions.

these might be analyzed as 8+4, followed by a final 8-beat phrase that exactly repeats a'. In Baban, though, the content is different, and one might hear the third 4-beat group as part of a longer 8-beat group (d) that is repeated to conclude the melody. At any rate, a distinctive 4-beat group breaks the symmetry of 8-beat phrases in both tunes; this group is called either “conjunctive” (Xue 1999) or “cadential” (Thrasher 1989) depending on the reading. Thrasher (2008, 122) summarizes this fixed-state analysis as follows:

“toward the end of the form, a greater degree of asymmetrical organization is found—the effect being to maintain a unified structure and balance regularity with irregularity.”

Rather than despair of these ambiguities of melodic characteristics and form, scholars celebrate them as manifestations of a culture that values a complementarity between Daoist ideals of spontaneity (*ziran*) and Confucian ethics of moderation and propriety (Thrasher 2008). They regard the 8s that permeate Baban as referring to the *bagua*, the eight distinct combinations of three solid or broken lines, often arranged around a yin-yang diagram, that symbolize aspects of reality according to Daoist philosophy. The number of beats in Liuban and Baban, respectively 60 and 68, may be understood as the most perfect number 64 (the number of hexagrams in the I Ching, derived from all pairs of *bagua* symbols) rendered slightly imperfect by the addition or subtraction of 4.⁷

While these cultural associations seem compelling, they do not engage very specifically with musical details. Many melodies could possess the same general characteristics of contour, rhythm, mode, and grouping structure; what is so special about Liuban? Considering the propensity of Chinese musicians to vary and alter melodies, something about the particular timing and content of its events must bear upon why it has

⁷ The Hakka version of Baban, “with its eight phrases of eight beats each... appears to be a model of regularity and Confucian number theory”(Thrasher 2008, 121).

remained stable, popular, and constantly played for over a century. The same question might be posed about Baban (or indeed about any well-known melody).

In this paper I highlight some of the extraordinary qualities of Liuban by analyzing its fluctuating temporality. My method treats grouping as a cognitive process, conducted as the music is performed or mentally replayed, that construes sensations of beginning, continuation, and ending, and that associates these functions with present events.⁸ Such construals are influenced by the memory of just-past events and their functions, and by protentions and even anticipations of future grouping functions. Memory induces other sensations about present events as well, such as parallelism (the sensation that the present group is essentially repeating a remembered past group; it includes a protention that the present group will continue in a specific way) and symmetry (the sensation that the present group will end when its duration matches the remembered duration of the immediately preceding group). I posit that the grouping sensations associated with a present event are retained as the event becomes past, and they are recalled when the event is recalled as part of the retentions of a later present. Crucially, a retained event's function may be revised in light of later events; for example, certain cues may give a moment a quality of ending that subsequent continuation retrospectively denies.⁹ I

⁸ That is, my account of grouping constitutes a "processing" theory rather than a "final-state" theory, c.f. Lerdahl (2008, 188). Temporal sensations arising from the ongoing determination of grouping functions are not emphasized in theories influenced by Gestalt visual theory, but play a role more or less explicitly in the work of Kramer (1988) and Caplin (1998).

⁹ Thus the concept of recontextualization—in which the recombination of materials affects their associations and thus the musical form—implicitly plays an important role in this method, drawing upon a rich analytical practice in Western music theory, formalized variously by Hasty (1981, 1986), Lewin (1986) and Hanninen (2003). Indeed, following process philosophy (Rescher 1996), the method may be understood to characterize the nature of any musical "thing" (scale degree, motive, contour, rhythm) in terms of how it organizes the real-time perception of grouping function, symmetry, and parallelism, a perception that continuously varies.

believe that listeners construct grouping dynamically in this way even when hearing familiar melodies, much as they entrain beats.

Liuban is especially well designed to be heard this way. It proceeds in bursts of three to seven events, nearly every burst ending similarly with small pitch change to a long duration. Despite the diverse content of the groups, their brevity, and their constrained pitch and durational repertoire, make them easy to perceive, remember, and compare. Also, Liuban differs from much other music, in which immediate and continual repetitions (explicit or implicit) organize time cyclically and impart grouping functions to musical events according to when they occur with respect to the cycle. Its simple but varying rhythm militates against a cyclic hearing, so that sensations of beginning, ending, and continuation must be constructed more contextually from the sequencing of scale degrees, contours, and durations.¹⁰

A processive analysis of the particular order and timing in which Liuban exposes and repeats a small set of basic scale-degree, rhythmic, and contour entities shows that it establishes sensations of grouping structure which it then continuously and cleverly subverts, achieving at certain moments a sense of rhythmic fluctuation, akin to that of contour and pitch, that is remarkable, considering its restricted palette. The analysis thus provides a dynamically oriented supplement to standard fixed-state accounts of the grouping structure of this melody. It also provides a productive basis for understanding the “flowered” melodies that are derived from Liuban, thus providing a new approach to this fundamental but as yet little-studied procedure in Chinese music.

