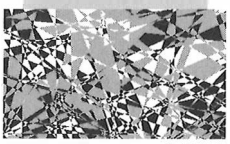
Beatlestudies 1

Songwriting, Recording, and Style Change



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University of Jyväskylä
Department of Music: Research Reports 19

Edited by Yrjö Heinonen, Tuomas Eerola, Jouni Koskimäki,
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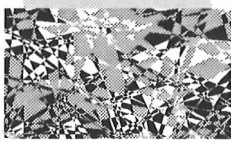

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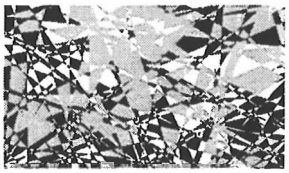

BEATLES 2000

(Being a Short Diversion to) CURRENT PERSPECTIVES IN BEATLES RESEARCH

Yrjö Heinonen, Tuomas Eerola, Jouni Koskimäki, and Terhi Nurmesjärvi

This book is intended to be the first volume in a continuing series of article collections and monographs concentrating on the music of the Beatles. Hence the name *Beatlestudies 1*. If the reader recognized a similarity between these opening words and those of Alan Tyson's preface to *Beethoven Studies*, written a quarter of a century ago, it was not a mere coincidence — it was intended to be so.[1] Actually, *Beethoven Studies* was not merely the first volume in a series of further studies on Beethoven but began what would seem to be a continuing series of books devoted to individual composers, with an emphasis on the compositional process as examined from the source critical point of view. The first *Beethoven Studies* (Tyson 1972) publication was followed by *Beethoven Studies 2* (Tyson

[1] Moreover, anybody familiar with John Lennon's writings will undoubtedly recognize the similarity between the title of this introductory essay and that of Lennon's famous *Being a Short Diversion to the Dubious Origin of the Beatles*, first published in Mersey Beat in summer 1961.

1977) and *Beethoven Studies 3* (Tyson 1982), *Schubert Studies* (Badura-Skoda and Branscombe 1982), *Chopin Studies* (Samson 1988) and *Chopin Studies 2* (Rink & Samson 1994), to name but a few. The authors of this essay believe that there is a need for similar publications in the field of popular music. And if Beethoven was the first composer of classical music to have "his own studies", it seems natural enough to start the popular music "individual studies" series with the Beatles. Hence the name *Beatlestudies*.

The *Beatlestudies* series is a part of the research report series published by the Department of Music at the University of Jyväskylä, Finland. *Beatlestudies* forms an important part of the publication of the research results of the BEATLES 2000 research project, situated at the Department of Music (University of Jyväskylä) and headed by Yrjö Heinonen. The project was started in 1997 and it will last, according to the present research plan, at least until 2001. *Beatlestudies 1* consists mainly of articles written by the members of the project (Heinonen, Eerola, Koskimäki, Nurmesjärvi). Seppo Niemi, who is also a member of this project had intended to contribute an article to this volume but was forced to withdraw due to illness. John Richardson, the fifth editor of *Beatlestudies 1,* was involved in editing the volume at quite a late state. However, besides writing his own article and proof-reading the language of the non-native authors, his contribution to *Beatlestudies 1* and the entire BEATLES 2000 research project during the autumn months of 1998 has been extremely stimulating.

The aim of the BEATLES 2000 project is to *describe and explain the songwriting and recording process* as well as *the stylistic development* of the Beatles. BEATLES 2000 approaches the Beatles primarily as a musical phenomenon. In this sense the project belongs to the domain of musicology. The orientation of the project is empirical, the main theoretical framework being the psychology of music.

Why the Beatles?

John Lennon's standard answer to various why-questions concerning the Beatles was "Why not?" In a sense this answer seems sufficient also here. There are, however, plenty of more serious reasons, too. The Beatles are, without doubt, one of the most significant and enduring musical and cultural phenomena of the 20th century. During its relatively short existence the group changed the rules of the entire production process of popular music as well as the popular music itself. The Beatles also changed the fashion and way of living of a whole generation. It is simply impossible to imagine what contemporary popular music and culture would be like today had the Beatles never existed.

Why 2000?

This is an important date for Beatles for at least two independent reasons. Firstly, the year 2000 is an anniversary for the Beatles in a number of respects. In 2000 it will be 60 years since John Lennon and Ringo Starr were born, 40 years since the group chose the name 'The Beatles' and became professional musicians, 30 years since the Beatles disbanded and 20 years since the tragic death of John Lennon. Hence the name 'BEATLES 2000'. Secondly, the new record and video releases by EMI/Apple (the BBC

sessions, the Anthology series 1-3) and Mark Lewisohn's detailed chronologies (1988, 1990, 1992) make it, for the first time, possible to study the production process (comprising the writing, arranging, recording, mixing, and releasing the songs) empirically.

Traditional musicology has not been all that interested in the study of popular music. However, it has developed perhaps the most efficient tools for music analysis, some of which are considered to be as valid in the analysis of popular music as that of classical music.[2] Ethnomusicology has been more interested in this field, although it is — by definition — more concerned with the musics of "ethnic" societies (often minorities) than with most popular music at the global level. Popular music is, of course, a current topic in cultural studies and sociology. These fields, however, emphasize the significance of groups and artists more as cultural phenomena than with respect to the music itself. The articles brought together in *Beatlestudies 1* reflect the main issues where the BEATLES 2000 project differs from much of the popular music research:

- in its use of *psychology* (psycho-analysis, cognitive and social psychology) as the basic theoretical — and partly methodological — framework, and

- in its use of *historiography* (source criticism, biographical method) *and music analysis* as the basic methodological framework.

The BEATLES 2000 project and the editors of *Beatlestudies 1* assume (or, at least, hope) that the change in research paradigm will result in a deeper — and, perhaps, a more scholarly-based — understanding of the *music* of the Beatles and the Beatles as a group.

The career of the Beatles, the personal lives of its members, the backgrounds of their songs, and the chronology of their studio work are extremely well documented. The main research materials available consist of (1) the records the Beatles released officially during 1962-70 on the EMI/Parlophone and Apple labels; (2) transcriptions of the songs released as tracks on these records; (3) sketches, demo versions, and early or alternative takes of the songs (mostly released on the Anthology 1-3 series); (4) descriptions of the recording sessions (Lewisohn 1988); and (5) interviews and other biographical materials.

The history of musicology has shown that concentrating comprehensively on a single case — for example, on a certain composer — may prove fruitful as to the subsequent studies on different representatives of the same musical genre. The influence of Beethoven research — especially the study of his sketching process — on subsequent research on

[2] It is acknowledged by the authors that there are a few significant popular music scholars, who have considered music analysis as one of the main aspects in the study of music and combined it with e.g. psychology, cultural studies or semiotics. These include the work of Everett (1986, 1987, 1990, 1995), Mellers (1973), Middleton (1990), Moore (1993, 1997), Whiteley (1992), and Tagg (1979) to mention a few.

different classical composers is a good and well-known example of this. Tyson's *Beethoven Studies* series was one important link in promoting this research. The members of the BEATLES 2000 project assume (or at least hope) that concentrating on Beatles research from the above-mentioned point of view might contribute to the study of popular music in quite a similar manner. And the editors of *Beatlestudies 1* hope that this book as well as the subsequent issues on the *Beatlestudies* series might promote Beatles research and popular music research in general in much the same way as the *Beethoven Studies* publications promoted Beethoven research and research on other classical composers.

We would like to express our deeply felt gratitude for the following persons: Alf Björnberg, Charlie Ford and Lucy Green, Robert O. Gjerdingen, Gary Kendall, Carol L. Krumhansl, and Sheila Whiteley.

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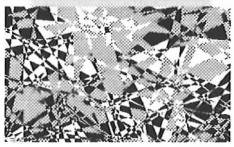
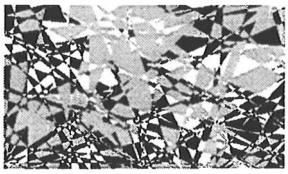


BEATLES 2000

Part One

QUANTITATIVE ANALYSIS OF STYLE CHANGE



BEATLES 2000

SONGWRITING, RECORDING, AND STYLE CHANGE
Problems in the Chronology and Periodization of the Musical Style of the Beatles

Yrjö Heinonen & Tuomas Eerola

Our aim here is to discuss the problems in chronology and periodization as regards measuring the stylistic development of the Beatles. The recording career of the Beatles lasted for more than eight years, epitomizing British rock in the sixties. The development of the career of the group is most usually divided into three style periods. Different authors divide the periods otherwise similarly but disagree on the years or albums where the borders are drawn. Heinonen (1994) has suggested the following periodization:

- *early period* (1962-65) — from the album *Please Please Me* to the album *Help!;*
- *middle period* (1965-67) — from the album *Rubber Soul* to the EP *Magical Mystery Tour*;
- *late period* (1968-70) — from *The Beatles (White Album)* to the album *Let It Be*.

The above periodization is conceivably the most common in literature. It is endorsed by a wide range of authors and encyclopaedias.[1]

Most accounts take the British single and album releases (plus the *Long Tall Sally* and *Magical Mystery Tour* EPs) as the basis of the chronology. This is, in principle, well in line with the Dahlhausian concept of presenting music history as a narrative, which takes the musical "work" as the unit of the chronology. According to Dahlhaus (1982), the resulting narrative should consist of musical works arranged in a chronological order according to the novelty principle (that is, according to the date of the premiere or publishing of the work).

With respect to the Beatles, this is problematic for at least two reasons: (1) the concept of the "work" is problematic in the context of popular music, and (2) the fact that the chronology based on the British single and album releases is in conflict with the novelty principle, since a considerable amount of songs were first released by Capitol in the United States of America. Substituting the concept of the "work" with the concept of "record" seems reasonable enough. The problem regarding the novelty principle seems at the first glance to be more problematic. This is apparent in the chronology of all records the Beatles officially released during 1962-70 in Britain and America (Appendix 1, compiled by Heinonen on the basis of the data given in Lewisohn 1988). What is also clear in the chronology is that the first releases of the songs cover but a minority of all releases.

The core of the problem seems to lie in whether one wishes to emphasize the change in the musical style of the Beatles, the divergent release policies of the recording companies, or the overall reception of the music of the Beatles. Here the emphasis is in the change in the musical style. The plan of the article comprises a brief survey on the following issues:

- previous accounts of the stylistic change
- the songwriting and recording process
- chronology and periodization revisited

The authors suggest that the process-oriented approach, emphasizing the songwriting and recording process, provides a more reliable basis for measuring style change than the outcome-oriented approach, in which the emphasis is on the releases.

PREVIOUS ACCOUNTS OF THE STYLISTIC CHANGE OF THE BEATLES

There are some more or less complete and systematic accounts approaching the output of the Beatles from the point of view of style change. These include Wilfrid Mellers' *The Beatles in Retrospect* (1973), Stephen

[1] Marcus (1992), Lamb & Hamm (1981, 114-117), Cockrell (1986, 171), Larkin (1995, 323-325), Clarke (1989, 85-86), Hardy & Laing (1990, 48-51), and Stuessy (1994, 136), to name but a few.

Clark *Porter's Rhythm and Harmony in the Music of the Beatles* (1979), Tim Riley's *Tell Me Why* (1988), William J Dowlding's *Beatlesongs* (1989), Turner's *A Hard Day's Write* (1994), and Ian Macdonald's *Revolutions in the Head* (1994).

Wilfrid Mellers' *Beatles in Retrospect* (1973) is one of the first style-analytical studies of the music of the Beatles. Mellers does not try to write a complete chronological narrative of the songs and records of the Beatles. Rather he picks out the records he regards as most important. These records consist mainly of albums — not all of them since *Yellow Submarine* is omitted —, a couple of singles ("Strawberry Fields Forever'/'Penny Lane' and 'All You Need Is Love'/'Baby You're Rich Man'), and one EP *(Magical Mystery Tour)*. Mellers does not discuss the albums in the order in which they were released either. This is because he perceives a logical stylistic evolution from *Revolver* through *Sgt Pepper* and *Magical Mystery Tour* to *Abbey Road*, disrupted by the *White Album* and *Let It Be*, and chooses to discuss the albums in this particular order. Mellers states that the Beatles could not repeat the "personal-cum-mythical" statement they made in *Sgt Pepper*, nor could they proceed to *Abbey Road* "without surrendering their 'corporate identity'", that is, without pursuing separate paths.

Stephen Clark Porter performs in his *Rhythm and Harmony in the Music of the Beatles* (1979) a statistical analysis of some stylistic features representing primarily the parameters of rhythm, melody, and harmony. Porter's study is then a precursor of Tuomas Eerola's article in this book. Porter's selection is neither complete nor chronological. Two important American album releases are missing from Porter's list: *Something New* (1964) and *"Yesterday"...and Today* (1966). Moreover, by selecting the British releases of *Help!* and *Rubber Soul*, omitting *"Yesterday"...and Today*, and selecting the American release of *Revolver*, Porter happens to omit songs like 'Day Tripper', 'We Can Work It Out', 'Doctor Robert', 'And Your Bird Can Sing', and 'I'm Only Sleeping' altogether. All these songs were released on *"Yesterday"...And Today* and all of them beautifully reflect the transitory feel of the 1965-66 period. Taking the "inauthentic" American album releases as primary "texts" is not only problematic but simply misleading if the intention is to explain stylistic change in the music of the Beatles. This is due to the different chronology and different contents of the albums. Porter's choice might, however, have been relevant if the focus of his study had been the changing release policies of American recording companies (particularly that of Capitol) or the reception of the albums of the Beatles in America. Further, omitting the single releases and two important American album releases — with simultaneous substituting of two important American issues (*Help!* and *Rubber Soul*) with related but far from identical British releases — makes the problems of the study still more severe. This choice — it is not clear whether this was a really choice at all or a mere accident — finally blurs the chronology and at the same time excludes many important songs. These inaccuracies regarding the chronology and completeness of the selection make Porter's account simply misleading.

Tim Riley's discussion in *Tell Me Why* is based on British releases and he presents a "selected discography that omits unnecessary repetitions (such as singles and EPs that draw their material from albums)". That is, Riley's account is complete in the sense that it comprises all songs officially released by the Beatles in England during 1962-70. Riley also seeks to be faithful to the original chronology (of the British releases). He also relates the "odd" singles and EPs — that is, singles and EPs containing songs not released on any album — to adjacent albums. Actually, instead of albums, Riley takes what is below called a *recording project* as the basic unit of his discussion. Riley's faithfulness to the original chronology goes so far that he makes two deviations concerning the order in which he presents the records: the *Yellow Submarine* album is discussed between the *Magical Mystery Tour* EP and 'Lady Madonna'/'The Inner Light' single; and the *Let It Be* album is discussed between *The Beatles (White Album)* and the 'Get Back'/'Don't Let Me Down' single. Both deviations are based on the recording chronology instead of the release chronology. Basically similar divisions — with more or less similar deviations — have been presented by Dowlding (1989) and Turner (1995).

Ian Macdonald's *Revolutions in the Head* (1994) is based on the official EMI discography and treats each record in order of recording — that is, "in the order in which they were commenced in the studio". Macdonald takes a song as the basic unit of discussion. The principle of a life-span type of stylistic development is apparent throughout the book. This is most apparent in the way Macdonald divides his book into three parts:

- PART 1 — Going Up
- PART 2 — The Top
- PART 3 — Coming Down

This division clearly implies a rise-and-fall type of conception as to the stylistic development of the Beatles.

Macdonald's account differs from all other accounts referred to above in at least four senses. Firstly, it takes songs as the unit of discussion (instead of albums or recording projects. Secondly, it is consistently chronological (the chronology is based on the order of recording). Thirdly, there is no intermediate levels — like albums or a recording projects — between the elementary unit of analysis (a song) and large-scale periods (going up, the top, coming down). Finally, as a result of the previous three aspects, it is clearly process-oriented rather than outcome-oriented as most of the other accounts have been. What is, then, the process behind the outcome like?

THE SONGWRITING AND RECORDING PROCESS OF THE BEATLES

The following is a rough outline of what a "typical" songwriting and recording process of the Beatles was like. It is a brief summary of the work done by Heinonen during the last five years or so on this topic (Heinonen 1994 and 1995 are two earlier attempts to tackle the topic). The term 'typical' is to be understood in the sense used in modern prototype theory. That is, the 'typical songwriting and recording process of the Beatles' does not mean that most Lennon-McCartney songs were written and recorded according to one and same formula.

The prototype theory states that the structure of categories (concepts) — like, for example, 'the songwriting process' — is heterogeneous according to the degree of their typicality. A category consists of the prototype (the clearest cases or best examples) and less prototypical members, which can — at least in theory — be ordered according to how well they represent the category. The prototype represents the highest degree of memberness and thus it is also the most representative member of the category. Members close to the prototype are interpreted as belonging to the category without problems, whereas the ones resembling the prototype more remotely often cause problems. It is, however, sufficient that an object share only certain features of the prototype. The members of a category are associated with another according to the principle of family resemblance in such a way that the prototype forms the center or core of the category. (Heinonen 1994 and 1995, Rautio 1993, Rosch 1973, Rosch & Mervis 1975, Fuhrman 1988, and Gardner 1983). On this basis, it is assumed that

- writing and recording typically proceeded through certain stages whose order was relatively fixed;
- each stage offered a restricted amount of alternative procedures; and
- it is possible to explain most deviations from the typical procedure by the model itself.

With respect to the third assumption, the degree the deviations depended on different contextual factors — the songwriter, division of labor, style period, compositional situation, stage of the compositional process and so on — must be taken into account.

