

BEATLES 2000

HAPPINESS IS ... A GOOD TRANSCRIPTION

**Shortcomings in the Sheet Music Publications in the
Music of the Beatles (1967-68)**

Licentiate Thesis
May 31, 2001
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JYVÄSKYLÄN YLIOPISTO

Tiedekunta

Humanistinen

Laitos

Musiikkitiede

Tekijä

Koskimäki Jouni

Työn nimi

Happiness is ... a Good Transcription –
Shortcomings in the Sheet Music Publications
in the Music of the Beatles (1967-68)

Oppiaine

Musiikkitiede

Työn laji

Lisensiaatintutkimus

Aika

Kevät 2001

Sivumäärä

115 + liitteet: transkriptiot (51 s) & CD

Tiivistelmä – Abstract

The thesis consists of four articles written during 1998-2001, a resume, and four appendices (3 full score transcriptions and a CD). There are three main topics in the study: a) how the available sheet music publications have succeeded in transcribing the music of the Beatles, b) what the main problems are in making a good transcription, and c) how the music of the Beatles has been arranged, especially from the variation point of view. Both sheet music publications and arrangements are neglected themes in popular music research. In spite of the huge amount of Beatles literature published, there are no previous studies on these topics. The lack of relevant studies was one of the key motivations for carrying out this research project.

Due to the large number of songs the Beatles has released on records and the huge amount of sheet music publications of them, the research was carried out as a series of case studies. As for comparison of sheet music publications, the following two songs were chosen: 'Happiness Is A Warm Gun' (since its rhythmic complexity) and 'Lucy In The Sky With Diamonds' (since its harmonic complexity). 'Cry Baby Cry' was the song chosen for the study arrangement. Since it appeared that there were no reliable sheet music publications of the case songs, the only solution was to start with making new transcriptions. During the making of the transcription, a new method was discovered, which involves the simultaneous use of the record and the notation software. This method proved to be a great help in the making of the transcriptions. The analysis of sheet music publications showed that a great deal of them lack reliability and certainly leave a lot to be desired. The results also suggest that variation was surely one of the key principles in the arrangements of the Beatles, at least as far as the years 1967-68 are considered. Because of copyright reasons, the appendices consisting of the full scores of the three songs ('Cry Baby Cry', 'Happiness Is A Warm Gun', 'Lucy In The Sky With Diamonds') are not included in the Internet version of the thesis. The same is true of the CD, which can be listened to only in those locations where the paper version is available.

Asiasanat

The Beatles, Transcription, Sheet Music Publication, Arrangement, Variation, Rhythm, Harmony

Säilytyspaikka

Jyväskylän yliopiston kirjasto, Jyväskylän yliopiston musiikkitieteen laitos

Tiivistelmä suomeksi

Lisensiaatintyö käsittää neljä vuosina 1998-2001 kirjoitettua artikkelia, näiden yhteenvedon sekä 4 liitettä (3 transkriptiota ja 1 CD-äänite). Tutkimuksessa on kolme pääongelmaa: (a) kuinka levyiltä kuultava musiikki on onnistuttu transkriptoimaan saatavissa olevissa nuottijulkaisuissa, (b) minkälainen problematiikka liittyy hyvän transkription tekemiseen ja (c) miten Beatlesin kappaleet on sovitettu erityisesti variaation kannalta. Sekä nuottijulkaisut että sovitukset ovat olleet lähes koskemattomia aiheita populaarimusiikin tutkimuksessa.

Huolimatta Beatles-kirjallisuuden huomattavan suuresta määrästä aiheesta ei juuri ole aikaisempia tutkimuksia. Olemassa olevien tutkimusten puute olikin yksi tämän tutkimuksen suorittamisen tärkeimmistä syistä. Beatlesien julkaisemien kappaleiden sekä näiden nuottijulkaisujen suuresta määrästä johtuen tutkimusasetelmaksi oli perusteltua valita joukko tapausanalyysseja. Nuottijulkaisujen vertailukappaleiksi valittiin 'Happiness Is A Warm Gun' (perusteena kappaleen rytminen kompleksisuus) ja 'Lucy In The Sky With Diamonds' (perusteena laulun tonaalinen moniselitteisyys). Sovitusten variaation tutkimisen kohteena oli 'Cry Baby Cry'.

Koska saatavilla ei ollut yhtään luotettavia ja/tai riittävän tarkkoja transkriptiota kyseisistä kappaleista, ainoaksi mahdollisuudeksi jäi omien transkriptioiden tekeminen. Transkriptiotyön yhteydessä kehittyi uusi menetelmä, joka perustui äänilevyn ja tietokoneen notaatio-ohjelman nuotinnoksen yhtäaikaikaiseen kuuntelemiseen. Menetelmä osottautui erinomaiseksi transkription tekemisen apuvälineeksi.

Nuottijulkaisujen analyysi osoitti yksiselitteisesti, että suuri osa julkaistuista transkriptioista oli epäluotettavia ja jätti paljon toivomisen varaa – tutkituissa julkaisuissa oli vain vähän hyviä transkriptioita. Tulosten perusteella näyttää myös selkeästi siltä, että variaatio oli yksi Beatles-yhtyeen sovitusten keskeisistä periaatteista – ainakin vuosien 1967-68 kohdalla.

Tekijänoikeudellisista syistä kolmen liitteenä olevan kappaleen ('Cry Baby Cry', 'Happiness Is A Warm Gun' & 'Lucy In The Sky With Diamonds') full score –transkriptiota ei ole voitu julkaista lisensiaatintyön verkkoversiossa. Samoin liitteenä oleva CD on saatavana ainoastaan työn säilytyspaikoissa.

CONTEST

HAPPINESS IS...A GOOD TRANSCRIPTION – Shortcomings in the Sheet Music Publications in the Music of the Beatles (1967-68)

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STUDY II: HAPPINESS IS... A GOOD TRANSCRIPTION – Shortcomings
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HAPPINESS IS ... A GOOD TRANSCRIPTION

Shortcomings in the Sheet Music Publications in the Music of the Beatles (1967-68)

Jouni Koskimäki

INTRODUCTION

My research began as a study of variation in the arrangement of 'Cry Baby Cry' (released on *The Beatles* in 1968). Being myself a composer and arranger, studying arrangement felt close to me and so I chose it as the main topic of my research. The case study ('Cry Baby Cry') was chosen partly accidentally, partly since I discovered that there is lot of variation in the arrangement of the song to study. My first plan was to explore all main aspects of variation in this song. However, this task appeared to be beyond the scope of the article I was writing. So it was decided, together with co-author Yrjö Heinonen, to concentrate "only" on form, scoring, and mixing. However, due to the problems and shortcomings in existing sheet music publications, I realized that I should also take two other aspects closely related the study of arrangements into account: namely *transcription* and *sheet music publications*. These issues became quite quickly the focal point of my study. I realized that it is not possible to make accurate transcriptions without first exploring the principles, common shortcomings, and methods of *transcription*.

This course of study is apparent in the following four articles, on which the licentiate thesis is based:

- ❖ Study I: Variation as the Key Principle of Arrangement in 'Cry baby Cry' (Koskimäki & Heinonen 1998);
- ❖ Study II: HAPPINESS IS ... A GOOD TRANSCRIPTION; Shortcomings in Sheet Music Publications of 'Happiness Is A Warm Gun' (Koskimäki 2000);
- ❖ Study III: Variation as the Key Principle in the Vocal Parts of 'Cry Baby Cry' (Koskimäki 2001a);
- ❖ Study IV: IMPERFECT HARMONY; Problems in Selected Sheet Music Publications of 'Lucy In The Sky with Diamonds' (Koskimäki 2001b).

The need for this research and the way how these studies are related to each other can be shown as follows. Arrangements, transcriptions, and sheet music publications are neglected topics in popular music. Even the basic terminology concerning these topics is confusing. Partly because of this, this research has been carried out through explorative case studies. All cases are from the years 1967-68. The main reason for choosing this time period was the fact that during those years the music of the Beatles was at the peak of its experimenting (and somehow also in complexity). The songs of this period provide a challenging task for the study of transcriptions and sheet music publications as well as the arrangements itself. Two studies (I and III) deal with variation as the key principle of arrangement in 'Cry Baby Cry'. In three of the studies (I, II, and IV), transcription is an important topic. Two studies (II and IV) involve comparison between different sheet music publications. The following summary comprises a more detailed discussion concerning these issues.

BASIC CONCEPTS AND RELATIONS BETWEEN THEM

General definitions

The common meaning of 'arrangement' coincides with the common meaning of 'transcription' in the context of Western art music. The Collins Pocket Dictionary of Music (1982,513) says simply: "transcription, same as arrangement". Although some of the meanings of the two terms are synonymous, they also have specific different meanings, which clearly distinguish them from each other. In the presented research here those two terms are separated. In the context of Western art music, arrangement has at least the following four meaning:

- ❖ rearrangement of the basic and unchanging components of music (for example from one music genre/style to another or from one line-up to another)
- ❖ music based on or incorporating pre-existing materials
- ❖ elaboration (or simplification) of a piece, with or without a change of medium
- ❖ transference of a composition from one medium to another

In the first case, the meaning of 'arrangement' coincides very much with that of 'composing', whereas the second meaning refers to specific compositional techniques such as variation, pasticcio, potpourri etc. (all widely used in Western culture). The third and fourth senses coincide with the common meaning of transcription although some degree of recomposition is involved in each case (see for example Boyd 2000) In popular music, the term 'arrangement' is understood much in the same sense as in art music. For example, *The New Grove Dictionary of Jazz* defines 'arrangement' as the

reworking or recomposing of a musical composition or some part of it for a medium or ensemble other than that of the original" (Schuller 1988, 33).

In general, transcription is a subcategory of notation. The most common meanings of the term 'transcription' include three basic elements (see for example Ellingson 2000):

- ❖ a copy of a musical work, usually with some change in notation;
- ❖ writing down of music from a live or recorded performance;
- ❖ an arrangement, especially one involving a change of medium

The first meaning refers primarily to copying manuscripts of early music with or without simultaneously changing the notation. The second element of transcription is especially widely used in traditional and popular music. This is also the very sense in which the term is to be understood in my study (it is a part of the methodology of the study, too). The third meaning coincides with the common meaning of the term 'arrangement' and is not relevant in my study.

In popular music the sheet music publications can be divided in five different categories:

- ❖ sheet music editions (mainly the vocal/piano format)
- ❖ lead sheet editions (lead vocal with chord symbols)
- ❖ full score editions (all or most of the parts)
- ❖ editions containing transcriptions of an instrumental part
- ❖ simplified editions (also called easy editions)

In popular music published sheet music falls mostly into the first two categories. A lead sheet typically presents the melody, lyrics (if any), and chords (shown by symbols). Some additional information – cues for essential accompanying figures and elements of arrangement – may also be included. The sheet music format comprises usually three staves: the uppermost shows the melody, lyrics, and chord symbols, whereas the lower two include a fully-written out piano arrangement. Another type comprises two staves: this type does not have separate vocal staff. Full scores leaving no room at all for improvisation are rare.

Arrangement and transcription as a means of popular music production and distribution

In sociologically oriented popular music research (for example Frith) popular music is usually defined in terms of its production and consumption. According to Frith (1981, 89-129), the production of popular music relies on what he called a gatekeeper system and it is this system that determines which acts reach the audience (that is, the consumers). Frith (1981) lists the most

important gatekeepers and describes their function in the production and distribution process as follows.

- ❖ A & R men decide which musician to record and which records to issue and promote
- ❖ agents & concert promoters decide which performance to present live
- ❖ music journalists decide what acts to report and write
- ❖ the program directors and disc jockeys of radio and TV stations decide which records to broadcast
- ❖ record store owners decide which products to stock

Although the significance of the gatekeeper system has decreased after the breakthrough of the Internet, it still has a rather strong impact on the whole popular music culture. The notion of popular music production as a gatekeeper system has also been criticized, for example by Keith Negus (1992) who maintains the importance of personal relations and team work, and by Yrjö Heinonen who has studied the importance of these aspects particularly with respect to the songwriting and recording process of the Beatles (Heinonen 1995 and 1998; Heinonen and Eerola 2000).

Arranging has a special position in popular music production. According to Heinonen, the songwriting and recording process of the Beatles consist of five main stages as follows (Heinonen 1995, Heinonen & Eerola 1998):

- ❖ songwriting
- ❖ arranging
- ❖ recording
- ❖ mixing
- ❖ releasing

Usually the order of the stages was as described on the list, but they almost always overlapped to some degree. Typically the process returned to a previous stage before proceeding further. On the other hand, individual stages were often linked with each other in different ways. Usually the songwriting was more clearly separable from the recording process, which, in turn, was more clearly separable from the releasing process. Commonly arranging was then more closely linked to recording than to songwriting and mixing was more closely linked to releasing than to recording (see a more detailed description of that process in Heinonen & Eerola 1998, 7-12).

In popular music, musicians do not usually play from notated transcriptions but use so-called head arrangements. Schuller defines the term as follows:

"such 'arrangements' are generally not written down (though in some cases they are partially written or sketched out in notation) but are assembled instead from ideas (as it were, out of heads) of an entire band or perhaps some of its leading members" (Schuller 1988,33). 'Head arrangement' as

defined above, is for example one of the leading method in arrangement of the Beatles (as well the most common practice in popular music in general).

Sheet music publications, in turn, are part of the distribution of the music. The gatekeeper system also works in the music publishing business. At least the following gatekeepers may be listed:

- ❖ publishing rights owners decide which publisher to give the publishing rights
- ❖ publishers decide which songs to transcribe, which sheet music format to use, who are the transcribers that do the work, and to which audience the publication is addressed
- ❖ key persons of music store and bookstore owners, as well as libraries, decide which publications to stock

Although arranging usually takes place in a relatively early stage of production and the sheet music transcription is usually made after the release of the finished products, different sheet music formats seem to be related to different stages in the production process. It may be argued that the lead sheet format is related to the song itself (consisting of melody, lyrics, chords), which allows various different arrangements. The full score format, in turn, ideally presents one single performance (recorded or live) of that song in as accurately as possible. The sheet music format seems to be something in between. It usually includes some arrangemental ideas that remain unvaried from one performance to another but still leaves much room for variation.¹ So, there are plenty of reasons to examine these two activities in the same study.

ON MAKING A GOOD TRANSCRIPTION OF POPULAR MUSIC

basic principles

Firstly, it should be remembered that no transcription of any musical piece can ever be totally complete. It is simply impossible to translate *all* the information included in one musical performance into a visual representation. For example, there is no effective, accurate and objective way or tools to transcribe and notate *sound*. Even in the music of a simple line-up (and music that seems to be simple music, like solo singing) the information would easily increase in complexity and – although there were an accurate way to present this information – the transcription would be too complex to read and comprehend. Another essential issue is that the results of (almost) all transcriptions are highly *subjective*: for example comparison between transcriptions of the same music by different transcribers explores clearly individual difference and subjectivity (see for example Ellingson, 2000)

¹ I wish to thank Yrjö Heinonen for pointing my attention to these similarities between the sheet music formats and the stages in the production process.

It is yet possible to make a good and clear transcription, even though there are surely limits in every notation systems. Using the following three principles as guidelines helps a lot in this task:

- ❖ the transcription should always *make the organization of music as clear as possible* – it should make it easier to comprehend and perform;
- ❖ transcriptions may have different functions and *the level of details vary according to its function* – in any case, the transcriber should *make the purpose of his or her transcription explicit at the outset*; the essential question is: how much detail it is necessary and reasonable to notate?
- ❖ the transcriber should *trust his or her own ears* – a *trained ear* can (*with a little help of technology*) figure out and select information even from a very complex texture.

Beside popular music research, transcription is an essential tool in ethnomusicology. In ethnomusicological transcription, music is written down from a live or recorded performance, or is transferred from sound to a written form by using different kinds of electronic or mechanical tools. Over the last couple of decades, this has been increasingly done by with the help of computers. The ethnomusicological tradition of making transcriptions has quite a long history: the method and terminology stems from the work at the turn of the 20th century by key figures such as Ellis, Stumpf, and Hornbostel.² More detailed information about the history and development of transcriptional work among the musicologist see the anthology of articles in Kaufman Shelemay (1990).

During the last two decades 'the first solution' by Mantle Hood (see footnote 2), using the traditional notations of different cultures (instead of Western standard system) has increased among the transcribers. For example the Javanese number notation has gradually replaced the Western notation transcriptions (e.g. Becker and Becker, 1981, and Sutton, 1985). African music began to generate new transcriptional alternatives, such as the inventions by Simha Aron in the eighties and nineties. Also other new transcriptional alternatives were explored in the late 20th century. Rather than exhaustively trying to notate all musical information and features of musical sound, the

² Later two key researcher in ethnomusicology, Charles Seeger and Mantle Hood, have developed the methodology of transcriptional work in their innovative studies. Seeger (1958, 184-195) distinguished between prescriptive and descriptive transcription and Hood (1971, 50-196) developed the methodological basis further in his proposal of "three solutions": (1) adaptation of traditional notations of various cultures to their own musics, (2) use of melograph (electronic instrument invented by Seeger), and (3) development of musical equivalent of Labanotation (a method for write down the dance).

transcription attempts to acoustically embody the musical concepts that are essential to the each music-culture. Many different types of this kind of new notational solutions (especially graph notations) have been produced since the late fifties. Some ethnomusicologists are experimenting even with non-print forms, as computerized animation from a sound to a film and video (for example Hugo Zempf, see more from www.grovemusic.com/transcription).

With respect to popular music, the making of transcriptions has been increasingly computer-based. During the last decade some computer software for automatic transcription of music have appeared on the market. Some of them have been intended for scientific study as well as for commercial applications (see Study II and Klapuri 2000). One recently published and highly developed transcription software is 'Transkriber'. Although many of above mentioned softwares are capable of reproducing pitches and time-values very accurately, they cannot analyze the rhythmic organization of music well enough. That is: they cannot represent the music as it is perceived and performed by humans. Moreover, the end result depends too much on how well the defaults – which are determined by the user – suit to the music to be transcribed. So, in the end, it is the musical competence of the transcriber that counts, instead of the properties of the software. Another recent tool, especially in the commercial market, is the use the Internet, which seems to have many promising possibilities: there are, for example, hundreds of transcriptional services worldwide. In practice, this often means that you can order your favorite (popular) music transcribed to standard notation by professional transcribers.

problems and solutions

In trying to make a good transcription there are a lot of shortcomings. Each musical parameter seems to provide a whole bunch of different problems for the transcriber (as for rhythm, see Study II; as for harmony, see Study III). Many of these problems are related to how the music has been recorded and/or how it is and can be perceived. Firstly, in some cases it may be very difficult to separate different instruments. For example, in old mono recordings only the middle-range frequencies may be present and there is usually a lot of disturbing noise too (this is, of course, due to the limited recording technology of that time). Secondly, the human ear and brain are not always reliable – it is, for example, amazing how differently even the same person may hear and comprehend the same musical information in different moods and/or on different days. Another common problem is that, after a long transcription-work without a rest and break, the human ear easily gets tired and lost. Thirdly, the way human memory works has its effect on how music can be perceived and – since transcription is based on perception – how it can be transcribed (see Study III). Indeed, the list of problems in transcription is so long that there seems to be more shortcomings than solutions!

Some words about the methods of transcription used in this study. Firstly, the skill of making an accurate transcription is similar to other musical skills in that the more you transcribe and rehearse it, the more and better you can do it. This is the old "learning by doing" principle. One good way of making and testing the transcription is to play or sing along with the source. It is relatively easy to notice when the playing is the same as on source (as easy when it is not the same!). There are, of course, quite a lot of helpful methods, special arrangements, and tricks in transcribing. In Study I, I have explored six different methods of making at least a reasonably accurate transcription. The main method used in this study was based on my own discovery of how to use simultaneously the source and notation software (the details are explained in Study I).

SUMMARIES OF THE ARTICLES

Study I: Variation as the Key Principle of Arrangement in 'Cry baby Cry'

Study I was written together with Yrjö Heinonen. The starting point was originally to explore the amount and means of variation a means of arrangement in the music of the Beatles. Because of the lack of previous research on this topic, it was decided to perform an explorative case study in order to get a broader picture of this particular research area. John Lennon's 'Cry Baby Cry' was chosen as the song to study. The study itself was carried out mainly by me: I chose the case-song, outlined the design of the study, made the transcription and performed the analysis. Heinonen wrote the theoretical framework and interpreted my analysis within this framework.

The primary source of the study was the official CD release of the song. It appeared that none of the existing sheet music transcriptions (including the only full score) was not reliable enough. So I decided to make a full score transcription of my own (Appendix 1). The key method in making this transcription was the simultaneous use of MIDI information of the notation software and the record itself. There were three aspects of variation that were examined more closely: form (the order and the length of the sections), scoring (number of individual parts and texture) and mixing (balance, sense of closeness or distance, and panning).

The study showed that the principle of ever changing variation is the very core idea of the arrangement and construction of 'Cry Baby Cry'. It seems also safe enough to conclude that the principle of variation (in form, scoring and mixing) was intentionally used. Another important discovery was that the only existing full score, Beatles Complete Scores (1989), is not at all reliable. So, if one wishes to study the subtleties of the arrangements, the first task to do is to make an own transcription.

Study II: HAPPINESS IS ... A GOOD TRANSCRIPTION - Shortcomings in the Sheet Music Publications of 'Happiness Is A Warm Gun'

The aim of Study II was to analyze how accurately the music and especially the rhythm has been transcribed in different sheet music publications of 'Happiness Is A Warm Gun'. This song was chosen as the case because of its rhythmical complexity. Another aim was to explore the problems in making a good transcription, especially of rhythmically complex music.

The basic procedure of the study was to compare a selection of published sheet music representations of the song to the actual recording. Gathering of a representative selection of published transcriptions was not an easy task due to the enormous quantity of publications available. The eligibility of the selection was determined by choosing some of the best known publications, examples representing different publication formats, and editions from different time periods (from seventies to the mid-nineties). The transcriptions were compared to the CD release of the song and to my own transcription (Appendix 2).

The analysis of the editions showed clearly that the making a good transcription of rhythmically complex music is rather difficult task to undertake. Most of the publications in the selection were simply illogical, hard to read, and more or less full of mistakes. It is safe to say that the average quality of the transcriptions are but little more than fair (listen to Examples 9 – 15 from Appendix-CD). Unfortunately, the poor state of the sheet music transcriptions of the Beatles probably reflects the overall state of popular music publications

Study III: Variation as the Key Principle in the Vocal Parts of 'Cry Baby Cry'

Study III was a follow-up of Study I. The aim was to illustrate, from the point of view of variation, how the vocal parts of 'Cry baby Cry' have been arranged. In this study, variation was examined with respect to three levels: surface level (motifs, phrases), intermediate level (sections), and deep level (whole song). The procedure included the qualitative and quantitative analysis of the song from the CD release and the transcription originally made for Study I (listen to Examples 1 – 8 from Appendix-CD).

In the qualitative analysis, I paid special attention to the following aspects: transformation of motives, phrase structure, types of vocal texture, textural density, and mixing. In the quantitative analysis, I concentrated on how variation takes place regarding the frequency (number of changes) and density. The following three aspects were taken into account in the

quantitative analysis: (1) the number of voices, (2) the volume of the double-tracked lead vocal, and (3) the degree of melodic and rhythmic variation. The quantification was carried out in two stages. During a preliminary stage, I estimated a numerical value for each bar of the song by using ad hoc scales consisting of integers. In the second stage I transformed these ad hoc values into relative values and calculated their averages. I suggest that these average values may be taken as a rough indicator of the changes in the degree of variation in 'Cry Baby Cry'.

A close analysis of the vocal parts of 'Cry Baby Cry' shows that variation is really the key principle of arranging these parts. Some surface level variations in the song are so minor that they are hardly or not at all perceivable by listening. This is apparently due to how human memory works. It is simply impossible to remember variations concerning minor details if there is remarkable temporal distance between corresponding events (that is, some 10-15 seconds) and if there are also at the same time a great variety of intervening events. In the case-song the temporal distance between corresponding events is about 30 seconds.

Although some of these surface level variations are obviously results of spontaneous improvisation, it is apparent that many other variations were intentionally planned. A good example of this is the gradual increase of density. It is very difficult to believe that such a highly structured development could be a result of spontaneous improvisation. It may be claimed that listeners in general become aware of this deep level pattern after careful listening to the song. It is, however, impossible _ or, at least, extremely difficult _ to analyze by listening exactly what the variations are and how they are carried out. This can be done only with a help of a detailed and accurate transcription and analysis.

Study IV: IMPERFECT HARMONY – Problems in the Sheet Music Publications of 'Lucy In The Sky with Diamonds'

In Study IV, the aim was to explore how accurately selected sheet music publications present the complex and ambiguous harmony of 'Lucy In The Sky With Diamonds'. The case-song was chosen on the grounds of its obvious tonal ambiguity. The procedure was basically the same as in Study II, with the exception of studying the harmony instead of rhythm. Once again, the analysis was based on the CD release and a transcription of my own (Appendix 3). Harmony was examined with respect to large dimensions (tonal and textural plan), middle dimensions (modulations, texture types), and small dimensions (chords and non-chordal events). Attention was paid especially to the use of key signatures and accidentals, most significant vocal and instrumental parts, and chord symbols and guitar diagrams.