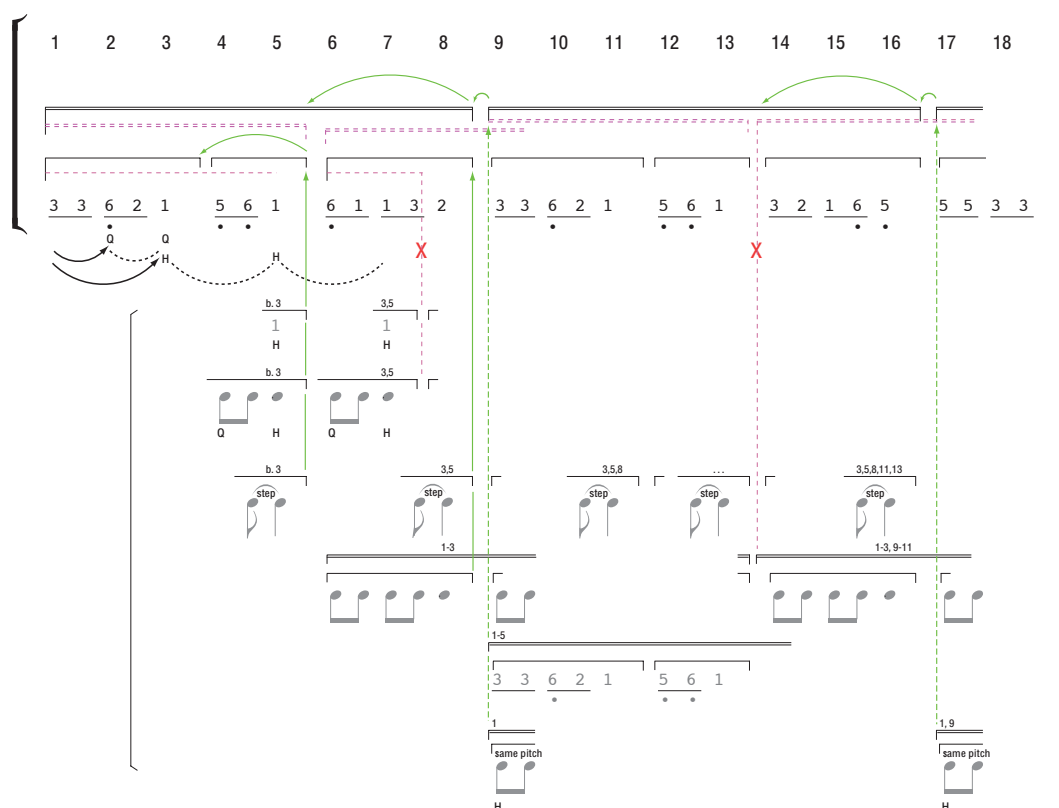
¹⁰ There appears to be no indigenous conception of hypermeter for this repertoire, much less a more specific cyclic or isorhythmic basis. To the extent that the melody is conducted, the only level of pulse that is beaten is the quarter note, even at the extremely slow tempi that the source melodies have as skeletons of the “flowers”. While it might be argued that 4- and 8-beat projections can be heard at some points in Liuban, my analysis shows such sensations are at most tentative and variable.

The concise way this melody constructs a fluctuating temporality is evident at all levels of grouping. To introduce the analytical method and to expose short-term grouping fluctuation at the outset of the melody, Example 2 illustrates the processes by which grouping functions are created and modified at the outset of Liuban. The notes are specified in the ubiquitous Chinese cipher notation, in which numbers represent degrees of a diatonic scale, and rhythm and register are specified as described below the analysis. At the top of the example the quarter-note beats are numbered, for purposes of reference only.¹¹ Immediately below them are brackets that indicate grouping functions; their components—left vertical line, horizontal line, right vertical line—denote respectively the perception of beginning, continuation, and ending functions. Grouping proceeds hierarchically; shorter groups may develop within larger-scale groups so that, for instance, a listener may sense a brief group ending but still understand a larger-scale group to be continuing. Accordingly, for a given perceived grouping function, the analysis denotes the level at which it operates—lowest (to which I will refer to by the roman numeral “I”) to highest (“III”, evident only later in Liuban)—by the number of horizontal lines in the corresponding symbol.

Although the symbology resembles that employed in traditional final-state accounts of grouping structure, the processive approach is evident in special graphical features of the example. Notations below the melody-digits indicate how grouping functions are induced upon current events by retentions of past events; the notations show what is

¹¹ My analysis does not assert that a counting process structures the listener’s cognition of the melody, nor does it attribute any significance to arithmetic properties of the beat numbers such as evenness. For instance the numbering of beat with 16 does not indicate that I have counted 16 up to that moment, or that I hear it as the “and” of a half-note beat, or that it is the end of an 8-beat group. I will attribute any such metric or grouping sensations to the interaction of my memory of preceding events with the events in the specious present of beat 16.