Individual songs

Figure 1 shows what is meant by the songwriting and recording process of individual songs in this article. The process itself consists of five main

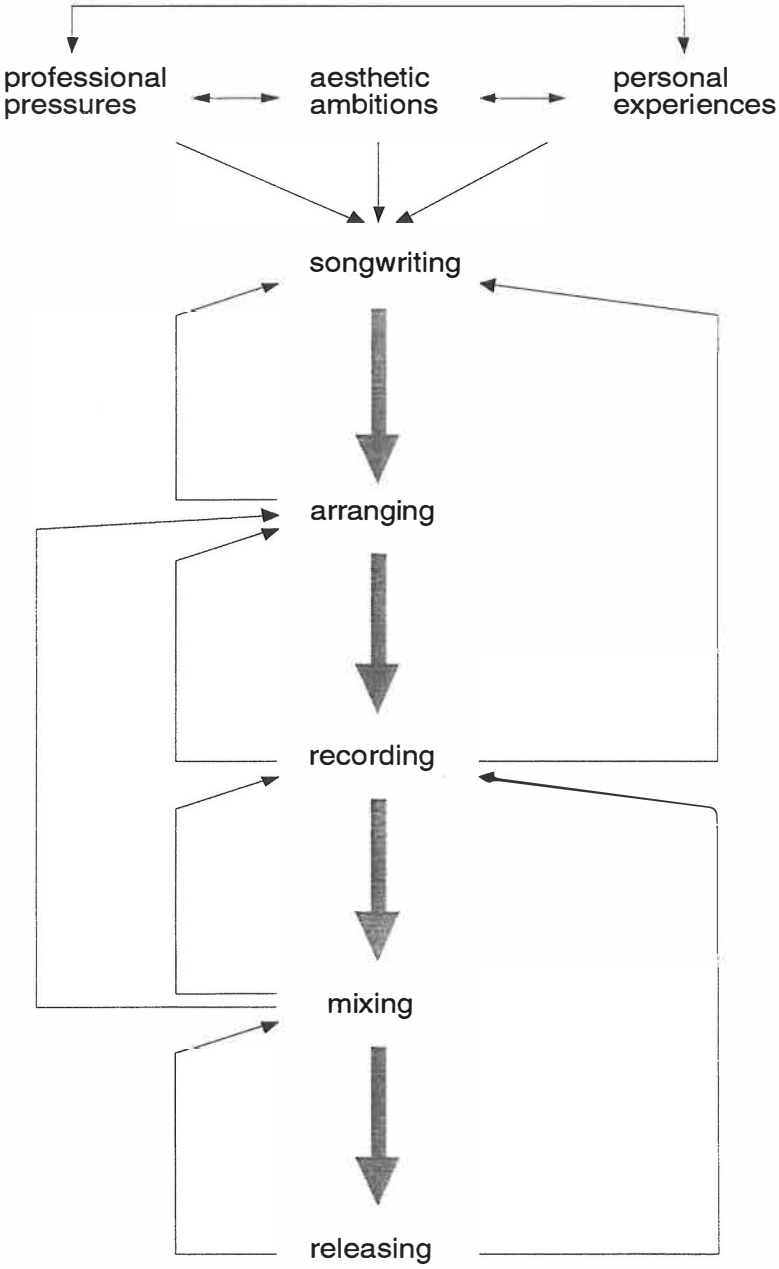


FIGURE 1. The main stages and sources of inspiration in the typical writing and recording process of an individual song

stages: (1) songwriting, (2) arranging, (3) recording, (4) mixing, and (5) releasing. Usually the order of the stages is as described in Figure 1, but they always overlap to some degree. It is also typical that the process returns to a previous stage before proceeding further. Returning two stages backwards — from recording back to songwriting, from mixing back to arranging, or from releasing back to recording — is not uncommon, either. Sometimes the stages may follow each other almost without a perceivable gap, and in such cases distinguishing them from each other may be difficult and even artificial. On the other hand, the writing process may be stopped at a certain stage for days, weeks, months, or even years. Individual stages may be linked with each other in different ways — usually in such a way that the songwriting process may be clearly separable from the recording process, which, in turn, is clearly separable from the releasing process. Usually arranging is then more closely linked to recording than to songwriting and mixing is more closely linked to releasing than to recording.

Figure 1 also shows the three main sources of inspiration. It may be stated that during the early years (1962-65) the professional pressures dominated as the main source of inspiration. During the middle period the significance of both aesthetic ambitions and personal experiences increased as sources of inspiration, at the cost of professional pressures. During the late period, professional pressures dominated again — the aesthetic ambitions were satisfied in the solo releases of the individual members of the Beatles, and also the need for writing about personal experiences decreased.

It should be taken into account that during the last two stages (mixing and releasing), individual songs were considered more as parts of a whole — that is, a record — than isolated entities. The writing and recording processes of individual songs to be released on the same record were not independent. Rather, they might be regarded as strands of a rope (the rope representing the writing and recording process of an entire record). Thus, the songwriting and recording process of an individual song cannot be isolated from the writing and recording process of a record — be it a single, an EP, or an album — except theoretically.

Recording projects

Despite differences between the early, middle, and late periods, the most pervasive reason to write and record songs during each period was the recording contract with the EMI Recording Company. In producer George Martin's words:

> "Brian Epstein and I worked out a plan in which we tried — not always successfully — to release a new Beatles single every three months and two albums a year. I was always saying to the Beatles 'I want another hit, come on, give me another hit' and they always responded. 'From Me To You', 'She Loves You', I Want To Hold Your Hand'. Right from the earliest days they never failed." (Lewisohn 1988, 28.)

Actually the Beatles succeeded in following Martin's and Epstein's plan only in 1963. Most often — in 1964, 1965, and 1969 — they released two albums and three singles annually: one album plus two singles during the spring and summer, and one album plus one single for the Christmas markets. In 1967 they released one album, three singles and one EP: one album plus two singles during the spring and summer (as usually) but only an EP plus one single for the Christmas markets. In 1966 and 1968 they released only one album and two singles (there were no singles for the Christmas markets). In 1962 only one single was released and in 1970 only one album + one single.

The release schedule — together with the touring schedule during 1962-66 — resulted in such a practice in which the songs released each year were written, arranged, recorded, mixed and released in two periods, each lasting a few months. On this basis, we take the term 'recording project' to refer to a working period lasting a few months, comprising the writing, arranging, recording, mixing, and releasing of the songs, and resulting in 1-2 singles and one album — plus occasionally one EP — of new material. Usually the Beatles had two projects per year. As a result of the first project, usually 1-2 singles and one album were released during the spring and/or the summer, whereas the second project resulted in one single and one LP release for the Christmas markets.

Recording projects usually comprised two or three overlapping stages, as shown in Figure 2. The first stage outlined the general stylistic expression of the album. It often comprised the following phases:

- making an inventory of the songs already written (the 1st batch of songs);
- arranging and recording them;
- picking and releasing a single, and
- making a rough or final mix of the songs already recorded.

The second stage typically strengthened the general expression of the album but also widened its stylistic spectrum. During this stage some new songs were usually written, arranged, recorded, and at least tentatively mixed (the 2nd batch of songs). The third stage comprised the following phases:

- completing the stylistic expression of the album, often by adding possibly lacking genres (the 3rd batch of songs);
- the final choosing of the songs for the album and for an optional new single;
- the final mixing of all songs (both mono and stereo);
- deciding on the running order (= the order in which the songs appear on the album;
- tape banding (making a master tape for cutting).

The duration and content of these stages varied from one project to the rest. In many cases there were no clear boundaries between adjacent stages, or

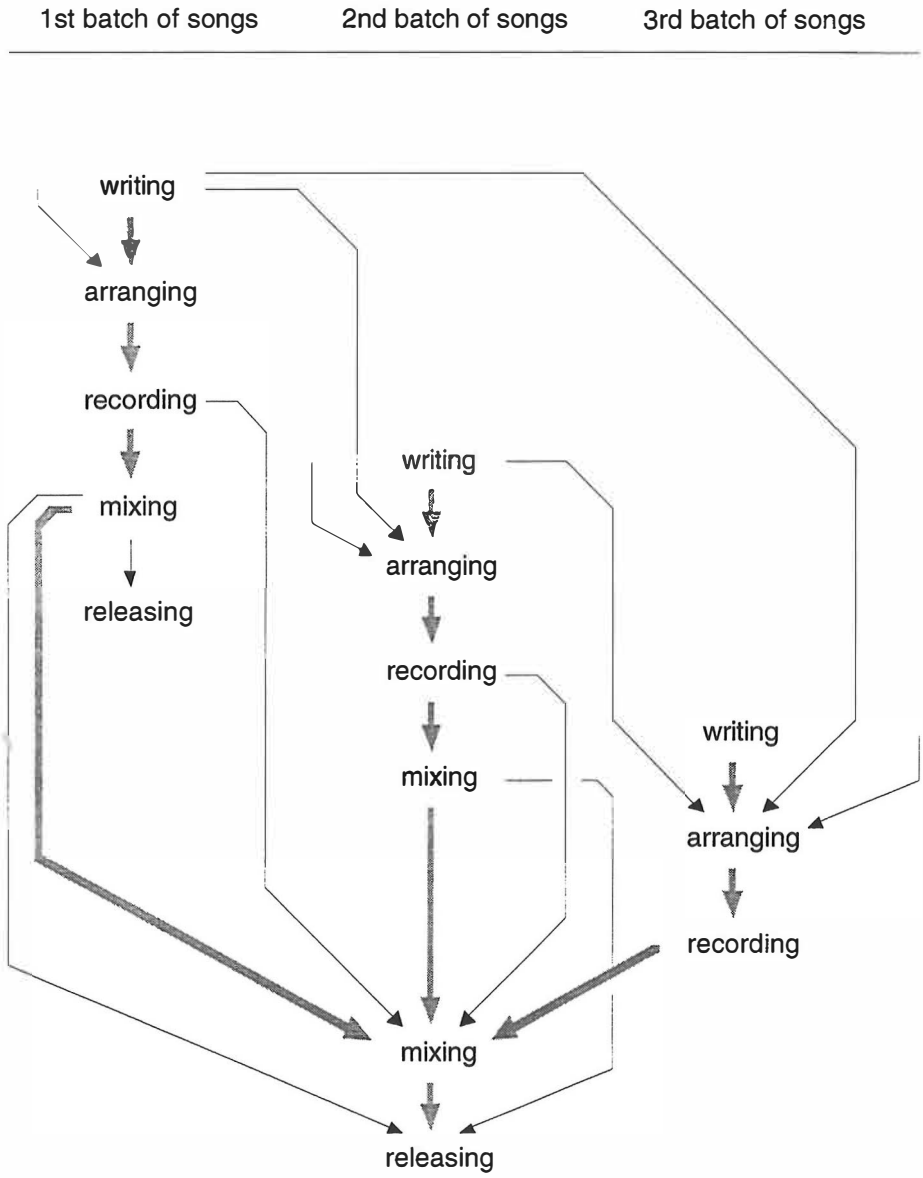


FIGURE 2. A typical recording project of the Beatles.

the second stage seems to be lacking: it may be adjoined to either to the first or the third stage.

Back to the problems of chronology and periodization. In most of the above accounts of the stylistic change of the Beatles the unit of discussion has been a record — a single or an album, sometimes an EP — and the chronology has been based on the order of release of the records. Many authors have preferred taking also the recording order into account, which has led to *ad hoc* modifications and eventually blurred the chronology. The authors of this paper suggest that a reasonably reliable chronology and periodization of the output of the Beatles might be built by taking the songs as the elementary units of the chronology and the recording projects as the basic level at which the style change is perceivable. More general periodizations can be built by analyzing the differences between the distribution of relevant musical features in subsequent recording projects.

CHRONOLOGY AND PERIODIZATION REVISITED

A compromise between the problems concerning the chronology and periodization has been presented recently by Tuomas Eerola (1997). Eerola's aim was to establish a division that would be as close as possible to the "pure" chronological division (with time units of equal length), keeping at the same time the albums as the units of division. It is obvious that the songwriting itself does not exactly follow any standard interval, whereas the release dates of the albums rely on external factors not necessarily reflecting the internal style change. Taking the recording order as the basis for the study seemed appropriate.

The recording career of the Beatles lasted from the fall of 1962 to the beginning of 1970. What Eerola discovered was that when this seven-year period is divided by 12 — that is, by the number of the albums —, the result is an interval of approximately seven months. Coincidentally, the recording projects (resulting in an album + 1 or 2 singles) conform quite well to these seven-month periods. The recording projects are shown in Table 1, in which the exceptions to the seven-month norm are marked by an asterisk (*).A detailed recording chronology, organized according to the above recording projects, is given in Appendix 2. When compiling this chronology, Eerola has always used the first recording date of the song when assigning their positions in the chronology.

In most cases, it took a couple of days to record a song and the Beatles often worked simultaneously on several songs a day. Re-makes or overdubs made later are not vital to the overall recording chronology. The projects are entitled according to the albums, including also songs released on singles and EPs but not on the particular album released as a result of the project. There are, however, some (7) songs that were released for various reasons considerably later than they were first recorded and thus these songs appear here earlier than in most accounts.

Duration	Title
04.09.1962-30.04.1963	PLEASE PLEASE ME*
01.05.1963-30.11.1963	WITH THE BEATLES
01.12.1963-30.06.1964	A HARD DAY'S NIGHT
01.07.1964-31.01.1965	BEATLES FOR SALE
01.02.1965-31.08.1965	HELP!
01.09.1965-31.03.1966	RUBBER SOUL
01.04.1966-31.10.1966	REVOLVER
01.11.1966-30.04.1967	SGT PEPPER'S LONELY HEARTS CLUB BAND*
01.05.1967-31.03.1968	MAGICAL MYSTERY TOUR/ YELLOW SUBMARINE*
01.04.1968-31.10.1968	THE BEATLES (WHITE ALBUM)
01.11.1968-31.01.1969	LET IT BE (GET BACK)*
01.02.1969-03.01.1970	ABBEY ROAD*

TABLE 1. The recording projects according to the modified chronological division by Eerola (1997).

This *modified chronological division* seeks to combine the advantages of using

- time units of equal length (7 months),
- a chronology based on the first recording date of the song, and
- the recording project (an album + 1 or 2 singles) as the unit of analysis.

As is emphasized above, songs were usually recorded during one to three days and further overdubs did not necessarily change the overall style of the song very much. So the date of taking a song into the recording studio comes in most cases very close to the time when the song took the form it had on the final release.

The date of writing was not as closely connected to the final form — *style* — of the song. Many songs were written long before they were recorded. Famous examples are songs written during the "early days", that is, before the breakthrough of the Beatles. These songs include 'Love Me Do', 'I Call Your Name', 'One After 909', 'I'll Follow The Sun', 'When I'm Sixty-Four', 'Michelle', 'What Goes On'. And, as stated above, the date of release does not necessarily mirror the state of the style because much new material could already have been recorded before the release of a certain song. Many songs were indeed released long after they were recorded. These songs include 'You Know My Name (Look Up The Number)', 'Across The Universe', 'All Together Now', 'Only A Northern Song', 'Hey Bulldog', and 'It's All Too Much'. In all these cases the date and order of recording is

assumed to reflect the style change more faithfully than the date and order of writing or releasing.

One further advantage of taking the date of recording as the basis of the chronology is that it allows the study of the style change within a recording project. It would be a mistake to assume that this development was linear. Quite the contrary: many markedly "revolutionary" songs were taken into the studio as the very first songs ('Tomorrow Never Knows', 'Strawberry Fields Forever', 'Revolution') or among the very first songs ('Penny Lane', 'A Day In The Life') of a particular recording project. These songs strongly outlined the overall expression of the albums or the style periods they represented. Correspondingly — many more "conventional" songs were taken into the studio at the end of a project, partly because there was no time for experimenting, partly because some conventional songs were needed. However, this aspect — as interesting as it is — is beyond the scope of this essay and, thus, remains to be studied more closely in future research.

CONCLUSION

Chronology deals with the diachronic aspect of style change. Change as such is a temporal concept but it always takes place with respect to some particular parameters or features that form the synchronic aspect of style change. The following notion of style change comes close to the account of the authors of this paper:

> "Style is for him [the music historian] a classificatory concept: a style is a set of features, and compositions in that style are compositions that have those features in common. Styles are not fixed and mutually exclusive; they are arbitrary ways of seeing data; they may overlap, and some may wholly contain others. But a stylistic category, once it has been set up, can function as a norm against which data are assessed." (Duckles, 1981)

Regarding the musical style as "a set of features" and compositions — songs — as entities having "those features in common" leads also to revisiting the status of the "musical work" as the basic unit of change of a musical style. The authors suggest that measuring style change empirically requires a functional hierarchy of the units of analysis. On the basis of what is presented above, such a hierarchy might comprise the following three levels:

- *stylistic features* — common to a large corpus of songs
- *individual songs* — elementary units of analysis having several stylistic features in common
- *recording projects* — basic units of analysis reflecting stylistic change

The authors believe that using the recording dates as the basis of the chronology (the *diachronic* aspect of periodization) and the above hierarchy as the basis of segmentation (the *synchronic* aspect of periodization), a more reliable picture of the change of the musical style of the Beatles can be obtained.

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APPENDIX 1.

The following discography contains all the records the Beatles officially released in England and the USA during 1962-70. The chronology of the discography is based on the order of release. All British singles as well as LP and EP releases containing new material are expressed by bold type.

DISCOGRAPHY

1962-10-05 **'Love Me Do'/'PS I Love You'** (single, PARLOPHONE)

1963-02-11 **'Please Please Me'/'Ask Me Why'** (single, PARLOPHONE)

1963-02-25 'Please Please Me'/'Ask Me Why'
(US single release, Vee Jay)

1963-03-22 **PLEASE PLEASE ME** (LP, PARLOPHONE)

A: 'I Saw Her Standing There'; 'Misery'; 'Anna' (Go To Him'; 'Chains'; 'Boys'; 'Ask Me Why'; 'Please Please Me.
B: 'Love Me Do'; 'PS I Love You'; 'Baby It' You'; 'Do You Want To Know A Secret'; 'A Taste Of Honey'; 'There's A Place'; Twist And Shout'.

1963-04-11 **'From Me To You'/'Thank You Girl'** (single, PARLOPHONE)

1963-05-27 'From Me To You'/'Thank You Girl' (US single release, Vee Jay)

1963-07-12 TWIST AND SHOUT (EP, PARLOPHONE)

A: 'Twist And Shout'; 'A Taste Of Honey'.
B: 'Do You Want To Know A Secret'; 'There's A Place'.

1963-07-22 INTRODUCING THE BEATLES (US LP release, Vee Jay)

A: 'I Saw Her Standing There'; 'Misery'; 'Anna (Go To Him'; 'Chains'; 'Love Me Do'.
B: 'PS I Love You'; 'Baby It's You'; 'Do You Want To Know A Secret'; 'There's A Place'; 'Twist And Shout'.