In the majority of the studied publications the key signatures were illogical and confusing. One publication even changed the entire tonal plan of the song (suggesting I – II – VII instead of I – bII – bVII). Three publications used key signatures logically, although two of them preferred the "tonal" signatures while one preferred the "modal" signature. None of the publications presented the chord symbols accurately. There were also textural shortcomings in all publications although in a couple of cases the texture was arranged for sheet music format quite well. In the only full score publication there are some shortcomings that are very difficult to understand; for example the tamboura part is missing altogether.

This study supported strongly the results of Study II. Although the selection was small in both studies it seems safe enough to say that, in general, the sheet music publications of the Beatles lack reliability and certainly leaves a lot to be desired. Unfortunately this also holds true to the only existing "full score" transcription of all Beatles' songs. One positive thing is, however, that the worst publications seems to be rather old (approximately 20 years), whereas some recent publications are of very high quality. One huge task for the near future of the Beatles research would be the publication of a critical full score edition of the entire Beatles catalogue.

DISCUSSION

The research reported in this licentiate thesis began as a study of variation as a means of arrangement in the music of the Beatles but ended up with questions concerning transcription, especially with problems and shortcomings in it. This was because there were no reliable sheet music publications of the music available. In making my own transcriptions I realized that one cannot make accurate transcriptions without first exploring the principles of – as well as common shortcomings in – making a transcription.

Another issue that has become clearer during this study is that the functions of different sheet music formats differ remarkably from each other, as I have been said previously in this summary. The production process (especially arranging, recording, and mixing) has also its effect on both how easy or difficult it is to make the transcription and also what the end results will eventually be like. Just to give a simple example. If the recording and mixing is non-selective and muddy, also the making of the transcription will probably be difficult and the end result non-selective and inaccurate. If the arrangement is clear and balanced, also the making of the transcription will probably be easier and the end result clearer. One important aspect concerning the full score transcription that is relevant to remember: it presents only *one single performance* (recorded or live) as accurately as possible transcription. Other performances of the same piece may be highly different.

As for the end results of the transcriptional work, there is yet one aspect to add, which is perhaps the most important of them all: all transcriptions are necessarily subjective. A comparison between transcriptions of the same music by different transcribers explores clearly individual differences and subjectivity. In other words: one musical performance allows a great variety of transcriptional performances, and there is no objective way to determine which one is the best way to do it. In many cases it is also a question of taste, which happily differs among the human beings.

This does not mean that all transcriptions are equally good. The analysis of the different sheet publications of the Beatles has shown, so I hope, that a great deal of publications lack reliability and certainly leave a lot to be desired. One may assume that the same holds true, more-or-less, for all published popular sheet music. There are, however, promising signs that the quality of sheet music publications of the Beatles (and popular music in general) is increased during the last couple of years. So there is hope for a better future.

To conclude with some thoughts about the future of my study, I believe that the approach presented in this licentiate thesis, concerning the issues of transcription and arrangement, forms a sufficiently solid ground for further research. One relevant issue to add to the topics tackled in this thesis would be the exploration of the sheet music publication history of the Beatles – especially that of Northern Songs Ltd. (the publishing firm of the Beatles). Actually, this paper has already been in progress: it was briefly outlined in Koskimäki 1999 (*Musiikin suunta*) and will be published as an article in the near future.

However, in my forthcoming research I will probably concentrate more on the arrangements of the Beatles themselves and less on the theoretical and methodological questions related to the topic. I hope that this study has shown that variation really is the key principle of arrangement in the music of the Beatles during the period 1967-1968. It would be interesting to study whether this basic idea is characteristic of all style phases of the Beatles.

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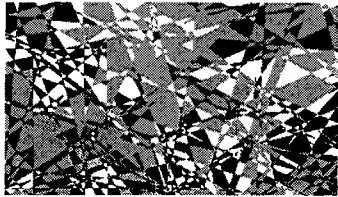
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STUDY I

VARIATION AS THE KEY PRINCIPLE OF ARRANGEMENT IN 'Cry Baby Cry'

Published in the year 1998 in *Beatlestudies 1: Songwriting, Recording and Style Change*. Edited by Yrjö Heinonen, Tuomas Eerola, Jouni Koskimäki, Terhi Nurmesjärvi & John Richardson. Jyväskylä: University of Jyväskylä, Department of Music. Research Reports 19.



BEATLES 2000

VARIATION AS THE KEY PRINCIPLE OF ARRANGEMENT IN 'Cry Baby Cry'

Jouni Koskimäki & Yrjö Heinonen

MOTTO: *We never did the same thing once...*

The motto of this paper, a quotation from Paul McCartney, reflects the endless urge of the Beatles for something new, different, and unknown. The same theme is repeated several times in 'Many Years From Now', by Barry Miles, based on interviews with McCartney:

"We always tried to make every song different because we figured, why write something like the last one? We've done that. We were always on a staircase to heaven, we were on a ladder so there was never any sense of stepping down a rung, or even of staying on the same rung, it was better to move one rung ahead. That's why we had strange drum sounds using tables and tops of packing cases. We'd say to Ringo, 'We heard that snare on the last song.' Whereas now, a drummer just sets up for a whole album, he keeps the same sound for his whole career! But we liked to be inventive. It seemed to us to be crucial to never do the same thing twice, in fact, as they do now, 'They never did the same thing once!' (Miles 1997, 38-39.)

McCartney's statement refers to making subsequent songs different to those that preceded them. One of the main purposes of this paper is to explore

whether this approach of “making every song different” is analogous to variations within one song, especially with respect to how it is arranged.

Arranging in popular music is an almost untouched research area. Even the basic terminology concerning the topic is confusing. Because of the lack of previous study on the topic, it was decided to perform an explorative case study in order to get a broader picture of this particular research area. Developing appropriate designs for study (including theoretical and methodological frameworks) is another main purpose of the article.

The study was carried out mainly by Koskimäki. All the crucial choices — the idea of concentrating on the arrangements, outlining the design of the study and the overall form of the article as well as writing the preliminary manuscript — were made by him. Further, the case — ‘Cry Baby Cry’ — was chosen by him, partly accidentally, partly because he discovered by listening that there was enough variation in the arrangement of the song to study. He also decided what aspects of the arrangement to study (form, scoring, mixing), made the transcription of the song, compared this transcription to existing ones, performed the analysis, and interpreted it from the point of view of a performing and recording musician, a lecturer in group playing and arranging, a songwriter-arranger in his own right. What was left to Heinonen, was to explore the relationships between the key concepts (variation, arranging) and some related concepts; to write sections concerning form and scoring from the theoretical point of view; to interpret Koskimäki’s analysis within this theoretical framework; and to make some editorial changes to the manuscript. The final version of the manuscript was edited in true collaboration *à la* Lennon-McCartney — that is, eyeball to eyeball.

THEORETICAL FOUNDATIONS

Variation as a fundamental form-building process in music

The most fundamental form-building process in music is based on a peculiar characteristic of the human psyche: the (automatic) habit of segmenting temporal information into meaningful units. To quote Robert E. Tyndall:

“A fundamental element in the structuring of a composition is the division of the work into a series of blocks or sections. These sections are separated in time, the primary dimension of music. All but the very shortest compositions consist of two or more sections, and the interrelationships between the material contained in these sections is a major factor in the organization of the work.” (Tyndall 1964, 1-2.)

The central activity in perceiving — as well as analyzing — music is comparison. By comparing the listener or analyst “determines the structural elements and discovers the functions of those elements” (Bent 1980, 342).

The central act of a listener or analyst is thus "the test for identity". This test involves two operations: "the measurement of amount of difference, or degree of similarity" (Bent 1980, 342).

"A second basic facet of musical design is the use of the technique of contrast and return. Since the temporal nature of music allows the listener to hear only one area of a composition at a time, and since the listener must hear these areas in a definite, prearranged order, the composer may introduce material, move on to new and contrasting material, and then return to the material that was presented first. This creates the effect of motion and of a final return to the point of departure." (Tyndall 1964, 2.)

Actually there are three fundamental form-building processes in music: recurrence (AA), contrast (AB), and variation (AA'). (Bent 1980, 374) Tyndall (1964) has distinguished the following three basic techniques for creating a multisectional piece from a few basic musical ideas:

- ❖ recapitulating material after an intervening contrast
- ❖ developing previously presented themes or motives
- ❖ varying previously presented segments or sections

The first technique combines recapitulation and contrast, whereas the latter two techniques may be considered as different means of variation (or transformation). The difference between development and variation is a slippery one, as is obvious in the following quotation from Tyndall:

"The sections within a piece of music may be divided into two very basic types — those which are essentially engaged in the presentation of material, and those that are engaged in developing material that has been previously presented. The process of development consists of taking a musical idea previously presented and varying it and altering its treatment to create a new passage." (Tyndall 1964, 39.)

Tyndall goes on defining the technique of developing already presented material as follows: "A very basic factor in this technique is that of drawing from a previous melody a basic motive and creating a new passage, often extensive, dominated by this motive." (Tyndall 1964, 39.) This definition comes very near to the following definition of variation form given in Grove (variations):

"A form in which successive statements of a theme are altered or presented in altered settings. The theme may range in length from a short melodic motif or harmonic scheme to a complete melody of one or more strains." (Fischer & Griffiths 1980, 536.)

Collins Pocket Dictionary of Music defines variation as a "process of modifying theme, figure or passage so that the resulting product is recognizably derived from original." The definition continues as follows:

"Basic elements to be found in series of variations are: variation of melody; variation of figuration or texture; variation of rhythm; variation of tonality (e.g.

minor for major or vice versa); and variation of harmony. Any or all of these may be combined in same variation." (Collins 1982, 531.)

Also here the lack of a clear-cut distinction is acknowledged: "In more general sense, DEVELOPMENT of theme(s) consists in realizing possibilities inherent in material and so is itself a form of variation" (Collins 1982, 531).

Arrangement and related concepts

The most common meaning of 'arrangement' coincides with the most common meaning of 'transcription' in the context of Western art music. The Collins Pocket Dictionary of Music (1982, 513) puts it bluntly: "transcription, same as arrangement". Although some of the meanings of the two terms are synonymous, they also have some specific meanings distinguishing them clearly from each other. Here is a closer look at the differences.

Transcription

The most common meanings of the term 'transcription' include

- ❖ a copy of a musical work, usually with some change in notation
- ❖ writing down of music from a live or recorded performance
- ❖ an arrangement, especially one involving a change of medium.

The first meaning refers primarily to copying manuscripts of early music with or without simultaneously changing the notation (for example from tablature to staff notation). Transcription in the second sense is an essential part of the methodology of ethnomusicology and popular music studies and is also the very sense in which the term is to be understood here (it is a part of the methodology of this study, too). The third meaning coincides with the most common meaning of the term 'arrangement' and is not relevant in this context.

Arrangement

The common meaning of the term 'arrangement' refers, according to New Grove Dictionary of Music and Musicians (1980, 117) to the "reworking of a musical composition, usually for a different medium from that of the original". The main meanings of the word include

- ❖ rearrangement of the basic and unchanging components of music
- ❖ music based on or incorporating pre-existing material
- ❖ transference of a composition from one medium to another or the elaboration (or simplification) of a piece, with or without a change of medium.

In the first case, 'arranging' coincides with 'composing', at least as far as composing is considered to be rearranging the "basic and unchanging components of music". The second case refers to specific compositional techniques such as variation, pasticcio, paraphrase, potpourri, all widely used in Western culture as well as other musical cultures. The third sense of the word coincides, of course, with the common meaning of 'transcription'. Some degree of recomposition is involved in each case. The result may vary from almost literal transcription to a paraphrase, which may be more the work of the arranger than the original composer.

In popular music, the term 'arrangement' is understood much in the same sense as in art music. The New Grove Dictionary of Jazz defines the common meaning of 'arrangement' as the "reworking or recomposing of a musical composition or some part of it (such as the melody) for a medium or ensemble other than that of the original; also the resulting version of the piece" (Schuller 1988, 32).

Again, a broad and a narrow sense of the term can be found. In a broad sense, "all jazz performance, insofar as it is improvised and constantly renewed, constitutes a form of arranging; that is, the performers rearrange the basic material in ever new variations and forms" (Schuller 1988, 32-33). In a narrower sense an arrangement is "a written-down, fixed, often printed and published version of a composition, usually arranged for one of the various standard jazz ensembles (jazz orchestra, big band, small group, etc.)" (Schuller 1988, 33).

However, in popular music — especially in jazz, rock, and related genres — there is a specific sense of the word not common in art music. This sense refers to what is known as a 'head arrangement'.

"Such 'arrangements' are generally not written down (though in some cases they are partially written or sketched out in notation) but are assembled instead from the ideas (as it were, out of the heads) of an entire band or perhaps some of its leading members. Widespread in jazz, this form of arrangement results from a conceptually simple yet technically complex combining of players' suggestions, the working out of individual parts in rehearsals, intuitive spontaneous contributions, memorization, and, sometimes, the group leader's final arbitration concerning all these elements." (Schuller 1988, 33.)

'Head arrangement', in the sense defined above, is taken as the primary meaning of the term 'arrangement' in this paper. As is apparent in the above description, a 'head arrangement' does not exclude the use of notation — scoring (orchestration, instrumentation) — as a part of the arrangement.

Scoring and related concepts

Scoring is closely related to arranging, as is apparent in the following definition presented in The New Grove Dictionary of Music and Musicians:

"The verb 'to score' means to compose or arrange for ensemble performance, either with or without voices. 'Scoring' in its creative sense may thus mean either 'orchestration' or 'instrumentation'." (Charlton 1980, 59.)

'Orchestration' and 'instrumentation' are, in turn, used virtually interchangeably to mean "the art of using instruments in a composition" (The New Grove Dictionary of Music and Musicians 1980, 237). Here the term 'scoring' is preferred because it seems to apply equally well to ensembles with and without voices (both 'orchestration' and 'instrumentation' seem to have at least a slight emphasis on ensembles without voices).

Arrangements of the songs of the Beatles

The collaboration of the Beatles and George Martin

The arrangements of the songs of the Beatles cannot be examined without taking into account the role of the producer George Martin. In Martin's own words: "I did all the arrangements for all the Beatles songs up to the *Let It Be* album" (Porter 1979, 403.) The method of arranging was that of head arrangements, as is explicit in the following description by George Martin:

"I would meet them in the studio to hear a new number. I would perch myself on a high stool, and John and Paul would stand around me with their acoustic guitars and play and sing it — usually without Ringo or George, unless George joined in the harmony. Then I would make suggestions to improve it, and we'd try it again. That's what is known in the business as a 'head arrangement' [...]." (Martin & Hornsby 1979, 132.)

The vocals were arranged as follows:

"We established the working format that whoever wrote the song generally sang it, and the others would join in. If it were John's song, he would sing it, and when we came to the middle eight — the section in the middle of a song where the tune changes — Paul would sing thirds above or below, or whatever; if a third part were needed, George would join in. It was a very simple formula." (Martin & Hornsby 1979, 132.)

During the early period much of the head arrangement was done by the four Beatles, either in the recording studio or during the rehearsals before entering to the studio. Martin's role was as follows:

"At that point there wasn't much arranging to do. My function as a producer was not what it is today. After all, I was a mixture of many things. I was an executive running a record label. I was organizing the artists and the repertoire. And on top of that, I actually supervised the recording sessions, looking after what both the engineer and the artist were doing. Certainly I would manipulate the record to the way I wanted it, but there was no arrangement in the sense of orchestration. They were four musicians — three guitarists and a drummer — and my role was to make sure that they made a concise, commercial statement. I would make sure that the song ran for approximately two and a half minutes, that it was in the right key for their voices, and that it was tidy, with the right proportion and form." (Martin & Hornsby 1979, 132.)

The significance of the form as part of the arrangement is more explicit still in the following quotation:

"At the beginning, my speciality was the introductions and the endings, and any instrumental passages in the middle. I might say, for instance: "Please Please Me" only lasts a minute and ten seconds, so you'll have to do two choruses, and in the second chorus we'll have to do such-and-such.' That was the extent of the arranging." (Martin & Hornsby 1979, 132.)

Later (from 1965 onwards) the formula was to become more complicated: "With 'Yesterday' we used orchestration for the first time; and from then on, we moved into whole new areas." (Martin & Hornsby 1979, 133.) There were changes in arranging vocal parts, too:

"The vocal counterpoint depended on the song and in the early days, the Beatles would naturally sing simple harmonies of their own. Later, I would add my ideas and although their harmonies were never written down, they were the product of my arranging and the singers themselves." (Porter 1979, 403.)

The ideas Martin added to the vocal arrangement include adopting certain contrapuntal techniques from the art music tradition: the combination of the main melody and counter-melody (as in 'Help!'), the simultaneous presentation of sections previously presented as separate (as in 'Eleanor Rigby' and 'I've Got A Feeling'), and the canon-like reiteration of the title-phrase (as in the coda of 'All You Need Is Love'). In the case of 'Because', Martin says, "all the parts would have been given to the Beatles by myself" (Porter 1979, 403.)

Writing and Recording 'Cry Baby Cry'

'Cry Baby Cry' was released on 22 November 1968 as a track on the LP *The Beatles* (also known as the *White Album*). The song, written by John Lennon, was one of about 30 songs he and Paul McCartney wrote in India, Rishikesh, where the Beatles attended Maharishi Mahesh Yogi's course on TM (Transcendental Meditation) from mid-February to mid-April 1968. In May 1968 the Beatles recorded demos of these songs at George Harrison's house Kinfauns in Esher, near London. 'Cry Baby Cry' was probably the first song recorded during these Esher sessions. It was recorded in mid-July during three days: unnumbered rehearsal takes (about 30 minutes) on 15th July, the basic track on 16th July, and the final overdubs (including the vocals) on 18th July. During July and August of 1968 the tension within the Beatles and between the group and the recording staff of EMI reached a peak. It was during the recording sessions of 'Cry Baby Cry' that the recording engineer Geoff Emerick quitted. (Lewisohn.) This song was mixed only during the final mixing sessions of the 'White Album' in mid-October.

MATERIALS AND PROCEDURE

Methodological foundations

It is assumed that the analysis of the arrangement of 'Cry Baby Cry' does not differ essentially from the analysis of the orchestration of a composition by a "classical" composer. Walter Piston describes the latter as follows:

"The objective in analysis of orchestration is to discover how the orchestra is used as a medium to present musical thought. Its immediate purpose is the simplification of the score so that order is seen in what to the layman is a 'sea of notes.' It is a means of studying how instruments are combined to achieve balance of sonority, unity and variety of tone color, clarity, brilliance, expressiveness, and other musical values. Ultimately, the analytical process shows the differences in orchestral style between various composers and periods." (Piston 1980, 355.)

Although Piston talks about orchestration, his objective may also be applied to the analysis of arrangement — or, to be more specific, to "discover how" the arrangement is used "as a medium to present musical thought". The first task is "the simplification of the score" as "a means of studying how instruments are combined to achieve balance of sonority, unity and variety" and so on.

The main difference between popular music and classical music is that the primary text of a popular song is a record, whereas the primary text of an classical composition is the score — either the original manuscript written by the composer or a reliable edition of it. This does not mean that popular music scholars have no need for score. It simply means that if they need one, they will probably write it — that is, a transcription of it — themselves. This is because it is probable that there is no reliable score available.

Materials

The primary source of the study is the CD stereo release of *The Beatles* ("White Album"). What is said here is based on what is — or, rather, can be — heard on the record. It would have been very handy and helpful had there been a reliable score of 'Cry Baby Cry'. There was none. The following brief review illustrates the state-of-the-art regarding the published complete scores of the Beatles.

There are dozens of "Complete Beatles" scores. These collections may include all the songs (officially) released by the Beatles, all — or, at least, almost all — the songs Lennon and McCartney (sometimes also Harrison and Starkey) wrote before, during, and/or after the Beatles. I will concentrate only on these "complete" scores.

Notations of popular music may be divided roughly into the following three categories:¹

- ❖ lead sheet notations (fake books)
- ❖ sheet music notations
- ❖ fully notated scores

A lead sheet typically presents the melody, lyrics (if any), and chords (shown by symbols). Some additional information — cues for essential accompanying figures and elements of the arrangement — may also be included. The sheet music format comprises three staves: the uppermost shows the melody, lyrics, and chord symbols, whereas the lower two include a fully-written out piano arrangement. Full scores leaving no room at all for improvisation are rare. During the last two decades there has been an increasing tendency to publish full scores — by mainly transcriptions — of jazz and rock music (the rock score series is but one example of this tendency). In most "Complete Beatles" collections the songs are presented either as lead sheets or sheet music. Full scores of some songs have also been published in the rock score series. Not a single "complete Beatles" collection contains full scores — by this we mean, *truly* full scores.

Three collections are for different reasons more important than the others. The first is the four-book collection (*50 Hit Songs by John Lennon and Paul McCartney*, volumes 1-4), edited by Dick James — the former executive of the Northern Songs Ltd —, was published in the early 1970s. This collection may be considered the official Complete Beatles Scores, although it is far from complete in many respects. The second collection is the *Compleat Beatles* in two volumes, arranged and edited by Milton Okun and published by Edition Olms in 1981. The arrangements are much more complete and all the songs are (said to be) in the right keys in this edition. Yet the Compleat Beatles is arranged for a basic small group without any intention of reproducing the variety of instrumentation used in the original recordings. An attempt to do this was eventually made by four Japanese transcribers — Tetsua Fujita, Hagino Youji, Kubo Hajime and Sato Goro — whose *The Beatles Complete Scores* was published by Wise Publications in 1989. This collection is undoubtedly the most ambitious so far. But also this score is far from complete. Firstly, there are hundreds (or thousands) of transcription errors in the book — there are dozens in 'Cry Baby Cry', including some major mistakes. All in all, there are simply too many errors for the collection to be considered reliable. And only a small portion for the parts of different instruments is written down. The task remains, for someone wishing to make a detailed analysis of the arrangement, of making one's own transcription — a score that is truly "complete". Actually, this is what is done here.

¹ For a more detailed division and description: Witmer 1988. Notation. In *The New Grove Dictionary of Jazz*. [253-260].

The differences between the above-mentioned notations (James, Okun, and the four Japanese) are discussed at the end of this article.

Procedure

The state-of-the-art being what it is, the procedure consists of two main stages: writing the transcription — the real complete score — and analyzing the arrangement, using both the record and the transcription as the material.²

Making of transcription

The equipment used in the transcription:

- ❖ SONY 1bit DAC Discman CD-player
- ❖ AKAI Reference Master Digital Integrated Amplifier AM-75
- ❖ SONY Dynamic stereo Headphones MDR –65
- ❖ BBX -Loudspeakers
- ❖ Roland U-20 Synthesizer
- ❖ Power Macintosh G3 Computer
- ❖ Encore 4.1.4. -notation software
- ❖ Master Tracks Pro 5.0 -sequencer software

The following special arrangements and tricks were used in the transcription:

- ❖ First of all simultaneous playing with acoustic piano and acoustic guitar as on the record (almost all instruments was tested in real time in this manner)
- ❖ Heavy use of balancing (sometimes one of the channels was totally turned off)
- ❖ The bass and treble controllers of the amplifier were often turned to the maximum level (other Equalizers or slowing the tempo were not used)
- ❖ The simultaneous use of loudspeakers and headphones
- ❖ CD-players 'from A to B-technique', which made it possible to make desired loops from any time and any place in the record.
- ❖ The extremely difficult parts (for example piano fill in bar 39, which was in very quick 128th notes) were tested by a very specific procedure playing the together CD and notation software at same time.

² No transcription of any musical score can ever be totally complete: it is simply impossible to translate all the information included in one musical performance into any visual form (which all transcriptions and notations are). Compared to the common practice regarding transcriptions the one presented here is a truly full score: all audible notes produced by various instruments (including the sound effects) with dynamics and other performing marks has been included in the present transcription.

The last technique mentioned involved setting the same tempo as on the record to the notation with the help of a sequencer. After synchronizing the notation and the record in the above mentioned manner, it was possible to start playing the MIDI information and the record simultaneously at any place desired. This facilitated picking out the rapid passages note by note as well as comparing the results to the record in real time. Finally you achieve a match – when you hear from the headphones exactly the same notes as on the record; and you see at the same moment the right notation on the screen of your computer!

The transcription started with the bass part and the second instrument to be transcribed was drums. The bass part was the only one, which was transcribed in its entirety. After this the transcription work went section by section: after the first chorus, the second etc. The last things to transcribe were the other subjects (riffs, effect etc.), dynamics and other performing marks.

The following three aspects are considered as relevant regarding the analysis of variation as a means of arranging:

- ❖ form
- ❖ scoring
- ❖ mixing

The analysis of the form is relevant for two reasons: (1) the recurrent sections have to be recognized before it is possible to study how they are varied, and (2) the form itself may be the subject of variation. The first reason is a precondition for the study, whereas the second reason deals directly with variation itself. There are (at least) two aspects of form, which are assumed to be varied: the order and the length of the sections.

With respect to scoring, the following four aspects have to be taken into account:

- ❖ timbre — the vocal, instrumental, and other colors (including sound effects) chosen by the composer;
- ❖ dynamics — the intensity of the sound, both as indicated by markings and as implied by the disposition of forces employed for the piece;
- ❖ individual parts — including both instrumental and vocal parts
- ❖ texture — the arrangement of timbres both at particular moments and in the continuing unfolding of the piece

The function of mixing in sound recording is comparable to the contribution of the conductor and the acoustics of the concert hall in a live performance of a symphony orchestra. The three main aspects controlled during mixing are balanced, the sense of closeness or distance imparted the sound, and panning (distributing various instruments and vocal parts across the stereo picture). All three aspects of arrangement — form, scoring, and mixing — are analyzed in the following.