Example 2. Grouping processes in Liuban, beats 1–16



"As used in Jiangnan sizhu, cipher notation uses the numerals one through seven to represent the seven degrees of (approximately) a major scale... A dot above or below a numeral indicates, respectively, a higher or lower octave. The duration of a numeral standing by itself is a quarter note [chosen conventionally as the duration of the tactus]. A single line beneath a numeral makes it an eighth note..." (Witzleben 1995, 145)

being repeated, what grouping functions are presently associated with its previous statement, and the earlier beat numbers at which it was heard. Colored vertical lines connect the remembered grouping functions of these remembered events with the developing grouping analysis that their repetitions create. Green indicates that the remembered grouping function is transferred to the current event (sometimes with consequences for remembered grouping, indicated by backwards pointed green arrows), whereas purple indicates that the transferred function is only tentative and denied retrospectively by immediately succeeding events. Leftward-pointed arrows point to grouping functions that are determined retrospectively by subsequent events.

In order to characterize fully the fluctuating temporality of Liuban, Example 2 and its successors assert a specific function for every event.¹² Such a detailed focus may seem daunting in prospect, but the events are few enough to keep the task manageable; indeed, one might regard this richly meaningful concision as one of Liuban's outstanding qualities.

The first five events briskly establish a referential pitch-class collection and clear projective meter (Hasty 1998). Just after reiteration of the first pitch establishes a quick eighth-note pulse, large pitch change on the third eighth encourages hearing the completion of a quarter note as well as its projection, which is realized at the next (durationally) accented attack, on the fifth eighth-beat. The latter accent in turn completes a half-note duration that itself is projected. These sensations of accumulating metrical continuity are expressed by the dashed horizontal line at the lowest level of grouping, just above the note numbers; the dashes suggest that the continuation function is tentative, subject to retrospective modification.

Indeed, at b. 5 three distinct repetitions become apparent, indicated by the green vertical line extending from the bottom of the example: (1) scale degree 1 recurs at a moment (b. 5) that realizes a half-note projection; (2) a series of two eighths begins on a quarter beat (Q) and leads to an attack on a half beat (H); and (3) stepwise motion (within the pentatonic collection) leads to a quarter note. Since these processes reproduce those of bb. 2–3, they encourage the listener to retroactively attribute different grouping functions to past events, as indicated by the backwards-pointing green arrow connecting

¹² In this respect, as well as in its focus upon process, the analytical method expounded here shares some epistemological ground with the ideas of Leonard Meyer (1973), and with the related but distinctive melodic theory of Eugene Narmour (1990, 1992). However, it does not posit any low-level cognitive mechanisms about continuation or reversal, but simply considers how repetition affects sensations of temporal flow.

the grouping-function symbols. Beat 4 now can be understood as beginning a repetition on the same grouping level (I) as a group spanning bb. 1–3, rather than as continuing that group. This attribution entails revising the function of the retained b. 3 to ending. To the present b. 5, it imputes an ending function and the protention of a beginning on the upcoming beat 6.

Although these repetitions induce a clear grouping structure upon the retained bb. 1–5, the immediately following repetitions confuse grouping. Beats 6–7 reiterate again two out of the three end-inducing aspects of bb. 4–5: the eighth-eighth rhythm to tonic on the half-note beat.¹³ To the extent that the recognition of these repetitions recalls their grouping functions, the tonic on b. 7 can be heard to function as a group ending, as did the tonic on b. 5. This hearing includes some sensations of parallelism and symmetry between the present bb. 6–7 and the retained bb. 4–5, and thus a protention of new beginning on b. 8; all these are symbolized by the purple dashed bracket at this point in Example 2. However, the tonic enters on b. 7 as repetition of the preceding pitch, not in the stepwise change that introduced the preceding tonics. It brings no accent to affirm the half-note beat, and its duration is merely an eighth. As the mediant appears on the next eighth note, and moves by step to a quarter-note supertonic, there emerges instead the sensation (in rhythm and last melodic interval) of repeating bb. 1–3. This parallelism effaces the grouping sensations associated with the supposed symmetry of bb. 6–7 with bb. 4–5, as indicated by the X through the purple dashed line on the diagram at this moment. It suggests instead that b. 6 has begun a second-level group that will continue

¹³ Here and below I use names from Western tonal theory, such as “tonic” and “mediant”, as synonyms for scale-degree numbers, but none of the grouping effects I describe depend upon hearing the pitch-classes as hierarchically structured. Moreover, since Western notions of tonic as possessing intrinsic focus and cadential function do not apply to Chinese melody, the ending on tonic here (and subsequently) has no special weight.

past b. 9, a group one could pretend to be both parallel and symmetric with bb. 1–5; Example 2 represents this hearing with purple dashed double brackets before and after bb. 6-7. Because no sort of accent appears on b. 7 to realize the half-note projection from b. 5, the metrical continuity falters, and so these protentions of grouping continuation are especially salient.