1963-08-23 **'She Loves You'/'I'll Get You'** (single, PARLOPHONE)

1963-09-06 THE BEATLES' HITS (EP, PARLOPHONE)

A: 'From Me To You'; 'Thank You Girl'.
B: 'Please Please Me'; 'Love Me Do'.

1963-09-16 'She Loves You'/'I'll Get You' (US single release, Swan)

1963-11-01 THE BEATLES (NO 1) (EP, PARLOPHONE)

A: 'I Saw Her Standing There'; 'Misery'.
B: 'Anna (Go To Him)'; 'Chains'.

1963-11-22 **WITH THE BEATLES** (LP, PARLOPHONE)

A: 'It Won't Be Long'; 'All I've Got To Do'; 'All My Loving'; 'Don't Bother Me'; 'Little Child'; 'Till There Was You'; 'Please Mister Postman'.
B: 'Roll Over Beethoven'; 'Hold Me Tight'; 'You Really Got A Hold On Me'; 'I Wanna Be Your Man'; 'Devil In Her Heart'; 'Not A Second Time'; 'Money (That's What I Want)'.

1963-11-29 **'I Want To Hold Your Hand'/'This Boy'** (single, PARLOPHONE)

1963-12-26 'I Want To Hold Your Hand'/'I Saw Her Standing There' (US single release, Capitol)

1964-01-20 MEET THE BEATLES! (US LP release, Capitol)

A: 'I Want To Hold Your Hand'; 'I Saw Her Standing There'; 'This Boy'; 'It Won't Be Long'; 'All I've Got To Do'; 'All My Loving'.
B: 'Don't Bother Me'; 'Little Child'; 'Till There Was You'; 'Hold Me Tight'; 'I Wanna Be Your Man'; 'Not A Second Time'.

1964-01-30 'Please Please Me/'From Me To You' (US single release, Vee Jay)

1964-02-07 ALL MY LOVING (EP, PARLOPHONE)

A: 'All My Loving'; 'Ask Me Why'.
B: 'Money (That's What I Want); 'PS I Love You'.

1964-03-02 'Twist And Shout'/'There's A Place' (US single release, Tollie)

1964-03-16 'Can't Buy Me Love'/'You Can't Do That' (US single release, Capitol)

1964-03-20 **'Can't Buy Me Love'/'You Can't Do That'** (single, PARLOPHONE)

1964-03-23 'Do You Want To Know A Secret'/'Thank You Girl' (US single release, Vee Jay)

THE BEATLES (US EP release, Vee Jay)

A: 'Misery'; 'A Taste Of Honey'.
B: 'Ask Me Why'; 'Anna (Go To Him)'.

1964-04-10 THE BEATLES' SECOND ALBUM (US LP release, Capitol)

A: 'Roll Over Beethoven'; 'Thank You Girl'; 'You Really Got A Hold On ME'; 'Devil In Her Heart'; 'Money (That's What I Want)'; 'You Can't Do That'.
B: 'Long Tall Sally'; 'I Call Your Name'; 'Please Mister Postman'; 'I'll Get You'; 'She Loves You'.

1964-04-27 'Love Me Do'/'PS I Love You' (US single release, Tollie)

1964-05-11 FOUR BY THE BEATLES (US EP release, Capitol)

A: 'Roll Over Beethoven'; 'All My Loving'.
B: 'This Boy'; 'Please Mister Postman'.

1964-05-21 'Sie Liebt Dich'/'I'll Get You'
(US single release, Swan)

1964-06-19 **LONG TALL SALLY** (EP, PARLOPHONE)

A: 'Long Tall Sally'/'I Call Your Name'.
B: 'Slow Down'/'Matchbox'.

1964-06-26 A HARD DAY'S NIGHT (US LP release, United Artists)

A: 'A Hard Day's Night'; 'Tell Me Why'; 'I'll Cry Instead'; 'I Should Have Known Better' (soundtrack instrumental); 'I'm Happy Just To Dance With Me'; 'And I Love Her' (soundtrack instrumental).
B: 'I Should Have Known Better'; 'If I Fell'; 'And I Love Her'; 'Ringo's Theme' (soundtrack instrumental); 'Can't Buy Me Love'; 'A Hard Day's Night' (soundtrack instrumental).

1964-07-10 **'A Hard Day's Night'/'Things We Said Today'** (single, PARLOPHONE)

A HARD DAY'S NIGHT (LP, PARLOPHONE)

A: 'A Hard Day's Night'; 'I Should Have Known Better'; 'If I Fell'; 'I'm Happy Just To Dance With You'; 'And I Love Her'; 'Tell Me Why'; 'Can't Buy Me Love'.
B: 'Any Time At All'; 'I'll Cry Instead'; 'Things We Said Today'; 'When I Get Home'; 'You Can't Do That'; 'I'll Be Back'.

1964-07-13 'A Hard Day's Night'/'I Should Have Known Better' (US single release, Capitol)

1964-07-20 'I'll Cry Instead'/"I'm Happy Just To Dance With You' (US single release, Capitol)

'And I Love Her'/'If I Fell' (US single release, Capitol)

SOMETHING NEW (US LP release, Capitol)

A: 'I'll Cry Instead'; 'Things We Said Today'; 'Any Time At All'; 'When I Get Home'; 'Slow Down'; 'Matchbox'.
B: 'Tell Me Why'; 'And I Love Her'; 'I'm Happy Just To Dance With You'; 'If I Fell'; 'Komm, Gib Mir Deine Hand.'

1964-08-24 'Matchbox'/'Slow Down' (US single release, Capitol)

1964-11-06 EXTRACTS FROM THE FILM A HARD DAY'S NIGHT (EP, PARLOPHONE)

A: 'I Should Have Known Better'; 'If I Fell'.
B: 'Tell Me Why'; 'And I Love Her'.

EXTRACTS FROM THE ALBUM A HARD DAY'S NIGHT (EP, PARLOPHONE)

A: 'Any Time At All'; 'I'll Cry Instead'.
B: 'Things We Said Today'; 'When I Get Home'.

1964-11-23 'I Feel Fine'/'She's A Woman' (US single release, Capitol)

1964-11-27 **'I Feel Fine'/'She's A Woman'** (single, PARLOPHONE)

1964-12-04 **BEATLES FOR SALE** (LP, PARLOPHONE)

A: 'No Reply'; 'I'm A Loser'; 'Baby's In Black'; 'Rock And Roll Music'; 'I'll Follow The Sun'; 'Mr Moonlight'; 'Kansas City/Hey-Hey-Hey-Hey!'.
B: 'Eight Days A Week'; 'Words Of Love'; 'Honey Don't'; 'Every Little Thing'; 'I Don't Want To Spoil The Party'; 'What You're Doing'; 'Everybody's Trying To Be My Baby'.

1964-12-15 BEATLES '65 (US LP release, Capitol)

A: 'No Reply'; 'I'm A Loser'; 'Baby's In Black'; 'Rock And Roll Music'; 'I'll Follow The Sun'; 'Mr Moonlight'.
B: 'Honey Don't'; "I'll Be Back'; 'She's A Woman'; 'I Feel Fine'; 'Everybody's Trying To Be My Baby'.

1965-02-01 4 BY THE BEATLES (US EP release, Capitol)

A: 'Honey Don't'; 'I'm A Loser'.
B: 'Mr Moonlight'; 'Everybody's Trying To Be My Baby'.

1965-02-15 'Eight Days A Week'/'I Don't Want To Spoil The Party' (US single release, Capitol)

1965-03-22 THE EARLY BEATLES (US LP release, Capitol)

A: 'Love Me Do'; 'Twist And Shout'; 'Anna (Go To Him)'; 'Chains'; 'Boys'; 'Ask Me Why'.
B: 'Please Please Me'; 'P.S. I Love You'; 'Baby It's You'; 'A Taste Of Honey'; 'Do You Want To Know A Secret'.

1965-04-06 BEATLES FOR SALE (EP, PARLOPHONE)

A: 'No Reply'; 'I'm A Loser'.
B: 'Rock And Roll Music'; 'Eight Days A Week'.

1965-04-09 **'Ticket To Ride'/'Yes It Is'** (single, PARLOPHONE)

1965-04-19 'Ticket To Ride'/'Yes It Is' (US single release, Capitol)

1965-06-04 BEATLES FOR SALE (NO 2) (EP, PARLOPHONE)

A: 'I'll Follow The Sun'; 'Baby's In Black'.
B: 'Words Of Love'; 'I Don't Want To Spoil The Party'.

1965-06-14 BEATLES VI (US LP release, Capitol)

A: 'Kansas City/Hey-Hey-Hey-Hey!'; 'Eight Days A Week'; 'You Like Me Too Much'; 'Bad Boy'; 'I Don't Want To Spoil The Party'; 'Words Of Love'.
B: 'What You're Doing'; 'Yes It Is'; Dizzy Miss Lizzy'; 'Tell Me What You See'; 'Every Little Thing'.

1965-07-19 'Help!'/'I'm Down' (US single release, Capitol)

1965-07-23 **'Help!'/'I'm Down'** (single, PARLOPHONE)

1965-08-06 **HELP!** (LP, PARLOPHONE)

A: 'Help!'; 'The Night Before'; 'You've Got To Hide Your Love Away'; 'I Need You'; 'Another Girl'; 'You're Going To Lose That Girl'; 'Ticket To Ride'.
B: 'Act Naturally'; 'It's Only Love'; 'You Like Me Too Much'; 'Tell Me What You See'; 'I've Just Seen A Face'; 'Yesterday'; 'Dizzy Miss Lizzy'.

1965-08-13 HELP! (US LP release, Capitol)

A: 'James Bond Theme' (soundtrack instrumental); 'Help'; 'The Night Before'; 'From Me To You Fantasy' (soundtrack instrumental); 'You've Got To Hide Your Love Away'; 'I Need You'; 'In The Tyrol (soundtrack instrumental).
B: 'The Bitter End'/'You Can't Do That' (soundtrack instrumental); 'You're Going To Lose That Girl'; 'The Chase' (soundtrack instrumental); 'Another Girl'; 'Another Hard Day's Night' (soundtrack instrumental); 'Ticket To Ride'.

1965-09-13 'Yesterday'/'Act Naturally' (US single release, Capitol)

1965-12-03 **'We Can Work It Out'/'Day Tripper'** (single, PARLOPHONE)

RUBBER SOUL (LP, PARLOPHONE)

A: 'Drive My Car'; 'Norwegian Wood (This Bird Has Flown)'; 'You Won't See Me'; 'Nowhere Man'; 'Think For Yourself'; 'The Word'; 'Michelle'.
B: 'What Goes On'; 'Girl'; 'I'm Looking Through You'; 'In My Life'; 'Wait'; 'If I Needed Someone'; 'Run For Your Life'.

1965-12-06 THE BEATLES' MILLION SELLERS (EP, PARLOPHONE)

A: 'She Loves You'; 'I Want To Hold Your Hand'.
B: 'Can't Buy Me Love'; 'I Feel Fine'.

'We Can Work It Out'/'Day Tripper' (US single release, Capitol)

RUBBER SOUL (US LP release, Capitol)

A: 'I've Just Seen A Face'; 'Norwegian Wood (This Bird Has Flown)'; 'You Won't See Me'; 'Think For Yourself'; 'The Word'; 'Michelle'.

B: 'It's Only Love'; 'Girl'; 'I'm Looking Through You'; 'In My Life'; 'Wait'; 'Run For Your Life'.

1966-02-21 'Nowhere Man'/'What Goes On' (US single release, Capitol)

1966-03-04 YESTERDAY (EP, PARLOPHONE)

A: 'Yesterday'; 'Act Naturally'.
B: 'You Like Me Too Much'; 'It's Only Love'.

1966-05-30 'Paperback Writer'/'Rain' (US single release, Capitol)

1966-06-10 **'Paperback Writer'/'Rain'** (single, PARLOPHONE)

1966-06-20 "YESTERDAY"...AND TODAY (US LP release, Capitol)

A: 'Drive My Car'; 'I'm Only Sleeping'; 'Nowhere Man'; 'Doctor Robert'; 'Yesterday'; 'Act Naturally'.
B: 'And Your Bird Can Sing'; 'If I Needed Someone'; 'We Can Work It Out'; 'What Goes On'; Day Tripper'.

1966-07-08 NOWHERE MAN (EP, PARLOPHONE)

A: 'Nowhere Man'; 'Drive My Car'.
B: 'Michelle'; 'You Won't See Me'.

1966-08-05 **'Eleanor Rigby'/'Yellow Submarine'** (single, PARLOPHONE)

REVOLVER (LP, PARLOPHONE)

A: 'Taxman'; 'Eleanor Rigby'; 'I'm Only Sleeping'; 'Love You To; 'Here, There And Everywhere'; 'Yellow Submarine'; 'She Said She Said'.
B: 'Good Day Sunshine'; 'And Your Bird Can Sing'; 'For No One'; 'Doctor Robert'; 'I Want To Tell You'; 'Got To Get You Into My Life'; 'Tomorrow Never Knows'.

1966-08-08 'Eleanor Rigby'/'Yellow Submarine' (US single release, Capitol)

REVOLVER (US LP release, Capitol)

A: 'Taxman'; 'Eleanor Rigby'; 'Love You To'; 'Here, There And Everywhere'; 'Yellow Submarine'; 'She Said She Said'.
B: 'Good Day Sunshine'; 'For No One'; 'I Want To Tell You'; 'Got To Get You Into My Life'; 'Tomorrow Never Knows'.

1966-12-09 A COLLECTION OF BEATLES OLDIES (LP, PARLOPHONE)

A: 'She Loves You'; 'From Me To You'; 'We Can Work It Out'; 'Help!'; 'Michelle'; 'Yesterday'; 'I Feel Fine'; 'Yellow Submarine'.
B: 'Can't Buy Me Love'; 'Bad Boy'; 'Day Tripper'; 'A Hard Day's Night'; 'Ticket To Ride'; 'Paperback Writer'; 'Eleanor Rigby'; 'I Want To Hold Your Hand'.

1967-02-13 'Strawberry Fields Forever'/'Penny Lane' (US single release, Capitol)

1967-02-17 **'Strawberry Fields Forever'/'Penny Lane'** (single, PARLOPHONE)

1967-06-01 **SGT PEPPER'S LONELY HEARTS CLUB BAND**
(LP, PARLOPHONE)

A: 'Sgt Pepper's Lonely Hearts Club Band'; 'With A Little Help From My Friends'; 'Lucy In The Sky With Diamonds'; 'Getting Better'; 'Fixing A Hole'; 'She's Leaving Home'; 'Being For The Benefit Of Mr Kite!'.
B: 'Within You Without You'; 'When I'm Sixty-Four'; 'Lovely Rita'; 'Good Morning Good Morning'; 'Sgt Pepper's Lonely Hearts Club Band (Reprise)'; 'A Day In The Life.

1967-06-02 SGT PEPPER'S LONELY HEARTS CLUB BAND
(US LP release, Capitol)

A: 'Sgt Pepper's Lonely Hearts Club Band'; 'With A Little Help From My Friends'; 'Lucy In The Sky With Diamonds'; 'Getting Better'; 'Fixing A Hole'; 'She's Leaving Home'; 'Being For The Benefit Of Mr Kite!'.
B: 'Within You Without You'; 'When I'm Sixty-Four'; 'Lovely Rita'; 'Good Morning Good Morning'; 'Sgt Pepper's Lonely Hearts Club Band (Reprise)'; 'A Day In The Life.

1967-07-07 **'All You Need Is Love'/'Baby, You're A Rich Man'** (single, PARLOPHONE)

1967-07-17 'All You Need Is Love'/'Baby, You're A Rich Man' (US single release, Capitol)

1967-11-24 **'Hello Goodbye'/'I Am The Walrus'** (single, PARLOPHONE)

1967-11-27 'Hello Goodbye'/'I Am The Walrus'
(US single release, Capitol)

MAGICAL MYSTERY TOUR (US LP release, Capitol)

A: 'Magical Mystery Tour'; 'The Fool On The Hill'; 'Flying'; 'Blue Jay Way'; 'Your Mother Should Know'; 'I Am The Walrus'.
B: 'Hello Goodbye'; 'Strawberry Fields Forever'; 'Penny Lane'; 'Baby, You're A Rich Man'; 'All You Need Is Love'.

1967-12-08 **MAGICAL MYSTERY TOUR** (EP, PARLOPHONE)

A: 'Magical Mystery Tour'; 'Your Mother Should Know';
B: 'I Am The Walrus'.
C: 'The Fool On The Hill'; 'Flying'.
D: 'Blue Jay Way'.

1968-03-15 **'Lady Madonna'/'The Inner Light'** (single, PARLOPHONE)

1968-03-18 'Lady Madonna'/'The Inner Light' (US single release, Capitol)

1968-08-26 'Hey Jude'/'Revolution' (US single release, Apple [Capitol])

1968-08-30 **'Hey Jude'/'Revolution'** (single, Apple [PARLOPHONE])

1968-11-22 **THE BEATLES ("WHITE ALBUM")** (LP, Apple [PARLOPHONE])

A: 'Back In The USSR'; 'Dear Prudence'; 'Glass Onion'; 'Ob-La-Di, Ob-La-Da'; 'Wild Honey Pie'; 'The Continuing Story Of Bungalow Bill'; 'While My Guitar Gently Weeps'; 'Happiness Is A Warm Gun'.
B: 'Martha My Dear'; 'I'm So Tired'; 'Blackbird'; 'Piggies'; 'Rocky Raccoon'; 'Don't Pass Me By'; 'Why Don't We Do It In The Road'; 'I Will'; 'Julia.
C: 'Birthday'; 'Yer Blues'; 'Mother Nature's Son'; 'Everybody's Got Something To Hide Except Me And My Monkey'; 'Sexy Sadie'; 'Helter Skelter'; 'Long Long Long'.
D: 'Revolution 1'; 'Honey Pie'; 'Savoy Truffle'; 'Cry Baby Cry'; 'Revolution 9'; 'Good Night'.

1968-11-25 THE BEATLES ("WHITE ALBUM") (US LP release, Apple [Capitol])

A: 'Back In The USSR'; 'Dear Prudence'; 'Glass Onion'; 'Ob-La-Di, Ob-La-Da'; 'Wild Honey Pie'; 'The Continuing Story Of Bungalow Bill'; 'While My Guitar Gently Weeps'; 'Happiness Is A Warm Gun'.
B: 'Martha My Dear'; 'I'm So Tired'; 'Blackbird'; 'Piggies'; 'Rocky Raccoon'; 'Don't Pass Me By'; 'Why Don't We Do It In The Road'; 'I Will'; 'Julia.