FORM

Form in popular music

It is a common opinion that most popular music is constructed in an assembly-line manner from simple and four-square 8-bar blocks, creating similarly simple and four-square 32-bar standard forms. This is not, however, the whole truth, as has been pointed out by Lee:

"This statement about 8-bar units is the one most commonly made, but needs qualification, since a not insubstantial number of tunes (e.g. 'How High The Moon') are built up of sections which can only satisfactorily be analysed as two 16-bar units. Furthermore, though in practice 8- and 16-bar units are the normal length of comprehensible sections, or 'sentences', the fact that the fundamental unit of popular music composition is really 2 bars becomes important in considering exceptions." (Lee 1970, 220.)

Lee lists some famous exceptions to the 32-bar assembly-line rule: 'Moonlight In Vermont' comprises 28 bars (6+6+8+8), 'Stormy Weather' 36 bars (8+10+8+10), and 'I Got Rhythm' another 36 bars but now with a different inner structure (8+8+8+12 bars). Lee concludes that exceptions like these are "too frequent to support the commonly found statement that 'Pop tunes are all 32 bars long'." 'Cry Baby Cry' is a brilliant example of this kind of exceptions.

Another characteristic of popular music forms is that they rely heavily on the principle of recurrence and contrast: first something is introduced (A), perhaps repeated (AA), after which contrasting material is presented (B, resulting in AB or AAB), again followed by a return to the material presented first (A, resulting in ABA, AABA). Further extensions result in, for example the ABAB and the repeated AAB (that is, AAB+AAB) forms. By adding a further contrasting section (C), more complex forms, such as ABABCAB, may be created.

Variation of the form in 'Cry Baby Cry'

Table 1 shows a summary of the form of 'Cry Baby Cry'. The overall form consists of an intro, based on the B section ('refrain'), four choruses based on an AAB form, and a coda, based on the B section as in the intro. The AAB (or verse-verse-refrain) form is very common in folk music as well as in Western classical music and is, in musicology, often called the Bar form. The basic time signature in 'Cry Baby Cry' is 4/4, the form of each chorus is AAB, and all choruses comprise 10 bars. To this extent the form is regular.

Form / Time	Section		Amount of Quarter Notes	Amount of the Bars per Section
1. Intro (0:00-0:11)	B	(bars 1-4)	14	three bars 4/4 and one 2/4
2. I chorus (0:11-0:40)	A	(bars 5-7)	12	three 4/4-bars
	A (rep)	(bars 8-10)	10	two bars 4/4 and one 2/4
	B1	(bars 11-14)	16	four 4/4 bars
3. II chorus (0:40-1:10)	A1	(bars 15-17)	12	three 4/4-bars
	A1 (rep)	(bars 18-20)	10	two bars 4/4 and one 2/4
	B2	(bars 21-24)	16	four 4/4 bars
4. III chorus (1:10-1:40)	A2	(bars 25-27)	12	three 4/4-bars
	A2 (rep)	(bars 28-30)	10	two bars 4/4 and one 2/4
	B3	(bars 31-34)	16	four 4/4 bars
5. IV chorus (1:40-2:09)	A3	(bars 35-37)	12	three 4/4-bars
	A3 (rep)	(bars 38-40)	10	two bars 4/4 and one 2/4
	B4	(bars 41-44)	14	three bars 4/4 and one 2/4
6. Coda (2:09-2:33)	B5	(bars 45-48)	14	three bars 4/4 and one 2/4
	B6	(bars 49-52)	17	three bars in 4/4-time signature & 1 bar in 5/4-time signature (last bar)

TABLE 1. Form of the 'Cry Baby Cry'.

The irregularity — that is, variation — lies in the inner structure of each chorus. Within each chorus there are two A sections, both of different length. The length of the first A section is always 3 bars in 4/4, whereas the second A always consists of 2 bars in 4/4 and 1 bar in 2/4. The length of the concluding B section is in the first three choruses 4 bars in 4/4, whereas in the fourth chorus it is 3 bars in 4/4 and 1 bar in 2/4. The intro — based on the B section — consist of 3 bars in 4/4 and 1 bar in 2/4 (that is, its formal structure is similar to the concluding B section of the fourth chorus). The coda consists of two B sections (B5 and B6) and the length of both of these sections is irregular. The inner structure of B5 is similar to the intro and B4, whereas B6 differs from all other B sections (the last bar is in 5/4 meter). This kind of irregularity was obviously intentional, as is evident in the following comment by John Lennon: "[...] there would be things like a beat is missing or something like that to see if anybody noticed." (Wenner: remembers, 97.) Variation of form does not occur only at the level of missing beats. Rather it seems to be the very principle on which the inner structure of each chorus is based.

The A section ('verse') tells the story and thus has different lyrics each time. The B section ('refrain') contains the title phrase and has almost the same lyrics when repeated. Musically, the A section ("verse") is based on an E minor chord, with a chromatic descending scale from the tonic to the submediant, whereas the B section ("refrain") is based on a more varied chord structure:

A: Em EmΔ Em7 Em6 C7 G //
6 5# 5 4# 4
: . : . : .

A: Em EmΔ Em7 Em6 C7 //
6 5# 5 4# 4
: . : . : .

B: G Am F G Em A F G //
1 2 7b 1 6 2 7b 1
: . : . : . : .

The B section comprises two melodically independent two-bar phrases ("Cry, baby, cry, make your mother sigh" and "She's old enough to know better, so cry, baby, cry"). Harmonically, however, the second phrase is a variation of the first. In other words, the last two bars repeat the chord sequence of the first two, with the exception of substituting the opening G major chord with an E minor chord and the following A minor chord with an A major chord. So, the last half of the B section is that kind of variation of the first one in which the melody is varied and the harmony remains fixed — with the exception of varying the first two chords. The sense of similarity is enhanced by using the characteristic F major chord (bVII) both at the beginning of the second and the fourth bar of the B section.

All in all, the amount of sections of irregular length and changes in time signature found in 'Cry Baby Cry' is very rare in popular music. It is almost a rigid, unwritten law that popular songs are built on phrases of equal length — the most common length being 4 bars, sometimes with an added or reduced 2 bars — and common time signature. Together with the idea of constructing the B section a melodic variation with fixed harmony it makes 'Cry Baby Cry' anything but a simple and four-square assembly-line popular song. Actually, 'Cry Baby Cry' is a brilliant example of an exception to that rule.

SCORING

Scoring in popular music

Variation is a question of life and death in music. This is evident in textbooks on arrangement and orchestration. It is emphasized very explicitly in the following quotation from Sten Ingelf's textbook on arranging popular music:

"IT IS VERY IMPORTANT to have variation in an arrangement. This creates alteration and keeps the listener's interest alive. To 'add' another part or a background is an example of how to vary something you already have worked with.

Still another way is to change instrumentation, for example, by letting instruments or groups of instruments alternate with or build above each other. In both cases such a change is allowed to happen near the beginning of a new section, a new formal unit, or — in certain cases — a new phrase. As listeners we are so accustomed to this that our 'ear' demands such changes." (Ingelf 1988, 96.)

When and how often should the instrumentation be changed? As emphasized by Ingelf, the changes should preferably be permitted to happen when moving from one section to another. How often the timbres should be changed depends on how many instruments there are available. If there are only a few instruments available, it is natural to have longer periods with the same instrumentation (Ingelf 1988, 97). This procedure is here referred to as scoring rule of thumb 1 and is illustrated in Figure 1a. This creates contrast even when repeating a section (that is, when the melody and harmony remains fixed). On the other hand, the difference between contrasting sections can be further enhanced by changing instrumentation. It is a common practice to use light accompaniment in the verses and add instruments as well as backing vocals in the refrain. This procedure is here referred to as scoring rule of thumb 2 and is illustrated in Figure 1b.

If more instruments are available, there are also more variation possibilities and a chance for more frequent changes. Wider possibilities require some further principles as to how to use them. To quote Ingelf again:

"A certain regularity and symmetry is also an important formal principle. If you present something [new] after 8 bars, one expects a change also after the next 8-bar period [...]. If you, instead, had already presented something [new] after four bars, a new change will be expected after the next period of four bars!" (Ingelf 1988, 97.)

This procedure is here referred to as scoring rule of thumb 3, illustrated in Figure 1c. However, as emphasized above, variation is what makes music enjoyable. Thus regularity should not lead to four-squareness. Ingels puts it as follows:

"Also, if an arrangement is put together in this manner, one should not use regular changes throughout the whole arrangement. Therefore a change may take place, for example, in order to create tension or reduce it into a long quiet section [...]" (Ingelf 1988, 97.)

This procedure is here referred to as scoring rule of thumb 3 illustrated in Figure 1d.

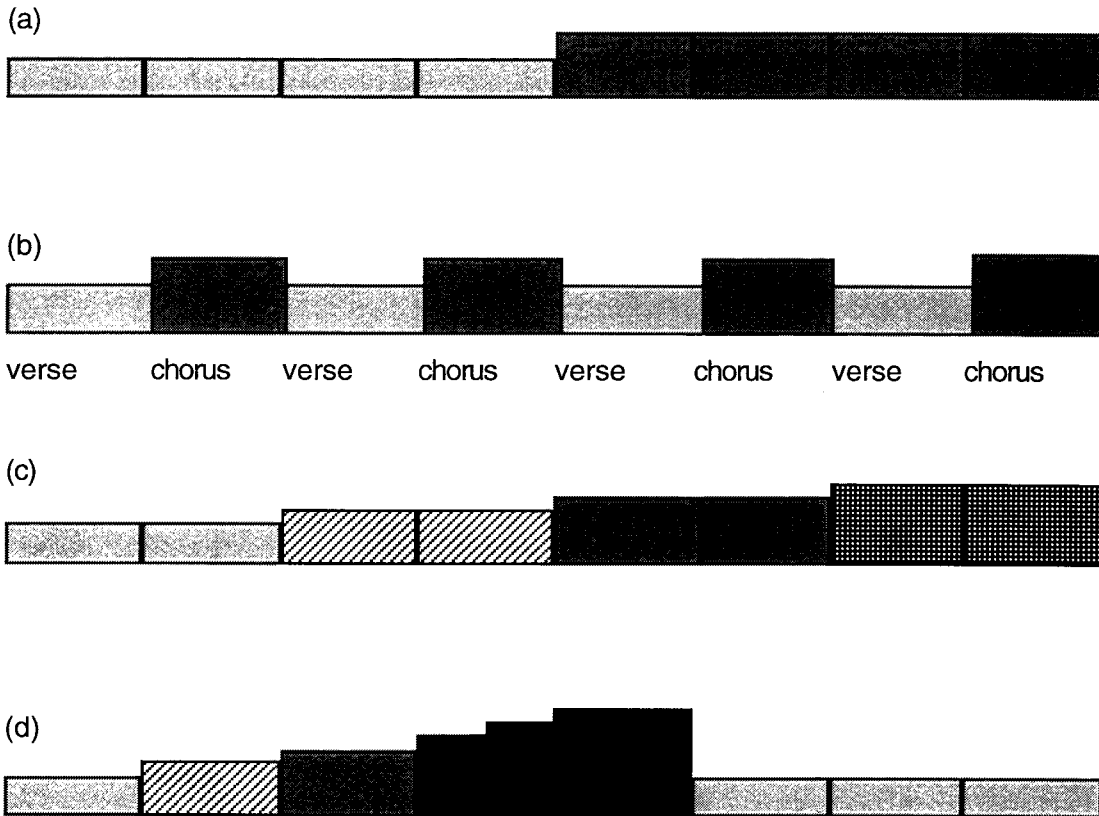


FIGURE 1. Common rules of thumb of creating variation in scoring. The rules a, c, and d are from Ingelf 1988.

Thus, the four techniques of creating regularity and at the same time breaking it include (1) abrupt increasing in the amount of instruments at certain crucial turning point of the song; (2) enhancing the contrast of different sections by analogous changes in instrumentation; (3) adding the amount of instruments gradually and regularly towards the end of the song; and (4) adding the amount of instruments less regularly to a crucial turning point and then reducing it. Any of these techniques may result in a successful scoring but it is assumed that good arrangements often combine two or more of them.

Instruments used in 'Cry Baby Cry'

There is no general agreement on what instruments were used in 'Cry Baby Cry'. Different sources give different listings. It is claimed here that the instruments audible in the record include and are restricted to the following:

- ❖ lead vocals
- ❖ background vocals (I & II)
- ❖ electric guitar
- ❖ piano
- ❖ organ
- ❖ accordion
- ❖ sound effects
- ❖ acoustic guitar
- ❖ bass
- ❖ tambourine
- ❖ drums

Most sources mention the use of harmonium in 'Cry Baby Cry'. It may very well be that harmonium was originally used when the song was recorded but in any case it is not audible on the record — either it was completely mixed out or its level was set extremely low in the final mix. As opposed to the harmonium, the accordion is very easy to hear. The accordion, in turn, is for one reason or another omitted in the main literature (Lewisohn 1988, 1990, 1996, Stannard 1982, Macdonald 1994, Dowling 1989). It seems, then, that the accordion is erroneously listed as harmonium in these sources. There is also some disagreement concerning who sings the background vocals. It is, however, very probable that all vocals in 'Cry Baby Cry' are sung by John Lennon.

Variations of scoring in 'Cry Baby Cry'

Table 2 shows the scoring of each section of 'Cry Baby Cry'. The use of a bold font refers to cases where an instrument is part of the scoring from its first entry to the end of the song. This first entry is indicated by bold text, after which its use is not referred to in the figure. The acoustic guitar is an exception to this rule: there are two bars in A1, two bars in A1 (rep), two bars in A3 and two bars in A3 (rep), where the acoustic guitar is not sounded.

As is apparent in Table 2, the drums enter before the bass. This practice is very rare in popular music (usually the two instruments enter simultaneously and if they enter separately, it usually the bass that enters first). The changes in the amount of instruments are shown in Figure 2.

Form	Part	Scoring (bars & places when instruments comes in)	Other Subjects (Riffs, Fills etc.)	Amount of Instr.(incl. vocals)	Amount of Vocals
1. Intro	B	lead vocal + ac.guitar accordion (bars 2-5)		2-3	1
2. I chorus	A	snare drum (light beats) piano (from 7 bars on)	unidentif.percussive sound (bars 6-7)	3-5	1
	A (rep)	more hearable beats on snare drum (bars 8-10)	unidentif.percussive sound (bars 9-10) piano fill (bar 10)	4	1
	B1	drums comping tambourine	drums fill (bar 14)	5	1
3. II chorus	A1	bass (ac. guitar only two bars in A1-sections!)	organ with pedal point (drone)	5-6	1
	A1 (rep)			5-6	1
	B2	lead vocal doubled in backgr. (weakly) & tambourine background vocal (II voice only one line)		8	3
4. III chorus	A2		sound-effects (bars 25-27)	7	1
	A2 (rep)		electric guitar riff (bar 27) another el. guitar riff (bar 30)	6	1
	B3	lead vocal doubled (in bg) & tambourine backgr. vocal (II voice, two lines, bars 32-34)		8	3
5. IV chorus	A3	drum comp on ride cymbal (quarter notes)		4-5	1
	A3 (rep)	ride cymb. (16th notes) (ac. guitar only two bars on A3-sections)	very short piano glissando (in bar 39)	5	1
	B4	lead vocal doubled (in bg) & tambourine backgr. vocal (II voice, two lines, bars 42-44)		8	3
6. Coda	B5	lead vocal doubled (in bg)& tambourine backgr. vocal (II voice, two lines, bars 42-44)		8	3
	B6	lead vocal doubled (in bg) & tambourine background vocals (II & III voice, two lines, bars 50-52)		9	4

TABLE 2. Scoring and amount of instruments in different parts of 'Cry Baby Cry'.

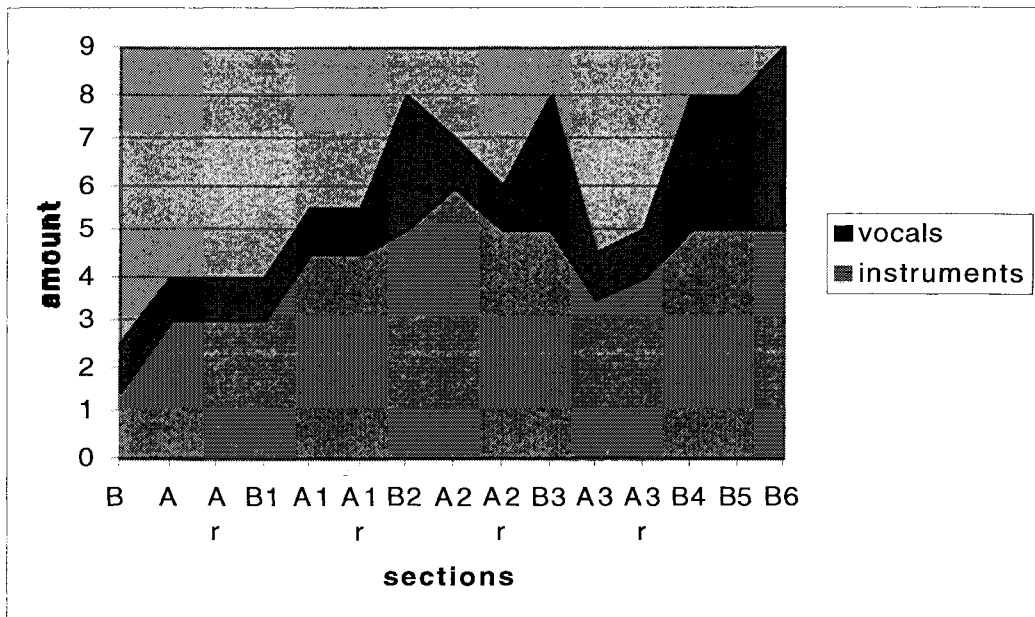


FIGURE 2. Changes in the amount of instrumental and vocal parts.

On the basis of a quick glance two observations can be made:

- ❖ the amount of instruments clearly increases from the beginning to the end
- ❖ there are some peaks as well as drops — abrupt increases and decreases — in the amount of instruments across time.

The most dramatic increase in the amount of instruments occurs in the refrain (section B2) of the second chorus. In the remaining refrains (B3 and B4) and the first part of the coda (co 1) the amount of instruments is exactly the same. The most dramatic decrease in the amount of instruments occurs at the beginning of the fourth chorus (section A7). This shift emphasizes, again, the contrast between the verse and refrain. It is as if the entire song was going to start over again. A similar but a slightly less marked drop occurs also after the second refrain (B2).

Despite the seemingly irregular saw-like appearance of Figure 2, the following four regularities may be found (the numbered rule after each regularity refers to the four scoring principles presented above):

- ❖ the total amount of instruments increases always when moving from the A (rep) section to the B section — scoring rule of thumb 2 (emphasizing contrast between sections)
- ❖ there is an overall increase in the total amount of instruments towards the end of the song — scoring rule of thumb 3 (cumulative instrumentation)
- ❖ there is an abrupt increase in the total amount of instruments when moving from A2 (rep) to B3 as well as from A3 (rep) to B4 — scoring rules

of thumb 1 and 2 (abrupt increase combined with emphasizing contrast between sections)

- ❖ the first two of these increases are followed markedly by a decrease when moving from the refrains (B2 and B3) to the subsequent verses (A3 and A4, respectively) — scoring rules of thumb 2 and 4 (abrupt decrease combined with emphasizing contrast between sections)

An apparent conclusion of this is that the scoring of 'Cry Baby Cry' combines various practices — rules of thumb — of scoring common in popular music and explicated in textbooks of arranging and orchestration.

MIXING

Mixing in popular music

Mixing became an essential part of the recording process of popular music in the mid-sixties with the breakthrough of stereo LP records. The first albums were mixed by producer George Martin with recording engineer Norman Smith. The Beatles did not attend the mixing sessions. The importance of mixing increased during the 'experimental' years (1966-67) of the Beatles. The Beatles began to attend the mixing sessions from *Rubber Soul* (1965) onwards. However, at this stage, they were interested only in the mono mixes and left stereo mixing to producer George Martin and the recording engineer (at the time discussed here Geoff Emerick). Even the final mixes of *Sgt Pepper's Lonely Hearts Club Band* (1967) were done in this manner. There are, of course, lots of interesting details in the stereo mixes of *Sgt Pepper* — for example, in 'A Day In The Life' the lead vocal is heard on the left, in the middle, and on the right during the song — but the credit for this belongs to the recording staff of EMI rather than to the Beatles. The work of Emerick was, indeed, acknowledged in the form of a Grammy Award: *Sgt Pepper* was considered to be the best engineered album of 1967. Actually, it was not until the recording sessions of the '*White Album*' that the Beatles first had overall control over the mixing process — including the stereo mixes. In mixing there are three main aspects to be controlled:

- ❖ balance
- ❖ the sense of closeness/distance
- ❖ panning

Balancing defines a desired signal level (volume) to each instrument or other sound information. The common habit has been to assign more volume to the more important instruments — usually the lead vocals and solo. Another rule of thumb is to assign sufficient volume to each instrument for them all to be audible. To sum up, the main idea of balance is that each

instrument, vocal part, or other sound information gets an appropriate signal level in proportion to its importance in the mix as a whole. The sense of closeness or distance of certain sound information is controlled by simultaneous use of echo or delay and signal level (volume).

Whereas balance and the sense of closeness/distance are involved both in mono and stereo mixing, panning is relevant only with respect to stereo mixing. To put it simply, panning means distributing different instruments across the stereo picture that is across an imaginary horizon from the left loudspeaker to the right. The panning is most important aspect in the stereo mixing; it is also very close related to the balance – with proper panning you can add more balance to the whole mixing context. In panning you put the instruments to the imaginary horizon from the left loudspeaker to the right.

Variations in the stereo mix of 'Cry Baby Cry'

Figure 3 shows the overall plan of distributing various instruments across the stereo picture in 'Cry Baby Cry'. Both the vocals and the main accompanying instruments are distributed across the stereo picture, whereas the 'color-instruments' and the sound effects are placed mostly in the middle. The lead vocals in section B — as well as in the intro and the coda which are based on section B — are placed on the left, whereas the acoustic guitar is placed on the right. In section A, in turn, the lead vocals are placed in the middle. The shift of the lead vocals from the left to the middle is indeed one of the leading characteristics of the panning in 'Cry Baby Cry'. The backing vocals — as well as the double-tracked lead vocals in section B — are set a little to the right of the middle. The main accompanying instruments are panned as follows. The piano is set in the middle, as is the tambourine. The drums are placed somewhere between the middle and the right, whereas the bass is put between the middle and the left. The sound effects and all 'color-instruments' (accordion, organ and electronic guitar) are placed in the middle.

There are some exceptions to this overall plan. These, as well as the above-mentioned wandering of the lead vocals from left to the middle, are shown in Table 3 (bold type refers to the main instruments). The very first sound effect — the unidentified percussive sound in the first A section — is assigned strictly to the left. A couple of 'experimental' tricks are also used in the panning of the drums. Firstly, the drum fill leading to the second chorus is mixed in a very unusual way: the first beat of the fill is strictly on the left and the rest (five beats, on tom-tom) are strictly on the right! Secondly, a somewhat similar idea is used when panning the cymbals at the end of each A section (from A1 onwards). In the first A section the first beat is slightly on the right and the second beat is in the middle. In the repetition the first beat is, again, slightly on the right but the second beat is on the left.

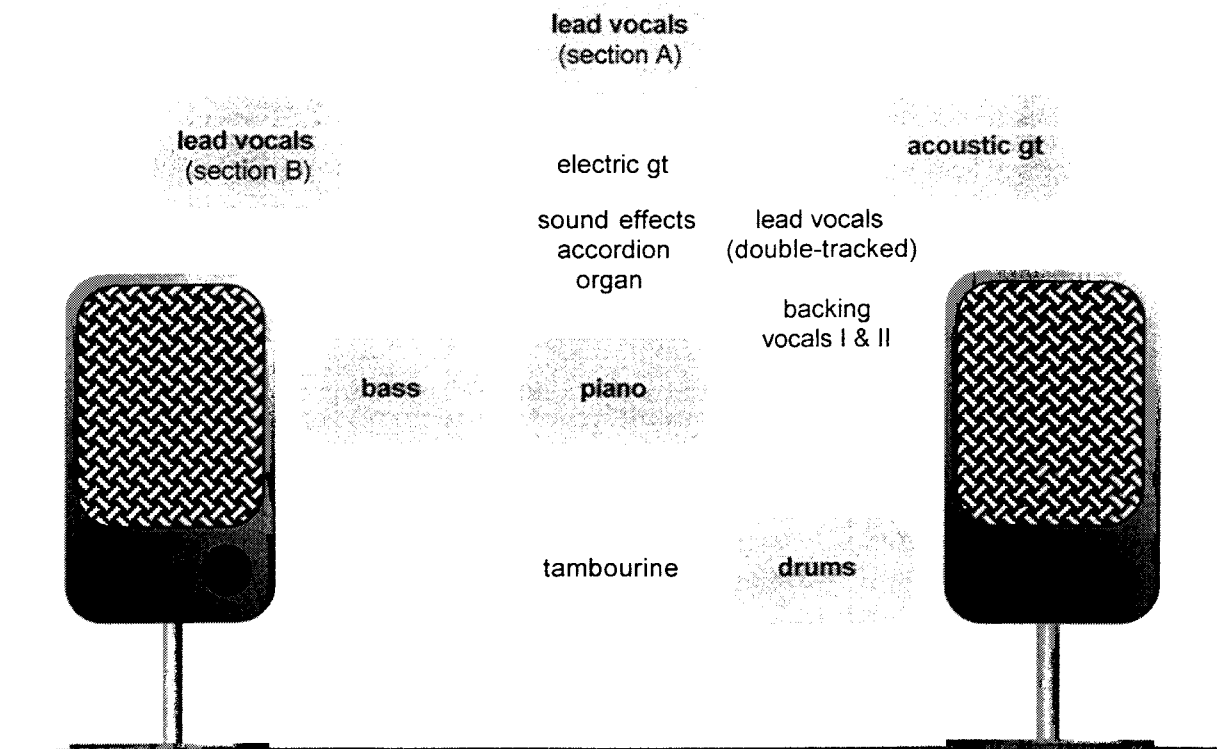


FIGURE 2. The overall plan of panning in 'Cry Baby Cry'

The 'instrumental crescendo' achieved by the principle of cumulative instrumentation (see the previous chapter) is further enhanced by controlling the overall dynamics (volume) and closeness/distance of the voices and instruments. The lead vocals are mixed clearly to the front from the very beginning, and towards the end the volume and closeness of all the vocals — including the backing vocals — is increased. From the point of view of dynamics, the volume and closeness/distance control results in a long and intensive crescendo from the middle of the song (B3 onwards) to the end.