However a new repetition soon suggests another revision to this apperception. Beats 9–13 reenact the first two level-I groups in bb. 1–5, clarifying that the level-II group begins not at b. 6, but at b. 9. The cascade of corrections to present and remembered grouping functions is symbolized by the green vertical arrow at b. 9 and the chain of curved green arrows directed backwards from it. By b. 13, protentions are strong that a repetition of the 3-beat group of bb. 6–8 will ensue. But it does not; rather there appears a continuous descent through the entire pentatonic scale. This is so unprecedented and contextually striking, given the previously varying contour, that it raises the possibility (symbolized by the purple double brackets) that a new level-II group has begun at b. 14. However, starting on the half-note beat of b. 17 there recurs a series of two eighth notes of the same pitch; this recalls the beginning of both previous level-II groups at bb. 1 and 9, and so (as shown by the green arrows) revises the sensation of b. 14 to a continuation leading to the articulation of a level-II group, parallel to them, at b. 17.

The foregoing, detailed narrative of bb. 1–17 characterizes Liuban as remarkably efficient in raising but then quickly revising grouping sensations. At both levels of grouping, immediate repetition establishes functions, and a second repetition raises the same functional sensations, but then denies them by variation. On the lowest level, the analysis describes the asymmetrical 3+2+3 groupings not as a fixed design, but as a series

of fluctuating sensations about beginning, endings, continuations, parallelisms, and symmetries. At a higher level, it affirms scholars' "final-state" descriptions of two 8-beat phrases, but it emphasizes the tentative, contingent way in which that parallel and symmetric organization comes into perception. Indeed it nuances the parallelism, in that it attributes greater strengths of beginning, continuation and ending during bb. 9–16 than during bb. 1–8. These processes may be heard as the beginning of a pervasive strategy to establish sensations of regularity in order to subvert them immediately.

Example 3, continuing the analysis of grouping function across the next 16 beats of Liuban, shows how retentions of bb. 1-16 can influence how one experiences the grouping of new materials that, in turn, will provide significant retentional resources for the end of the melody. At b. 17, reprises of two previous patterns establish beginning functions at both levels I and II. However, bb. 19ff. are unprecedented, and retentions induce temporarily contradictory sensations. Up to this moment, every note following four consecutive eighths has functioned to end a level-I group. In contrast, bb. 19–20 weakly repeat some aspects of bb. 7–8 and, for the first time, approach a quarter note by leap.¹⁴ These allusions suggest continuation into b. 20, not ending at b. 19, and this sensation is strengthened by clear quarter- and half-note projections, arising from immediately repeated dominants. B. 21 alludes briefly to the mediant-supertonic succession at b. 14, suggesting a level-I beginning under level-II continuation. The level-I grouping is clarified further after b. 24, when it becomes clear that the rhythm of bb. 17–20 has just concluded repeating, at the same time restoring the familiarly closural step to

¹⁴ In lightly ornamented performance (as on the recording accompanying this article) the $\underline{5} \underline{5} 2$ is often played $\underline{5653} 2$, providing the stepwise motion to the quarter note that characterized previous group endings, and setting up the scale-degree sequence that will appear in augmentation in bb. 33-35.

Example 3. Grouping processes in Liuban, beats 17–32

a quarter note. This ending motion takes on a distinctive additional content, shown on the third line under the score: at both half-note beats 20 and 24, two eighth notes lead to a quarter-note supertonic, reprising for the first time the ending at b. 8. This will play a crucial role at bb. 35, 40, and 48, to be discussed below.

All this establishes a symmetrical process, in which two successive groups on the same level take equal duration.¹⁵ There is also a sensation of parallelism, since the two groups present the same series of durations. These processes contrast with the asymmetry and inexact rhythmic parallelisms of bb. 1–17. And they focus attention on the grouping at the lowest level, especially because (except for the weak allusion to b. 14) the level-II continuity is not affirmed by repetitions of earlier material, again in contrast to bb. 8–16. The breaks in the double brackets above the melody in Example 3 symbolize the sporadic quality of level-II continuity during bb. 17–24.

At and shortly after b. 24, the level-II sensations remain rather open-ended. Beat 25 may be heard to function as a level-I beginning because it reprises the mediant-supertonic succession that began level-I groups at bb. 14 and 21. But the same retention suggests level-II continuation, indicated by the purple dashed lines across bb. 24–25 in Example 3. More specifically, this moment includes the protention that a third level-I group will follow as part of this ongoing level-II group, just as both previous level-II groups (in bb. 1–16) proceeded as series of three level-I groups. And since bb. 25–27 reprise the beginnings and endings of earlier 3-beat groups, a 4+4+3-beat asymmetry would supersede the 4+4-beat symmetry of bb. 17–24.