C: 'Birthday'; 'Yer Blues'; 'Mother Nature's Son'; 'Everybody's Got Something To Hide Except Me And My Monkey'; 'Sexy Sadie'; 'Helter Skelter'; 'Long Long Long'.
D: 'Revolution 1'; 'Honey Pie'; 'Savoy Truffle'; 'Cry Baby Cry'; 'Revolution 9'; 'Good Night'.

1969-01-13 YELLOW SUBMARINE (US LP release, Apple [Capitol])

A: 'Yellow Submarine'; 'Only A Northern Song'; 'All Together Now'; 'Hey Bulldog'; 'It's All Too Much'; 'All You Need Is Love'.
B: Soundtrack instrumentals: 'Pepperland'; 'Sea Of Time'/'Sea Of Holes'; 'Sea Of Monsters'; 'March Of The Meanies'; 'Pepperland Laid Waste'; 'Yellow Submarine In Pepperland'.

1969-01-17 **YELLOW SUBMARINE** (LP, Apple [PARLOPHONE])

A: 'Yellow Submarine'; 'Only A Northern Song'; 'All Together Now'; 'Hey Bulldog'; 'It's All Too Much'; 'All You Need Is Love'.
B: Soundtrack instrumentals: 'Pepperland'; 'Sea Of Time'/'Sea Of Holes'; 'Sea Of Monsters'; 'March Of The Meanies'; 'Pepperland Laid Waste'; 'Yellow Submarine In Pepperland'.

1969-04-11 **'Get Back'/'Don't Let Me Down'** (single, Apple [PARLOPHONE])

1969-05-05 'Get Back'/'Don't Let Me Down' (US single release, Apple [Capitol])

1969-05-30 **'The Ballad Of John And Yoko'/'Old Brown Shoe'** (single, Apple [PARLOPHONE])

1969-06-04 'The Ballad Of John And Yoko'/'Old Brown Shoe' (Us single release, Apple [Capitol])

1969-09-26 **ABBEY ROAD** (LP, Apple [PARLOPHONE])

A: 'Come Together'; 'Something'; 'Maxwell's Silver Hammer'; 'Oh! Darling'; 'Octopus's Garden'; 'I Want You (She's So Heavy)'.
B: 'Here Comes The Sun'; 'Because'; 'You Never Give Me Your Money'; 'Sun King'/'Mean Mr Mustard'; 'Polythene Pam'/'She Came Through The Bathroom Window'; 'Golden Slumbers'/'Carry That Weight'; 'The End'; 'Her Majesty'.

1969-10-01 ABBEY ROAD (Apple [Capitol])

A: 'Come Together'; 'Something'; 'Maxwell's Silver Hammer'; 'Oh! Darling'; 'Octopus's Garden'; 'I Want You (She's So Heavy)'.
B: 'Here Comes The Sun'; 'Because'; 'You Never Give Me Your Money'; 'Sun King'/'Mean Mr Mustard'; 'Polythene Pam'/'She Came

Through The Bathroom Window'; 'Golden Slumbers'/'Carry That Weight'; 'The End'; 'Her Majesty'.

1969-10-06 'Something'/'Come Together' (US single release, Apple [Capitol])

1969-10-31 **'Something'/'Come Together'** (single, Apple [PARLOPHONE])

1970-02-26 HEY JUDE (US LP release, Apple [Capitol])

A: 'Can't Buy Me Love'; 'I Should Have Known Better'; 'Paperback Writer'; 'Rain'; 'Lady Madonna'; 'Revolution'.
B: 'Hey Jude'; 'Old Brown Shoe'; 'Don't Let Me Down'; 'The Ballad Of John And Yoko'.

1970-03-06 **'Let It Be'/'You Know My Name (Look Up The Number)'** (single, Apple [PARLOPHONE])

1970-03-11 'Let It Be'/'You Know My Name (Look Up The Number)' (US single release, Apple [Capitol])

1970-05-08 **LET IT BE** (LP, Apple [PARLOPHONE])

A: 'Two Of Us'; 'Dig A Pony'; 'Across The Universe'; 'I Me Mine'; 'Dig It'; 'Let It Be'; 'Maggie Mae'.
B: 'I've Got A Feeling'; 'The One After 909'; 'The Long And Winding Road'; 'For You Blue'; 'Get Back'.

1970-05-11 'The Long And Winding Road'/'For You Blue' (US single release, Apple [Capitol])

1970-05-18 LET IT BE (US LP release, Apple [Capitol])

A: 'Two Of Us'; 'Dig A Pony'; 'Across The Universe'; 'I Me Mine'; 'Dig It'; 'Let It Be'; 'Maggie Mae'.
B: 'I've Got A Feeling'; 'The One After 909'; 'The Long And Winding Road'; 'For You Blue'; 'Get Back'.

APPENDIX 2.

MODIFIED CHRONOLOGICAL DIVISION
based on the recording projects

Recording date	Name
4.9.62-28.4.63	**Please Please Me**
4.9.1962	*Love Me Do*
4.9.1962	*P.S. I Love You*
11.9.1962	*Please Please Me*
26.11.1962	*Ask Me Why*
11.2.1963	I Saw Her Standing There
11.2.1963	Misery
11.2.1963	Anna (Go To Him)
11.2.1963	Chains
11.2.1963	Boys
11.2.1963	Baby, It's You
11.2.1963	Do You Want To Know...
11.2.1963	A Taste Of Honey
11.2.1963	There's A Place
11.2.1963	Twist and Shout
5.3.1963	*From Me To You*
5.3.1963	*Thank You Girl*
1.5.63-30.11.63	**With The Beatles**
1.7.1963	*She Loves You*
1.7.1963	*I'll Get You*
18.7.1963	You Really Got A Hold Of Me
18.7.1963	Devil In Her Heart
18.7.1963	Money (That's What I Want)
18.7.1963	Till There Was You
30.7.1963	It Won't Be Long
30.7.1963	All My Loving
30.7.1963	Please Mr. Postman
30.7.1963	Roll Over Beethoven
11.9.1963	All I've Got to Do
11.9.1963	Don't Bother Me
11.9.1963	Little Child
11.9.1963	I Wanna Be Your Man
11.9.1963	Not A Second Time
12.9.1963	Hold Me Tight
17.10.1963	*I Want To Hold Your Hand*
17.10.1963	*This Boy*
1.12.63-30.6.64	**A Hard Day's Night**
29.1.1964	*Can't Buy Me Love*
25.2.1964	I Should Have Known Be...
25.2.1964	And I Love Her
25.2.1964	*You Can't Do That*

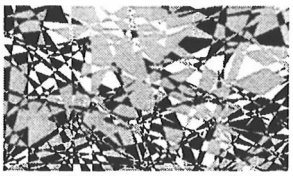
italics = singles
underlined = EPs in U.K.

27.2.1964	If I Fell
27.2.1964	Tell Me Why
1.3.1964	Long Tall Sally
1.3.1964	I Call Your Name
1.3.1964	I'm Happy Just To Dance With You
16.4.1964	*A Hard Day's Night*
1.6.1964	Slow Down
1.6.1964	Matchbox
1.6.1964	I'll Cry Instead
1.6.1964	I'll Be Back
2.6.1964	Any Time At All
2.6.1964	*Things We Said Today*
2.6.1964	When I Get Home
1.7.64-31.1.65	**Beatles For Sale**
11.8.1964	Baby's In Black
14.8.1964	I'm A Loser
29.9.1964	Every Little Thing
29.9.1964	I Don't Want To Spoil The Party
29.9.1964	What You're Doing
30.9.1964	No Reply
6.10.1964	Eight Days A Week
8.10.1964	*She's A Woman*
18.10.1964	*I Feel Fine*
18.10.1964	Rock And Roll Music
18.10.1964	I'll Follow The Sun
18.10.1964	Mr. Moonlight
18.10.1964	Kansas City//Hey Hey Hey
18.10.1964	Words Of Love
18.10.1964	Everybody's Trying To Be My Baby
26.10.1964	Honey Don't
1.2.65-30.8.65	**Help!**
15.2.1965	I Need You
15.2.1965	Another Girl
15.2.1965	*Ticket To Ride*
16.2.1965	*Yes It Is*
17.2.1965	The Night Before
17.2.1965	You Like Me Too Much
18.2.1965	You've Got To Hide Your Love Away
18.2.1965	Tell Me What You See
19.2.1965	You're Going to Lose That Girl
13.4.1965	*Help!*
10.5.1965	*Bad Boy*
10.5.1965	Dizzy Miss Lizzie
14.6.1965	*I'm Down*
14.6.1965	I've Just Seen A Face
14.6.1965	Yesterday
15.6.1965	It's Only Love
17.6.1965	Act Naturally
17.6.1965	Wait

1.9.65-31.3.66	**Rubber Soul**
12.10.1965	Norwegian Wood
12.10.1965	Run For Your Life
13.10.1965	Drive My Car
16.10.1965	*Day Tripper*
16.10.1965	If I Needed Someone
18.10.1965	In My Life
20.10.1965	*We Can Work It Out*
3.11.1965	Michelle
4.11.1965	What Goes On
6.11.1965	I'm Looking Through You
8.11.1965	Think For Yourself
10.11.1965	The Word
11.11.1965	You Won't See Me
11.11.1965	Girl
21.11.1965	Nowhere Man
1.4.66-31.10.66	**Revolver**
7.4.1966	Got To Get You Into My Life
11.4.1966	Love You To
13.4.1966	*Paperback Writer*
14.4.1966	*Rain*
17.4.1966	Doctor Robert
20.4.1966	Taxman
20.4.1966	And Your Bird Can Sing
22.4.1966	Tomorrow Never Knows
27.4.1966	I'm Only Sleeping
29.4.1966	*Eleanor Rigby*
9.5.1966	For No One
26.5.1966	*Yellow Submarine*
2.6.1966	I Want To Tell You
7.6.1966	Good Day Sunshine
14.6.1966	Here, There and Everywhere
21.6.1966	She Said She Said
1.11.66-30.4.67	**Sgt. Pepper's Lonely Hearts Club Band**
24.11.1966	*Strawberry Fields Forever*
6.12.1966	When I'm Sixty-Four
29.12.1966	*Penny Lane*
19.1.1967	A Day In The Life
1.2.1967	Sgt. Pepper's Lonely Hearts Club Band
8.2.1967	Good Morning Good Morning
9.2.1967	Fixing A Hole
13.2.1967	Only A Northern Song
17.2.1967	Being For The Benefit of Mr. Kite
23.2.1967	Lovely Rita
1.3.1967	Lucy In The Sky With Diamonds
9.3.1967	Getting Better
15.3.1967	Within You Without You
17.3.1967	She's Leaving Home
29.3.1967	With A Little Help From My Friends

1.4.1967	Sgt. Pepper's Lonely Hearts Club Band (Reprise)
25.4.1967	Magical Mystery Tour
1.5.67-31.3.68	**Magical Mystery Tour/Singles/Yellow Submarine**
11.5.1967	*Baby, You're A Rich Man*
12.5.1967	All Together Now
17.5.1967	*You Know My Name (Look Up The Number)*
25.5.1967	It's All Too Much
14.6.1967	*All You Need Is Love*
22.8.1967	Your Mother Should Know
5.9.1967	*I Am The Walrus*
6.9.1967	Blue Jay Way
8.9.1967	Flying
25.9.1967	The Fool On The Hill
2.10.1967	*Hello Goodbye*
12.1.1968	*The Inner Light*
3.2.1968	*Lady Madonna*
4.2.1968	Across The Universe
11.2.1968	Hey Bulldog
1.4.68-31.10.68	**White Album ('The Beatles')**
30.5.1968	*Revolution*
30.5.1968	Revolution 1
30.5.1968	Revolution 9
5.6.1968	Don't Pass Me By
11.6.1968	Blackbird
27.6.1968	Everybody's Got Something To Hide Except Me and My Monkey
28.6.1968	Good Night
3.7.1968	ObLaDi, ObLaDa
16.7.1968	Cry Baby Cry
18.7.1968	Helter Skelter
19.7.1968	Sexy Sadie
25.7.1968	While My Guitar Gently Weeps
29.7.1968	*Hey Jude*
9.8.1968	Mother Nature's Son
13.8.1968	Yer Blues
15.8.1968	Rocky Racoon
20.8.1968	Wild Honey Pie
22.8.1968	Back In The U.S.S.R
28.8.1968	Dear Prudence
11.9.1968	Glass Onion
16.9.1968	I Will
18.9.1968	Birthday
19.9.1968	Piggies
23.9.1968	Happiness Is A Warm Gun
1.10.1968	Honey Pie
3.10.1968	Savoy Truffle
4.10.1968	Martha My Dear
7.10.1968	Long Long Long
8.10.1968	I'm So Tired
9.10.1968	The Continuing Story Of Bungalow Bill

9.10.1968	Why Don't We Do It In The Road
13.10.1968	Julia
1.11.68-31.1.69	**Let It Be**
24.1.1969	Maggie Mae
25.1.1969	For You Blue
25.1.1969	*Let It Be*
26.1.1969	Dig It!
27.1.1969	*Get Back*
28.1.1969	*Don't Let Me Down*
30.1.1969	Dig A Pony
30.1.1969	I've Got A Feeling
30.1.1969	One After 909
31.1.1969	Two Of Us
31.1.1969	The Long And Winding Road
1.2.69-3.1.70	**Abbey Road**
22.2.1969	I Want You (She's So Heavy)
25.2.1969	*Old Brown Shoe*
25.2.1969	*Something*
14.4.1969	*The Ballad Of John and Yoko*
20.4.1969	Oh! Darling
26.4.1969	Octopus's Garden
6.5.1969	You Never Give Me Your Money
2.7.1969	Golden Slumbers/Carry That Weight
2.7.1969	Her Majesty
7.7.1969	Here Comes The Sun
9.7.1969	Maxwell's Silver Hammer
21.7.1969	*Come Together*
23.7.1969	The End
24.7.1969	Sun King
24.7.1969	Mean Mr Mustard
25.7.1969	Polythene Pam
25.7.1969	She Came In Through The Bathroom Window
1.8.1969	Because
3.1.1970	I Me Mine



BEATLES 2000

THE RISE AND FALL OF THE EXPERIMENTAL STYLE OF THE BEATLES

Tuomas Eerola

It is a common expression to say that a style is born, reaches its peak or maturity and finally becomes obsolete and dies. A good example of this "rise and fall" metaphor is how the music and the career of the Beatles are frequently summarized. By presenting a breakdown of stylistic features and their chronological distribution in this article this metaphor is demonstrated to be vitally connected to the concept of style itself. We know that stylistic knowledge is essential for the analysis and appreciation of musical works and that this knowledge is "encoded" into the different stylistic features, which the listener inherently knows if he is familiar with the style. Style and style periods help remembering and understanding, although we know that they are abstract constructs and precise borders between the periods are hard to define; periods may have variable life spans, which are often implicitly known to develop organically in a "rise-and-fall" pattern. Though the metaphor comes from nineteenth century ideology, it might plausibly outline historical processes on a certain level as seen in most stylistic histories and periodizations of music. This might be due to the way we categorize data about historical change, as Robert Gjerdingen has

pointed out (1988). He demonstrated this by an extensive research on a middle-ground level musical schema and its chronological distribution. However, little attention has been focused on providing further evidence for this pattern in the process of stylistic change. The results in this area need to be replicated using several stylistic features and the question how they contribute to the style must also be considered. Hence, the goal of the present study is to apply Gjerdingen's model to a different type of music from a different period and to a different time range.

The Beatles are indisputably a fine example of a creative group that had many novel ideas and achieved a major stylistic development in their music. Their music is well documented and widely studied, and the literature divides their music into three periods and often summarizes them and their career as a rise and fall.[1] In order to test the model it is necessary to narrow down the focus of the study to a stylistic period that can be studied in its entirety and where major stylistic change is evident — i.e., the experimental period. My aim is not to include all the possible stylistic components of their music, but the essential features in order to bring to light the life span of a style. The quantitative part of the study (comprising selection and analysis of the style features), entails arranging the features according to their chronological distribution and comparing them to the model, termed here as *the normative life span of style*. Although the focus in this article is on experimental period, it is necessary to study the stylistic features of other periods, the Beatles' early and late style periods, in order to outline the change. Therefore it will to some extend also be possible to summarize the whole musical career of the Beatles on the basis of the results. The results are finally related back to the concrete musical level, literature and qualitative analysis by using the concept of the prototype.

THEORETICAL FOUNDATION

The history of music and style periods within it are frequently described using the terms rise and fall. The terms style, periods, life span and rise and fall contain complicated and often contradictory notions about human behaviour. Next I will clarify how these key concepts are used in this paper.

[1] For example Riley 1987, 268; MacDonald 1994, Turner 1994, 15. Also critics and members of the Beatles have characterized their career similarly; Marcus 1992, 216; Wenner 1971a, 105; Garbarini, Cullman & Graustark 1980, 71; Martin & Pearson 1994, 76, 159.

Style and change

According to Leonard B. Meyer "the foundation on which the understanding, appreciation, and evaluation of works of art must rest, is a sense of style" (1989, 36). Styles or style periods are arranged by uniform traits or aspects, that is, style analysis begins with classification of these replicated features (Meyer 1989, 39; also Moore 1993, 171-172; Pascall 1981; Treitler 1989, 70, 72; Ratner 1980, 9; and Serafine 1983, 122-123).

The first problem encountered in the analysis of a style is that there is not any set definition for the different traits, features or aspects in different musical styles. Therefore they have to be defined corresponding to the style in question and the analytical needs. At the most elementary level music is divided into five basic components, those of rhythm, texture, melody, harmony and form (Meyer 1973, 7; LaRue 1970, 3; Pascall 1981, 316), which usually either alone or combined in variable ways form stylistic features. These are perceived as meaningful units, taking into account the experience of the listener. In cognitive psychology these units are called schemata and they can range from the abstract to the concrete. For example, a changing-note schema, which is perceived as one stylistic feature in a certain musical style, is a combination of a melodic pattern (do-ti...fa-mi) with harmonic and melodic progression in the bass, which could be defined as stylistic features in their own right in another style. Schemata have been observed to have psychological reality and have also been found useful in perception of music and style analysis.[2] As style analysis focuses on common elements or differences in all the works in that style,[3] these concepts are used here to illuminate the way features are perceived and defined; features can consist of multiple parameters which together create meaningful units. These units will vary here in their level of abstraction and therefore will not be defined precisely as schemata, but as stylistic features.[4] The selected features are based on the musicological literature about the Beatles and on something the songwriters themselves have said and distinguished. This approach ensures that the features are indeed meaningful units.