The balance between the voices and instruments — as well as between individual voices and individual instruments — is clear. Almost all voices, instruments and sound effects are clearly audible.

Section	Left	Between left-middle	Middle	Between right-middle	Right
(intro) B	lead vocal		accordion		ac. guitar
A	perc. (unident.)		lead vocal		ac. guitar
A (rep)	perc. (unident.)		piano snare drum piano gliss.		
B1	lead vocal first beat of drum fill		drums tambourine		rest beats of the fill
A1		bass	lead vocal piano organ	drums	ac. guitar plays only two bars in A1-sections
A1 (rep)		II cymbal beat	II cymbal beat	I cymb. beat I cymb. beat	
B2	lead vocal		tambourine	db lead voc backgr voc	ac. guitar
A2		bass	lead vocal piano	drums	ac. guitar
A2 (rep)		II cymbal beat	II cymb. beat sound effects el. guitar riff (twice)	I cymb. beat I cymb. beat	
B3	lead vocal		tambourine	db lead voc backgr voc	
A3		bass	lead vocal piano	drums	ac. guitar plays only two bars in A3-sections
A3 (rep)		II cymbal beat	II cymbal beat	I cymb. beat I cymb. beat	
B4	lead vocal		tambourine	db lead voc backgr voc	ac. guitar
Coda B5	lead vocal	bass	piano tambourine	drums db lead voc backgr voc	ac. guitar
B6				db lead voc background vocals	

TABLE 3. Panning in the mix of 'Cry Baby Cry'.

Towards the end the tambourine is very difficult to hear. In sections A2 and A3 the acoustic guitar is for some reason mixed very low and is almost inaudible. These parts are audible only when using good equipment. From the beginning of the coda the piano part is rather difficult to hear because of the increase in the amount of instruments. There is not much sound manipulation, so the crescendo and increasing feel of closeness is created almost solely by controlling the volume.

DISCUSSION

This article began with a quotation from Paul McCartney ("we always tried to make every song different because we figured, why write something like the last one?"). The quotation was taken to represent the endless urge of the Beatles for something new, different, and unknown. The main purpose of this paper was to explore whether this approach of making every song different is analogous to variations within one song.

Because of the lack of previous study on this topic, it was decided to perform an explorative case study in order to get a broader picture of this particular research area. John Lennon's 'Cry Baby Cry' was chosen as the song whose arrangement to study, partly by chance, partly because Jouni Koskimäki noticed by listening that there is enough variation in the arrangement to be studied. The arrangement of 'Cry Baby Cry' was studied here with respect to form, scoring, and mixing. The results may be summarized as follows: regarding 'Cry Baby Cry' *this principle of ever changing variation is the very core idea of the arrangement and construction of the entire song.* It seems, indeed, safe enough to conclude that the principle of variation was intentionally used by the members of the Beatles as the main guiding principle in arranging 'Cry Baby Cry'. Thus, the approach of making everything differently also applies to 'Cry Baby Cry' — even to the degree that the opening quotation from Paul McCartney could be rewritten as follows: "we tried to make every chorus and section of a song different because we figured, why write something like the last chorus or last section?"

Whether the further assertion "we *always* tried to make every chorus and section differently" can be made, cannot be answered on the basis of only one case study. A further problem in trying to generalize the results is that there are virtually no previous studies concentrating on the arrangements of the Beatles. Arrangement itself is a neglected topic in popular music. Because of the lack of comparisons, the results of this study must be considered as tentative. Some support to the results of this particular case may be found from elementary textbooks of arranging (Ingelf 1988) and orchestration (Piston 1980), as well as those concerning form (Tyndall 1964).

All relevant aspects of the arrangement were not included in this study. One apparent aspect of variation in the arrangement of 'Cry Baby Cry' — the variation of individual parts (instruments, voices) — was intentionally left out of this

report. Individual parts can only be analyzed using a full score — that is, from a complete transcription of every sound audible on the record. The original intention was to publish the transcription made by Koskimäki as part of this article. However, it was not possible because negotiations concerning the copyright conditions are still in progress and because the authors wanted to keep this article concise. The analysis of the individual parts as well as the publication of Koskimäki's transcription is intended to form a follow-up (part II) to this article.

The results of this study, therefore, concerning the arrangement of 'Cry Baby Cry' will be completed in the near future. The 'complete' score by Fujita et al, contains only the intro, the first chorus, and the coda of 'Cry Baby Cry' — in other words, some 60% (choruses II, III and IV) of the arrangement is missing altogether. Because varying the form, scoring, and mixing in subsequent sections is the key principle of arrangement in 'Cry Baby Cry', it was obviously impossible to use this score as the main source of the analysis. There are some minor details in choruses II, III and IV — a couple of bars of the second voice and two electric guitar riffs — but in general all of these three choruses are missing altogether. The main differences between the transcription made by Fujita, Youji, Hajime and Goro — and the original record made by the Beatles are illustrated in Table 4.

	intro	I chorus	II chorus	III chorus	IV chorus	Coda
Form	B	A - A - B	A - A - B	A - A - B	A - A - B	B - B
Beatles Complete Score	B	A - A - B	-	-	-	B - B

TABLE 4. The form of 'Cry Baby Cry' compared to the "complete" score by Fujita et al (The Beatles Complete Scores, 1989)

After closing the case 'Cry Baby Cry', Koskimäki will continue his research on the arrangements of the Beatles from the variation point of view by choosing examples representing different points in the career of the Beatles. The underlying goal is to find out how their arrangements developed across the years. Another very interesting research topic would be to explore to what degree this ever-present variation is indeed the thing *an sich* — an explanation for the fact that the music of the Beatles has remained and still appears so fresh after 30 years or more. One answer to this question may be that the Beatles simply raised the effect of the ever-present variation to its highest power! But shedding further light on this issue is another story — and another large but, nonetheless, fascinating task for future research.

The popular music literature is full of all sorts of descriptions but rather few articles or books have concentrated on the music as such. Another bias is that too

few (academic) writers have concentrated on music that really popular (as measured by popularity and distribution). The Beatles are a natural starting-point in any deeper analysis of popular music — this famous quartet had and still has a very strong impact on all popular music and almost all musical cultures in the last thirty-five years.

But, because written notation is the most handy and illustrative way to demonstrate musical phenomena in popular music, as well as classical, reliable transcriptions would be needed. It would, indeed, be a great cultural act to publish full scores —truly complete scores — of all the songs the Beatles released during 1962-70. This would be a very laborious task, which would require the time of several transcribers over several months or years. This is beyond the scope of the BEATLES 2000 project. But, only after this work, the study of the music of the Beatles — especially that of the arrangements — can be started from the same starting line as, say, the study of the music of Bach or Beethoven. Why should we Beatles researchers accept anything less than that?

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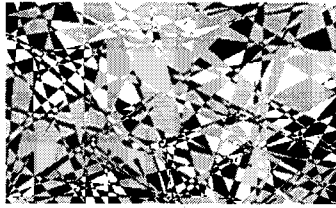
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STUDY II

HAPPINESS IS... A GOOD TRANSCRIPTION

Shortcomings in the Sheet Music Publications of
'Happiness Is A Warm Gun'

Published in the year 2000 in *Beatlestudies 2: History, Identity, Authenticity*.
Edited by Yrjö Heinonen, Jouni Koskimäki, Seppo Niemi and Terhi
Nurmesjärvi. Jyväskylä: University of Jyväskylä,
Department of Music. Research Reports 23.



BEATLES 2000

**HAPPINESS IS
... A GOOD TRANSCRIPTION**
Shortcomings in Sheet Music Publications of
'Happiness Is A Warm Gun'

Jouni Koskimäki

It is common knowledge that neither John Lennon nor Paul McCartney could read or write music – that is, they were not familiar with the common notation system. Nevertheless, although both of them were suspicious of music theory, they were not against writing music down. They simply found it problematic. In Lennon's own words:

"In the early days they were always asking us 'Would you and Paul consider learning music?' and we always said, 'No, No, it would wreck our style' or whatever we said would ruin it. That's what we said. Sometimes it's annoying not to be able to write down something, but to write down a bit of music I have to go through a whole complicated thing to remember it. I've lost lots of good music through not being able to write it down. But if we could write it there would be some counter loss. I tape-record it so there's no need for it. I think writing music would be all right if it was up-dated, they use a very old fashioned style of note

formation. Most of my songs, on the sheet music, have always been incorrect. If ever I get anybody to play me the notes on the sheet music, it's all wrong. There seem to be minor notes against major, I'm always singing minor notes against major because I think it's bluesy but it turns out that it isn't. It's a mistake they keep telling me, so they never write it like that, they always write a major note. All those bands who read from the sheet music, they're just playing the wrong tunes altogether. So there's certain notes you can't write down. If they are going to have written music then somebody should invent a new musical notation, which covers *all* the notes. But there always seems to be something wrong." (Miles & Marchbank 1978, 76.)

It seems, however, that the problem was not so much in the notation system as such but, rather, in the way the music was written down. The difficulty was in and between the ears of the transcribers.

The aim of my study is to compare how accurately the music and especially the rhythm has been transcribed in different sheet music publications of 'Happiness Is A Warm Gun', which is, in my opinion, the most complex of the Beatles songs from a rhythmic point of view. Actually, because of the rhythmic complexity of the song, the Beatles spent quite a long time in the studio when recording it. The sessions lasted three days (from 23 to 25 September, 1968) and the number of the different takes rose up to 70, which is one of the highest amount of takes for a single song they ever recorded. The final version was edited from two takes (53 and 65) (see for example Lewisohn 1988, 157 and Lewisohn 1997, 300). I will also take into account how well the transcriptions serve musicians who want to learn and play the songs from these publications. Through the analysis of 'Happiness Is A Warm Gun' I will also demonstrate the problems in the authenticity and shortcomings of sheet music publications. Naturally the record is considered as the authentic source, to which the notations are compared.

PROBLEMS IN MAKING A CORRECT TRANSCRIPTION OF RHYTHMICALLY COMPLEX MUSIC

main sheet music formats

If the arrangements for non-original instruments and line-ups are not taken into account, most of publications fall into one of the following publication formats:

- ❖ sheet music editions (mainly the so called vocal/piano edition)
- ❖ lead sheet editions
- ❖ full score editions
- ❖ editions containing transcriptions of an instrumental part
- ❖ simplified editions (called mainly the easy edition)

Sheet music editions are probably the most commonly used in popular music. There are two types of this format: piano (or other keyboard staves) *with* or *without* vocal stave. It is, at least in principle, an arrangement of the main sections of the song for piano (or other keyboard instrument). Piano staves are in principle the same in both types of sheet music. In these formats, the upper piano stave – treble clef, intended to be played with the right hand – includes the main melody (occasionally incorporating secondary melodies) together with some supporting chord tones where appropriate. The lower stave – bass clef, intended to be played with the left hand – occasionally coincides with the actual bass line heard on the record but is more often arranged for the left hand of the piano. The lyrics are written under the upper stave and the chord symbols over the upper stave in the case of format without a vocal stave. With the vocal stave lyrics are also placed underneath but the chord symbols are either in between of piano staves or over the vocal staff. Previously (in the sixties and often in seventies the chord symbols were placed under the lower stave in both sheet music formats. Guitar diagrams may also be added, usually so that they, together with the chord symbols, are written above the upper stave (see Example 1).

The *lead sheet format* comprises only a single stave for the main melody (other vocal or instrumental parts may occasionally be added), above which the chord symbols – with or without diagrams – are written. Sometimes all chord diagrams are given in the space between the song title and the first stave, so that only the chord symbols are written above the staves.

In popular music, the *full score format* has not been common before the 1980s. As its name implies, a full score is intended to represent all of the instruments heard on an actual record (or performance) as accurately as possible. The parameters indicated in a full score usually include the pitch (as in melody or harmony) and the rhythm. Such aspects as dynamics or phrasing are more rarely indicated. Actually, many publications titled "full scores" or "complete scores" are in practice far from full or complete: certain instruments as well as entire sections of a song may be omitted altogether –

actually in the majority of publications these shortcomings exist. During the entire publishing history of the Beatles it was only at the beginning of eighties that the first editions of their music in the original key were released (Milton Okun's edited and arranged books 'Compleat Beatles I & II' almost all songs are in the original key). Also in the end of this decade the first accurately transcribed improvised guitar solos, and also the first so-called full score publications of the Beatles were released – unfortunately the first issues of these full scores were rather poor, omitting both a large amount of sections and quite many instruments.

A) With vocal stave

Musical score for 'Let It Be' (Example A). The score is in 4/4 time and G major. It features a vocal line and a piano accompaniment. The vocal line includes the lyrics: "Ah — look at all — the lone - ly peo - ple!". The piano accompaniment is marked *mf*. Above the vocal staff, two guitar chord diagrams are shown: C (x32010) and Em (022010). The score is divided into two systems, with a repeat sign at the end of the second system.

B) Without vocal stave

Musical score for 'Let It Be' (Example B). The score is in 4/4 time and G major. It features a piano accompaniment with guitar chords indicated above the staff. The chords are: G, Hm/F#, Em, C, Em/H, Am, and CΔ. The lyrics are: "I read the news today oh boy about a lucky man who made the grade". The score is divided into two systems, with a repeat sign at the end of the second system.

Example 1. Two types of Sheet music format.

One category of sheet music publications includes *transcriptions of an individual instrumental part*, originally played by a member of the Beatles on a recording. Most of these transcriptions concern the guitar part.¹ The

¹ The first accurate transcriptions of improvised rock guitar solos were published in the beginning of the 1980s. One of the leading pioneers in this field was guitar virtuoso

Good Day Sunshine (Pocket Beatles (for easy to intermediate guitar))

The notation for 'Good Day Sunshine' is presented in three systems. The first system shows a guitar line with chords: A, E, no chord, A, E, no chord, over a melody line. The second system shows a piano recording with a treble clef staff and a bass clef staff. The third system shows the piano recording with chords: H, F#, H, F#.

Cry Baby Cry (The Beatles Complete (Piano Vocal/Easy Organ))

The notation for 'Cry Baby Cry' shows a piano recording with a treble clef staff and a bass clef staff. The recording is in 4/4 time and features a simple melody and accompaniment.

With A Little Help From My Friends (It's Easy to play Beatles)

The notation for 'With A Little Help From My Friends' is presented in three systems. The first system shows a guitar line with chords: C, G, Dm, F, G7, C, over a melody line. The second system shows a piano recording with a treble clef staff and a bass clef staff. The recording is in 4/4 time and features a simple melody and accompaniment.

Example 2. Simplified Beatles notations and comparison to the record (transcriptions by Koskimäki).

first transcriptions of solo guitar improvisations by the Beatles were also published in the 1980s. However, more accurate transcriptions were to be

Steve Vai, whose early transcriptions – mostly published in the leading popular music magazines such as *Guitar Player* – included solos by Eddie Van Halen.

published only in the beginning of the 1990s. These transcriptions include *The Beatles Guitar Book* by Joff Jones (1990) and *The Beatles Guitar Techniques* by Jesse Gress (1993). There are also some publications for other instruments, for example *Basslines: The Beatles* (1992). There are also keyboard-oriented publications such as *The Beatles Keyboard*, *The Complete Piano Player*, and *Creative Keyboard Series: The Beatles*. There is, however, no corresponding publication for percussion, although it is probable that such a publication will be published in the near future.

A full chapter of its own could have been devoted to the so-called *easy* or *simplified editions*. Such editions are very common in popular music. As for the Beatles, this category too is exceptionally large. The titles of these editions are usually something like "The Beatles – Easy Edition" or "It's Easy to Play the Beatles". The title immediately implies the essence of the publication: the music is simplified to the degree that a even a novice is assumed to be able to play it. The most common simplifications concern the chords (usually there are less chord changes and/or the chords themselves are simpler) or the rhythm (usually there is less syncopation, the time-values are less complex, and/or grace notes or figures are omitted). From the basic music elements the rhythm is the mostly simplified parameter (see Example 2).

transcribing rhythmically complex music

To begin with, I would like to suggest that anyone who wishes to make a good transcription, should keep in mind the following three principles:

- ❖ the transcription should always make the organization of music as clear as possible – it should make it easier to comprehend and perform.
- ❖ transcriptions may have different functions and the level of details vary according to its function² – in any case, the transcriber should make the purpose of his or her transcription explicit at the outset.

² It must be remembered that no transcription of any musical piece can ever be totally complete. It is simply impossible to translate all the information included in one musical performance into a visual representation (which all transcriptions and notations are). For example, there is no effective, accurate and objective way or tools to transcribe and notate sound.

- ❖ the transcriber should trust his or her own ears – it is amazing how a trained ear can (with a little help of technology) figure out and select information even from a very complex texture.³

The most important element in making a transcription of a rhythmically complex piece of music is to identify the rhythm: how it is perceived and should be performed. Also, on this basis, how a transcription could, as stated above, "make the organization of music as clear as possible". To follow I will give a brief definition of musical rhythm and the basic concepts associated with it. These definitions are based on two articles (Kernfeld, 1988 and Dürr & Gerstenberg, 1980) and one compilation of Web-sites by Mitchell and Logan, 2000.

musical rhythm

Musical rhythm is the grouping of musical sounds principally by means of duration and stress. It is one of the four basic parameters of music – the others being melody, harmony, and sound – and is, since the others contribute to the rhythm and are activated only in association with the rhythm, inseparably linked to the others. Meter, tempo, and pulse are the basic corner stones of musical rhythm.

³ During the last decade some computer software for automatic transcription of music have appeared on the market. Some of them are intended for scientific study (for example Maher 89 & 90, Illinois University; Katayose 89, Osaka University; Kashino93 & 95, Tokyo University; Martin 96, MIT) as well as commercial applications (for example SmartScore, Logic Audio, Studio Vision Pro, IntelliScore). As for a review of softwares for automatic transcription see Klapuri 2000. One of the most recently published and developed programs on the transcription software market is 'Transcriber': it can slow down the tempo yet retaining the pitches of notes. This is a considerably benefit trying to figure out fast and complex passages. Although many of above mentioned software packages are capable of reproducing pitches and time-values very accurately, they can not sufficiently analyze the rhythmic organization of music. In other words, they can not represent the music as it is perceived and performed by humans. Moreover, the end result depends too much on how well the defaults – which are determined by the user – suit to the music to be transcribed. So, in the end, it is the musical competence of the transcriber that counts, instead of the properties of the software. A method based on simultaneous use of the original record and notation software has been presented by Koskimäki & Heinonen 1998.

beat, pulse, and tempo

The beat is the most basic rhythmic unit while the pulse is a recurring time pattern that consists of a succession of beats (a steady pulse resembles the ticking of a clock). In popular music, the pulse is usually explicitly stated by a regular accompaniment pattern played by drums and bass. Tempo determines the speed or rate of the pulse. Sometimes, especially when the texture is complex, the pulse is only implied and may be difficult to determine. In such cases there are at least two ways to identify the basic pulse: (1) the so-called majority principle (that is, the pulse of the majority of instruments), and (2) the pulse of the basic accompaniment (particularly drums and bass). It could also be misleading if you choose note-values that are too long combined with tempo values that are too fast. It is hard to understand and play with fast tempo if the notes are whole note or dotted half notes especially in polyrhythmic texture – the common practice has been that long note-values means also slow tempo. This kind of difficulty is demonstrated in Example 3.

A) M.M. $\circ = 140$

B) M.M. $\text{♪} = 140$

Example 3. Prolonged tempo marking and note values (A) and more acceptable time signature and metronome marking (B).

meter, time values, and time signature

Meter forms the temporal framework through which the rhythm is perceived and established by grouping the unaccented flow of the pulse into patterns based on a hierarchy of accents. The most basic unit of this kind of accent hierarchy is the bar. Bars are formed by stressing the first in a series of two or more beats, so that the beats group themselves into a pattern. Time values refer to the lengths of individual notes. For the pulse to be heard as a common denominator, the time values of individual notes must be exact multiples or subdivisions of the time value to the basic pulse. Time signature consists of two Arabic numerals, the upper numeral of which indicates the number of beats in one bar while the lower numeral indicates the time value accorded to each beat. 1/4 -notes and 1/8 -notes are the most common time values used in time signatures. In simple meters (such as 3/8 and 2/4) the first beat in a series of two or three beats is stressed. In compound meters (such as 6/8 and 4/4), each measure has, in addition to the principal accent on the first beat, one or more subsidiary accents (the same hold true to such irregular meters as 5/4 and 7/8).

One essential factor is identify the most suitable time-signature and pulse to each rhythm. Sometimes it can be difficult: "should I use 12/8 and 1/8 - note pulse, or, 4/4 -time and 1/4 -notes and lots of triplets?" Example 4 ('Good Day Sunshine') shows the same excerpt with two different time signatures (12/8 and 4/4). Both notations have good properties but also some shortcomings. The preference depends largely on the users earlier experience of music and notation.

The image shows two staves of musical notation for the song 'Good Day Sunshine'. The top staff is in 12/8 time, and the bottom staff is in 4/4 time. Both staves are in the key of F# major (three sharps: F#, C#, G#). The melody consists of four measures. In the 12/8 notation, the first note of each measure is accented with an 'H' above it, and the second note is marked with an 'F#' above it. In the 4/4 notation, the first note of each measure is accented with an 'H' above it, and the second note is marked with an 'F#' above it. The 4/4 notation uses triplets for the second and fourth notes of each measure, indicated by a '3' and a bracket below the notes.

Example 4. 'Good Day Sunshine' with two different time signatures.

accentuation

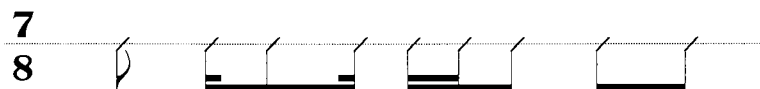
An accent may be defined as intensification in length or loudness of an individual note as compared to its surrounding notes. Much of the rhythmic interest in music depends on accentuation – especially in the case of popular music, where accents occur against the regular accented pattern. In the common notation system, accents are indicated by various accentuation marks (light, moderate, heavy etc.). However, most are not notated within the music but are inserted into the music by the "interpretation" of the performer. To be able to place accents correctly, the performer must, then, be familiar with the genre and style which the song represents.

phrasing and beaming

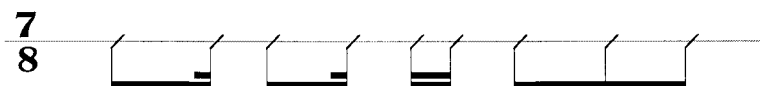
The phrase is the shortest self-sustaining musical expression (self sustaining in the sense that it has a perceivable beginning, middle, and end). In popular music, phrases tend to be two or four bars long. In notation, correct phrasing can be indicated by phrasing marks or slurs. Beaming – that is, joining a group of eighth-notes, sixteenth-notes and so on together with a beam – is a very useful way of highlighting small-scale rhythmical patterns and accentuation without using accentuation marks. Usually beaming implies accentuation: the first note of any group of beamed notes is typically assumed to have a stress or accent on it. This is why it is extremely important to use beaming in such a way that it complies with the musical context. Incorrect beaming only leads to a performance that corresponds neither to the original source nor what was intended by the transcriber. In example 5 there's a demonstration of misleading beaming.⁴

⁴ This real life example which actually occurred in my arrangement-class, one student notated the rhythm of a quartet as in example 5A. However, her phrasing and accentuation in the piano-part was as presented in example 5B. The notated beaming different considerably from what was actually played by the transcriber. Other band members could not follow her lead due to discrepancy between performance and score. Onomatopoeic representation of example 5A where the accents are with **bold** fonts is as follows: "**ton te**-kont-te **te**-ke-ton **ton-ton**" whereas example 5B is: "**tonk-ke tonk-ke te-ke ton-ton-ton**". With false outlining of the rhythmic phrase and incorrect beaming, the result of the music is noticeably different: the notation does not make the music more understandable, on the contrary: it changes the music to something else.