After b. 27 appears a cascade of reprises that, in this processive account, revises present and remembered sensations of grouping function and symmetry on level II. First, bb. 28–29 reprise the scale-degree succession and rhythm of bb. 4–5 and 12–13. As shown by the green curved arrow at the top of the example, this repetition suggests that

¹⁵ Of course we have heard the immediate repetition of a level-I group duration previously, when bb. 9–11 repeated the rhythm of bb. 6–8. But to my ear the sensations of level-II beginning at b. 9, caused by the larger-scale parallelism between bb. 9–11 and bb. 1–3, override the comparatively weak sense of local symmetry at b. 11.

the melody is in the midst of an 8-beat level-II grouping structure, begun at b. 25 and proceeding asymmetrically as 3+2+3. In turn, this clarification retrospectively affirms the level-II group starting at b. 17 as a two-part symmetrical and parallel organization of 8 beats. At b. 30 the reprise of bb. 4–6 continues, but then bb. 31–32 round off the group by repeating not bb. 7–8 but bb. 15–16. This suggests an ending function comparable to that of m. 16, implying the presence of grouping at a third level, with articulations after 16 and 32. This sensation of largest-scale symmetry—of a process producing two 16-beat level-III groups each composed of two 8-beat level-II groups—is expressed by the triple-lined brackets and green arrows at the top of Example 3.

The conclusion of Liuban features such multivalent grouping processes that its analysis requires a more elaborate format, shown in Example 4, that places the melody and beat numbers in the center, with recalled passages both above and below.

By this point, some small-scale patterns, such as stepwise motion to a quarter note, have acquired consistent grouping function. Their recurrences during bb. 33–40 thus organize level-I groups as 3+2+3, consistent with those in the level-II groups in bb. 1-16 of Liuban. However, the pitch sequence also recalls three specific larger groups, each carrying a different grouping function for its events. They are shown above and below bb. 33–40.

The multiple concurrent retentions complicate present sensations of grouping function. By b. 40 it is apparent that the current level-II group, having begun (at b. 33) on the dominant, has proceeded through level-I components that have twice ended on the supertonic, at bb. 35 and 40. In these respects bb. 33–40 recall bb. 17–24; to clarify the parallelism, Example 4 connects these passages' respective opening dominants and

Example 4. Grouping processes in Liuban, beats 33–60

present 3+2+3 rhythm present 4+4 rhythm
 setting retained 4+4 pitch setting retained 3+2+3 pitch

ending supertonic with vertical dotted lines. Accordingly bb. 33–40 may be cognized as an 8-beat level-II group, including a level-III beginning at b. 33. However, the earlier passage comprised two 4-beat level-I groups (shown in orange near the top of the Example), whereas bb. 33–40 now comprise three groups organized as 3+2+3 (shown in blue over the melody), as were bb. 1–8, 9–16, and 25–32. So the 3-beat group in bb. 33–35 parallels the 4-beat group in bb. 17–20, and the 2+3-beat group-pair in bb. 36–40 parallels the 4-beat single group in bb. 21–24. Retrospectively at b. 40, these parallelisms reinforce the level-I discontinuity between bb. 35–36 (indicated by the vertical green arrow then), and weaken the level-I discontinuity between bb. 37–38 (the dashed purple line). It may seem odd to hear this parallelism between level-I groups of different

durations, but doing so helps to explain what happens during the next twelve beats, as the melody deftly conflates all grouping retentions.

Concurrently, the same pitch sequence also promotes alternative grouping sensations. For instance, by b. 38 it is evident that bb. 34–38 reprise the exact pitch succession of bb. 25–28 (shown at the top of the Example). Contrary to the parallelism between bb. 33–40 and 17–24, just discussed, this parallelism reinforces level I discontinuity between bb. 37–38 and weakens the level I discontinuity retained between bb. 35–36. Still, both these parallelisms affirm level-II continuation across bb. 37–38, indicated by the vertical green arrow then, as well as level-II closure after b. 40.

Other retentions raised at b. 40 further complicate grouping. Until now, in level-II groups organized as 3+2+3, the third short group has never repeated the first. So if, as the rhythm suggests, bb. 33–40 are another 3+2+3 level-II group, then it is surprising that bb. 38–40 exactly repeat 33–35. I can accommodate the surprise by conceiving of the 3+2+3 as a rounded aba structure, that is, by hearing level-II closure at the end of the second a. But I am also strongly conscious of my retention of the only past instance of the repetition of a 3-beat group, in bb. 9–11 (shown at the bottom of the Example). That retention retroactively raises the sensation that, contrary to functions suggested by the reprises of 25–28 and 17–24, b. 38 also begins a level-II group that continues right through bb. 40–41, when the other reprises suggest a level-II ending. The purple dashed lines meeting the green arrows at bb. 37 and 40 on the Example indicate how these overlapping reprises thus suggest conflicting level-II grouping sensations—discontinuity and continuity—after the level-I endings at those moments. The grouping ambiguity caused by an aba process is another new idea that will soon be reprised to crucial effect.

At b. 41 begins the so-called “conjunctive” phrase about which the standard final-state accounts of the form of Liuban disagree. In a processive hearing, rhythm alone provides some orientation to its grouping functions. Bb. 41–44 replay the familiar 4-beat rhythm shown at the top of the example, and its repetition in bb. 45–48 suggests retroactively that an 8-beat level-II group, repeating the rhythm of bb. 17–24, may have begun at b. 41. Yet the pitch sequence of bb. 41–44 sounds unprecedented, especially considering the complications of grouping functions that the repetitions in bb. 33–40 have just raised. While its freshness strengthens the sensation that b. 41 is a level-I group beginning, this simply highlights the fact that no previous group has begun on the supertonic, and never with such a large leap. Also it ends on a scale degree, the tonic, that did not conclude either preceding 4-beat group.