As change and novelty have mainly been positive values in art in our Western culture, there has mostly been a stylistic change of some sort. Sometimes the change is articulated as an alternation between a period of

[2] Meyer uses the term *archetypal pattern* in addition to - and meaning - schema (1973, 213-214) Eugene Narmour's equivalent of the same term is *style structure* (Narmour 1977, 174).

[3] Corresponds to Narmour's (1977, 174-175) distinction between "external" and "internal" vantage points in style analysis, the former of which is more of an ethnomusicological way of study. The "internal" vantage point is the same as the analysis of style history and it enables the researcher to view the relationships between different periods.

[4] This resembles the feature list approach rather than network approach to schema definition. The approach is, however, similar to that Meyer uses when he lists the salient features of Wagner's style (1989, 44-48). According to him, this method illuminates any style, composer, culture, epoch or hierarchic level (1989, 48).

stability and a period of revolution — convention versus invention,[5] or it is proposed that it reflects changes in society, caused by differences between the personalities of the artists and by the sheer possibilities inherent in the elements of the artworks themselves. While all the explanations may be relevant, the most basic requirement of art may hold the most important key to the question of style change — originality. To be called art, work must be new and original. Berlyne first formulated that the liking for aesthetic stimuli is determined principally by properties such as their novelty, ambiguity, incongruity or complexity (Berlyne 1960, 1970, 1971). These pressures are required to compensate for habituation and the result is that successive works of art must have more arousal potential to be liked. Naturally there are limits — our information processing capacities, besides technical and material limitations — that keep the works of art from becoming too complex. When reaching that point, current style is exhausted and new style will be introduced. This explanation for style change has been tested and refined in psychological studies of art history, including music (see reviews in Hargreaves 1986; Martindale 1995; Gaver & Mandler 1987).

Although the process of style change is mostly continuous, historians attempt to divide history into distinct periods. In examining them, it is possible to concentrate on any *hierarchic level*, from one composer's singular style period to epochal style periods and even to large style historical periods (cultural level) (Pascall 1981; Narmour 1977, 171; Meyer 1989, 38; Nettl 1964; Blacking 1977; Nattiez 1990). In this sense, the word period, which is preferred here rather than its synonyms phase or stage, applies equally to any level. These periods have general or individual names and often three phases or frames within them. However, while triadic periodization is common, there is disagreement as to detail, i.e., as to when the periods end or begin. There is a discrepancy between the way periods are distinguished as rigid, solid blocks and the way organic development is used to describe the gradual change. The periods overlap but it is history that oversimplifies the periodization, undoubtedly aiming for greater clarity. The reasons for style change are comprehended better if the continuity of development is taken into account. As Leo Ratner observes in explaining change in the classical period: "The change in stylistic emphasis was due to an overlap of two streams of stylistic continuity rather than a sharp change of direction" (1980, xv). The problem is how to depict this kind of subtle development. For example, it is customary to divide Beethoven's style periods in the following way, exemplified by Grout's reference book, *A History of Western Music* (Grout & Palisca 1988, 628-629):

1) The first period (i.e., early & the classical imitation), till the year 1802
2) The second period (i.e., middle period & heroic) 1803-1816
3) The third period (i.e., late & reflective period) 1816-1826

[5] As Thomas Kuhn (1962) proposes that the process of scientific progress is made.

Michael Broyles has portrayed the overlapping nature of the style change in a good, explicit way in his study about Beethoven (1987). He divides the periods quite similarly to Grout but illustrates the nature of the periods and the stylistic change in a better way:

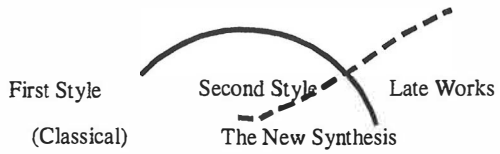


Figure 1. Beethoven's stylistic periods (Broyles 1987, 5).

Figure 1 illustrates Beethoven's three style periods. It is apparent how another style is emerging besides the first style and the new style is a synthesis of the first and the second style. Slowly the "classical period" is seen to decline and the last period is known as Beethoven's reflective period. It is also apparent from the figure above that these periods overlap. The first period is shaped like a curve, which literally is the life span of Beethoven's early style.

The notion that the history of music may be viewed and described in organic terms has been a pervasive one in Western culture.[6] Gjerdingen argues "that the apparent rise and fall of musical schemata is due to the way in which human intelligence abstracts stable categories" (1988, 99). He has established with empirical material the chronological distribution of a stylistic feature. The results are used here as the model for *the normative life span of style*.

Normative life span of style

In his book *A Classic Turn of Phrase* (1988), Gjerdingen has introduced a model that depicts concretely the abstract life span of one musical period. His hypothesis was that the population of a stylistic feature across time approximates a normal, bell-curved statistical distribution (Gjerdingen 1988, 100), the variation depending on how many constraints are specified in the features or schema's definition (Gjerdingen 1988, 101). However, the distribution curve is asymmetrically distributed, positively skewed to be precise, which is as he claims, because there is a factor modifying it — memory. Another hypothesis of his was that a schema will exhibit a curve of typicality similar to its population curve (Gjerdingen 1988, 103), that is, when there is the highest amount of samples, the schema in question will be

[6] See Solie 1980, 147; Treitler 1989, 87, 82-94, 111-112; Donougho 1987, 322. A similar process is noted to occur in other cultures as well (Kaemmer 1993, 180). The organic terms are most often encountered in conjunction with descriptive accounts of music histories (see Allen 1939, 249-250; Leisiö 1995, 109; Treitler 1989; and generally concerning art worlds and styles, Becker 1982, 310-311).

closest to the most typical instance of its kind (prototype). Gjerdingen presents the normal and the modified normal distribution in a simplified way as seen in Figure 2.

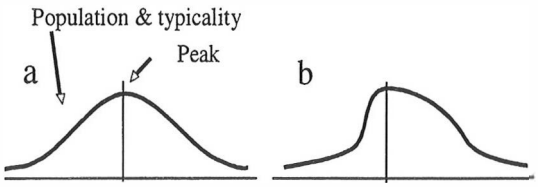


Figure 2. Normal distribution (*a*) and normal distribution plus effect of memory (*b*) (Gjerdingen 1988, 105).

The curve in Figure 2 represents both the population and the typicality of style feature. Curve *a* is a normal distribution and curve *b* exhibits the effect of memory on the normal distribution. Curve *b* is slightly asymmetrical; before the peak there is a faster rise and after the peak a slower decline. Gjerdingen's explanation for asymmetricity is that the task of memory is to conserve. Previous or older, established schemata inhibit the recognition of new ones, until subsequent realization of the new and re-evaluation of earlier examples, with the effect of a sudden increase in the perceived population. After the peak a similar process affects the descending curve; the schemata in question are retained and established so firmly that they are relied on more and thus they inhibit the use of new schemata. (Gjerdingen 1988, 104-105.).

Gjerdingen's explanation for the apparent asymmetricity of the curve needs a brief discussion. The problem with his explanation is that is it overly general. It is not clear what kind of memory is in question and how it really causes the asymmetricity. His model, however, corresponds in many aspects to the dominant model in the study of innovation in economics. The product life-cycle model (See reviews in Frenkel & Shefer 1997) offers an explanation of the asymmetricity: After the peak the innovation "will mainly be focused on new processes rather than on new products" (Bertuglia, Lombardo, and Nijkamp 1997, 5). Correspondingly, the findings from experimental aesthetics explain how familiarity with the specific musical style, innovation or idea leads to preference for (and increased use) it but artists also need to augment the arousal potential of their works by increasing the collative properties of them. As this becomes harder across time, it is eventually necessary to introduce new innovations and rules to sustain the optimal level of arousal potential. (Berlyne 1971, Martindale 1995.)

Gjerdingen tested his hypothesis by surveying a changing-note schema across time. This schema was typical for classicism, or more precisely, for the galant style. Most occurrences of it were found in the classical era, but some were found before and after that period. When all the samples found from over a hundred year period were arranged in

chronological order, they exhibited a population curve predicted in the theory.

With the typicality and the peak of the population, Gjerdingen observes that the schema is in its most typical, well-known form and also is easiest to recognize; it fulfills the parameters belonging to it in the best possible way. This typicality is an equivalent to the abstract concept of the *prototype* which is "the central, core instance of a category" (Rosch 1975, 198). "The more prototypical of a category a member is rated, the more attributes it has in common with the other members of the category" (Rosch & Mervis 1975, 599-600). In other words, and in relation to a schema, a prototype "is equivalent to an instantiation of a schema with default values for all variables [...] those values which are encountered most often" (Gaver & Mandler 1987, 271). These values create a prototypical occurrence, which functions as a perceptual frame of reference (Rosch & Mervis 1975).[7] Also, the typical members are faster verified than atypical members (Smith & Medin 1981) and they are also better recalled as time goes by (Mandler 1984, 105), although the judgements of similarity and concepts are asymmetric (Tversky 1977). These ideas will be relevant when bringing the results back to the concrete musical level. Accordingly, the most typical examples of that schema should be found at the peak, which was substantiated well by Gjerdingen's findings (1988, 264).

Gjerdingen's work depicts the life span of one stylistic feature that contributes to the style, but as such, it also depicts the life span of the *galant style*, an epochal style period, because the feature followed was especially typical of that style. The process and the terms outlined above are undoubtedly more familiar in reference to the classification of classical music. Allan Moore, however, mentions the same formula — the organic growth and decline of style and the overlapping nature of the change — in the evolution of popular music. According to him this process just takes place in a shorter time scale than in classical music (1993, 60, 164; see also Hargreaves 1986, 203, 206-207; and Merriam 1964, 79, 307). Keeping in mind the earlier assumptions about the three levels of historical periods and the organic nature of style this model portrays, it is appealing to apply Gjerdingen's results to a different kind of stylistic period and to a different range of time.

[7] Exemplar versions of the prototype theory reject the idea that abstractions underlie the concepts, and argue that individual entities lie at the heart of our concepts (Nosofsky 1988, 1991).

METHODOLOGY AND MATERIALS

My aim was to study the life span of the experimental period of the Beatles and compare the results with the model. As for the music of the Beatles, this study was a preliminary one, centering on the chosen stylistic features and their distribution. I approached this task in stages: (1) I defined the musical periods of the Beatles and separated the music of each period into significant stylistic features, relying on literature in both instances. (2) I registered every occurrence of the features across the Beatles' recording career (1962-70) and compared the resulting statistical distribution to the model normative life span of the style. (3) Then I compared these results with the general knowledge of the Beatles' periods, that is, I related my results back to the concrete level by using the concept of prototype. I discovered those songs that fulfilled the criteria for as many features as possible belonging to experimental period, in order to learn what would a "typical" song — on the basis of my results — of the period be like. For a comparison, the early and the late style periods were also examined in a similar way. The way the periods are commonly evaluated is also briefly considered. Because the time span studied here is notably smaller (approx. eight years) than in the model, which covers approximately a hundred years, it is debatable if the model is applicable in this regard. Gjerdingen, however, offers his model with some reservations as a general one for the context of Western music (1988, 106).

Analysis material

The material of my study consists of the music that was written by the Beatles for the Beatles, published by the English record companies EMI and Apple officially in 1962-70. In the analysis I have used *The Beatles Complete Scores* (Fujita, Hagino, Kubo, and Sato 1993), which is the best available notation, although it is not a perfect score (cf. source criticism Koskimäki, pp. 127, 143 in this book). Unclear or conflicting parts I have verified by listening to the album or using other sources: for the instrumentation the most important ones being Lewisohn 1988, Dowlding 1989, Macdonald 1994, and for the lyrics, Aldridge 1969.

Principles of the analysis

As there is no analytical apparatus for easily distinguishing different features or elements in popular music styles, they have to be defined case by case. The five basic elements mentioned previously (p. 35) form the basis of the analytical categories. Tagg (1982, 154) has presented a similar distinction for the analysis of popular music distinguishing the lyrics as a separate element. Others also outline the elements of analysis of rock music more

(Stuessy 1994) or less (Moore 1993) similarly, distinguishing the lyrics nonetheless as an important element (see also LaRue 1970, 20). For a closer distinction between the different type of lyrics, I have adopted the classification of Davis (1989, 81-82) concerning the subjects of popular music lyrics. She arranges them unambiguously according to the following topics: history, realism, romance, fabulation (general stories) and fantasy. In my material realistic topics are regarded as equivalent to political lyrics and fantasy psychedelic lyrics.

Also worth mentioning is that not all the parameters of the music are eligible for change or the change does not take place in the same time scale, which has been said to be common in music (Merriam 1964, 309; Meyer 1989, 101). For example, this type of stabile features — or normative traits as Treitler calls them — are in rock music the basic beat and partly the form of the songs, both being nowadays almost the same as forty years ago.

The music of the Beatles: stylistic periods and features

The development of the career of the Beatles is normally divided into three style periods. (cf. Heinonen and Eerola, pp. 3-4 in this book). Some authors describe or emphasize the division slightly differently, for example, Salmenhaara (1969, 51), Riley (1987, 268) and Martin (Martin & Hornsby 1979) maintain that the psychedelic phase was during the years 1966-67. Porter (1979) suggests a division of four periods, because he sees the experimental period as two separate phases. However, his division is basically the same as the division described above but problematic on some accounts, as his work is not based on the order the songs were originally recorded and published. Nevertheless, the division referred to above, appears to be confirmed in the comments the Beatles have made about their career on different occasions. In the following I have listed those characteristic stylistic features of both periods which are used in this study:

The early period:

- cover songs,
- ornament,
- basic line-up,
- three-part singing,
- harmonica,
- woo and yeah -screams,
- romantic lyrics.

The experimental period:

- changing meter,
- flattened VII chord (bVII),
- tone repetition,

- descending bassline,
- static harmony,
- classical instruments,
- Indian instruments,
- sound effects,
- political lyrics,
- nostalgic lyrics and
- psychedelic lyrics.

As for this article, it is sufficient to note that as the late period forms an extension of ideas from both of the previous periods, the main focus can be directed towards the experimental period. Nevertheless, it is fascinating to observe how the late period is portrayed by the sum of the previous periods in the quantitative section.

Procedures

The material in this study is significantly different from the study from which the model is taken, so I have had to adapt the model to fulfill my needs. It is also essential to be able to divide and arrange the Beatles' recording career in a coherent way in order to make valid comparisons, while keeping the results still understandable in the light of Beatles' career, where the albums are held as the main unit.

Recording the occurrence of features and changing them into numbers happens as follows: If a certain feature exists in the song, it receives a value of one. For example in the instrumentation, if there is a string quartet in a song, a value of one is scored for that feature. In other words, I will deal with the features only if they fulfill my definitions or not, without ranking or rating them any further, that is, without considering the length or the style of playing. One song can represent several features, which may even represent different style periods. For example, the song *Help!* (1965) uses the basic line-up, but also features both the flattened seventh degree chord and note repetition.

This method is equivalent to that used in Gjerdingen's study. The time interval is five years in his study, but I have applied his results to suit the material of this study better. I reconstructed his results from the appendix of his book (1988, 271-283) and doubled the interval to ten. Consequently Gjerdingen's results are divided into twelve parts (120 years / 10 years), the interval being simpler and closer to the material in this study. The shape of Gjerdingen's results remains intact after this operation.

It makes sense to keep the albums as the intervals for chronological presentation, because they are the units by which their career is characterized. Such a division has been used by Dowlding displaying how the authorship of the songs is divided between Lennon and McCartney (Dowlding 1989, 300). My aim has been to establish a division that would be as close as possible to the "pure" chronological division Gjerdingen uses,

but would keep the albums as the unit of division. When the recording period (7 years) is divided by 12 (the same amount of intervals as in Gjerdingen's results after reconstruction), the result is an interval of approximately seven months, termed *recording projects* (cf. Heinonen and Eerola pp. 9-12 in this book for the full account of the division). Thus the Beatles' career is divided into twelve periods, and the results are immediately comparable to Gjerdingen's results and easily understood in the terms of the Beatles' career.

I have always used the first recording date of the song, meaning those recordings the Beatles made for EMI under contract, when assigning their positions in the chronology. Mark Lewisohn's *Recording Sessions* (1988) is by far the best source in these matters. In most cases, it took a couple of days to record a song and the Beatles often worked simultaneously on several songs a day. Remakes or overdubs made later are not vital to the overall recording chronology used in this study. Songs, including EPs and singles, are arranged by their recording dates into periods which are labeled by corresponding, published album names.

On each album there is a different number of songs (with the singles and EPs the average is 15-18 songs/album, except 32 songs on *White Album*). Therefore I treat my samples as a relative amount (%/album). I have compared the results of this division into the recording projects to the results obtained from absolute chronological division (of seven-month periods) and to the results obtained from a division based solely on the albums. The results are not significantly altered. The differences are evident in those cases where there is a low amount of samples of the feature but the results tend to be generally similar.

RESULTS

The Beatles started to try out novel ideas progressively even almost from the beginning of their recording career, but the stylistic turning point is commonly considered to be *Yesterday* (1965) on the *Help!* album (Coleman 1995, Porter 1979, 389; Martin & Hornsby 1979, 133, 167; Martin & Pearson 1994, 76; Stuessy 1994, 119). Several authors characterizing their stylistic period agree with the previous, although they assume the change is not perceptible until from the *Rubber Soul* (1965) album onwards. This equivocal question about estimating the beginning of the period will be considered later on the basis of the results obtained here.

The statistical rise and fall of the Beatles' experimental style period

The stylistic changes are first evident in the lyrics and instrumentation: the lyrical content of songs started to change and the use of classical instruments and later Indian instruments marked the departure from the traditional teenage music of that time.[8] The main result, the experimental period, is presented by demonstrating the sum of all its individual features and comparing it to the model. Then the concept of life span is considered from other perspectives this material offers: the early period, the summary of all three of the Beatles' periods and finally the skewness of the distribution and the estimation of the periods will be considered in detail.