A) notated rhythm



B) performed rhythm



Example 5. Misleading beaming.

complex rhythms

Although much popular music is based on regular rhythmic patterns, there are numerous examples avoiding this kind of regularity. Commonly used devices in breaking from overly regular rhythmical patterns include

- ❖ the use of irregular meters (5/4, 7/8; here the irregularity only takes place within a bar)
- ❖ altering the lengths of measures (for example, a series of four measures with time signatures 3/8, 4/8, 2/8, and 5/8)
- ❖ the use of polyrhythm (that is, the simultaneous use of different meters in different parts) The most common variations in polyrhythmic texture are two against three (for example 1/4-note duplets and 3/4, or, 6/8 and 3/4, in which 6/8 has two beats in one bar)

All of these devices can be combined into a single piece or even in one short section of a piece. Stravinsky's *Rite of Spring* is a good example of this. 'Happiness Is A Warm Gun' by the Beatles is another. It goes without saying that, in the case of complex rhythms, it is extremely important to choose the most natural pulse (including tempo indications) and time signature as well as to indicate the metrical structure within a bar by using beaming in a logical

and illustrative way (the use of phrasing and accentuation marks may also be helpful). In example 6 there is a demonstration of a typical polyrhythmic texture.

The image displays two systems of musical notation. The first system has two staves: the top staff is in 3/4 time and the bottom staff is in 6/8 time. The second system also has two staves: the top staff is in 2/4 time and the bottom staff is in 2/4 time. The notation includes various rhythmic patterns, including triplets and sixteenth notes, illustrating the polyrhythmic texture.

Example 6. Polyrhythmic texture.

PROCEDURE AND MATERIALS

The basic procedure of this study is to compare a collection of published sheet music representations of 'Happiness Is A Warm Gun' to the actual recording. The main point is to explore how accurately the transcriptions reproduce that which is audible on the record. Furthermore, I will explore how these transcriptions work from the musician's point of view (for example how easy, illustrative, and unambiguous they are to learn and play). I will pay attention particularly to the aspects referred to in the previous section.

Gathering of a representative collection of published transcriptions is not an easy task due to the enormous quantity of publications available. Because of the lack of a complete sheet music bibliography, it is rather difficult to estimate how many transcriptions of a particular song are available. Another matter is that, in this case, the array material would easily become too large and difficult to deal with, therefore the best solution is to choose a

representative selection. In this case, the eligibility of the selection was determined by choosing

some of the best known and widely used publications, examples representing different publication formats, and editions from different time periods, from the early 1970s to the late 1990s.

The selected publications as well as information concerning them is presented in Table 1.⁵ The most well-known and widely used publications include James (the authorized publisher), Okun (the first in which songs were transcribed in original keys and where most of the instrumental solos were also included), and Scores (the first and to date the only full score publication of all Beatles songs). Unfortunately an example could not be found of 'Happiness Is A Warm Gun' in the lead sheet format, so there are eight transcriptions in sheet music format (three in piano format and five in vocal/piano format), one full score (Scores), and one analysis of the song's rhythm (MacDonald). There is only one explicitly simplified edition (Complete/Easy) in the selection. Two of the selected editions (*Complete/Easy* and *The Beatles*) have no release date printed.⁶

ANALYSIS AND COMPARISON

In the following, I will present my own analysis of 'Happiness Is A Warm Gun' and compare the transcriptions presented in the sheet music publications belonging to the sample of this study within my analysis. The comparison and analysis proceed section by section, in the order in which sections appear in the original song.

⁵ After the name and other information concerning the publication there is a shortcut name of the edition in *italics*. From here on, I will use these shortcuts in the analyzes, in the text, tables and examples.

⁶ According to adjustments made by the Jyväskylä city library the *Complete/Easy* publication was released in the beginning of seventies (most probably in 1973) and *The Beatles* publication in the middle-seventies (most probably year with this edition 1975) (Mäkelä 1999).

Publication	Sheet music format	Shortcut
The third book of 50 Hit songs by John Lennon & Paul McCartney, edit. Dick James (1970)	Sheet music (vocal/piano)	<i>James</i>
The Beatles Complete Piano Vocal/Easy Organ (197-?)	Sheet music (piano); Easy edition	<i>Complete/Easy</i>
The Beatles (Wise Publications) (197-?)	Sheet music (vocal/piano)	<i>The Beatles</i>
The Beatles Bumper Songbook (1980)	Sheet music (vocal/piano)	<i>Bumper</i>
The Compleat Beatles, volume two, edit. Milton Okun (1981)	Sheet music (piano)	<i>Okun</i>
The Beatles Complete. Piano/Organ/Vocal Edition (1983)	Sheet music (piano)	<i>Complete/Piano</i>
The Complete Beatles, volume one, A-I, arr. Lowry (1988)	Sheet music (vocal/piano)	<i>Lowry</i>
The Beatles Complete Scores. Transcriptions: Tetsua Fujita, Hagino Youji, Kubo Hajime and Sato Goro (1989)	Full score	<i>Scores</i>
The Beatles: The White Album (1992)	Sheet music (vocal/piano)	<i>White Album</i>
Ian MacDonald: Revolution in the Head (1998)	Rhythm analysis	<i>MacDonald</i>

Table 1. The selected publications.

overview

The song consists of four sections each section being based on a different pulse. Moreover, the lengths of the sections are different and the meter (time signature) varies from 4/4 via 3/8, 3/16, and 4/8 back 4/4. There are also similar variations concerning the rhythm within certain sections (C and D). Table 2 illustrates the overall rhythmic complexity of 'Happiness Is A Warm Gun'.

During the first half of the song the pulse doubles on two occasions: from the 4/4 of section A to the 3/8 of section B and from the 3/8 of section B to the 3/16 of the beginning of section C. In the end of the song the pulse changes just the opposite direction: from the 3/6 at the beginning of section C to the 3/8 (4/8) at the end of the same section and from the 4/8 of the end of section C to the 4/4 of section D. So, at the conclusion the pulse returns to that with which the song began.

Section	A		B				C (three times repeated)				D		
	(She's not a girl..)		(instru- mental & I need a fix..)				(Mother Superior jump the gun)				(Happi- ness...) ...) (Be- cause.)		
Sub-section			C1	C2	C1'	C2'	D1	D2	D3				
Most natural pulse	4/4	3/8	3/16	3/8	3/16	4/8	4/4	3/8	4/4				
			(4 x 3/16 in the melody or 2 x 6/16)	(only one bar)	(4 x 3/16 in the melody or 2 x 6/16)	(only one bar)							
Time	(0'00"-0'44")	(0'44"-1'12")	(1'13"-1'15")	(1'15"-1'16")	(1'16"-1'18")	(1'18"-1'19")	(1'34"-0'44")	(1'47"-2'02")	(2'02"-2'41")				

Table 2. The pulse changes in 'Happiness Is A Warm Gun'.

section A – "She's not a girl who misses much..."

analysis

Determining the basic pulse of the section is by no means problematic. The vocals and the finger-picking guitar play mostly in 1/8 -notes and 1/16 -notes, while the bass and drums play mostly in 1/4 -notes. Because the basic accompaniment (bass & drums) has a major impact on the overall feel of the rhythm, the most natural pulse of the section is based on quarter notes. According to the majority principle, the most natural pulse of this section is based on quarter notes. The section itself consists of six phrases as follows:

1	"She's not a girl..."	0'00"
2	"Do do do do..."	0'07"
3	"She's well acquainted..."	0'14"
4	"The man in the crowd..."	0'23"
5	"Lying with his eyes..."	0'30"
6	"A soap impression..."	0'37"

Taking the quarter note pulse, the lengths and time signatures of the six phrases of section A are as follows. The first two phrases are eight 1/4 -notes long each and form two bars in a 4/4 meter. Contrary to this, the third phrase consists of ten 1/4 -notes and is most naturally divided into two bars, one in 6/4 and the other in 4/4 (See Example 7).

The fourth and fifth phrases are similar to the first two bars (eight 1/4 -notes, forming two 4/4 bars). The sixth bar is once different again, consisting of nine 1/4 -notes, which are naturally divided in two bars, one in 5/4 and the other in 4/4 meter. Section A is based only on two chords and it is most natural to try to fit the bar lines to the chord changes where possible. On this basis, it is better to write the sixth phrase as suggested above (that is, one bar in a 6/4 meter) rather than dividing the beginning of the phrase into one 4/4 and one 2/4 phrase, as has been done in many publications.

(0'14" - 0'22") ♩ = 71 bpm

vocal

She's well acquainted with the touch of the velvet hand like a lizard on a window pane the

guitar 1

guitar 2

Dm⁶ Am

bass

drums

Example 7. The third phrase of A-section as in a full score format by Koskimäki.

comparison of the publications

For one reason or another the variety concerning the rhythm of 'Happiness Is A Warm Gun's A-section is astonishingly large amongst the published transcriptions. This is astonishing because section A is *not* particularly complex compared to the rest of the song. Within the ten chosen publications there are seven different notations of the rhythm for this section. This variety is shown in Table 3.

The phrases consisting of eight 1/4 -notes (1, 2, 4, and 5) are calculated correctly in all publications. Contrary to that, the two phrases of irregular length (3 and 6) are in my opinion understood incorrectly in these publications. In principle, the third phrase is represented basically the same way but, because two publications have chosen half note as the basic pulse, the length of this phrase is different between the publications. Strangely enough, in all publications the third phrase (based on the progression Dm⁶-Am) is divided into three measures, despite the fact that there is no musical reason to support this. As stated above, it is much more natural, and

consistent, to notate the beginning (Dm6) as one 6/4 measure rather than dividing it to two bars (4/4 + 2/4).

For some irritating reason four publications (James, Bumper, Okun and The Beatles) change the pulse, even though nothing in the music supports such an alteration. Moreover, all publications, with the exception of Scores, divide the sixth phrase into three bars. The natural division is, however, two bars as in the case of the third phrase (see Ex. 7). The only difference to the third bar is that now there are five beats as opposed to six. Thus the most natural time signature is 5/4 (instead of the 6/4 of the third bar). In fact, this is the way the sixth phrase is notated in Scores. In Complete/Easy there is yet another mistake: the sixth phrase is shortened to eight beats instead of nine.

section B – "I need a fix 'cause I'm going down..."

analysis

In section B the pulse changes for the first time in the song. The rather slow 4/4 time of section A is now substituted for a faster 3/8 pulse. Along with this change of pulse comes the polyrhythm, with drums playing dotted 1/4 -notes over the basic 3/8 pulse (this accompaniment kept throughout the entire section). The first dotted 1/4 -note occurs on cymbal while the latter occurs on the snare. The meter of this accompaniment is basically even 2/4 (where each 1/4 -note played by the drums is equal to the dotted 1/4 -notes sung by Lennon and played by the other instruments.) The resulting texture is very polyrhythmic (see Example 8)

As the section proceeds, the complexity reaches an even higher level. This is due to two factors: (1) the varying lengths of phrases, and as mentioned above, (2) the 2/4 -feeling drum accompaniment in 3/8 time signature through the whole section (although the lengths of the drum beats are mostly dotted quarters). The first phrase comprises of three bars while the second and third each comprise four bars. In the beginning of the second phrase (at 0'48"), the percussion accompaniment is inverted: now the first beat occurs on the snare (instead of the cymbal) and vice versa. Again, when this irregular 3+4+4 bar structure is repeated, the drum accompaniment is switched back to a more standard accompaniment figure. This takes place eight bars before the end of the section (at 1'02").

	Time signatures	Number of bars
Koskimäki	2 x 4/4 (first phrase) (0' 00" - 0'06") 2 x 4/4 (second) (0'07" - 0'14") 6/4 + 4/4 (third) (0'14" - 0'22") 2 x 4/4 (fourth) (0'23"-0' 29") 2 x 4/4 (fifth) (0'30" - 0'36") 5/4 + 4/4 (sixth) (0'37" - 0'44")	12
James	2 x 8/8 (first) 2 x 8/8 (second), 8/8 + 4/8 + 8/8 (third), 2 x 8/8 (fourth), 2 x 8/8 (fifth), 4/8 + 6/8 + 8/8 (sixth)	14
Complete/Easy	25 x 4/4	25
The Beatles	2 x 4/4 (first), 2 x 4/4 (second), 4/4 + 2/4 + 4/4 (third), 2 x 4/4 (fourth), 2 x 4/4 (fifth), 2/4 + 6/8 + 4/4 (sixth)	14
Bumper	2 x 4/4 (first), 2 x 4/4 (second), 4/4 + 2/4 + 4/4 (third), 2 x 4/4 (fourth), 2 x 4/4 (fifth), 2/4 + 6/8 + 4/4 (sixth)	14
Okun	2 x 4/4 (extra intro), 2 x 4/4 (first), 2 x 4/4 (second), 4/4 + 2/4 + 4/4 (third), 2 x 4/4 (fourth), 2 x 4/4 (fifth), 2/4 + 6/8 + 4/4 (sixth)	16
Complete/Piano	22 x 4/4 alla breve, 2 x 6/4 + 2 x 4/4 alla breve, moderato	26
Lowry	2 x 4/4 (first), 2 x 4/4 (second), 4/4 + 2/4 + 4/4 (third), 2 x 4/4 (fourth), 2 x 4/4 (fifth), 2/4 + 3/4 + 4/4 (sixth)	14
Scores	2 x 4/4 (first), 2 x 4/4 (second), 4/4 + 2/4 + 4/4 (third), 2 x 4/4 (fourth), 2 x 4/4 (fifth), 5/4 + 4/4 (sixth)	13
White Album	2 x 4/4 (first), 2 x 4/4 (second), 4/4 + 2/4 + 4/4 (third), 2 x 4/4 (fourth), 2 x 4/4 (fifth), 2/4 + 3/4 + 4/4 (sixth)	14
MacDonald	4 x 4/4, 1 x 4/4, 1 x 2/4, 6 x 4/4, 1 x 1/4 and 1 x 4/4	14

Table 3. A-section's time-signatures and the time-signatures in the studied publications.

8va (0'44" - 0' 51") ♩ = 140 bpm

vocal

guitar 1

guitar 2 with heavy distortion

guitar 3

bass

drums

8va (0'59" - 1' 06")

octave-doubling

doubled tracked lead vocal

I need a fix 'cause I'm going down - - down to the bits that I left up

vocal

guitar 1

guitar 2

guitar 3

bass

drums

Example 8. Polyrhythm in B-section in full score format by Koskimäki.

comparison of the transcriptions of section B in sheet music publications

Even though the transcriptions of section B are much more homogeneous compared to those of section A, there is still considerable variation between them (Table 4).

	Time signatures		Number of bars
Koskimäki	11 x 3/8 (instrumental)	(0'44" - 0'58")	22
	11 x 3/8 (I need a fix 'cause...)	(0'59" - 1'22")	
James	22 x 3/8		22
Complete/Easy	11 x 3/4		11
The Beatles	11 x 3/4		11
Bumper	11 x 3/4		11
Okun	22 x 3/4, slow waltz, ♩ = ♩.		22
Complete/Piano	11 x 3/4, moderate waltz		11
Lowry	22 x 3/4, double tempo		22
Scores	9/8, 2 x 12/8, 9/8 and 2 x 12/8		6
White Album	22 x 3/4, double tempo		22
MacDonald	22 x 3/8		22

Table 4. B-section's time-signatures and the time-signatures in the studied publications.

Basically section B has been transcribed in three different ways: (1) in 3/4 meter (Complete/Easy, The Beatles, Bumper, Okun, Complete/Piano, White Album, and Lowry), (2) in 3/8 meter (James, MacDonald), (3) alternating between 9/8 and 12/8 (Scores).

In some publications the rhythm has been simplified. Four publications (Complete/Easy, The Beatles, Bumper, and Complete/Piano) have completely omitted the instrumental parts (11 bars). In three publications (Complete/Easy, The Beatles, and Bumper) there is no sign of a change of pulse. James has utilised the same pulse for section B as for section A

(instead of being a 1/4 -note it is a 1/8 -note for both A- and B-sections). *Scores* favours the utilization of more beats per bar: according to it, section B consists only of six bars while half of the publications present it as being 22 bars. Time signatures in *Scores* are either 9/8 or 12/8 while all the other editions have either 3/8 or 3/4. For musicians it very difficult to comprehend especially the lead guitar solo from *Scores*: the notation also includes many grace notes, 16th triplets and 32nd notes. The psychological impact of compressing multiple rhythmic alterations into one bar is considerably greater than by dividing the same passage over a series of bars.

section C – the Beatles go Balkan

analysis

Section C is undoubtedly the most complex and rhythmically rich of all sections of the song. It simultaneously combines complex polyrhythms and frequent changes of pulse (11 in total). In Example 9 is presented the entire C-section transcription in full score format by Koskimäki.

Section C consists of a unit of two melodic phrases (both with the lyrics "Mother Superior jump the gun") repeated three times. The pulse of the first phrase is based on 1/16 -notes (3/16) while the pulse of the second is based on 1/8 -notes (3/8). This kind of rhythm is called additive rhythm and it is common all over the world but particularly in Balkan areas.⁷ Indeed, in the C-section of 'Happiness Is A Warm Gun' the Beatles do go Balkan! The most prominent features of this kind of additive rhythm includes (1) a rapid change of between a duple and triple meter and (2) a specific figuring of the pulse. By the 'specific figuring' I mean that it is natural to notate the duple meter in slower time values than the triple meter (usually twice as slow).⁸

⁷ Bela Bartok used the term 'Bulgarian rhythms' to describe this kind of additive rhythm. For example, in his *Microcosmos VI* there is a movement entitled 'Six Dances in Bulgarian Rhythm'. Although it is common all over the world, this kind of additive rhythms became known as "Bulgarian" since they were first analyzed in Bulgaria by Bartók. (Kaufman 1981, 432.)

⁸ I got a good lesson of this in 1987 when I had an opportunity to be acquainted with local Bulgarian folk musicians working habits – as well as playing with them. When they taught new songs, they consistently used the above-mentioned method of outlining the changes of pulse. For example, the very common *rachenitsa* rhythm – which is in a 7/8 meter and mostly played with a division of 2+2+3 – was taught by singing it with onomatopoetic syllables as "ton-ton + te-ke-te" and clapping it as

2nd & 3rd time octave-doubling in vocal

vocal $\overset{8va}{\vee}$ 3 x

Mot- her Su- per- ior jump - the gun

guitar 1 $\overset{8va}{\vee}$ 1st time

guitar 2 $\overset{8va}{\vee}$ A 2nd & 3rd time C

bass $\overset{8va}{\vee}$ 1st time sl

tambourine 6 16 1st time tambourine & hi-hat tacet first three bars

hi-hat 6 16

drums 6 16

first time also octave-doubling in these three bars

Mot- her Su- per- ior jump the gun

A G7

Example 9: C-section in full score format by Koskimäki.

♩ ♩ ♩ ♩. Another well-known dance rhythm, kopanitsa, which is in 11/8 meter, was taught as "ton-ton – te-ke-te – ton ton", clapping it as ♩ ♩ ♩ ♩ ♩ . . .

As to its rhythm, the section C of 'Happiness Is A Warm Gun' is "pure Balkan". Perhaps the way this "Balkan" beat works in section C is best illustrated by illustrating how the accents are positioned in the lyrics. If written as "MOther SuPERior JUMP the GUN" (where the capitalized syllables indicate accents), all the accentuated notes function at the same time as the first notes of each bar in a 3/16 meter. In the last bar of both phrases, the basic pulse is changed from 1/16 - notes to 1/8 -notes. First time this concluding bar consists of three eight-notes (3/8) and the second time of four eight-notes (4/8). Thus, the rhythm of section C is genuinely "Balkan" in the sense that its phrases are naturally written in the same manner as the additive Balkan rhythms are taught by local musicians: the first phrase goes as 3+3+3+3 + 2+2+2 and the second one as 3+3+3+3 + 2+2+2+2 (Example 10).

The image shows two musical staves. The top staff is in 6/16 time and starts with a fermata over the first note. The bottom staff is in 6/8 time. Both staves show the melody with lyrics: 'Mot - her Su - per - ior jump the gun'. The first transcription has a fermata over the final note, and the second has a repeat sign at the end.

Example 10. The melody of the C-section notated in "Balkan style" (transcription by Koskimäki).

comparison of the transcriptions



Once again there is a huge variety in the way in which the section C of 'Happiness Is A Warm Gun' has been transcribed in sheet music publications. There are, yet again, seven different ways – as was the case in transcribing sections A and B – presented in Table 5.

Among the selected material, little attention has been paid to the "Balkan-type" rhythmic quality of the section. Most editions have not noticed it at all and only some show a tiny glimpse of this kind of rhythmic structuring.

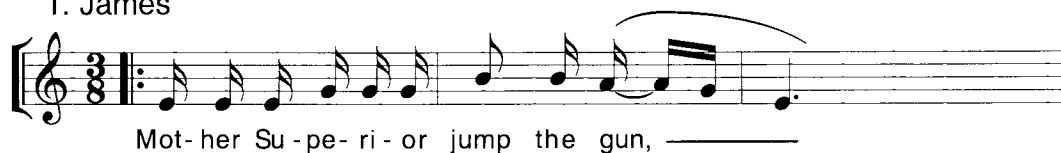
	Time signatures	Number of bars
Koskimäki	2 x 6/16 "Mother Superior jump the gun.." (1'13" - 1'15") 1 x 3/8 (1'15" - 1'16") 2 x 6/16 "Mother Superior jump the gun.." (1'16" - 1'18") 1 x 4/8 (1'18" - 1'19") 3 times	3 x 6 (18)
James	5 x 3/8 and 1 x 4/8, 3 times	3 x 6 (18)
Complete/Easy	4 x 6/8, 3 times	3 x 4 (12)
The Beatles	6 x 3/4, 2 times	2 x 6 (12)
Bumper	6 x 3/4, 3 times	3 x 6 (18)
Okun	5 x 3/4 and 1 x 4/4, 3 times	3 x 6 (18)
Complete/Piano	5 x 3/4 and 1 x 4/4, 2 times faster	2 x 6 (12)
Lowry	5 x 3/4 and 1 x 4/4, 3 times	3 x 6 (18)
Scores	9/8 and 10/8, 2 times	2 x 2 (4)
White Album	5 x 3/4 and 1 x 4/4, 3 times	3 x 6 (18)
MacDonald	1 x 6/8, 1 x 8/8, 1 x 4/8, 1 x 6/8, 1 x 8/8 and 1 x 6/8	(3 x 6) (18)

Table 5. C-section's time-signatures and the time-signatures in the studied publications

Example 11 shows how the melody of this section is presented in the publications belonging to the selection of my study. Two publications (Bumper, The Beatles) omit the last beat of the last bar altogether. In Complete/Easy the last bar of each phrase are omitted and the rhythm is transcribed incorrectly in the second and fourth measure (there is also a discrepancy in the melody of the last bar). Other flaws concerning the melody (that is, the pitches) are rare – only Okun, Complete/Piano and Scores include tiny idiosyncrasies concerning this matter. Scores is the only one that has the first

two words ("Mother Superior") positioned correctly – that is  instead of .

1. James



Mot-her Su-pe-ri-or jump the gun, _____



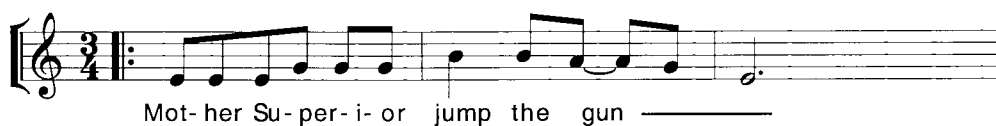
Mot-her Su-pe-ri-or jump the gun, _____

2. Complete/Easy

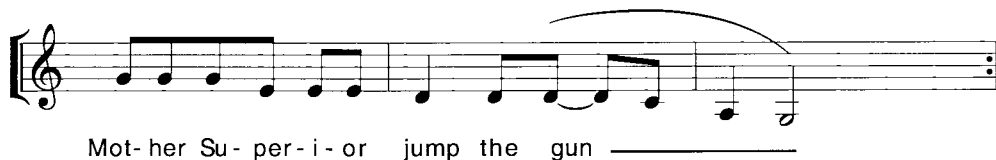


Mot-her Su-per-i-or jump the gun — Mot-her Su-per-i-or jump the gun

3. The Beatles & 4. Bumber

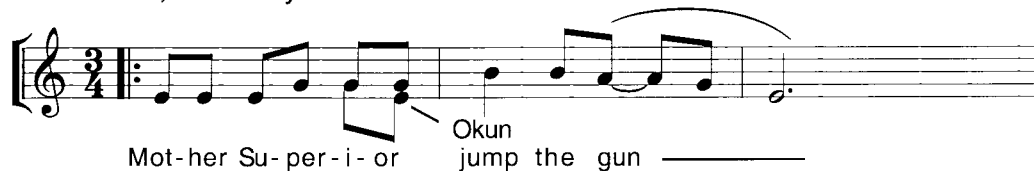


Mot-her Su-per-i-or jump the gun _____




Mot-her Su-per-i-or jump the gun _____

5. Okun , 7. Lowry & 9. White Album



Mot-her Su-per-i-or Okun jump the gun _____



Mot-her Su-per-i-or jump the gun _____

6. Complete (Piano)

Mot - her Su - per - i - or jump the gun

Mot - her Su - per - i - or jump the gun

8. Scores

Mot - her Su - per - ior jump the gun

Mot - her Su - per - ior jump the gun

10. MacDonald

Table 11. C-section's melody in the studied publications (7 different versions).