A retrospective understanding of this conjunctive phrase is fostered by the sequence of pitch in the following 4-beat group, bb. 45–48. As shown in the example directly above the beat numbers, it reprises materials from the 2- and 3-beat groups in bb. 4–8, but in a new order: b. 6, then bb. 4–5, then bb. 7–8, with an elision of the tonics on bb. 5 and 7. A 5-beat pair of groups thereby reconfigures into a 4-beat single group. Thus bb. 45–48 present aspects of a previous 2+3-beat group pair, just as the 2+3-beat group-pair in bb. 36–40 had aspects of a previous 4-beat group. The repetition of bb. 7–8 at bb. 47–48 carries along its group function of level-II ending. Thus prompted, I retrospectively associate the events of bb. 41–44 with bb. 1–3: both level-I groups end with eighth-note supertonic falling by step to quarter-note tonic. Thus on a larger scale the 4+4 of bb. 41–48 (shown in orange) recall the 3+2+3 of bb. 1–8 (blue), just as the 3+2+3 of bb. 33–40

recalled the 4+4 of bb. 17–24. Retentions conflate symmetric and asymmetric processes that were contrasted earlier.

Next, another compelling repetition takes this conflation one level higher. Beats 49–52 exactly reprise the novel bb. 41–44, and thereby raise conflicting sensations about b. 49 like those about b. 38. On the one hand, recalling the aba process of bb. 33–40, the reprise constructs an ABA group across bb. 41–52. This takes 12 beats to perform symmetrically what previously took 8 beats to perform asymmetrically. In this hearing, b. 52 closes an expanded, 12-beat, level-II group, and b. 49 functions to continue that group. On the other hand, the reprise of b. 41 also raises a sensation (shown by the purple dashed horizontal brackets) that b. 49 begins a level-II group that will continue with another 4-beat level-I group in 53–56, just as have all previous level-II groups that began with a 4-beat group (bb. 17–20 and 41–44, both shown in the upper half of the Example). The purple dashed vertical lines after bb. 48 and 52 indicate the relevant grouping functions induced by these parallelisms.

An awareness of all these conflicting sensations are necessary, I think, to appreciate fully the purpose of what follows. Bb. 53–60 present the longest repetition until now—the entire 8-beat level-II group of bb 9–16. But ironically, whereas its original version could be heard to impose clarity upon the previously fluctuating grouping structure, this repetition actually disrupts protentions and retentions of grouping at all salient hierarchical levels. At 53 we do *not* hear, as expected, a 4-beat level-I group; indeed such a group-length never again appears, and we return to the asymmetrical alternation of 3 and 2. At level II, instead of continuation, we hear reprised the most firmly established beginning of the piece. This forces us to hear level-II ending at b. 52 and so 41–52 as a

level-II group, with continuation across bb. 48-49; green curved arrows indicate these retrospective decisions about the memory of those moments. But the duration of this group, 12, differs from the duration of all previous level II groups, thus disrupting the completely 8-beat level-II periodicity that can be heard (after resolving temporary uncertainties) up to this moment.

On the highest level, bb. 58–60 carry a sense of level-III closure like the sensation at bb. 14–16 that they reprise. But that earlier sensation arose mostly from the parallelism between bb. 1–5 and 9–13. Given the parallelisms the example exposes between bb. 41–52 and bb. 1–8, b. 60 might sound as the end of a level-III group that started at b. 41. But this contradicts the clear earlier sensation that b. 41 was continuing a level-III group clearly begun in 33. The confusion, in memory, of two contrary grouping sensations for b. 40 is represented in Example 4 by a red box enclosing the two possible interpretations, annotated with a question mark.

Counterintuitively, then, Liuban uses repetition to thwart periodicity. It deploys its materials elegantly to suggest but then to subvert grouping function, creating fluctuant, protean sensations of beginning, ending, and continuation that are analogous to its gentle varying contour and pitch focus. It manifests not a fixed form but an almost self-antithetical process—a Dao, or path of natural action—through which a moment of maximal conformity (b. 53) simultaneously appears as a moment of maximal possibility. During the preparation for that moment, sensations of symmetry are infused with remembered asymmetrical qualities (bb. 33–40) and vice versa (41–49). It seems valid to associate these purely musical effects with a yin-yang balancing of the “Daoist creative ideals” and the “ethical tenets of Confucianism” that Thrasher (2008, 51) identifies as

being in tension in Chinese culture. A final-state analysis of Liuban's grouping structure that simply posits a contrast between asymmetrical and symmetrical groups does not do sufficient justice to the dynamic aspects of this tension.