The population curves of the individual features were found to be similar to the normative life span of style. In fact, most of the experimental period features exhibit curves that are highly similar to it, with only minor deviations. This can be observed by studying their correlation values, provided in Table 1.

Feature	r	# of samples
BVII	0.81	31
Changing meter	0.93	28
Classical instruments	0.90	38
Descending bass line	0.89	34
Effects	0.96	29
Indian instruments	0.82	9
Nostalgic lyrics	0.90	18
Political lyrics	0.64*	16
Psychedelic lyrics	0.98	25
Static harmony	0.92	22
Tone repetition	0.80	32

* $p < 0.05$ others $p < 0.01$ (df=8)

Table 1. Correlation between the stylistic features of the Beatles' experimental style and the normative life span of style.

It is evident from the Table 1 that the correlation values (r) are all high: the values are all highly significant at $p < 0.01$, except for the political lyrics at $p < 0.05$. Although the degree of freedom (df=8) is low, the results reach the 1% level of significance. The only exception from this, political lyrics, may partly be explained by the definition of the feature. In other words, my simple method of textual analysis is incapable of distinguishing such subtle

[8] At first new stylistic features were possibly thematically connected. That is, nostalgic songs had an instrumentation that reflected or corresponded to their lyrical content. Also, the psychedelic lyrics and corresponding instrumentation was found to be another thematically connected pair of innovative stylistic features (Eerola 1997).

nuances as the alleged political theme of the *Sgt. Pepper* album consisting of "optimistic escapism [...] [which] set an agenda for a counter-cultural response" (Whiteley 1992, 40; see also Macdonald 1994, 185).

The results are derived from individual populations, which are only a tenth of the size (on the average 25 samples/feature) of Gjerdingen's study (272 samples) acting as the model. However, the total amount of samples (282) of all the features of the experimental period, is equal in size. Despite the high correlation values, one has to be especially careful in drawing any conclusions about the features that have a low amount of samples, such as Indian instruments.

The variations between the features become less crucial when they are grouped together, making the results less prone to singular deviations. Using the average of all the features is possible because the data has the same level of measurement. Furthermore, the population size of all the experimental features and the model is equal. Displaying the average of all the eleven features with the model illuminates the experimental style of the Beatles and how it relates to the normative life span of style (Figure 3).

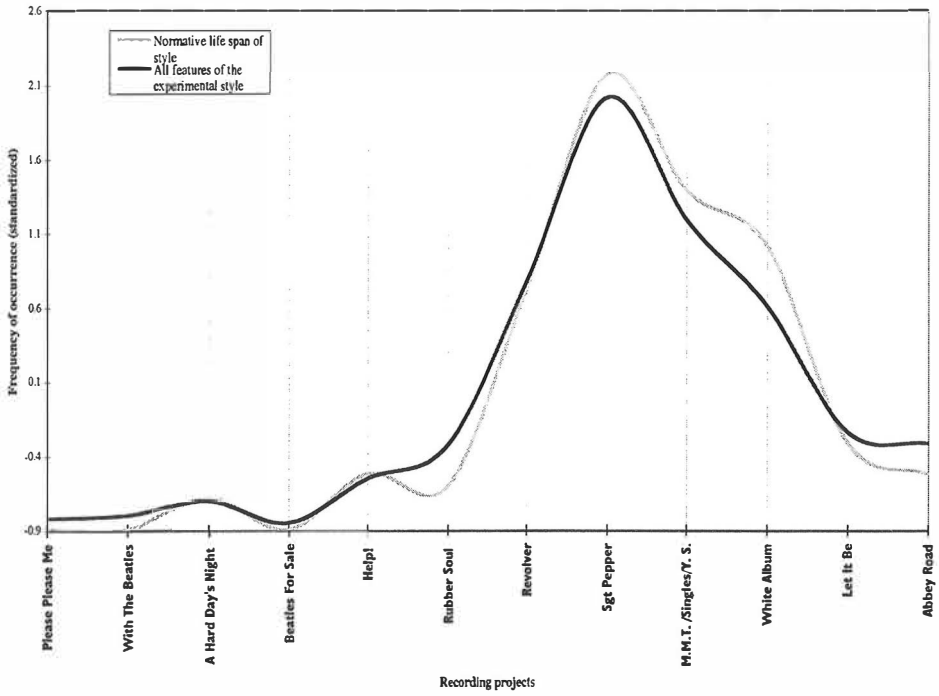


Figure 3. Population of all the Beatles' experimental stylistic features and the normative life span of style (Gjerdingen's data).

In Figure 3 the curves of all the features of the experimental style and the normative life span of style, based on the standardized values, appear to be surprisingly similar in shape, which was substantiated by the resulting

correlation between the corresponding values, 0.98, which was highly significant ($p < 0.001$). The previous results were thus replicated, but there is still a possibility that a curve based on the average values of all the features is biased by the few dominating features getting extreme values. This effect can be negated by referring to the results in Table 1, where the features were observed to have reasonably homogeneous statistical distributions. As further proof, the individual features were tested for their standard deviation by using the split-half method. In this method the features have been arranged in two groups (see Table 1, the first six features before the dotted line belong to Group I and the rest to Group II). The correlation value between them was 0.95, well exceeding the minimum expectation (0.9) for the results to be reliable.

Another question is the positive skewness of the curves. This was tested by comparing the curves with the normal distribution. None of the curves of the features were skewed in the opposite direction and almost all of them exhibited positive skewness, where all but two features received lower correlation values in the comparison. The two exceptions were Indian instruments, having a low amount of samples, and tone repetition, displaying its peak earlier.

Summary of the periods

It was assumed that comparing the life span of the early period features to the model might provide directional information about the normative life span. The average of all the features of the early style was compared to the normative life span of style and to the average of the experimental period features. The correlation value in both comparisons was -0.89, which is highly significant but in the opposite direction. However, the results were notably lower than the results obtained from the features of the experimental period. The statistical reliability was also tested as before. In short, the individual correlations are still high, but the results are not as substantial as they were concerning the experimental features.

Strangely enough, the correlation values were unusually high although the features represent, technically, only the latter half of the normative life span of style. The high negative correlations show that there is a connection with the model, although it is almost the opposite one. This is not contradictory to the results obtained previously. Rather, the population curves of the early period must be in a different phase than the population curves of the experimental period. The early period features are already at their peak in 1962, but they were naturally learned earlier, during the formative years (1957-62) when they imitated the music of their American idols. If the early part would be equally measurable, it would provide more information. Now the decline of early style is only evident in the time span studied but the same stylistic features were also used to some extent in the late period. This, and the obvious differences of the stylistic phases can most easily be confirmed from the summary of the periods.

Presenting the curves of the experimental and early features in the same figure sums up how the different periods of the Beatles are distributed chronologically. The whole career, the three periods of the Beatles is thus roughly summarized, because the late period was presumed to comprise, if at least for the purposes of this study, of the early and experimental style features (Figure 4).

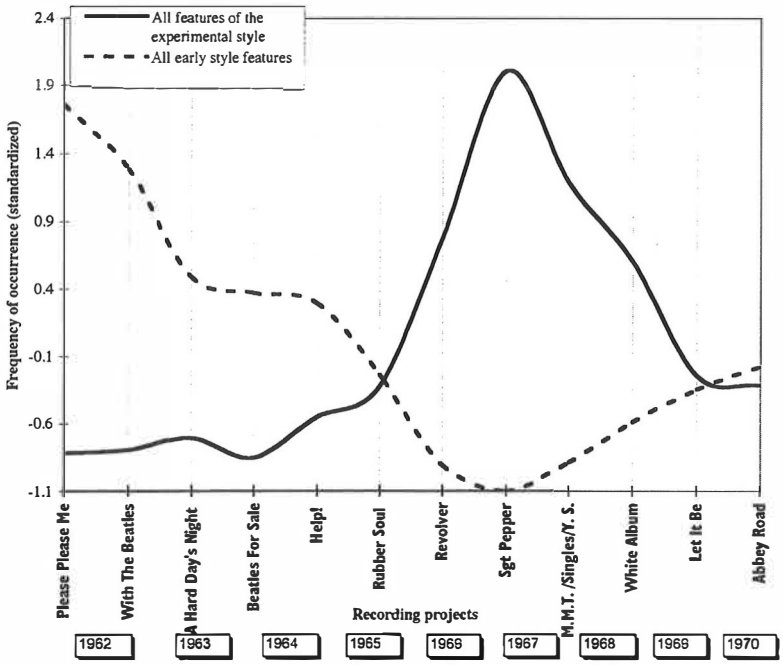


Figure 4. Population of the Beatles' early and experimental style features.

In Figure 4, there are year-labels added to the summary to ease the analysis, although the chronological intervals are not absolute ones. Different periods can be explicitly seen to overlap each other. It is worth mentioning that the lowest point of the early period falls at the same place as the peak of the experimental period (*Sgt. Pepper*, 1967). In a way it is natural, because the instrumentation greatly affects both style periods: new instruments came to replace the old ones but the basic line-up still acted as the foundation when the instrumentation was expanded. However, this explanation leaves several features unconsidered and therefore the summary renders the features as truly representatives of the early period, which were not used during the experimental period. Therefore the chronological presentation of the features is able to tell in its own objective way what kind of periods the Beatles' three periods were and when they existed.

Also, the unanswered question about the very close of relationship between the early period features and the normative life span is illuminated

above. Only the experimental period displays a complete life span, although three separate periods are evident. The early period and the late period can be seen to create only partial life spans, but as these partial life spans consist of the same features, they coincidentally raise the (negative) correlation with the model. Therefore the results obtained from the early period suggest that the early style might exhibit a normative life span but, more importantly, the results illustrate the way several periods work in succession, conforming also to the predictions of psychological theories of artistic change.

The late period can be seen to consist of the early features and the experimental features, although it has also other stylistic features, which were not studied here. Therefore, the late period could be termed a synthesis of the old and new. The overlapping of the periods is also evident in 1965 when the experimental period made its breakthrough and also in 1968, at the beginning of the late period. Details of the Beatles' periods can be read from the figure, such as the *Rubber Soul* (1965) album having considerably fewer features of the early period than there were three years earlier and that the early period features are on the rise on the *White Album* (1968). Furthermore, these results can be compared with the results of other studies.

Comparison with statistical analysis of the lyrics

Some approaches in the psychology of arts have attempted to capture the regularities of works of art by statistical analyses. This has mostly been done in the area of literature and poetry where the texts can be submitted to automated analysis. Conveniently, there are two studies that have investigated the lyrics of the Beatles in this manner. West & Martindale (1996) studied the lyrics of the Beatles by means of computerized content analysis and found highly significant linear uptrends in regressive imagery, type-token ratio, hapax legomena, and mean word length. Their findings support the Berlyne's theory of preference (1971) and more specifically the theory of aesthetic evolution (see Martindale 1995). Another statistical study (Whissell 1996), which used stylometric analysis of the Beatles' lyrics demonstrated that the different stages of the Beatles' career emphasized different emotional components. When these results are compared to the results of the present study, we find that the certain textual variables correlate significantly with the particular style, see Table 2.

Early style	Correlation	Experimental style	Correlation
First person	.87***	Word frequency	.59**
Pleasantness	.73***	Punctuation	.44‡
Second person	.59**		
Repetitiveness	.55†		

*** $p < .001$, ** $p < .05$, † $p = .068$, ‡ $p = .15$, (df=11)

Table 2. Correlations between Whissell's (1996) analysis of the lyrics and the stylistic features of the experimental and early styles of the Beatles.[9]

It is no surprise that pleasantness, repetitiveness and the use of first and second person pronouns relate strongly with the early style. Also, later their repertoire of words became larger (word frequency) and they wrote longer phrases (punctuation). Likewise, the textual themes used in the present study connect in a sensible way to Whissell's automated analysis. For example, romantic lyrics, a typical feature of the early style, correlate highly significantly with the use of first person pronouns and the pleasantness of the words ($r(11) = .95$, $p < .0001$ and $r(10) = .64$, $p < .05$, respectively). These parallels add another perspective to the study of stylistic change, which should be fully investigated in future research.

For the complete picture of the Beatles' musical style periods and their career, however, it is useful to assess the statistical facts in relation to the songwriters' own comments about the periods and change.

Songwriters' point of view

Generally speaking, the Beatles themselves support the way the periods are displayed in the statistical presentation. There are many accounts of how they started the experimenting. For example, in November 1968, John Lennon described the beginning of the change from the traditional style by listing songs from 1965 where the experimental period, also according to Figure 5, began: [...] *Day Tripper, Paperback Writer*, even. *Ticket to Ride* was one more, I remember that. It was a definite sort of change. *Norwegian Wood* — that was the sitar bit" (Cott, 1968, 47). Both McCartney and Lennon characterized the album *Sgt. Pepper* as being the peak (Stuessy 1994, 125; also Wenner 1971a, 138). Lennon's review of the experimental period in 1968 conveys how he saw the experimenting and the beginning of the next (late) period (Cott, 1968, 48):

[9] Cynthia Whissell kindly made available the original data of her 1996 study. Whissell's results have been reordered into the recording projects before the comparison.

> "I mean, we got a bit pretentious. Like everybody, we had our phase and now it's a little change over to trying to be more natural, less "newspaper taxis," say. I mean, we're just changing. I don't know what we're doing at all, I just write them [songs]."

The answer reveals the aspiration of returning to a simpler, more natural expression meaning basic rock and roll, after a psychedelic period, to which the "newspaper taxis" refer. McCartney has also commented similarly (Dowlding 1989, 221). The change, however, began already in *Sgt. Pepper,* as expressed by Lennon: "After Brian Epstein [the Beatles' manager from the year 1962 to his death on 27.8.1967] died we collapsed. [...] That was the disintegration" (Wenner 1971a, 138, 51). Or to quote McCartney (Garbarini et al. 1980, 71): "The White Album. That was the tension album. We were all in the midst of the psychedelic thing, or just coming out of it. [...] we were about to break up." Both quotations characterize the gradual beginning of the late style that followed the gradual decline of the experimental style, hence the overlapping nature of the periods. As can be seen, the songwriter's comments can easily be related to the figure which just presents statistical data. However, the best summary of the Beatles' career has been given by their close associate George Martin:

> "If the Beatles' professional career were to be plotted on a graph, then the *Pepper* would be the high point. *Rubber Soul* and *Revolver* were also peaks. *Magical Mystery Tour* was a definite dip. *The Beatles* [White Album] was a straight line on the graph, a plateau [...] *Let It Be* was also a bit of a down slope on the graph, whereas *Abbey Road* was a lift, a great album." (Martin & Pearson 1994, 159)

The concept of the life span seems to relate well to the occurrences of the stylistic features, even if there were a few inconsistencies, and at least to how the periods are characterized by the songwriters. Moreover, it was argued that the typicality and the population peak are closely linked to each other and to how the periods are estimated and perceived, which was evident in some respects in the songwriters' comments. These questions will be considered in the following section.

"Prototypical" songs

According to Gjerdingen the prototype of a musical structure will be found at the population peak (1988, 104). As defined earlier, the prototype was the same as the typical musical structure of the period and those typical members of the category are more easily recalled and thus used in generalizations. When looking at the Beatles' experimental period as presented earlier (Figure 4), the population peak was found to be in 1967, on the *Sgt. Pepper* album. As I have defined the experimental style of the Beatles as having eleven stylistic features, the prototypical song of that period would have most (and the most prominent) of those features. Thus it could be said that generally such a song would have tone repetition, the bVII

chord, instrumentation that uses classical instruments and sound effects. The subject of the lyrics would be nostalgic and they would contain psychedelic metaphors. To give a concrete example, it is possible to find and list the songs that fulfill most of the features of the particular category (experimental style) and minimum number of features in the opposite category (early style) (Rosch & Mervis 1975). Those songs would be the prototypical songs of the period and could be evaluated against the common knowledge of typicality of the period and the songs. Their recording dates also test if the typicality and the population peak really match as Gjerdingen claims. Table 3 contains the appropriate information.

Date	Experimental Period	#	Format *
25.11.1970	Strawberry Fields Forever	9	Single (A)
20.1.1971	A Day In The Life	8	
16.3.1971	Within You Without You	7	
6.9.1971	I Am The Walrus	7	Single (B)
30.12.1970	Penny Lane	6	Single (A)
2.3.1971	Lucy In The Sky With Diamonds	6	
26.4.1971	Magical Mystery Tour	6	EP (A)
9.2.1971	Good Morning Good Morning	5	
15.6.1971	All You Need Is Love	5	Single (A)
18.2.1971	Being For The Benefit of Mr. Kite	5	

* Format as published in U.K.

Table 3. The "prototypical" songs of the two periods of the Beatles.

Table 3 includes recording dates in order to examine how well the typical songs fit into the peak for that period. Besides the total amount of features (#), the format of the song is mentioned because singles were sold in great quantities. It is, however, questionable how much knowledge about prototypical songs and periods can be gained by relying on the facts about the sales of the records, so I will not present the actual list positions of the songs. Although I cannot take into account the forces of media and markets that affect the sales of the records, these factors relate to typicality in so far as the songwriters or a representative of the recording company (George Martin) usually chose the songs for the singles as the best or most typical examples of that period of recordings.

The top ten most prototypical songs of the experimental period (see Table 3) seem to portray the period fittingly. Most encyclopedias of popular music mention the five first songs as the most significant or typical songs of the experimental period and half of the songs came out on the *Sgt. Pepper* album, which was acclaimed as the peak. The songwriters themselves have mentioned in various situations most of those songs as their personal

favorites (Wenner 1971b, 110; Sheff 1981a, 107).[10] George Martin assesses the song that comprises the greatest amount of features, *Strawberry Fields Forever*, in his book about the making of Sgt. Pepper (Martin & Pearson 1994, 24): "We could not have produced a better prototype for the future." Martin means the prototype as a model for the future but the Beatles actually did not proceed much further into experimenting than that, except for the avant-garde -influenced work *Revolution #9*. Consequently the notion Martin uses is in fact closer to what is meant here by typicality. *Strawberry Fields Forever* combines so many features of the experimental period that it serves as the most prototypical song of that period. It could be said in a pointed way that anyone who has some stylistic knowledge about the Beatles has abstracted a prototype that would include most of the features listed here and therefore the perfect example, *Strawberry Fields Forever,* might be the most easily remembered if people were asked what was a typical song of the experimental period of the Beatles. Actually, a memory study made by Hyman & Rubin (1990) where the songs of the Beatles were used in recalling tasks supports this assertion. Among the best recalled songs in the experiment were four prototypical songs (*A Day in the Life, All You Need is Love, Penny Lane,* and *Strawberry Fields Forever*), which are over three times more likely to be remembered than by chance. Nevertheless, the prototypical songs are not necessarily the only ones that are liked.