Choosing the correct time signature for each section is crucial to outlining and determining the essence of the rhythm. Moreover, it is highly important to use logical beaming – and it is the beaming that is perhaps the most flawed and misleading aspect of the transcriptions, at least with respect to section C. For example, when the meter is 6/16 and the logical beaming would be 3+3, the sheet music publications prefer writing it either as 2+2+2 or as 4+2 (cf. Example 11). If you try play this C-section through with "non-Balkan" notations, as printed, it is extremely difficult due to the false beaming.⁹

⁹ If you play with these misleading rhythms within this section, the resulting rhythm would be rather different. Somewhat similar to Leonard Bernstein's famous 'America' from 'West Side Story' which has been notated as 2+2+2+3+3 (or in onomatopoeic

With respect to beaming (as well as syncopation, phrasing, and the overall layout), the most illogical and confusing publication is undoubtedly Scores, however, there are also mistakes and shortcomings within other publications.

James, the pioneer of all Beatles sheet music publications, has for some reason left the whole section without any beaming. This makes the transcription very difficult to read and comprehend. McDonald is the only one where there is a change in time signature in every bar of C-section. This is understandable from the melodic point of view but given the whole texture (including instruments, especially the basic rhythm section) the frequent changes in time signature only make the transcription unnecessarily restless.

Although the beaming is, in most cases, against the natural pulse of music, there are quite many examples of how a natural articulation is indicated by phrasing marks. The most accurate publications as to the phrasing marks are James, Okun, Lowry, and White Album. In Scores, the phrase markings begin too late and this also holds true for the phrasing marks given in Complete/Piano. The only phrasing mark Complete/Easy provides is correct but this does not help much since the rhythm of that particular phrase is incorrectly notated.

Of the nine publications (the tenth is MacDonald's analysis of the rhythm) only four have paid some attention to the rich polyrhythm so evident in section C. In this regard, the best ones are White Album and Lowry. Both have transcribed the most important elements into a piano notation format (which is by no means an easy task). In Scores the time values are correct but they are obscured by an unclear layout – in fact, misleading beamings and syncopation marks make this edition extremely difficult to read and/or comprehend. James has transcribed the polyrhythm quite accurately, only in the first measures of the section are there some inaccuracies. The rest of the publications pay little attention to the polyrhythm and the notation is often unconvincing in relation to the beaming, phrasing, and syncopation. In Complete/Easy there is no indication as to the polyrhythm. An obvious explanation for this would be that polyrhythm is seldom easy!

terms "ton-ton-ton – te-ke-te – te-ke-te"), The correct figured pulse is totally contrary: 3+3+2+2+2: in syllables " te-ke-te – te-ke-te – ton-ton-ton".

Example 12 shows my own transcription of section C, together with three others – one good (White Album), one bad (Complete/Easy), and one average (Complete/Piano).

A) Koskimäki

3 x A C

Mot-her Su-per-ior jump the gun

8va

A G

Mot-her Su-per-ior jump the gun

A G

Mot-her Su-per-ior jump the gun

B) White Album

A7 C

Mot-her Su-per-i-or jump the gun

A7 G7

Play 3 times

Mot-her Su-per-ior jump the gun

C) Complete/Easy

A7 C A7 G7

Mot-her Su-per-i-or jump the gun — Mot-her Su-per-i-or jump the gun

(play 3 times)

D) Complete/Piano

The image displays two musical staves for the 'Happiness' section, labeled 'D) Complete/Piano'. Both staves are in 3/4 time and feature a melody line in the treble clef and a bass line in the bass clef. The lyrics 'Mot- her Su- per- i - or jump the gun' are written below the melody. The first staff includes chords C7 and Eb, while the second staff includes chords C7 and Bb7. The music is transcribed in a way that shows the relationship between the vocal line and the piano accompaniment.

Example 12. Four transcriptions of the C-section as sheet music (Koskimäki, White Album, Complete/Easy, and Complete/Piano).

section D – "Happiness is a warm gun..."

analysis

Section D consists of three sub-sections, the second of which is heavily polyrhythmic (Example 13). All instruments and vocals are in 3/8 pulse, with the exception of the drums which continue even beat (3 x 4/4 and 1 x 2/4). While the basic beat of the drums is 4/4 the snare drum plays accents that coincide with the 3/8 pulse of the other instruments and the bass drum adds tricky kicks to this polyrhythmic texture.

The final sub-section offers another kind of polyrhythm. It consists of contrapuntal melodies with different rhythms. The background vocals add polyrhythmic complexity to the free and recitative-like lead. In the third and last sub-section (from 2'02"– 2'41") there is a one-bar cadence (on Fm7 chord), with *ritardando* and *fermata*. After this comes the last five bars (2'21" - 2'39"), which are a variation of the opening melody of the section with respect

to both the music and lyrics. The song ends with a drum solo consisting of a pair of additional coda-like beats.

The musical score consists of three staves: guitar, bass, and drums. The guitar staff is in treble clef with a 3/8 time signature. It features a repeating eighth-note pattern: C4, E4, G4, A4, G4, E4, C4. Above the notes are accents (>) and downward-pointing arrows (↓) indicating a specific rhythmic emphasis. The bass staff is in bass clef with a 3/8 time signature. It provides a harmonic accompaniment with chords C, Am, F, and G. The drums staff is in bass clef with a 4/4 time signature. It features a steady eighth-note pattern with accents (>) and rests.

Example 13. Polyrhythm in section D.

comparison of the transcriptions

Once again, a great variety is apparent within the transcriptions of section D: there are seven different ways to notate this section amongst the ten publications (Table 6). Obviously, the most misleading and inaccurate transcription is offered by Complete/Easy, in which the entire 26-bar section is compressed, for some peculiar and unknown reason, to only six measures. Even though this publication is explicitly an "easy" edition, it is unforgivable to omit 80% of an entire section. Two other publications (The Beatles and Bumper) have made serious cuts. In Complete/Easy, there is also another serious blunder: the melody of the six bars that *have* been transcribed, has been transcribed so inaccurately that the notation of section D in this publication has virtually nothing to do with the original. Even the lyrics have been reorganized. For example, the title phrase ("Happiness is a warm gun") is repeated only three times. *O transcriptions, o mores!*

A common shortcoming in notating this section is that in three publications there is no sign of the change of pulse that occurs in the central sub-section. The others have noticed this change of pulse more or less accurately – only in Complete/Piano this change is notated in an unnatural

way (from 4/4 to 6/8 instead of from 4/4 to 3/8). The most confusing factor in that publication is, however, that the time value indications beside the time signatures – first slow 4 (♩ = ♪) then 6/8 (♩ = ♪) – simply do not make any sense.

	Time signatures		Number of bars
Koskimäki	4 x 4/4 (Happiness is a...)	(1'34" - 1'47")	26
	12 x 3/8 (When I hold you ...)	(1'47" - 2'02")	
	4 x 4/4 (Because..is a warm..)	(2'02" - 2'15")	
	1 x rit. 4/4 + ferm. (Happiness is .)	(2'15" - 2'20")	
	5 x 4/4 (Gu--n.....)	(2'21" - 2'39")	
	extra coda beats on drums	(2'40" - 2'41")	
James	4 x 8/8, 12 x 3/8 and 11 x 8/8		27
Complete/Easy	6 x 4/4		6
The Beatles	4 x 4/4, 12 x 3/4 and 6 x 4/4		22
Bumper	4 x 4/4, 12 x 3/4 and 6 x 4/4		22
Okun	half tempo: 4 x 4/4		26
	double tempo: 12 x 3/4		
	half tempo: 10 x 4/4		
Complete/Piano	slow 4, (♩ = ♪) 4 x 4/4; (♩ = ♪), 6 x 6/8		20
	slow 4, 10 x 4/4		
Lowry	half tempo: 4 x 4/4,		26
	double tempo: 12 x 3/4		
	half tempo: 10 x 4/4		
Scores	4 x 4/4, 3 x 12/8, 5 x 4/4, 1 x 2/4 and 5 x 4/4		19
White Album	half tempo: 4 x 4/4		26
	double tempo: 12 x 3/4		
	half tempo: 10 x 4/4		
MacDonald	4 x 4/4, 12 x 3/8		26
	4 x 4/4, 1 x out of tempo & pause		
	5 x 4/4		

Table 6. D-section's time-signatures and the time-signatures in the studied publications.

The most accurate transcriptions concerning section D are undoubtedly James and MacDonald (in the latter only the rhythm part is transcribed). Scores is consistent to the style the transcribers have chosen: it prefers time signatures based on long time values. According to Scores, the central sub-section of section D comprises of only three bars in a 12/8 meter while the others use a much more natural 3/8 signature.

CONCLUDING REMARKS

The above analysis on a selection of transcriptions of 'Happiness Is A Warm Gun' shows that the making a good transcription of rhythmically complex music is quite a task to undertake. Most of the publications in the selection were simply illogical, hard to read, and more or less full of mistakes. To sum up; this paper has illustrated that the state of Beatles sheet music publications lack reliability and certainly leave a lot to be desired. One may assume that the same holds true, more-or-less, for all published popular sheet music. One reason for the poor quality of the transcriptions is undoubtedly the complexity of the song itself. It is no wonder that cover versions of 'Happiness Is A Warm Gun' are extremely rare compared to the songs of the Beatles in general.¹⁰ Making a transcription of rhythmically complex music is not, however, an impossible task if one keeps in mind the three requirements suggested at the outset:

- ❖ making the structure of the music as clear and unambiguous as possible,

¹⁰ There is only one cover version of this song (by Bobby Bryant) referred to in acknowledged literature (Okun 1982, 66). There are little less than 200 original Beatles compositions in total and there are several cover versions of most of them. It is possible that 'Revolution 9' is the only song in the entire Beatles catalogue without any cover versions. 'Yesterday' is the most covered individual song in the history of popular music. Walter Everett (1999, 278) estimated that there were more than 2500 released recordings of 'Yesterday' by mid-1995. An obvious reason for the fact that there may be only one cover version of 'Happiness Is A Warm Gun', is the rhythmical difficulties and complexity of the song.

- ❖ making the best you can within the limits of the format (as well as making the limits explicit),
- ❖ and using a combination of a trained ear and available technology.

I am fully aware that all of these sheet music publications were not made with the intention to reproduce all the information audible in the original recording. It is, however, obvious that the majority of the transcriptions (at least Dick James, Milton Okun, Todd Lowry and Scores) were published with the intention to provide a fairly good transcription within the limits of the given notation format. Unfortunately, most transcribers have succeeded rather badly. The average quality of the transcriptions being but little more than fair. Among the publications there was one explicitly simplified edition (Complete/Easy). It is so inaccurate that it might be considered as a rape of the original song. It is hard to imagine that this kind of publication could serve anybody – especially a beginner who will get a wrong impression of the music. Unfortunately there were similar examples amongst the publications without any indication of them being simplified (Complete/Piano).

'Happiness Is A Warm Gun' is full of pulse changes. The ideal notation method is to change the time-signature along with the pulse. For example, the accurate transcription in one case would be a transition from 4/4 to 3/8-time, in which case the pulse change is implied. An alternate, and often used method, is to make the transition from 4/4 to 3/4 with an additional tempo change (for example $\downarrow = \downarrow$).

Unfortunately a considerable number (Okun, Complete/Piano, Lowry and White Album) of the analyzed publications have largely or completely used the latter method notation. In the case of this song, various types of tempo markings ("double-tempo" and "half-tempo") frequently occur. In the case of three publications, these transitions have given no indication of the pulse change. (i.e. 4/4 to 3/4-time without visible tempo alteration) The result of such an edition is a very bizarre sounding composition which only distantly resembles the original. From a rhythmical point of view one will be totally lost. In particular three editions (Complete/Easy, The Beatles and Bumper) exemplify this violation of the originally intended musical idea.

The number of sheet music publications of the Beatles repertoire is so enormous that everybody who wants to play the Beatles can easily find his or her favorite songs in the local music library or store. The most essential factor

in the search for a proper sheet music publication should be source criticism: the best way to check whether or not the transcription is good is to compare it to the original recording. The most common way to learn popular music as well as folk music has always been the method of learning by ear.

In spite of the flops there were also a few good – or, at least satisfactory – transcriptions in the selected material of this study (White Album, Lowry, and partly James). The increasing tendency to make full score transcriptions of popular pieces may be taken as a sign of a better future. In fact, with the improvement of historical Beatles' literature (the turning point was Mark Lewisohn's first books in late eighties), there is no reason to doubt that this tendency will, in the near future, also be reflected in sheet music publications.

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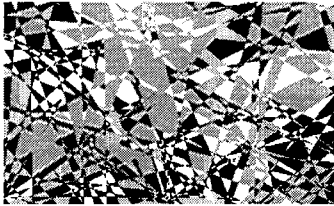
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STUDY III

VARIATION AS THE KEY PRINCIPLE IN THE VOCAL PARTS OF 'CRY BABY CRY'

Published in the year 2001 in *Beatlestudies 3: Proceedings of the BEATLES 2000 Conference*. Edited by Yrjö Heinonen, Markus Heuger, Sheila Whiteley, Terhi Nurmesjärvi & Jouni Koskimäki. Jyväskylä: University of Jyväskylä, Department of Music. Research Reports 24.



BEATLES 2000

VARIATION AS THE KEY PRINCIPLE IN THE VOCAL PARTS OF 'CRY BABY CRY'

Jouni Koskimäki

Variation seems to be one of the key principles in the arrangements of the Beatles in general. This is apparent from the many comments by the members of the Beatles (see for example Miles 1997, 482 and The Beatles Anthology 3, the end of the track 2, Disc 2). Variation in 'Cry Baby Cry' has already been studied by Koskimäki & Heinonen (1988). In that article three aspects of arrangement were studied: form, scoring and mixing. The aim of this article is illustrate from the point of view of variation how the vocal parts of 'Cry Baby Cry' have been arranged.¹

¹ 'Cry Baby Cry' was released on 22 November 1968 as a track on *The Beatles* (also known as the *White Album*). The song was written by John Lennon and its first compositional drafts were made during the autumn 1967 (Everett 1999, 166). The song was recorded in the middle of the *White Album* sessions, on July 16 and 18, 1968, and was mixed only during the final mixing sessions in Mid-October. (Lewisohn 1988, 143 & 1997, 289).

Background

Three basic elements of composing and arranging: repetition, variation and contrast

There are three methods that are basic to the composing and arranging of music: *repetition*, *variation* and *contrast* (see Bent 1981). Repetition is a commonly used compositional method especially in traditional and popular music. It is widely used in rhythmic patterns, dynamics, chord progressions, and timbre. Variation refers to changes in previously presented musical material. It is used to change, extend or shorten melodic, rhythmic, harmonic, dynamic and/or timbral material. Contrast provides an opposite to previous musical material – in contrast a musical idea is changed to a different one. Sometimes it is difficult to define whether a change should be interpreted as variation or contrast. (See for example Mitchell & Logan 2000.)

All these methods can be examined with respect to three overlapping but conceptually distinguishable levels: surface level, intermediate level, and deep level. Surface level is the level that is immediately perceived by listening, whereas deep level is the overall arrangemental pattern or schema of the entire song. Intermediate level, in turn, is the level into which the details are imposed but which, at the same time, forms the (major) units of the deep level. In other words, surface level is the level of motives or phrases, intermediate level is the level of sections, and deep level is the level of a whole song.

The most common patterns of repetition, variation and contrast are presented in Table 1. These basic patterns form the basis for the structural planning of musical material.

	basic pattern	extended patterns	related patterns/forms
repetition	A-A	A-A-A-A-A-A	A-A-B-B (Binary) A-A-B-A
variation	A-A1	A-A1-A2-A3-A4	A-A1-A-A2-A-A3-A-A4
contrast	A-B	A-B-C-D-E-F-G-H (Through composed)	A-B-A-C-A-D-A-E (Rondo) A-B-C-D-E -D-C-B-A (Arch)

Table 1. Basic patterns of repetition, variation and contrast based on Mitchell & Logan 2000.

The roles of different instrumental and vocal parts in 'Cry Baby Cry'

According to French musicologist Antoine Hennion there are four basic aspects in music: form, melody, rhythm and arrangement. A typical popular music hit includes an intro, verses and choruses, usually also a solo-section, interlude and

coda. In the verse the melody is often neutral and simple – its function is to carry on the lyrics, the story. The chorus usually has a more characteristic and 'hooked' melody. The rhythm section (drums, bass, guitar and keyboards) keeps the pulse and tempo and also provides the chord progression.. The arrangement and mixing create a kind of bridge between the vocalist (the person) and the rhythm section. (Hennion 1983.)

Form and variation are linked together in different ways. The form itself can be varied in many ways, as is evident from this song, and it is common that each new section brings in a new arrangemental idea; for example new instruments and a new accompaniment style. One common practice in popular music is the use of variation in repeated sections. Usually this is carried out either by varying the last bars of the section or arranging the whole repeated section differently. (See Ingelf 1995, 98-100.)

The instrumentation of 'Cry Baby Cry' is as follows:²

- ❖ lead vocals
- ❖ harmony/background vocals (II & III)
- ❖ acoustic guitar
- ❖ piano
- ❖ bass
- ❖ drums
- ❖ sound effects
- ❖ electric guitar
- ❖ organ
- ❖ accordion
- ❖ tambourine

For the variation point of view the first six instruments on the list are relevant. The function of the last four of the listed instruments is more or less to add color to the sound: for example the electric guitar plays only two bars and altogether eight single notes; the accordion plays only in the intro and approximately three bars and so on.

In this paper I concentrate only on the vocal parts. Besides the lead vocal there may be one or more harmony/background vocals, which quite often add more or less contrapuntal texture to the lead vocal. Usually the lead vocal remains basically the same from verse to verse, although there may be some variation in it. Harmony vocals, in turn, may vary a lot: their arrangement may be based on repetition, variation or contrast.

² There is no general agreement on what instruments are used in 'Cry Baby Cry'; for example most sources mention the use of harmonium but omits the accordion. However as opposed to harmonium, the accordion is very easy to hear – it seems, then, that the accordion is erroneously listed as harmonium in most major sources such as Lewisohn 1988, 143 & 1997, 289; Stannard 1982, 70; MacDonald 1995, 238 & 1998, 260 and Dowding 1989, 247).

Procedure

The procedure consisted of three main components: (1) transcription, (2) qualitative analysis, and (3) quantitative analysis. Since all sheet music publications of this song include errors, and more or less omit entire sections, the only way to perform an analysis was to make a new transcription. A detailed description of how this transcription was made is presented in Koskimäki & Heinonen 1998. I am aware of the problems concerning the making of an accurate transcription.³ I made the transcription with the following three principles in mind:

- ❖ making the music as clear and unambiguous as possible – in other words, the transcription should make the music easier to comprehend and perform
- ❖ making the best you can within the limits of the format (as well as making the limits explicit) and
- ❖ using a combination of a trained ear and available technology.

One of the main methods in making the transcription was the simultaneous use of the record and notation software (the details of this method has been explained in Koskimäki & Heinonen 1998, 128-129).

In the qualitative analysis, I paid special attention to the following aspects: transformation of motives, phrase structure, types of vocal texture, textural density, and mixing. In the quantitative analysis, I concentrated on how variation takes place regarding the frequency (number of changes) and density (thickness of texture). A more detailed description of how the quantitative analysis was carried out will be presented later in this article.

Variation in the Vocal Parts of 'Cry Baby Cry'

An overview of the entire form of 'Cry Baby Cry' is presented in Table 2 (a more detailed description is given in Koskimäki & Heinonen 1998, 130-132). The vocal parts in the A-sections remain more or less the same through the song – the only variation is due to changes in the lyrics (the melody follows the rhythm of the lyrics). In the A-sections there are no harmony/background vocals; all the harmony vocals take place in the last two motives of the B-section (*'She's old enough to know better, so cry baby cry'*). All major variations take place in the B-sections.

³ It must be remembered that no transcription of any musical piece can ever be totally complete. It is simply impossible to translate all the information included in one musical performance into a visual representation (which all transcriptions and notations are). For example, there is no effective, accurate and objective way or tools to transcribe and notate sound. (See Koskimäki & Heinonen 1998, Koskimäki 2000.)

Form / Time	Section		Number of quarter notes	Number of the bars per section
1. Intro /				
0:00–0:11	B	(bars 1-4)	14	three bars 4/4 and one 2/4
2. I chorus /				
0:11–0:20	A	(bars 5-7)	12	three 4/4-bars
0:20–0:28	A (rep)	(bars 8-10)	10	two bars 4/4 & one 2/4
0:28–0:40	B1	(bars 11-14)	16	four 4/4 bars
3. II chorus /				
0:40–0:49	A1	(bars 15-17)	12	three 4/4-bars
0:49–0:57	A1 (rep)	(bars 18-20)	10	two bars 4/4 & one 2/4
0:58–1:10	B2	(bars 21-24)	16	four 4/4 bars
4. III chorus /				
1:10–1:19	A2	(bars 25-27)	12	three 4/4-bars
1:19–1:27	A2 (rep)	(bars 28-30)	10	two bars 4/4 & one 2/4
1:27–1:40	B3	(bars 31-34)	16	four 4/4 bars
5. IV chorus /				
1:40–1:49	A3	(bars 35-37)	12	three 4/4-bars
1:49–1:57	A3 (rep)	(bars 38-40)	10	two bars 4/4 & one 2/4
1:58–2:09	B4	(bars 41-44)	14	three bars 4/4 & one 2/4
6. Coda /				
2:09–2:20	B5	(bars 45-48)	14	three bars 4/4 & one 2/4
2:20–2:33	B6	(bars 49-52)	17	three bars 4/4 & one bar in 5/4 (last bar)

Table 2. Form of the 'Cry Baby Cry'.

B-sections

There are seven B-sections in 'Cry Baby Cry'. Example 1 and Table 3 shows all vocal parts in the seven B-sections. Taken together, Example 1 and Table 3 demonstrate how the whole B-section is built on variation (extended variation pattern: B-B1-B2-B3-B4-B5, compare with Table 1). Table 3 also includes some other aspects that are not present in Example 1 (double tracking, changes in dynamics).

B (intro)

Cry - - Ba - by Cry - Make your mother sigh - - She's

old enough - to know better

B1

Cry - Ba - by Cry - Make your mother sigh - - She's

old enough - to know - better so Cry - Ba - by Cry -

B2

Cry - Ba - by Cry - Make your mother sigh - - She's

old enough - to know - better so Cry - Ba - by Cry -

B3

Cry - - Baby Cry - - - - Make your mother sigh - - - - - She's

old enough - to know - better so Cry - Ba - by Cry -

Variation in 'Cry Baby Cry'

B4

Cry - Ba - by Cry - - - - Make your mother sigh - - - - She's
old enough to know - better so Cry - Ba - by Cry -

B5 (CODA)

- Cry Cry Cry - Ba-by Make your mother sigh - - - - She's
old enough to know - better so Cry - Ba - by Cry -

B6

- Cry Cry Cry Make your mother sigh - - - - She's
old enough to know - better so Cry - Ba - by Cry -

Example 1. Vocal parts in the B-sections of 'Cry Baby Cry'.

Section	Vocal arrangement type	Doubled lead vocal/ volume	Length of lead vocal part	Lengths of harmony vocals	Number of voices (+doubled lead vocal)	Melodic variation etc. in lead vocal
B (intro)	lead vocal	–	three 4/4-bars	–	1	
B1	lead vocal	yes (very low volume)	four 4/4-bars	–	1 (+1)	one motive more (motive d)
B2	lead & harmony vocal	yes (low volume)	four 4/4-bars	one 4/4-bar	2 (+1)	first time harmony vocal
B3	lead & harmony vocal	Yes (quite low)	four 4/4-bars	two 4/4-bars	2 (+1)	extended motive a & b
B4	lead & harmony vocal	yes (medium volume)	three 4/4-bars & one 2/4-bar	one 4/4-bar & one 2/4-bar	2 (+1)	slight variations in motive a & b
B5 (Coda)	lead & harmony vocal	Yes (higher volume)	Three 4/4-bars & one 2/4-bar	One 4/4 bar & one 2/4-bar	2 (+1)	new motive in first bar (motive e)
B6	lead & harmony vocals (voices II & III)	Yes (high volume, well audible; also other vocals volumes are higher)	four 4/4-bars	two 4/4-bar	3 (+1)	variation in the melody of the motive e and variations in motive b & d pitch

Table 3. A summary of variation in vocal parts of the B-sections.

It is obvious from Example 1 and Table 3 that the increasing density of vocal harmonies is the basic idea of variation (see for example the increasing number of voices through the song and partly increasing length of vocal harmony, and also the increasing volume of the double tracked lead vocal). A second apparent idea regarding the arrangement of vocal-parts is the variation in the main melody (pitch, rhythm and the length of the motives). The length of each B-section is four

bars and the number of motives varies from three to four (motives a-d). Also the length of the last bar varies: it is either one 4/4-bar (four times) or 2/4-bar (three times). The four motives are presented in Example 2.

B-section

Example 2 shows the four motives of the B-section in musical notation. The notation is in treble clef with a key signature of one sharp (F#) and a 4/4 time signature. Motive a is marked with a *8^{va}* dynamic marking. The lyrics are: Cry - Ba - by Cry -; Make your mother sigh - - She's; old enough to know - better so; Cry - Ba - by Cry -.

Example 2. The four motives of the B-section.

Bars 1 and 2

Some variations, for example the little melodic and rhythmic changes in the first and second bars of the lead vocal, are so minor that they are probably not possible to perceive by listening (see Example 3). This is due to the fact that the previous occurrence of the corresponding musical event has taken place approximately 30 seconds earlier (see Table 1) and there is at the same time a great variety of intervening events. On one hand, human short-term memory is able to hold information for 30 seconds maximum. On the other hand, the more there is intervening material, the shorter the duration of short-term memory is. (Dowling & Harwood 1986, 139, Meyer 1973, 44-51.) In 'Cry Baby Cry' there is a lot of intervening material. Moreover, the duration of one bar is only about one second; so the motive slips quickly away.