Since the instrumental *qupai* repertoire to which Liuban belongs consists of many related but distinct melodies, this analysis suggests many further avenues to explore. Space permits only preliminary consideration of two of them.

First, does the processive design of Liuban obtain in related melodies? A good place to start examining this question is the Chaozhou version of Da Baban. The discussion of Example 1 highlighted some final-state similarities between these melodies, but a closer, processive analysis of the grouping refines the comparison considerably.

Like Liuban, Baban begins by presenting two parallel 8-beat groups, each articulated asymmetrically as 3+2+3 by a repeated ending rhythm. Processively, though, the sensation of beginning at b. 9 of Baban is somewhat weaker than in Liuban because its first five short groups all end on the tonic. Both melodies create a strong high-level group beginning through contrast at b. 17, but where Liuban starts to suggest symmetry (the two 4-beat groups in bb. 17–24), Baban continues with asymmetrical succession 2+4+2, the second group of which ends strongly to tonic, as the first short groups did. Only during bb. 25–32, which in Baban as well as in Liuban recall bb. 9–16, do the sensations of 8-beat grouping become the norm. Bb. 38–52 are identical in the two melodies, setting up the same conflicting grouping sensations at b. 53, via the aba group in bb. 33–40 followed by the thrice-four-beat ABA succession in bb. 41–52.

We have seen that Liuban achieves quite a special effect by reprising bb. 9–16 at b. 53, placing what one remembers as a clear 8-beat group into a context that calls that

experience into question. Baban proceeds very differently, but in a way that a processive description captures nicely. First it violently dispels any sense of eight, at b. 53, by presenting a completely new pitch succession that abruptly halts after two more beats (at b. 55) with the usual rhythmic ending. In performance, the ensemble always takes a brief phrase break at this moment (Thrasher, pers. comm.), disrupting grouping continuity. Reviving the pulse, b. 56 starts to reprise bb. 17–18 (* on Example 1), a strong high-level group beginning, but this contradicts the ongoing sensation that a large group began at b. 53. Most startlingly, from b. 59 onwards (**), the melody reprises bb. 42–52—that is, beginning with what was the middle of the first 4-beat group of a highly fluctuant passage. (As earlier, these retentions associate time spans of different durations. The five beats of 56–60 may be heard as recalling the four beats of 41–44, or the six beats of 17–22.) Because bb. 61–68 conclude with two clearly symmetrical 4-beat groups, we might retrospectively imagine that bb. 53–60 also comprised a continuous 8-beat group, divided as were the first groups asymmetrically into 3+2+3, but we can do so only in defiance of all the grouping sensations we remember experiencing during that passage.

It appears, then, that Baban, like Liuban, is designed to evoke fluctuating grouping functions, and to produce similar effects.

Another important research question arises from the fact that the *qupai* melodies are usually embellished and varied. For example, several notated “flowered” versions of Liuban exist, ranging from two to eight notes of melodic diminution for each of its quarter notes; their tempo is slowed proportionately to create a sense of “expansion”. Do these elaborations support the analysis I have conducted for Liuban itself, do they

interfere, or do they create a distinct but still purposeful and coherent succession of grouping sensations?

To begin to explore this question, Example 5 juxtaposes Liuban with a popular two-to-one expansion called “Lao Hua Liuban” (that is, “Old Flowered Six Beats”, henceforth LHL). Beat numbers (referring to the beats of Liuban itself, not those of the variation) are shown for orientation, and alphabetical labels over grouping-function symbols indicate grouping processes, as in previous examples. Circled numbers are keyed to the following discussion of interesting similarities and differences in the grouping processes.

Example 5. Some grouping processes in Lao Hua Liuban (top staff), with Liuban (bottom staff) for reference

The image displays a musical score for Example 5, comparing Lao Hua Liuban (top staff) with Liuban (bottom staff) for reference. The score is organized into four systems, each with a treble and bass staff. The top staff (Lao Hua Liuban) features circled numbers 1 through 10 and various annotations including Greek letters (α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, Ω), circled numbers (1, 2, 3, 4, 5, 6, 7, 8, 9, 10), and terms like 'leapt', 'step', 'sequencel', 'cf. b. 14', and 'identical rhythm'. The bottom staff (Liuban) includes circled numbers 1 through 10 and terms like 'step', 'cf.', and 'T:(δ)', 'T:(ε)'. The score is annotated with various symbols and numbers to indicate grouping processes and similarities/differences between the two pieces.