According to the model, the most typical songs should also be found at the same place as the population peak. Ten of the most typical songs of the experimental period were recorded between the dates 24.11.1966 and 5.9.1967, within a ten-month period, which is well within prior assumptions, that is, the population peak of that period. Closer inspection shows that most of the ten prototypical songs were recorded during the early months of 1967 which supports the hypothesis of the population peak and the typicality. The ten prototypical songs of early period were recorded between 11.9.1962 and 2.6.1964, which is rather a large time frame. Most of the songs were recorded in 1962 or 1963, which is no surprise, but as mentioned earlier, the early period features might not represent the early period as a whole so well. The late period of the Beatles is not entirely under inspection in this study but as a final test it is possible to attempt to stretch the theories and quantitative method to characterize the late period. It was said to comprise the stylistic features that were common to the earlier period and to the experimental period. As a test, all the songs that have two or more features of *both* former style periods were found. Nine of the ten highest ranking songs in this measurement fall between the period 18.7.1968-21.7.1969, which at least proves that the premises for the characterization of the late period were right because the period is seen to consist of features from both of the previous periods.

[10] Also, in 1987 George Harrison published a song called *When We Was Fab*, a satire which, in his own words, "would evoke a Fabs [abbrev. of The Fabulous Beatles] song" (White 1990, 157). Curiously or inevitably enough, it is a prime example of a Beatles' song of the experimental period, containing most of the features defined and found prominently in this paper.

There are also other songs that are generally regarded as very typical of the Beatles that failed to show up in the results. Songs such as *Yesterday* (1965), *She Loves You* (1963) and *I Want to Hold Your Hand* (1963) are often associated with the Beatles, but as this study focuses on periods, some information must be omitted in order to do abstractions such as this. Even if this abstraction is similar to that which people use when categorizing data from their environment, this method is unsuitable as such for a critical analysis and should be rather used in conjunction with an analysis of the individual pieces.

Naturally, the popularity of the songs does not have to follow any strict periodization. A good, catchy melody and public opinion, live appearances, marketing and media forces are as important a part of popularity as anything to do with the song itself.

SUMMARY AND DISCUSSION

The hypothesis for the normative life span of style, which was based on Gjerdingen's study (1988), was strongly supported by the results from the experimental period of the Beatles. The rise and fall of the Beatles' experimental style was found to be more than a metaphor: The stylistic features of the Beatles' experimental style and their statistical distribution exhibited curves highly similar to the normative life span. The three stylistic periods of the Beatles and the nature of stylistic change including the overlapping nature were also demonstrated. The results portrayed the career of the Beatles and their musical style periods adeptly and the study provided support for the normative life span of the style on a different time scale and in a totally different type of music. Because the time span studied did not include the *beginning* of the early period of the Beatles, it did not demonstrate the normative life span as well but the model also had relevance there too — the distribution of the early period features was almost the opposite of the model. The other hypothesis concerning typicality and population was proved by finding the most prototypical songs of each period. The songs obtained were appropriate to the literature about the Beatles. Thus they reinforced the connection between the typicality and population, the validity of the chosen stylistic features and ultimately the concept of the life span of style.

Even if the normative life span of style was demonstrated by a less than total coverage of all the stylistic features of the Beatles' music, it is more a question of what the aim of the study is. Aligning with the aim of the style analysis, the purpose was to examine the change and one period as a part of the categorical periods in which we divide the music that sounds different. Yet, it is interesting that it was possible to answer some questions about the quality of the stylistic change even if the results display the quantity of the stylistic features. Therefore the features, I think, were adequate for the

purposes of this study and in the light of the results the stylistic features chosen can be considered as meaningful ones. However, on the basis of one band and mainly one of its stylistic periods, it is unwise to generalize the results for different musical styles. There is the possibility that all the factors affecting the songwriting process, such as the ideology, need for novelty, technology, personality and such, may affect the periods in a way which was not covered here.

A further discussion of how the life span of style and the periods are perceived is needed. Our common assumption about the life span and the periods would present them more uniformly, without the asymmetricity. Moreover, in these estimations people often consider (also evident in some of the divisions presented in the article of Heinonen and Eerola, pp. 3-32 in this book) the early albums to be more experimental than they here appear to be. The difference can either be in my choise and definition of the features or the common estimation could be in some way biased or both. The typicality nevertheless directs the estimations and the reasons for common estimation errors are explained in psychology with reasoning heuristics. In the *availability heuristic* people evaluate "the frequency of classes or the probability of events . . . by the ease with which relevant instances come to mind (Tversky & Kahneman 1973, 207). Hence, a few good examples (qualitative) tend to dominate the generalizations (quantitative) we make. Also, the occurrence of typical examples is held to be more probable than it really is, known as the *representativeness heuristic* (Tversky & Kahneman 1972, 430, quoted in Ashcraft 1989, 550). What is more important, these biases might cause overestimation of the beginning of the experimental period because it has first to be compared with knowledge of the early period in order to notice the change at all. In other words, the atypical examples within an expected schema are recognized easily. Tversky explains these differences in similarity judgements with the help of the subject and a referent relation: the choice of the referent and the subject is in part determined by the most important or salient concept; the more prominent concept being the referent (1977). We say that "*Yesterday* is like a song from the experimental period", when the experimental period is the more prominent concept in the pair, causing us to overestimate the experimental aspect of that time. Therefore, both these biases might affect common judgements of this material: On the *Help!* (1965) album there is only one song that can be called experimental but because the example (*Yesterday*) is so striking (representativeness) and famous (availability), people are tempted to term the album more experimental (referent) than it would be from a quantitative point of view. Accordingly, the asymmetricity of the life span might not be subjectively perceived at all because people tend to evaluate the life span of style and therefore the period by the most easily available and representative examples.

The most convincing explanation for the skewness of life span might lie in the process of creation. At first new features are used gradually more and by the same token the preference for them is linked with familiarity to them. This causes a rapid rise in the use of features but the cumulative pressures

for novelty make greater demands. Finally it becomes unreasonable to use the same solutions because the amount of available combinations is diminishing and their effective usage is becoming increasingly harder and the results more complex (Martindale 1995). Supporting evidence for the increased complexity in this material came from two computerized analyses of the Beatles' lyrics (West & Martindale 1996, and Whissel 1996) but a great deal of work needs to be done regarding the musical parameters in question.

These results speak to the innovative strategy of the artists but they will also pose additional questions, such as when do new features become old ones and is using them a conservative strategy? As in this material, the Beatles were keen on taking new ideas from outside the tradition between 1965 and 67 but after a while it might not have been possible anymore, because the musical style would have changed too rapidly: too much novelty compared with redundant information would have made the music incomprehensible.

The process of change seems to take place in a shorter time span in popular music than in classical, which might be explained in many ways: more direct feedback from the audience and other artists, the circulation of ideas is easier, the composers can access a wider range of styles, the composing situation is more collective (cf. Hargreaves 1986, 206) and the culture stresses more individual contributions (Merriam 1964, 79, 307).

In conclusion, memory — or the process how new elements are introduced and used — causes the normative life span of style to be asymmetrical but reasoning heuristics and generalisation causes the estimation of it to be more symmetrical.

Discussion

The results are in accord with the historical view of the style, style periods and stylistic change. The metaphor of growth and decay and the overlapping nature of stylistic change was well demonstrated. The life span would seem to confound the concept of rigid stylistic periods but be valid in its own accord. Besides showing the inherent difficulty in the periodic divisions, the results explain how the act of dividing the periods must leave out some information. For example, according to the results obtained here, the Beatles' three style periods are abstracted to encompass the following years: The early period (1962-65), the experimental period (1965-67) and the late period (1968-70). As opposed to illustrating stylistic periods as blocks in time, it is possible to display the periods of the Beatles in such a way that the individual style periods consist of modified normal distribution curves (Gjerdingen (1988, 105), that is, ideal forms of the normative life span of style. All these are realized in Figure 5.

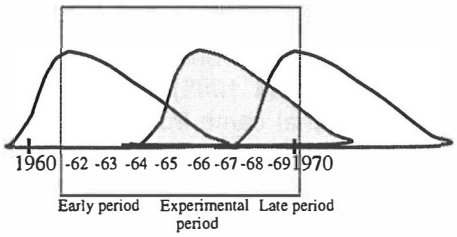


Figure 5. The Beatles' three style periods as consisting of the normative life spans of style.

In the Figure 5 the square outlines the time span studied, namely, the recording career of the Beatles. The darkened period represents the experimental period. It is interesting to note that although the whole figure is a theoretical representation, it is not far from the results obtained from the real musical material (see Figure 4, p. 47).

It might be possible that a similar figure (Figure 5) could depict longer periods and stylistic frames within them, on a higher hierarchic level of style, as Gjerdingen's study did. The material in this study represented a personal style in the hierarchy, even if there were several composers, and can be placed in the style hierarchy and concrete history of popular music as follows:

1) Rock music, approx. 1950-1970.
2) British-invasion, in the 1960s.
3) The experimental period of the Beatles, 1965-67.

For example, Donald Clarke (1995) describes rock music as being born in the 1950s and having died "a heat death" in the 1970s in his aptly titled book *The Rise and Fall of Popular Music.* Similarly, the whole career of the Beatles can be portrayed using the rise-and-fall metaphor but any period within it seems to conform to a similar pattern. Accordingly, if the idea of overlapping style periods, shaped as life spans, is taken to explain change in all of the hierarchical levels, change in the history of music is immediately seen as a more complex series of events: a period consists of several composers' works and their individual stylistic periods, which together create epochal style periods and several epochal style periods create a large historical style period and eventually several large historical style periods. The basic pattern of change, however, might still be comparable on all hierarchical levels, although the reasons and the ways of change are entirely different.

A normative life span of style may prove functional for style criticism; it is useful to understand the nature of style and stylistic periods, and the way they change constantly, usually without any gaps, even if the reasons for the change must be found elsewhere. In this way, the style analyst explaining the style periods afterwards, when they can be more easily divided, sees

continual change as the overlapping of several periods. Therefore the term for these periods can be used in two ways: periods can be either block-like or, when they comprise of stylistic features, more organic and possibly displaying the rise-and-fall pattern. Although many variables, such as artistic events, political events or events in composers' lives also affect the history of a style, they might still share similar histories. Thus, the very act of categorizing, in a way, seems to force upon data an anticipated shape because we all have minds that work in a similar way. This anticipated shape might be commonly known as a rise and fall, without any asymmetricity, the prototypes directing the evaluation of the periods. Whereas the prototype is directed by the central and the highest number of occurrences, it might also enforce common estimation errors. As these abstraction processes are basic principles in human perception and also the essence of style criticism, statistical methods are helpful and relevant in the analysis. We compare, for example, new songs we hear with our stereotypical assumptions. The comparison helps to understand that style, the individual works and their peculiarities within that style or period, but possibly other styles and periods as well. Although the method used in this article does not tell us why the changes happen or where they originate from, it could be a way of illustrating change, in support of other methods.

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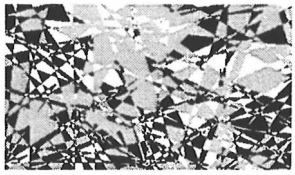

BEATLES 2000

THE CONCEPT OF FORM AND ITS CHANGE IN THE SINGLES OF THE BEATLES

Terhi Nurmesjärvi

Popular music began to raise serious musicological interest as a research topic during the 70's (e.g. Middleton 1972, Frith 1978, Tagg 1979). Much research has been done in the field since then. The most widely used approaches vary from the sociology and semiotics of music to music analysis. Quite few have studied the music itself as the primary research topic. The prevailing trend has been to study popular music mainly from cultural, sociological, semiotic, political, or economical, perspectives. During recent years some researchers have begun to combine these aspects, yet they are in the minority of popular music scholars. The present study differs from both prevailing and new trends. The subject of the study is music itself, and its form.

The concept of form has been referred to in several studies yet it has only been taken as the focus of analysis in a very small number of popular music studies. Although the concept of form has been one of the key concepts in the study of art music, this has been the case only in some popular music studies (Middleton 1990).

The above applies also to the study of the Beatles. There is a widespread agreement that the Beatles had an enormous influence on popular music at the time and that the entire scene of popular music was dramatically changed during the 60's. In popular music research the Beatles — as well as most of the changes in popular music and culture during the 60's — have been considered more a cultural and sociological than a musical phenomenon.[1] Many scholars have made occasional use of the songs of the Beatles as examples in their studies. Some academic dissertations on the subject have been done (e.g. Porter 1979, Stetzer 1976, Heinonen 1995). Nevertheless, there has not been all that much research on the music of the Beatles — and the existing research does not come close to covering all of the possible aspects. The concept of form is one of these aspects.

The purpose of this article is to shed light on the concept of form and its change in the music of the Beatles. The research materials include all of the singles the Beatles officially released in England on EMI/Parlophone and Apple labels during 1962-70; 22 singles (44 songs). The forms the Beatles used in these songs are assumed to be rarely based on the standard forms of the Tin Pan Alley era. The hypothesis of the study is that the influence of the standard forms was stronger during the early years than the late years. If this is true, the development of the concept of form in the songs of the Beatles reflects a more general trend in popular music at the time (Björnberg). The main theoretical framework is cognitive psychology, especially prototype theory (Rosch 1975, 1978). The analysis of form into its constituent elements — whose combinations result in the standard forms as well as other forms — is based on the concepts of repetition, parallelism and symmetry. Further it relies on the grouping criteria presented by Lerdahl & Jackendoff (1985). The amount of use of the standard forms (with their standard extensions) as well as change in the concept of form across time is studied by using simple statistical operations (percentages, correlation analysis).

THEORETICAL FOUNDATIONS

The Concept of Form

Form is one of the most frequently used concepts in music analysis. Leichtentritt has stated that "form in a general sense cannot be the subject of systematic study". Rather, it is "a matter of musical instinct, of taste and of artistic intuition". (Whittall 1981, 709.) In a sense this seems right and it is

[1] The Beatles have, of course, inspired a great number of nonacademic writers, some of whom have provided extremely important source material for academic researchers (Lewisohn 1989, 1990, 1992). There is a lot of biographical literature about the group, too.

also agreed upon by many musicians. But, contrary to Leichtentritt, I still believe that the forms can be systematically analyzed.

Schönberg has provided a more optimistic view, which is closer to the concept of form applied in the present study:

> "form means that a piece is organized: i.e. that it consists of elements functioning like those of a living organism. [...] The chief requirements for the creation of a comprehensible form are *logic* and *coherence*. The presentation, development and interconnection of ideas must be based on relationship". (Whitall 1981, 709).

The sections or units of a piece are not usually randomly placed or grouped together. Rather there can be an underlying system, which determinates the form. A composer may use established forms like sonata form (A B A) in classical music or the 12-bar blues pattern in popular music as a framework. What the composer creates as the content of the sections is the actual music. In this sense, the forms can also be used as compositional strategies.[2]

Standard forms

It is common knowledge that the forms used by the Beatles and other rock bands in the early 60s were based on traditional standard forms (Lamb & Hamm 1981, 114; Heinonen 1995, 79). A standard form is a 32-bar structure consisting of four 8-bar periods. Standard forms were the most frequently used form types in popular music during the first half of the 20th century and slightly after. The most common standard form is the AABA form. Other standard forms include ABAB, ABAC and ABCA, of which the ABAB form was also very popular from the beginning to the century up to the sixties. (Björnberg 1987:66f.)

The AABA form is still used, although its use as such has decreased since the mid-60s. Standard forms often also have standard extensions, resulting in such form types as IAABAIBA and IAABAICBA forms. (Davis 1989,59f; Björnberg 1987,67). The added sections are usually placed after, in some cases before, the normative 32-bar form. The standard forms were extended at quite an early stage in their history and later their length has varied by a large degree. In the music of the Beatles the overall form was usually built onto the normative standard form by adding a "proper" amount of A, B and/or C sections before or after the basic standard form (Heinonen 1995, 79).

[2] For example, aleatoric form is one composition strategy in which the form is created simultaneously in the composition process and has not been determined beforehand. Composers also deliberately variate established forms or deviate from them.

Prototypes

Standard forms are typical examples of popular music forms from the first half of the century onward. The concept of prototypicality allows one to study the typicality of form types in a certain sample of material. It is a way of representing the classification of things and concepts constructed from multiple features we perceive and operate within everyday life (Eerola 1997, 26).

Prototypes are the clearest examples of categories (Rosch 1975, 544). A category is an idea, which includes objects that are considered alike. The greater the inclusiveness within the category, the higher the level of abstraction. The level of abstraction can be formalized in terms of cue validity.[3] The more cue A is related to cue B, the higher is the validity of A/B; and the more cue A is related to other cues (C, D, E...) the lower is the validity of A/B (Rosch 1978, 30). "The cue validity of an entire category may be defined as the summation of the cue validities for that category of each of the attributes of the category" (Ibid. 30-31)

Categories are often defined by prototypes.

> "For categories of concrete objects [... forms ...], a reasonable hypothesis is that prototypes develop through the same principles such as maximization of cue validity and maximization of category resemblance as those principles governing the formation of the categories themselves. [...]. The more prototypical of a category a member is rated, the more attributes it has in common with the other members of the category. [...]. However, the prototype does not have to have all the parameters associated with it, although the more it has, the more typical it is considered to be (Ibid. 36-37)

One aim of the present study is to find the songs that have the highest cue validity, i.e. those that represent the most prototypical examples of this material.

MATERIAL AND METHOD

Material

The research materials included all the singles the Beatles officially released in England on the EMI/Parlophone and Apple labels during 1962-70; 22 singles (44 songs).

The analysis was based on the original single recordings reissued on CD's which were empirically analyzed by listening. Peripherally and in the

[3] A cue validity means "conditional probability [...], the frequency of a cue being associaed with the category in question divided by the total frequency of that cue over all relevant categories" (Rosch 1975, 575).