The variations presented in Example 3 are most probably results of spontaneous improvisation – with the exception of B5 and B6, where the motive a is replaced by motive e. There is also another kind of variation that is probably not noticeable by listening but which is obviously intentionally planned. It is, for example, difficult to believe that the subtle increase in the volume of the double-tracked lead vocal in the B-sections could be a result of spontaneous improvisation during the mixing process.

B (intro)

Cry - Ba - by Cry - Make your mother sigh - - She's

B1

Cry - Ba - by Cry - Make your mother sigh - - She's

B2

Cry - Ba - by Cry - Make your mother sigh - - She's

B3

Cry - Ba - by Cry - - - - - Make your mother sigh - - - - - She's

B4

Cry - Ba - by Cry - - - - - Make your mother sigh - - - - - She's

B5 (CODA)

- Cry Cry Cry - Ba - by Make your mother sigh - - - - She's

B6

- Cry Cry Cry - Make your mother sigh - - - - She's

Example 3. Melodic and rhythmic variations in the motives a and b of the lead vocal.

Bars 3 and 4

Another obviously intentional arranging strategy is to increase the density of the vocal texture of the motives c and d. This is illustrated in Example 4.

B (intro)

old enough - to know - better

B1

old enough - to know - better so Cry - Ba - by Cry -

B2

old enough - to know - better so Cry - Ba - by Cry -

B3

old enough to know better so Cry - Ba - by Cry -

B4

old enough to know - better so Cry - Ba - by Cry -

B5 (CODA)

old enough - to know - better so Cry - Ba - by Cry -

B6

old enough - to know - better so Cry - Ba - by Cry -

Detailed description: Example 4 shows six variations of musical notation for the vocal motives 'c' and 'd' from 'Cry Baby Cry'. Each variation is presented on a single staff with a treble clef and a key signature of one sharp (F#). The time signature starts as 4/4 and changes to 2/4 at the end of each variation. A fermata with an 8va marking is placed over the first measure of each variation. The lyrics are: 'old enough - to know - better so Cry - Ba - by Cry -'. Variation B (intro) shows the first measure with lyrics 'old enough - to know - better'. Variation B1 adds 'so Cry - Ba - by Cry -'. Variation B2 adds 'so Cry - Ba - by Cry -'. Variation B3 adds 'so Cry - Ba - by Cry -'. Variation B4 adds 'so Cry - Ba - by Cry -'. Variation B5 (CODA) adds 'so Cry - Ba - by Cry -'. Variation B6 adds 'so Cry - Ba - by Cry -'. The density of the vocal texture increases from B to B6, with B6 having the most complex and dense vocal line.

Example 4. Variations in the density of the vocal texture of motives c and d.

The key idea of variation in the concluding motives in section B is surely the increasing density of texture. In the first four B-sections this is carried out by adding something more either to the third or to the fourth bar of each B-section:

- B only one motive (*she's old enough to know better*); the last bar empty
- B1 two motives (adding the fourth motive (motive d) to the last bar: *cry baby cry*)
- B2 adding harmony vocal to the fourth bar (to motive d)
- B3 adding harmony vocal to the third bar (to motive c)

In B4 and B5 this increase of density is not so easily audible: only the volume of the double-tracked lead vocal is increased (see Table 3). However, in section B6 this idea becomes once again clearly audible: adding one extra harmony vocal increases the number of vocal parts to three different voices. Although this growing density idea is not so prominent in the B4 and B5-sections, there are yet other kinds of variations in those sections. These include small changes concerning pitch and rhythm in the lead vocal in B4-section (see Examples 3 & 4 and Table 3). Further, the B5-section brings in one major variation: the first bar of the lead vocal is based on a new melody (see Example 3 and Table 4). B6 is the most varied section in the whole song. Besides the increasing density there are variations concerning the melody, harmony and bar length. Moreover, the final chord of the B-section is now varied to E-minor add 11 instead of the previous G-major: this change leaves the song somehow on the air.

Quantitative analysis of the vocal parts of 'Cry Baby Cry'

Figure 1 summarizes some important changes in the vocal-parts of 'Cry baby Cry' in a quantitative form. In quantifying the degree of variation, I took the following three aspects into account: (1) the number of voices, (2) the volume of the double-tracked lead vocal, and (3) the degree of melodic and rhythmic variation. The quantification was carried out in two stages. During a preliminary stage, I estimated a numerical value for each bar of the song by using ad hoc scales consisting of integers. In the second stage I transformed these ad hoc values into relative values and calculated their averages. I suggest that these average values may be taken as a rough indicator of the changes in the degree of variation in 'Cry Baby Cry'.

There are four different vocal parts in 'Cry Baby Cry': lead vocal, double-tracked lead vocal, harmony vocal 1, and harmony vocal 2. I simply counted the number of vocal parts separately for each bar of the song. So, in the preliminary quantification, the ad hoc scale for the number of vocal parts was 1-4. There is in practice no objective way to estimate the changes in the volume of the double-tracked lead vocal since, in the released record, all parts are mixed together with many other instrumental and vocal parts.⁴ Because of this, changes in volume were estimated subjectively by listening. There are seven B-sections in 'Cry Baby

⁴ The only way would be to measure these changes directly from the original multi-tracked master tape which was used when the song was originally mixed.

Cry' and the gradual increase in volume in this particular part is fairly perceivable by listening. On this basis, I transformed the changes in the volume of the double-tracked lead vocal into numerical values simply by using a stepwise ascending scale ranging from 1 to seven (B = 1, B1 = 2, B2 = 3, ..., B5 = 6, B6 = 7). With respect to melodic-rhythmic variation, I divided the changes roughly into two categories: minor and major changes (compared to the previous occurrence of the corresponding musical event). The A-sections received a value of 1 since variation in the lead vocal part is almost completely restricted to rhythmic changes that are due to changes in lyrics. As for the B-sections, minor variations received a value of 2, whereas major variations received a value of 4.

After this preliminary quantification I transformed all numerical values into relative values as follows: (1) the values indicating the number of vocal parts were divided by 4, (2) the values indicating the volume of the double-tracked lead vocal were divided by 7, and (3) the values indicating the degree of variation were divided by 4; so that in all cases the maximum value would be 1. The average of these values I take as an indicator of the degree of variation. Figure 1 shows the average value (y-axis) of these three factors for each bar (x-axis).

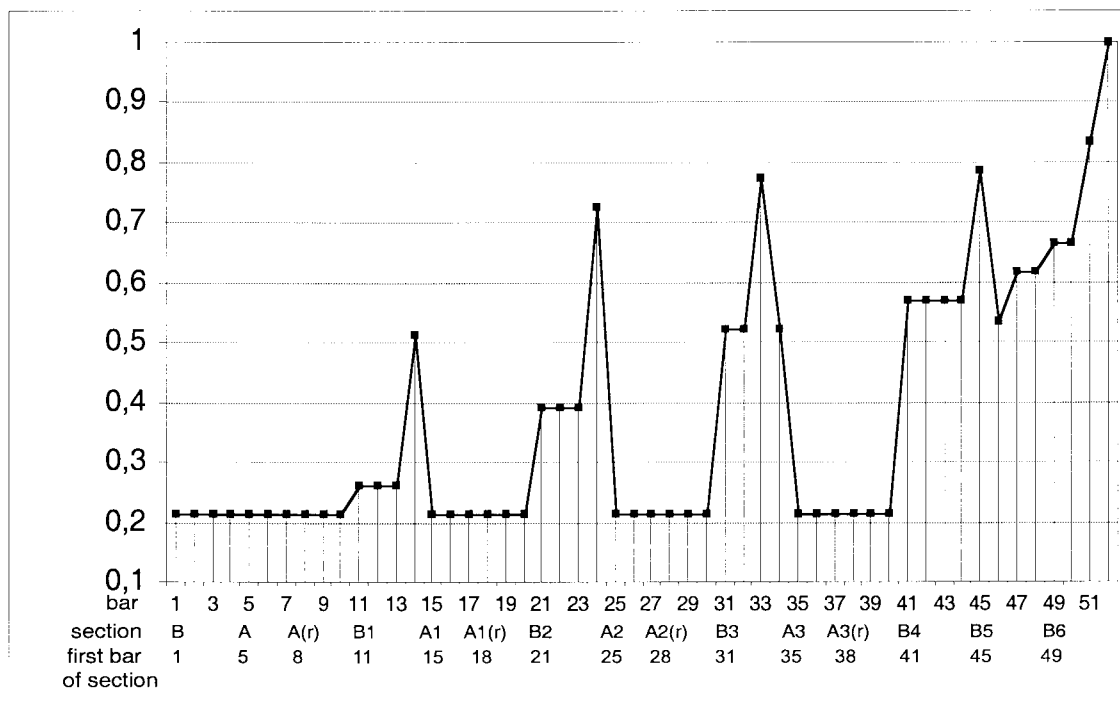


Figure 1. The degree of the variation and it changes of 'Cry Baby Cry'

It is apparent from the Figure 1 that on the intermediate level the leading ideas of variation are (1) the alteration of contrasting sections (A and B) and (2) the general increase in the complexity and intensity (number of changes and textural density) in the B-sections. The A-section has been presented here as neutral since variation of the vocal parts is almost completely restricted to the changes in the lyrics. With respect to the B-sections, the degree of variation

increases gradually from B1-section to B3-section. In the last three B-sections the degree of variations is higher compared to the three earlier B-sections but the degree of variation changes quite a lot within these three concluding sections. The peaks of variation occur in the bar 45 and in the last bar (52).

There is still one aspect of variation, which is not taken into account in Figure 1 since it is difficult to quantify although it is surely experienced as a variation. This is the change in time signature in the end of sections A and B. In the end of A (rep) there is always a change from 4/4 to 2/4. In the B-sections, the changes from 2/4 to 4/4 do not follow any regular pattern (see Example 1 and Table 3).

Concluding Remarks

A close analysis of the vocal parts of 'Cry Baby Cry' shows that variation is the key principle of arranging these parts. In this paper, variation was examined with respect to three levels: surface level (motifs, phrases), intermediate level (sections), and deep level (whole song).

Some surface level variations in 'Cry Baby Cry' are so minor that they are hardly or not at all perceivable by listening. This is due to how human memory works. It is extremely difficult or impossible to remember variations concerning minor details if there is remarkable temporal distance between corresponding events and there is at the same time a great variety of intervening events. The temporal distance may be considered "remarkable" if it exceeds the temporal capacity of short-term memory (that is, some 10-15 seconds). In 'Cry Baby Cry' the temporal distance between corresponding events in different B-sections is approximately 30 seconds (with the exception of B5 and B6). Some of these surface level variations are obviously results of spontaneous improvisation. In other cases, however, it is apparent that many of the minor variations are intentionally planned. A good example of this is the gradual increase of density in the vocal parts between sections B and B4. It is very improbable that this kind of highly structured development could be a result of spontaneous improvisation.

In 'Cry Baby Cry' this intentional planning is apparently related to the deep level arrangemental pattern, which, in turn, is based on (1) the alteration of contrasting intermediate level units – sections A and B – and (2) the general increase in the complexity and intensity (number of changes and textural density) in the B-sections (see Figure 1). It may be claimed that listeners in general become aware of this deep level pattern after listening to the song. It is, however, impossible – or, at least, extremely difficult – to analyze by listening exactly what the variations are and how they are carried out. This can be done only with a help of a detailed and accurate transcription.

A previous study (Koskimäki & Heinonen 1998) implies that also the arrangement of the instrumental parts of 'Cry Baby Cry' is based on similar principles. It would be interesting to study how common this arrangemental practice was to the Beatles in general – and how common it was to other groups of their time.

I wish to thank Yrjö Heinonen for reading a preliminary version of this article and for his valuable comments.

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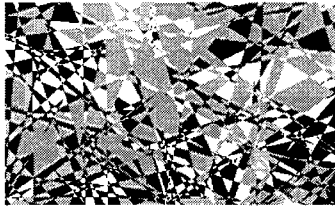
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STUDY IV

IMPERFECT HARMONY

Problems in Selected Sheet Music Publications of
'Lucy In The Sky With Diamonds'



BEATLES 2000

IMPERFECT HARMONY

Problems in Selected Sheet Music Publications of 'Lucy In The Sky With Diamonds'

Tonality in popular music is often something else than that of the Western major-minor: it may be for example modal, pentatonic or bluesy. The Beatles is a good example of versatile tonality.¹ However, in the 1960s, the transcribers of the sheet music publishing companies were not accustomed to tonalities other than the common major-minor – a state of affairs that constantly irritated John Lennon. In his own words:

"Most of my songs, on the sheet music, have always been incorrect. If ever I get anybody to play me the notes on the sheet music it's all wrong. There seem to be minor notes against major because I think it's bluesy but it turns out that it isn't. It's a mistake they keep telling me, so they never write it like that, they always write a major note. All those bands who read from the sheet music, they're just playing the wrong tunes altogether. So there's certain notes you can't write down. If they are going to have written music then somebody should invent a new musical notation which covers all the notes. But there always seems to be something wrong." (Miles & Marchbank 1978, 76.)

¹ For example, one of their trademarks was the rich use of modal chords, bIII, bVI, and bVII in particular (Heinonen 1995, Eerola 1998, Everett 1999, Heinonen & Eerola 2000).

Of course the problem was not so much in the notation system as such but in the musical attitudes of the transcribers.

The aim of my study is to explore how accurately the music and especially the harmony has been transcribed in different sheet music publications of 'Lucy In The Sky With Diamonds', where harmony is surely one of the key elements of the fantastic atmosphere of the song. 'Lucy In The Sky With Diamonds', released on 'Sergeant Pepper's Lonely Hearts Club Band' (1967), was mainly written by John Lennon, but also Paul McCartney, George Harrison, and George Martin participated in the songwriting/arranging process.²

THE MULTICOLOR WORLD OF HARMONY

According to LaRue there are two main functions in harmony: *color* and *tension*. These functions appear on three different levels: *large*, *middle* and *small* dimensions (La Rue 1997, 39-68). Many compositional and textural tools have also direct impact to harmony. These tools include such polyphonic techniques as counterpoint, part exchange, and various kinds of imitation. For this reason, harmonic analysis cannot be carried out without taking texture into account.

Large dimension in harmony refers to the *general impressions* as well as to the *movement between tonalities* (tonal or modulatory plan) of a musical work. The main types of large dimensional tonality are, according to LaRue:

- ❖ *linear and modal*: melodic line plays a dominant part in determining vertical choices;
- ❖ *migrant*: explores constantly from one temporary key center to another without establishing consistent directions or any central gravitational goal;
- ❖ *bifocal*: shifting between major and relative minor but not so much other excursion as migrant tonality;
- ❖ *unified* (major-minor tonality): functioning hierarchy of chords centered around a single tonic;

² McCartney was involved in the creative process by writing for example the catchy counter-melody to the intro and A-section: he also played this melody with the Lowry-organ. George Martin probably had something to do with the modulations between the different sections of the song. And it was George Harrison who suggested the use of the tamboura as a backing instrument (see for example Dowlding 1989, 165-167; Coleman 1995, 103; Martin & Pearson, 1994, 101-104; Lewisohn 1988, 100-101; Lewisohn 1997, 247.)

- ❖ *expanded*. extending harmonic resources primarily in search of affective or descriptive color, for example such as
 - a) enlarged diatonicism
 - b) chromaticism – for example alteration of conventional chords and modulation between chromatically related chords
 - c) neomodality: exploiting flavor of modal progressions, particularly antitonal character (such as I - bVII, IV – Im, and V 3b – I), and whole-tone scale
 - d) structural dissonance, and
 - e) bitonality and polytonality – where two keys such as F and A may proceed as parallel structures

- ❖ *atonality*: the conscious avoidance of tonality and the use of antitonal procedures (use of syntactical substitute: dodecaphonism and serialism)

Examples of unified, bifocal, migrant, and expanded tonalities can be found from the Beatles catalogue. 'Lucy In The Sky With Diamonds' combines aspects of migrant, unified, and expanded (chromaticism, neomodality) tonalities. The overall tonality is migrant: the song literally explores "from one temporary key center to another without establishing any central gravitational goal". The modulatory plan itself (I – bII – bVII) is modal rather than tonal. Functional tonality and chromaticism can be found on the middle and small dimensions.

With respect to middle dimension, harmonic action concentrates on such smaller effects of harmonic rhythm as *modulation* and *chord rhythm*. The functions of modulation can be either ornamental (a relatively short modulation, which leads rapidly back to departure) or structural. In 'Lucy In The Sky with Diamonds', the modulations are clearly structural. Small-dimensional aspects of harmony concentrate primarily on *individual chords (including their inversions)* and *chord progressions*. Although chords are basic tools of harmony, their definition may sometimes be highly problematic – the following questions arise often in analyses: "what is a chord?", "when is a chord?" and "what chord is that?" (see La Rue 1997, 42). These questions are relevant especially in analyzing the A-section of 'Lucy In The Sky With Diamonds' where the texture is rather contrapuntal (lead vocals versus the chromatic bass line) than chordal and the emphasis is on color rather than in tension. In the B- and C-sections, which make use of conventional tonal chord progressions (Bb: I – V/V – V – I, G: I – IV – V – I), the emphasis is more clearly on tension.

For the purposes of this paper, I define the basic means of harmony and texture as follows: (1) large dimensions: tonal and textural plan, (2) middle dimensions: key/mode and texture type, and (3) small dimensions: chords, their inversions, non-chordal notes (passing notes, appoggiaturas etc.). The aim

of my analysis is to explore how the above aspects of harmony are taken into account in selected sheet music publications.

MATERIALS AND PROCEDURE

The main procedure was as follows: I compared transcriptions of 'Lucy In The Sky With Diamonds' in selected publications to my own *full score transcription* of the song (Appendix 3). I tried to determine the eligibility of the selection by choosing (1) some of the best known and most widely used publications, (2) examples representing different publication formats, and (3) editions from different time periods (in this case from the early 1970s to the early 1990s). The selected publications as well as information concerning them are presented in Table 1.³

Publication	Sheet music format	Shortcut
The second book of fifty hit songs by John Lennon and Paul McCartney (1974)	Sheet music (vocal/piano)	<i>50 Hit</i>
The Beatles Bumper Songbook (1980)	Sheet music (vocal/piano)	<i>Bumper</i>
The Compleat Beatles, volume two, ed. Milton Okun (1981)	Sheet music (piano)	<i>Okun</i>
The Beatles Complete. Piano/Organ/Vocal Edition (1983)	Sheet music (piano)	<i>Complete/Piano</i>
The Complete Guitar Player The Beatles Songbook (1988)	Lead sheet	<i>Guitar</i>
The Beatles Complete Scores. Transcriptions: Tetsua Fujita, Hagino Youji, Kubo Hajime and Sato Goro (1989)	Full score	<i>Scores</i>
The Beatles: Sgt. Pepper's Lonely Hearts Club Band (1992)	Sheet music (vocal/piano)	<i>Pepper</i>

Table 1. The selected publications.

³ After the name and other information concerning the publication there is a shortcut name of the edition indicated by *italics*. From this on, I will use these shortcut names instead of the complete reference. This applies to the text as well as to the tables and examples.

None of the analyzed publications is so-called *easy edition*, five of them are in sheet music format (three in vocal/piano and two in piano format), one is a full score (*Scores*), and one is lead sheet (*Guitar*). Two lead sheet publications (*50 Hit* and *Bumper*) are basically identical: the texture is the same although there are, for some reasons, minor alterations in chord symbols and guitar diagrams.

In the analysis of the publications I paid attention particularly to the following aspects:

- ❖ key signatures/accidentals – how consistently the modulations are indicated by key signatures (or are they at all?);
- ❖ chord symbols/diagrams – how accurately they represent the original source, are the inversions right;
- ❖ texture – how the essential features of different vocal and instrumental parts (lead and harmony vocals, bass, and Lowry-organ in particular) are taken into account.

In the analysis I distinguished between clear mistakes and solutions that are more likely matters of interpretation. For example, calling a D major chord G minor is clearly a mistake, whereas saying that a section is in A major instead of A mixolydian is more likely a matter of interpretation. However, the choice of the key signature reflects whether the modal interpretation is preferred over the tonal. For example, the mixolydian flavor of the A-section of 'Lucy In The Sky With Diamonds' may be indicated either by key signature (two sharps) or by accidentals (three sharps, flatted 7ths indicated by accidentals). The former signature emphasizes the modal character of the section, whereas the latter seems to consider the modal 7th only accidental.

Making of the transcription

The transcription was made mostly by using the method of synchronizing the notation software midi-data with the record in such a way that allowed their simultaneous listening (for a detailed description of this method, see Koskimäki & Heinonen 1998, 128-129). There are two aspects in 'Lucy In The Sky With Diamonds' that caused extra difficulties in making the transcription: the complexity of sound and the changes in tempo.

As for the complexity of *sound*, most instruments in 'Lucy' are treated with *sound manipulation*. For example, the acoustic guitar has a strong phasing

effect, the electric guitar is recorded through a Leslie loudspeaker, and the vocals are not only heavily echoed but manipulated by ADT. Different kind of compressors and/or limiters have also been used throughout the song. Moreover, the sound of the tamboura is very "swirling" or "round" because of the resonance drone-strings. As a result, it is extremely difficult to hear which are the actual pitches played by the different instruments (to a more detailed description of the difficulties, see the notes concerning the transcription in Appendix 3).

The other problem concerned the synchronization of the output of the notation software with the record. This problem was due to the continuing *changes in tempo* (for a detailed description of the tempo changes, see Appendix 4). Also this "tempo modulation" may be, at least partly, due to the technical experimentation, particularly to the experimentation with the tape-speeds. According to Lewisohn (1988, 101) 'Lucy In The Sky With Diamonds' was the most varispeeeded song in the '*Sgt Pepper*': the rhythm track was done at 49 cycles per second, Lennon's lead vocal at 45 cycles, another vocals by Lennon and McCartney (to another track) at 48 1/2 cycles, and finally McCartney's bass and Harrison's guitar at normal speed, which was 50 cycles (see Martin & Pearson 1994, 105). 'Lucy In The Sky' was also the most quickly recorded song in '*Sgt Pepper*', it took only two days to be finished (see for example Lewisohn 1988, 100-101). Perhaps, when a great deal of the time was spent by experimenting with varispeed and "coloring" different instruments, nobody paid too much attention to continuing changes in tempo.

Taking the different functions of sheet music formats into account

Different sheet music formats perform different functions and this must be taken into account in the analysis. With respect to chord symbols, the main issue is: *should they refer to the overall harmony* (constituted by all vocal and instrumental parts) *or only explore the notes that are played with a single accompaniment instrument*, usually the guitar. In *lead sheet* format (melody and chord symbols) it is far better to try to catch the overall harmony. For this reason, I have analyzed the *Guitar* publication from that point of view. The *full score* format should present all instruments as accurately as possible – so the guitar part should show the notes the instrument has really played. The 'intermediate' format, *sheet music* is more problematic. Usually it has three staves: one for vocals and two for piano. If chord symbols and/or guitar diagrams are included, they should preferably take the overall harmony into account. Usually the accompaniment is played from these chord symbols and if the player wants the harmony to sound similar to the record, the symbols should be written on the basis of the overall harmony. In my own *analysis*

(Table 2) the chord symbols are based on the overall harmony, whereas in the *full score* (Appendix 3) the symbols only refer to the acoustic guitar part that strums only plain triads.

As for texture, the main function of the *sheet music format* is obviously not to transcribe the entire texture as precisely as possible. When the texture is very complex, it is obviously difficult to transcribe this complexity to simple piano staves. In many cases it is not really necessary even to try it. Hence, in my analysis, I have tried to take into account how well the *overall sense of the texture* has been *arranged for the sheet music format*.⁴ It must also be noted that the lead sheet format is, due to its purpose to provide only the melody and chord symbols/guitar diagrams, incapable of presenting any textural subtleties. However, presenting all instrumental parts as accurately as possible is, again, something that one can expect full score transcriptions to provide.

ANALYSIS

Tonal plan

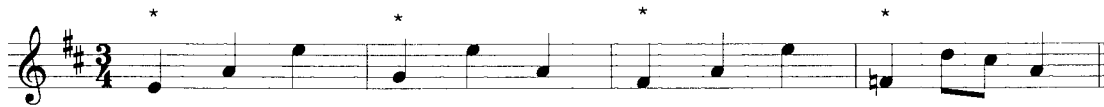
The overall form of 'Lucy In The Sky With Diamonds' is Intro ABC + ABC + ACC. Each of the main sections is based on different tonality. The general impression as well as the modulatory plan of the song is clearly modal rather than tonal. There are brief modulations between A and B, between B and C, and, in the third time, between A and C.

⁴ In the case of 'Lucy' this means, for example, that the rapid and rather complicated riffs of the bass (section C, on the D major chord in particular) work best when they are partly simplified. Moreover, in section C, it would be very difficult for a keyboardist to play simultaneously the accurate rhythm of the organ accompaniment with the syncopated lead vocal.