1. LHL affirms the parallelism of Liuban's bb. 9–16 to bb. 1–8 with an exact repetition of the entire rhythm and an exact repetition of the pitch sequence of bb. 1–5 in bb. 9–13. The beginning function of b. 9 is strengthened by the first recurrence of the distinctive rhythmic/interval motive of b. 1. In the original the parallelism ceases at b. 14 (which differs from b. 6), but see comment 5 below.
2. LHL usually elaborates each pitch of Liuban with a step-neighbor pitch within the pentatonic collection. Sometimes, as in the middle of beat 2, the elaboration enhances continuity by filling in a leap with a passing tone, but at other moments, such as going into beat 2 and again into beat 3, it creates a larger leap, which tends to increase discontinuity.
3. The first two beats are elaborated by distinct rhythms, labeled a and b on Example 5, which immediately repeat in bb. 3–4. The parallelism, strengthened by the inversional relation of the pitch sequences set to rhythm a, creates a clear beginning at b. 3, and creates a sensation of continuity at b. 4 of LHL, thus contradicting the grouping functions of the original at those moments.
4. Given the past repetition, the rhythm b during b. 4 carries the protension that rhythm a, and the beginning of a new 4-beat group, will ensue at b. 5. Instead, there appears a transposition of the pitches of b. 4 in the rhythm of b, implying a continuation of higher-level grouping.
5. All the pitches in b. 1–5 of Liuban appear in the corresponding groups of LHL, but the a-rhythm here does not include either pitch of b. 6. The purpose of this deviation is not apparent until it exactly repeats b. 14, when we realize that it does include the corresponding pitches of Liuban (b. 6 and b. 14 of Liuban differ). The deviation at b. 6 thus allows the parallelism of bb. 1–5 and 9–13 to extend for a beat and a half longer than in the original melody—almost to the very end of the higher-level group.
6. Actual notated rests, nonexistent in Liuban, articulate clear endings for the parallel 8-beat groups opening LHL.

The net effect of these particular elaborations of bb. 1–16, then, is to reinforce the definition of 8-beat groups—their beginnings, ends, and continuity strengthened by parallelism—and to downplay their asymmetrical subdivisions. This effect seems

purposeful in light of the subsequent elaborations in LHL, which exaggerate the disruptive grouping fluctuations of the corresponding beats of Liuban.

At b. 17, the recurrence of rhythm *a* suggests the beginning of a higher-level group. In Liuban, the parallelism of bb. 19 and 17 helps create a symmetrical 4-beat group, but in LHL, b. 19 repeats the novel rhythm (*g*) of b. 18, thwarting symmetry and making the rest in LHL's b. 20 more jarring. The rather wandering, even-eighth rhythms of LHL's bb. 21–23 deny the parallelism that their source notes in Liuban have with bb. 17–19. This throws higher-level continuity into doubt.

In Liuban, starting just after b. 25, parallelisms with bb. 1–8 and 9–16 create the sensation of an 8-beat group from 25–32. Indeed b. 32 in Liuban stands out as the moment of clearest high-level grouping articulation. But although LHL faithfully reproduces the corresponding Liuban pitches, its elaborations create very different grouping sensations:

7. First of all, b. 25 does not reproduce the rhythmic motive *a* that has begun every previous 8-beat group.
8. At b. 27, LHL introduces a new way of elaborating Liuban's quarter notes, with an eighth-note anacrusis to the next short group. This elaboration appears at every lowest-level group ending until b. 40. This focuses attention purely on the lowest level groups, and in particular thwarts the sense of higher-level ending at b. 32.
9. In Liuban, the recall of b. 13 and 15 by the events of bb. 29 and 31 was critical in establishing the parallelism of bb. 25–32 and 9–15. But LHL elaborates the later events differently than the earlier events, erasing the parallelism and its associated grouping sensations.
10. Even more destructive of higher-level articulation at b. 32 is the pentatonic transposition of motives, annotated above of the score, from bb. 30–32 and 33–35. Retrospectively at b. 35, b. 32 sounds as if it is in the middle of a sequential process, not at all articulative of a high-level group. Any lingering memory the listener might have of the sensations of this moment in the original melody is powerfully dispelled.

After the clear ending at b. 40, the remainder of LHL hews closely to Liuban, creating similar sensations of fluctuation, especially at b. 53, as I have described above. But overall the grouping functions flow rather differently. Liuban establishes the sensations of 8-beat groups somewhat tentatively in bb. 1–16, together with varying, asymmetric short groups, and continues to affirm 8-beat articulation to some degree to at least b. 49. In contrast the elaborations of LHL establish the 8-beat groups of bb. 1–16 more unambiguously, but dissolve them more rapidly thereafter.

Scholars of Chinese melody agree that these “flowering” techniques are absolutely central to its practice and aesthetic meaning. But studies of these techniques have hardly begun. Analyses of grouping like those presented here may be one way of understanding why and when certain elaborations are used.

In conclusion, I touch upon a methodological issue that affects every attempt, like this one, to understand music outside the analyst’s own culture. I hesitate to claim that Chinese musicians conceive of Liuban processively, or that that the analytical technique that I use to describe grouping formation captures all aspects of Liuban’s identity. What I do claim is that when I listen to the melody according to these principles, many of its features (as I describe them) that otherwise seem arbitrary and unconnected to me instead seem focused towards achieving a specific rhythmic effect that other melodies do not achieve. In this view, the durations, symmetries, and parallelism, and the manifestations of 8 contribute to that effect, apart from allusions they make to Chinese metaphysics. Liuban by this account becomes special to me, and I intend my analysis to persuade interested listeners to hear something special in it as well.

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