Section	Tonality	Overall harmony as expressed in chord symbols	Number of bars
Intro	ambiguous (see Example 1)	–	4
A	A -hypomixolydian	A A7/G F#m7 F 5# A/E A7/G F#m7 F F A/E A7/G F#m7 F(Δ)5# A/E A7/G F#m7	16
modulation from A to B	A → Bb	F#m7 F#m7 Dm Dm/C	4
B	Bb - lydian	Bb Bb Cadd9 Cadd9 F6 F6 Bb Bb	8
modulation from B to C	Bb → G	Cadd9 Cadd9 G G (D7/F#) Em7 D <i>second time (B1):</i> Cadd9 Cadd9 G G - G Δ9 D	5
C & C1 (1st & 2nd time)	G major	G C D G C D G C D D	7
modulation from A to final C	A → G	F#m7 F#m7 open D (add9)	3
C 2 (final time)	G major	G C D G C D G C D D A	8

Table 2. Tonality in 'Lucy In The Sky With Diamonds'

The last bar of the A-section is at the same time the first bar of the modulation; the lengths of the different sections is then highly uneven: A + 1st modulation (15 + 4), B + 2nd modulation (8 + 5), and C (first two times 7, but third time 8).



Example 1. Intro in 'Lucy In The Sky With Diamonds'.

The first notes of each bar (indicated by asterisks in Example 1) create the descended bass line, which is so characteristic to the A-section of the song.

In previous analytical literature (for example Moore 1997 and Everett 1999), 'Lucy In The Sky With Diamonds' has generally been analyzed in terms of major-minor tonality. Both Moore and Everett make use of Schenkerian analysis. Within this framework, Everett interprets the tonal plan of the song to be II – V – I in G major. Mellers (1973) has suggested that the A- and C-sections have strong modal sense. Heinonen (2000), in turn, has analyzed the entire song in modal terms. According to him, the modulatory plan of the song is I – bII – bVII – (I). I prefer the modal interpretation and suggest that the modes of the different sections of the songs are as follows (the preferred key signature is given in parenthesis): A-section – A mixolydian (two sharps), B-section – Bb Lydian (one flat), and C-section – G major (one sharp).

Table 3 summarizes the key signatures and implied keys used in the studied publications.

Only *Scores* has marked the signatures from the modal point of view. *Okun* and *Pepper* have preferred the tonal interpretation. For some strange reason there is lots of variety in the key signatures of the C-sections: *50 Hit*, *Bumper*, and *Guitar* have used two different but equally illogical signatures there. In spite of these oddities, the tonal plan is as it should be: the use of illogical key signatures only lead to the needless use of accidentals. In *Complete/Piano* also the tonal plan is changed. The song is transposed into F major (A-section) but the B-section is written in G major (in F major it should be Gb) and the C-section in E major (in F major the correct key would be Eb). It is difficult to understand for which purposes these revisions have been made.

	Section A	Section B	Sections C & C1	Section C2
Koskimäki	two sharps (A mixolydian)	one flat (Bb lydian)	one sharp (G major)	one sharp (G major)
<i>50 Hit</i>	three sharps (A major)	two flats (Bb major)	two flats (G major!)	three sharps (G major!)
<i>Bumper</i>	three sharps (A major)	two flats (Bb major)	two flats (G major!)	three sharps (G major!)
<i>Okun</i>	three sharps (A major)	two flats (Bb major)	one sharp (G major)	one sharp (G major)
<i>Complete/ Piano</i>	one flat (F major)	one sharp (G major)	one sharp (E major!)	one sharp (E major!)
<i>Guitar</i>	three sharps (A major)	two flats (Bb major)	two flats (G major!)	three sharps (G major!)
<i>Scores</i>	two sharps (A mixolydian)	one flat (Bb-lydian)	one sharp (G major)	one sharp (G major)
<i>Pepper</i>	three sharps (A major)	two flats (Bb major)	one sharp (G major)	one sharp (G major)

Table 3. Key signatures and implied keys in studied publications.

Section A – "Picture yourself in a boat on a river"

Chord symbols

Table 4 shows how the studied publications have interpreted the harmony of the A-section.

Three publications (*50 Hit*, *Bumper*, *Okun*) have not used any chord symbols in this section. This is understandable since there are only three instruments in this section (in addition to this, there are also the tamboura and drums which play only occasionally) and none of these is playing chords. The rest have more or less omitted the inversions of the chords: *Complete/Piano* all of them, *Guitar*, *Scores*, and *Pepper* some of them. *Guitar*, *Scores* and *Pepper* have notated the A-section most correctly: *Guitar* and *Pepper* have only minor mistakes on the F 5# chord (in fourth bar). Interestingly they have made

	Chord symbols / Chord progression
Koskimäki	A A7/G F#m7 F 5# A/E A7/G F#m7 F F A/E A7/G F#m7 F (Δ)5# A/E A7/G F#m7
50 Hit	–
Bumper	–
Okun	only N.C. mark (= no chords)
Complete/ Piano	F F7 Bb Bbm F F7 Bb Db Db F F7 Bb Bbm F F7 Dm
Guitar	A A7/G F#m7 FΔ (+5) A A7/G F#m7 F F A A7/G F#m7 FΔ (+5) A A7/G F#m7
Scores	A A/G A/F# A/F A A/G A/F# A/F A/F A A/G A/F# A/F A A/G A/F#
Pepper	A A/G F#m7 Dm A/E A/G F#m7 F F A/E A/G F#m7 Dm A/E A/G F#m

Table 4. The chord progression of the A-section.

different kinds of mistake with respect to this augmented F chord: *Guitar* has marked it as an FΔ 5# chord although there is no major seventh on any instrument at the first appearance of this augmented chord. *Pepper* has notated this chord incorrectly as Dm (like the chord in the thirteenth bar, too). *Scores* has notated the eighth and ninth bar as A/F although the chord in these bars is plain F. In the *Complete/Piano* the chords are mostly wrong: in F tonality (the song is transposed into F major) the chord progression should be F - F/Eb - Dm7 - Db 5# instead of the F - F7 - Bb – Bbm. Moreover, the omission of all chord inversions in *Complete/Piano* is a major mistake since it is the inversions that create the descending bass line, which is *essential* to the character of the A-section.

Texture

The arrangement of the texture into sheet music format is done well in *50 Hit* and *Bumper* where all essential melody lines are presented properly. The piano part accompanies the texture well: the right hand plays the organ lines while the left plays both the vocal melody and the descending bass line. Instead, *Okun*, *Complete/Piano*, and *Pepper* have not succeeded in this task: the Lowry-organ lines are missing altogether from all these editions, and there are also extra harmony notes in *Okun* and *Complete/Piano*. *Complete/Piano* also omits the entire intro. In *Pepper*, the left hand accompany the bass lines well and there are only few minor rhythmical mistakes. *Guitar*, which is the only lead sheet format in the studied publications, indicates the overall harmony through chord symbols. Instrumental parts are not taken into account. *Scores*, the only full score format, has placed the chord symbols above the lead vocal stave instead of the guitar part, which implies that they are intended to illustrate the overall harmony and not just the guitar part. From this viewpoint, there are only minor mistakes. However, *Scores* omits the tamboura part altogether and this is a major mistake.

Modulation from A to B

Chord symbols

Table 5 shows how the publications have presented the chords of the first modulation.

The chords of the first modulation has been notated correctly only in *Scores*. *Pepper* and *Guitar* are otherwise correct but in *Pepper* the first two chords are minor triads instead of minor sevenths, and *Guitar* omits the inversion from the last chord (there is Dm instead of Dm/C). *50 Hit* and *Bumper* have marked only the last two chords of the first modulation – both have also notated the last chord incorrectly as Cm7 (in *50 Hit* this chord also has an added sus4). However, in *Complete/Piano* the presentation of the modulation is even worse. Firstly, this publication has shortened the entire modulation to two bars instead the four. Secondly, the chord progression itself has almost nothing to do with the original: there is Dm - D7, instead of the correct Dm7 - Dm7 - Bbm - Bbm/Ab (when transposed to F major).

Texture

None of the publications has presented the texture accurately. The best publication in this sense is *Okun. 50 Hit* and *Bumper* succeed in arranging the texture into sheet music (piano) format quite well: all essential melody lines come out rather properly. There are minor mistakes only in the organ melody, and the bass line is written in treble clef - that is, two octaves higher than in the original (it is yet notated for the left hand!). The only full score (*Scores*) is original (it is yet notated for the left hand!). The only full score (*Scores*) is otherwise correct but there are minor mistakes in the organ

	Chord symbols / Chord progression	Number of bars
Koskimäki	F#m7 F#m7 Dm Dm/C	4

<i>50 Hit</i>	- - Dm7 Cm7(sus4) (only the last two bars marked)	4
<i>Bumper</i>	- - Dm7 Cm7 (only two last bars marked)	4
<i>Okun</i>	only <i>N.C.</i> mark (= no chords)	4
<i>Complete/ Piano</i>	Dm D7	2
<i>Guitar</i>	F#m7 F#m7 Dm Dm	4
<i>Scores</i>	A/F# A/F# Dm Dm/C	4
<i>Pepper</i>	F#m F#m Dm Dm/C	4

Table 5. The chord progression in the modulation from section A to section B.

lines. Also the tamboura and the guitar (bars 22-23) are omitted. *Pepper* has arranged the texture rather well: the bass line is accurate, there are only minor mistakes in the organ lines. In *Complete/Piano* the case is just the opposite: again, the notation has almost nothing to do with the record – for example two bars, bass and organ lines are omitted altogether.

Section B – "Cellophane flowers of yellow and green"

Chord symbols

There is a rather big variety in the outlining the chord progression of section B (see Table 6).

	Chord symbols / Chord progression
Koskimäki	Bb Bb Cadd9 Cadd9 F6 F6 Bb Bb

<i>50 Hit</i>	Bb Bb C C F6 F6 Bb Bb
<i>Bumper</i>	Bb Bb C C F6 F6 Bb Bb
<i>Okun</i>	Bb Bb C9 C9 F6 F6 Bb Bb
<i>Complete/ Piano</i>	G G A9 A9 D7 D7 G G
<i>Guitar</i>	Bb Bb Cadd9 Cadd9 F6 F6 Bb Bb
<i>Scores</i>	Bb Bb C C F F Bb Bb
<i>Pepper</i>	Bb Bb C9 C9 F F Bb Bb

Table 6. The chord progression of section B.

The chord progression of this section is presented accurately only in *Guitar*. All other publications have written the second chord either as C9 or plain C. However, this chord does not include the flat seventh (Bb), which belongs to C9 chord. Plain C, in turn, omits the 9th (D), which is provided by the lead vocal and doubled by the electric guitar. The proper symbol for this chord is, then, Cadd9. *Complete/Piano* contains also two extra mistakes. The first one is a major error – the tonality itself is incorrect: it should be Gb instead of G (the main key being F, as in this publication). The second error is that the third chord of the section is written as D7 instead of the correct F6.

Texture

In general, all publications provide only the texture of the first B-section (B), without paying any attention to the variations that take place in the second B-section (B1). *Okun* presents the bass line correctly, but there are some extra voices in some chords. *50 Hit* and *Bumper* present the texture rather well, there are only minor variations in the bass line and in the rhythm. Also *Scores* presents this section rather accurately – there are only few minor alterations in the lead vocal's rhythm. *Complete/Piano* is once again something else: the whole texture is heavily simplified – for example the entire bass line is missing. In *Pepper* the texture is very thin in the first two bars: there are only three different voices. The bass line has, for some odd reason, octave jumps in three bars.

Modulation from B to C

Chord symbols

Table 7 shows how the publications present the chord progression of the modulation from section B to section C.

	Chord symbols / Chord progression
Koskimäki	Cadd9 Cadd9 G G (D7/F#) Em7 D (in B) Cadd9 Cadd9 G G – CΔ9 D (in B1)
<i>50 Hit</i>	C9 C9 G G D7 Em7 Dm
<i>Bumper</i>	C9 C9 G G D7 Em7 Dm
<i>Okun</i>	C9 C9 G G D7 Em D
<i>Complete/ Piano</i>	A9 A9 E E Bm
<i>Guitar</i>	C9 C9 G G Dm
<i>Scores</i>	C C G G D
<i>Pepper</i>	C9 C9 G G D7 Em D

Table 7. The chord progression of the modulation from section B to section C.

None of the studied publications has noticed that the modulation is different in its second appearance. It is the penultimate bar that varies: the bass goes firstly downwards (g – f# – e, bar 35, 0' 46" - 0' 47") and second time upwards (g-b-c, bar 74, 1' 47"- 1' 48") , see Example 2.⁵

1st time (B, bar 35-36) 2nd time (B1, bar 74-75)

vocal

..eyes and she's gone ..clouds and you're gone

G D G D

bass

Example 2. The last two bars of the modulation from section B to section C.

All publications have used C9 or plain C for the first chord of the modulation although the proper symbol would, again, be Cadd9. Most of the publications (*50 Hit, Bumper, Complete/ Piano, and Guitar*) have a major error in the last chord: they have written it as a minor although it is very clearly a major. Especially in *Complete/Piano* this modulation is far from what can actually be heard on the record: the first chord is a ninth instead of the add9, the second and third chords of the fourth bar (B7/D# and C#m7 in G major) are omitted altogether, and the last chord is a minor instead of the major!

Texture

In general, the transcription has been made only from the first B-section: the variation of the bass line in the B1-section is thus missing from all publications. Reasonably good arrangements are provided in *50 Hit, Bumper, and Pepper*. Also *Scores* is basically good in spite of the simplification of some chords. *Complete/Piano* is once again the worst one among the publications: for example, both the bass line and many chords are missing altogether. Also the

⁵ The texture differs clearly at the second time. Since the second quarter of those particular bars (35 & 74) are clearly *passing tones*, these rather dissonant chords are partly counted out in my analysis. Also the low mixing level of acoustic guitar makes the dissonant chords hardly audible.

rhythm of the accompaniment is clumsily in whole notes (in record the strums are in quarters).

Section C and C1 – "Lucy in the Sky ..." (including the modulation from C to A)

Chord symbols

The chord progression of the C-sections and their interpretation in the publications is shown in Table 8.

	Chord symbols in C & C1 -sections	Chord symbols in final C (C2)
Koskimäki	I G C D I G C D I G C D D I	I G C D I G C D I G C D D I A
<i>50 Hit</i>	I G C D I G C D I G C D D I	I G C D I G C D I G C D D I A
<i>Bumper</i>	I G C D I G C D I G C D D I	I G C D I G C D I G C D D I A
<i>Okun</i>	I G C D7 I G C D7 I G C D7 D I	I G C D7 I G C D7 I G C D7 D I A
<i>Complete/ Piano</i>	I E A B I E A B I E A B C I	I E A B I E A B I B I F#
<i>Guitar</i>	I G C D I G C D I G C D D I	I G C D I G C D I G C D D I A
<i>Scores</i>	I G C D I G C D I G C D D I	I G C D I G C D I G C D D I A
<i>Pepper</i>	I G C D7 I G C D7 I G C D7 D I	I G C D7 I G C D7 I G C D7 D I A

Table 8. The chord progressions in section C, C1, and C2.

With respect to chord symbols, section C is the easiest one of the song: there are only three different major triads and the tonality is quite clearly G major. So it is no wonder that there is only little variation in the interpretation of the chords among the publications. However, both *Okun* and *Pepper* have added an extra seventh to the dominant D-chord, which is clearly a plain triad.

Texture

In general, the notations leave quite a lot to be desired: not only there are minor mistakes in all publications but also the texture is rather heavily simplified. Certainly, due to the nature of the sheet music format (not to mention the lead sheet), there must be some simplification. However, it is safe to say that of the studied editions have gone too far in this work. All publications (except *Scores*) have also notated only the first C-section – thus omitting all variations in C2.

Scores – the only full score - is full of minor mistakes. For example the voicing in the organ part are incorrect, the variations in the harmony vocals are missing, and there are many mistakes in the guitar and bass lines especially with respect to rhythm. The drums are simplified and written without any variations although the drum part is full of them. The maracas are missing altogether. The final C (C2) is in general the same as the previous C-sections (= lots of minor mistakes in the above listed instruments). *Guitar* – the only lead sheet – is rather good although the rhythm of the lead vocal is simplified; for example, the melody of the first bar is written without syncopation.

50 Hit and *Bumper* are otherwise good but there are some minor mistakes in the inversions of the chords and the rhythm of the vocal melody is heavily wrong. The bass line is quite well arranged for the sheet music format. Also harmony vocals and the diagram of the final guitar chord are missing. In *Okun* the bass line is arranged quite well for piano staves. There is, however, an extra-simplified bass on the left hand (all notes in quarters). All harmony vocals are missing. *Pepper* is almost identical to *50 Hit* (= rather good arrangement) – only the chords are thinner and the harmony vocals are missing altogether.

In *Complete/Piano*, the texture is heavily simplified and there are major errors even in the form of this section. The last bar is transposed one step higher and sounds really strange. This transposition makes sense only because without it the modulation back to the A-section would take place via triton-related chords (B-F). The only thing that is correct in *Complete/Piano* is the melody of the first bar!

Modulation from A to C

Chord symbols

Table 9 shows the interpretation of the chord progression of the modulation from section A to section C2 in the publications.

None of the studied publications has noticed that the last chord of this modulation is not a triad (*50 Hit*, *Bumper*, *Guitar*, and *Scores* suggest Dm; *Okun* and *Pepper* suggest D major). This time the last chord is *neither* minor, *nor* major. Harmonically, in this place there are only three voices well audible, and only the open fifth interval (d – a) on lead vocal, organ, and bass. The other chords are notated correctly in all publications but *Pepper*, which, again, omits the seventh from the F#m7-chord. *Complete/Piano* omits the modulation from A to C altogether.⁶

	Chord symbols / chord progression
Koskimäki	F#m7 F#m7 open D (add9)

<i>50 Hit</i>	– – Dm (D)
<i>Bumper</i>	– – Dm
<i>Okun</i>	only N.C. mark (= no chords)
<i>Complete/ Piano</i>	–
<i>Guitar</i>	F#m7 F#m7 Dm
<i>Scores</i>	A/F# A/F# Dm
<i>Pepper</i>	F#m F#m D

Table 9. The chord progression of the modulation from the A-section to the final C-section.

Texture

All publications have presented only the end of the previous A-section and have not taken into account the variations in the modulation from A to C (the end of section A2, see score). There are also minor mistakes throughout the publications (mostly small errors concerning the melody and rhythm of the organ and bass parts. Two publications (*50 Hit*, *Bumper*) have transcribed the bass line incorrectly in the treble clef. In these publications there are extra voices in the first two bars, and conflicting information about the last chord: in notation it is written as D major but in the guitar diagram as D minor. *Pepper* is the only edition that has taken the variation of the bass line into account but

⁶ Instead of moving from A to C there is an extra B-section between the final A- and C-sections (even the lyrics are the same as in B).

has still minor mistakes (the notes have turned upside down: instead of the correct f#-a-f# here is a-f#-a). *Scores* is otherwise correct but has minor mistakes once again in the organ and bass lines. Also the tamboura is missing from *Scores* altogether.

The Coda-like final C (C2) – repeated "Lucy in the Sky ..."

In general the chord progression of this section is transcribed quite well. All publication except *Scores* has repeated the previous C-sections. Unfortunately, there is a lot to be desired also in *Scores*. For example, the last five bars are missing altogether! Concerning the length of this final C-section none of the publications has presented it properly: the common solution to say either repeat till fade or repeat and fade. In the actual record the fade out is uncommonly long and begins approximately in the middle of the second repetition and its duration is about nine bars (see the score).

CONCLUDING REMARKS

The aim of this study was to explore how accurately selected sheet music publications present the complex and ambiguous harmony of 'Lucy In The Sky With Diamonds'. Harmony was examined with respect to large dimensions (tonal and textural plan), middle dimensions (modulations, texture types), and small dimensions (chords, non-chordal events). Attention was paid especially to the use of key signatures and accidentals, most significant vocal and instrumental parts, as well as chord symbols and guitar diagrams.

In the majority of the studied publications (*50 Hit*, *Bumper*, *Guitar*, and *Complete/Piano*) the key signatures are illogical and/or confusing. *50 Hit*, *Bumper*, and *Guitar* use three sharps (A major) for section A and two flats (Bb major) for both section B and section C, with the exception of C2, for which all of them use three sharps (A major) although also this section is rather clearly in G. Very strange. *Complete/Piano* transposes the song into F major and revises the modulatory plan from modal I – bII – bVII – (I) to "tonal" I – II – VII – (I). The key signatures are as follows: section A – one flat (F major), section B – one sharp (G major), and section C – one sharp (E major; c#, g#, and d# indicated by accidentals). This kind of revision does not serve any musician or researcher. The rest of the publications (*Scores*, *Okun*, *Pepper*) are logical; they also provide different interpretations concerning the modality/tonality question. *Scores* uses the "modal" signatures in the A- and B-sections (two sharps and one flat, respectively), whereas *Okun* and *Pepper* favor the "tonal" interpretation (three sharps in A, two flats in B).

None of the analyzed publications has presented the chords symbols accurately. The most accurate is *Guitar* (the only lead sheet format), which has only few minor mistakes in A- and B-sections. All others include more errors. Among the studied publications the *Complete/Piano* is a true disaster – with respect to harmony there are more errors than correctly transcribed notes!

Two of the sheet music publications (*50 Hit, Bumper*) have succeeded quite well in arranging the most important instrument parts for piano or vocal/piano format. The same holds true of *Okun* and *Pepper*, with the exception of omitting the Lowry organ part altogether. *Complete/Piano* is, again, something else. *Guitar* is a lead sheet and there are no indications concerning texture. *Scores* leaves rather lot to be desired – taking into account that is intended to be a full score – there are some shortcomings that are difficult to understand (for example, the tamboura and maracas parts are missing altogether. Moreover, the texture is as it is firstly presented and the variations in later appearances of the same section are missing. There are also numerous little errors in individual parts.⁷

The studied publications included some of the best known editions (such as *James, Okun* or *Scores*), all common types of sheet music formats (lead sheet, sheet music, full score) were represented, and the selection also covered all relevant historical phases of the sheet music publication of the music of the Beatles. Although the selection is small, it probably reflects the overall state of the sheet music publications of the Beatles quite well. One may assume that the same rather poor state holds true, more-or-less, for most published popular sheet music. The general situation may be even worse since the historical position of the Beatles is more important than that of an average popular band. This study, together with a similar study concerning the transcription of rhythm (Koskimäki 2000), indicates that the quality of publications is getting better all the time. All the worst examples are rather old (approximately 20 years), and some new publications – like the guitar editions of the 'White Album', the Beatles, book 1 and book 2, transcribed by Jesse Gress – are of very high quality. So there are signs of a better future. One huge task for the near future of Beatles research would, indeed, be the publication of a critical full score (*Urtext*) edition of the music of the entire Beatles catalogue.

⁷ In this sense the only complete "full score" publication of the music of the Beatles (*Scores*) is not a full score at all but a draft, which could work as a starting point in the making of a *critical full score edition* of the Beatles' music.

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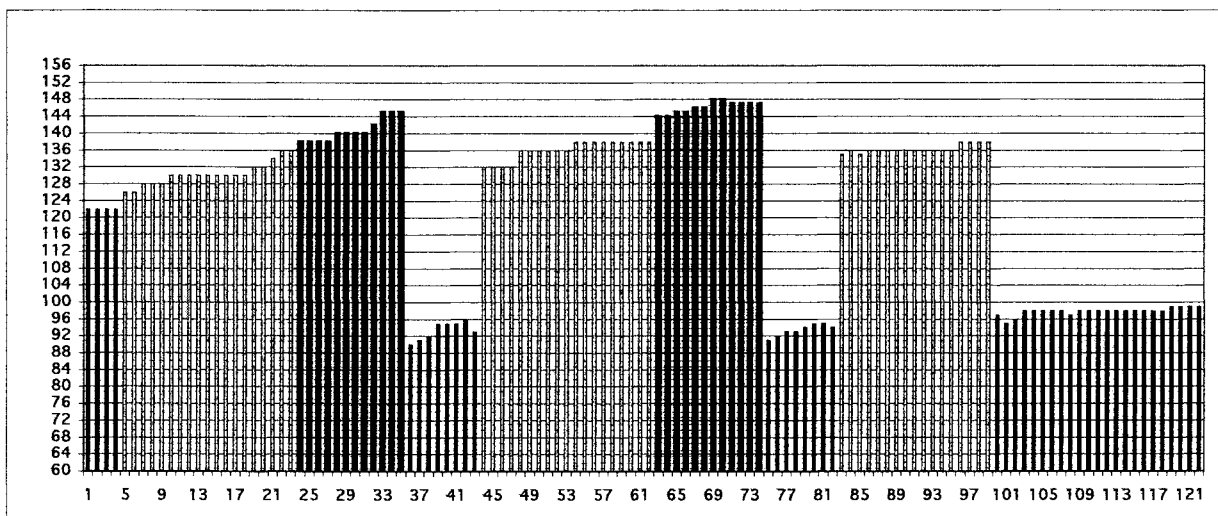
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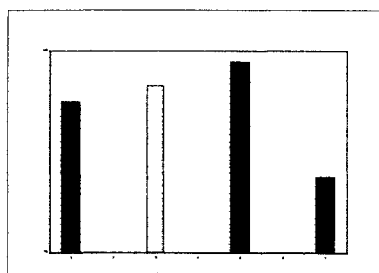
APPENDIX 1

TEMPO CHANGES IN LUCY IN THE SKY WITH DIAMONDS



INTRO A
SECTIONS

B C A1 B1 C1 A2 C2



INTRO A B C

INTRO	122	bpm
A	126 – 136	bpm
B	138 – 145	bpm
C	90 – 96	bpm
A1	132 – 138	bpm
B1	144 – 148	bpm
C1	91 – 95	bpm
A2	135 – 138	bpm
C2	95 – 99	bpm

X-axis =
tempo indicator
(beats per minute = bpm)

Y-axis = bar indicator