Year	No	Song	Released	Division
1962	1a	Love me do	5/10/62	1962-63
	1b	PS I love you		
1963	2a	Please Please Me	11/1/63	
	2b	Ask Me Why		
	3a	From Me To You	11/4/63	
	3b	Thank You Girl		
	4a	She Loves You	23/8/63,	
	4b	I'll Get You		
	5a	I Want To Hold Your Hand	29/11/63	
	5b	This Boy		
1964	6a	Can't Buy Me Love	20/3/64	1964-65
	6b	You Can't Do That		
	7a	A Hard Day's Night	10/7/64	
	7b	Things We Said Today		
	8a	I Feel Fine	27/11/64	
	8b	She's A Woman		
1965	9a	Ticket To Ride	9/4/65	
	9b	Yes It Is		
	10a	Help!	23/7/65	
	10b	I'm Down		
	11a	Day Tripper	3/12/65	
	11b	We Can Work It Out		
1966	12a	Paperback Writer	10/6/66	1966-67
	12b	Rain		
	13a	Eleanor Rigby	5/8/66	
	13b	Yellow Submarine		
1967	14a	Strawberry Fields Forever	17/2/67	
	14b	Penny Lane		
	15a	All You Need Is Love	7/7/67	
	15b	Baby, You're A Rich Man		
	16a	Hello, Goodbye	24/11/67	
	16b	I Am The Walrus		
1968	17a	Lady Madonna	15/3/68	1968-70
	17b	The Inner Light		
	18a	Hey Jude	26/8/68	
	18b	Revolution		
1969	19a	Get Back	5/5/69	
	19b	Don't Let Me Down		
	20a	The Ballad Of John And Yoko	30/5/69	
	20b	Old Brown Shoe		
	21a	Something	31/10/69	
	21b	Come Together		
1970	22a	Let It Be	6/3/70	
	22b	You Know My Name		

TABLE 1. The singles of The Beatles in 1962-70 in chronological releasing order

most difficult cases the *Beatles Complete Scores* (1993) were used as a guide line. The material was analyzed at three levels. On the first level the entire selection (22 singles) was analyzed. On the second level the same material was divided into four selections according to the following time periods: a) 1962-63 (10 songs); b) 1964-65 (12 songs); c) 1966-67 (10 songs) and d) 1968-70 (12 songs) (Table 1). Further, on the third level the results were discussed on yearly bases.

The singles were classified according to the year of release, not that of writing or recording, which in some cases are different.

Method

The analysis of these songs aims to segment each song into sections, which comprise the form. The main research questions are:

1) which forms are the most prototypical examples of the material;
2) what is the amount of used standard forms in percentages;
3) how the standard forms were extended;
4) how the use of forms has changed in time; and
5) are there differences in the forms of the A- and B-sides of the singles.

Principles of segmentation

The analysis is based on the concepts of repetition, parallelism and symmetry. These concepts are not considered as exclusive but rather overlapping and they support each other. In some cases I refer to the criteria for grouping structure presented by Lerdahl & Jackendoff in *Generative Theory of Tonal Music* (1985, 36f)[4] in which there are similar notions about the segmetation of music.

Repetition is a common feature of all music including popular music in which most of the sections usually recur more than once.[5] (Middleton 1990, 268; Ruwet 1987, 16; Monelle 1992, 66; Nurmesjärvi 1997, 1; and Meyer 1973, 44[6]). The sections are hardly ever repeated unvaried, which sometimes causes problems in segmentation. More important than the degree of variation is perhaps in which parameters the variation occurs. L.B.

[4] They have formed an analytical system for the different aspects of musical structure (e.g. grouping and meter). The meaningful part for the present study is the grouping structure, which "expresses a hierarchical segmentation of the piece into motives, phrases, and sections" (1985, 8). Grouping Well-Formedness Rules (GWFR) address the formal structure of grouping patterns; i.e. defines what is a group. Grouping Preference Rules (GPR) address which of the formally possible structures that can be assigned to a piece correspond to the listener's actual intuition. Lerdahl and Jackendoff list a total of 12 rules.

[5] The identification of musical units was based on repetition in Ruwet's (1987) segmentation method.

[6] Meyer's writes about 'Conformant Relationships', which means similarity between musical units.

Meyer (1975, 54) has expressed an idea related to repetition and reprise in pieces of music, which contains an important thought on a general level:

> "the greater the amount of change - in both rate and degree - in one parameter, the smaller must be the changes in other parameters if patterning is to be perceived. [...] The amount of simultaneous variation possible also depends upon the nature of the patterns themselves: the more patently structured and archetypal one aspect of a pattern (for instance, its melodic shape), the more other parameters (e.g., rhythm, harmony, etc.) can be varied without destroying the impression of conformance."

I would argue that in popular music some parameters are more important than others and there are typical ways of varying the sections. Even though the basic melodic line remains basically the same the singer often colours and modifies the melody due to changes in the lyrics and artistic interpretation. Some rhythmic details may be changed and the players use the instruments in a creative way. All these factors modify music. In view of stability and identification, significant parameters are harmony and the general accompaniment patterns. They usually remain fairly stable throughout the song. The sections are often of the same length, though sometimes new material is introduced at the end of a section (1-2 bars) indicating change or closure.

Parallelism is a closely related concept to the previous one. When two or more similar segments are parallel, they are rather identified as separate sections, not as one (Lerdahl & Jackendoff 1985, 51).

Another important concept is symmetry. It is also a common and expected feature in popular music. The listeners have pre-existing expectations regarding the patterns of popular music. These generalizations are learned knowledge of the style or genre of music. (Nurmesjärvi 1997.) This implies that the sections of form are preferably the same length when repeated (Lerdahl & Jackendoff 1985, 49).

There are also some other fairly obvious aspects that should be taken into account in the analysis. Firstly, the sections have to be contiguous, that is successive, they cannot include disconnected parts (Lerdahl & Jackendoff 1985, 37). Secondly, only complete groups/sections are considered as formal units, e.g. a final B-unit faded out in the middle is analyzed as a coda, not as another B-unit. Thirdly, the sections should rather not be small, the smaller the less preferable they are (also Lerdahl & Jackendoff 1985, 43). A single note or bar is not considered as a group/unit, it is included in other units (an exception can be made in the case of an intro or coda, which are often rather short, even one bar).

The forms have been analyzed as normative standard forms when it made sense to understand them in this way. The sections after or before the normative form are considered as its extensions. The preferred length of a group/formal unit is set by the normative standard form unit of 8 bars. It has been applied when possible. Different sections are preferred to be of approximately the same length rather than having very long and short

sections mixed together. This has not been possible to apply in all cases. Further there is variation even in the length of the same repeated section.[7]

The songs were divided into the following sections: In (intro), A, B, C, D, S (solo), W (interlude) and Co (coda) according to the rules above. Changes in the lyrics are indicated by numbers (A1, A2...).[8] An example of the result of the analysis is Example 1.

InIAABAIS(b)A

Example 1. The form of the song *Love Me Do* (1962), single 1.a

The normative standard form is placed between the vertical lines, other sections before or after the standard form.

Statistical analysis

The purpose of this analysis is to study the relative proportions of the form types and the cue validity of the units; i.e. how the sections are organized syntagmatically and which are the prototypical forms.[9]

First the amount of different form types and their extensions were calculated. The forms were regarded as falling into the following categories:

Standard Forms and Standard Extensions	IAABAI	- BA, -SBA, -AB, -BSAB
	IABABI	- CAB, - AB
	IAABCI	
Other forms		

Secondly, the distributions of each two-section combination was calculated for all 44 songs (e.g., A-A or A-B). Each combination received a relative value (percentage) in relation to its own total form. This was done using the following procedure. Each song received a value of 1, which was divided by the number of two-section combinations in that particular song. For example, if a song had 4 two-section combinations, value 1 was divided by 4, resulting in a value of 0,25. Then the relative value 0,25 was multiplied by the absolute number of occurences of that particular combination (e.g., A-B, #2)

[7] For the complete analysis and length of the sections see Appendix 1.

[8] None of the sections A, B, C or D represents verse or chorus (refrain). These terms are avoided.

[9] Similar analyses have been made on the level of tones e.g. by Frank Tirro (1988) who studied the use of the Markoff-chain model in the analysis of Gregorian hymn melodies, and Yrjö Heinonen (1997) who studied pentatonism in some songs of the Beatles.

and this combination received a value of 0,5 (#2 * 0,25=0,5). The relative values of each song were compared to corresponding values of the entire material by correlation analysis. The correlation values reveal the songs that are the most prototypical examples of the material. The average correlation of was calculated separately for each time period and for the A and B sides of the singles.

Standard deviation was used as a further criteria for measuring the prototypicality rate: the lower the standard deviation value, the higher the degree of prototypicality of a certain selection.

RESULTS

A summary of the results is presented in Figure 1, which represents the difference in the amount of used normative standard forms and other forms during 1962-70.

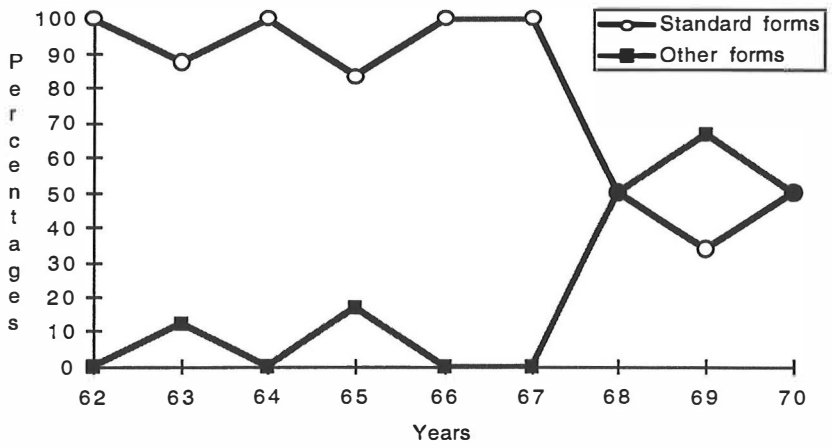

Figure 1. The forms in the time periods

The difference in the use of standard forms and other forms was clearly shown. The high rate of standard forms during the 1962-67 was significant. The use of 'other' forms in 1968 increased dramatically. One can certainly conclude that there was a change in the use of form from the year 1962 to the 1970, more so between the early (1962-67) and the late years (1968-70).

Figure 2 presents other results. There are three factors for each year: the prototypicality rate, the standard deviation of the prototypicality rates and the relative value of used normative standard forms.

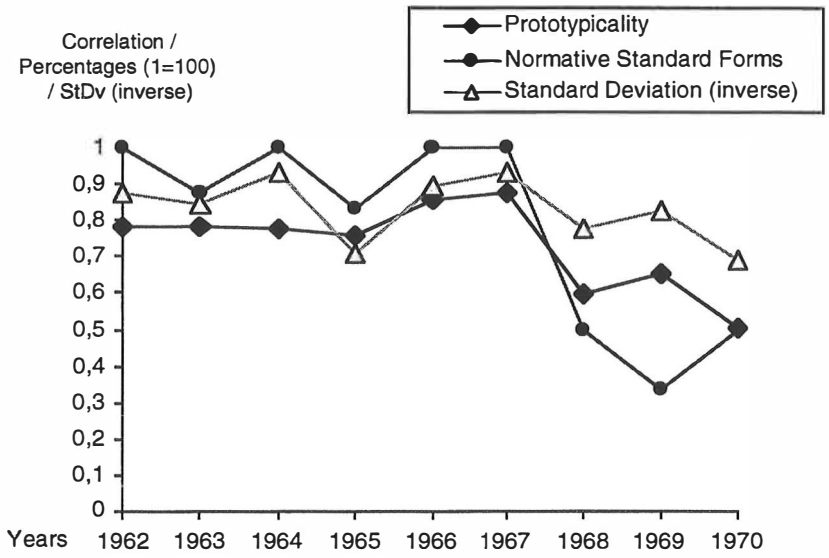

Figure 2. Prototypicality rate, Standard Deviation of the prototypicality rates and normative standard forms in relative values per each year

As seen also in Figure 1, the use of the normative standard forms distinctly illustrated the development of the concept of form. The most typical standard forms were used mainly from 1962-67. The highest peak was in 1966-67, which was followed by a sharply descending tendency. The prototypicality rate showed the same rising tendency when it came to the years 1966-67, after which it dropped. The most significant difference between the use of standard forms and the prototypicality rate was in the year 1969, when the former decreased and the latter increased. The standard deviations of the prototypicality rates of each year supported these results. The deviation was smallest when the prototypicality was highest. At the beginning (1962-65), the tendency of standard deviations was similar to that of normative standard forms until 1965-67, whilst all three aspects had similar tendencies, but after which the standard deviation had the same tendency as the prototypicality.

Entire Selection

Standard Forms

Table 2 presents the number of normative standard forms that were illustrated in a Figure 1 in percentages in the entire selection

Standard Forms	IAABAI	47,7%	(21#)
	IABABI	29,5%	(13#)
	IAABCI	2,3%	(1#)
Other forms		20,5%	(9#)
		100%	

TABLE 2. The uses of standard forms in percentage values

Almost 80% of all the songs were based on normative standard forms, nearly half of them had the IAABAI form structure.[10] The second group IABABI comprised almost one third of the material. The group of other forms included one fifth of the whole material. Some forms in this group were considered as varied standard forms in which an "extra" section was placed within the normative sections (e.g. IABWAIB, 17b, which is varied ABAB - IAB(W)ABI) but which were not classified as standard forms. Some songs had the form IAAAAI, which indicated the use of the 12-bar blues pattern or some other repeated chord progression. The material did not include all the established standard forms; IABACI and IABCAI did not occur. However, the results from all of the material confirmed the hypothesis that the forms used by the Beatles were on average based on standard forms.[11]

Standard Extensions of the Standard Forms

Table 3 illustrates how the standard forms were extended. All songs except one had an extension. The forms of the songs did not necessarily appear as presented in Table 3 (e.g. IAABAIBA) but they might have included sections even after the standard extension e.g. IAABAIBABB. However, they were included in these categories. If a solo had replaced an A or B section within the normative standard form it was considered as belonging to the 'other' forms. An intro was used in 70,5% (#31) and a coda in 81,8% (#36) of the songs. The most common extensions were IAABAIBA and IABABICAB, each used in seven songs (15,9%). The extensions of IAABAI were altogether the largest group of all extensions (38,6%). This was no surprise because IAABAI was also the most used normative standard form (47,7%). The rest of the groups — extensions of IABABI, 'Other extended standard forms' and 'Other forms' — comprised about one fifth of the songs each. An interesting fact was that more than 20% of extended standard forms did not fit in any of these categories, so they were unique extensions. However, it seemed that

[10] Only one song, *This Boy* (no. 5b, 1963), in the whole material represents the pure IAABAI standard form, all the others have added forms.

[11] The form of each song was presented in Appendix 1. The normative form is placed vertically in the same column.

Normative standard form	Extensions	The numbers of the songs	%	
IAABAI	BA	1b, 5a, 9b, 11b, 12b, 15a, 18a	15,9	
	SBA	6a, 6b, 7a, 8b, 14b	11,4	
	AB	3a, 12a, 22a	6,8	
	BSAB	13b, 21b	4,5	->38,6
IABABI	CAB	2a, 4a, 4b, 7b, 9a, 13a, 16b	15,9	
	AB	10a, 14a	4,5	->20,4
Other extended standard forms		1a, 2b, 5b, 8a, 11a, 15b, 16a, 17a, 20b	20,5	->20,5
Other forms		3b, 10b, 17b, 18b, 19a, 19b, 20a, 21a, 22b	20,5	->20,5
				= 100,0

TABLE 3. Extended standard forms in percentages

the Beatles had some basic strategies as to how to use normative standard forms as well as how to extend them. Still only a few songs had precisely the same structure considering the whole form.

In some songs there were sections placed even before the standard form, as e.g. in 6a *Can't Buy Me Love* (1964) BIAABAISBAIB. The song was based on an IAABAI form, extended with sections SBA. The B-sections 'framed' the normative standard form and its standard extension. This was one example of a song in which the form was constructed in the studio and on which producer George Martin had an influence. He often suggested the song should begin with the chorus as in this case (Martin & Hornsby 1979, 132-33)

Prototypicality

The average prototypicality of the entire selection was 0.756, which is quite high. Table 4 shows the ten songs with the highest correlation values.

Year	No	Song	Correl	Form		
1967	15.b	Baby, You're A Rich Man	0.956	In	IA A B AI B	co
1963	5.a	I Want To Hold Your Hand	0.953	In	IA A B AIB A	co
1966	12.b	Rain	0.953	In	IA A B AIB A	co
1967	15.a	All You Need Is Love	0.941	In	A IA A B AIB A B B	co
1965	11.b	We Can Work It Out	0.932		IA A B AIB A	co
1965	10.a	Help!	0.925	In	IA B A BIA B	co
1963	3.a	From Me To You	0.922	In	IA A B AIA B A	co
1965	9.b	Yes It Is	0.916	In	IA A B AIB A	
1967	14.a	Strawberry Fields Forever	0.899	In	BIA B A BIA B	co
1964	8.a	I Feel Fine	0.898	In	IA A B AIS A B A	co

TABLE 4. The TOP 10 list of the most prototypical songs of the singles of the Beatles

Four of these ten songs were from the period 1966-67, which was the period of highest correlation values (Figure 1). Eight of the ten songs were based on IAABAI normative form, which was the most typical form used in the whole material (47,7%). Five of the most prototypical songs were based on this form, and continued with an A-section at the end in four cases.

The Time Periods

The focus in this part of the study is on the same aspects as in the Entire Selection: standard forms, their extensions and prototypicality. The results of each period are summarized in Table 5.

Year	a) 1962-93	b)1964-65	c)1966-67	d) 1968-70
Standard form	AABA 50% ABAB 40% Other 10%	AABA 58,3% ABAB 33,3% Other 8,3%	AABA 60% ABAB 40%	AABA 25% ABAB 8,3% AABC 8,3% Other 58,3%
Extensions	IAABAIBA 20 % IABABICAB 30 %	IAABAIBA 16,6 % IABABICAB 16,6 % IAABAISBA 33,3 %	IAABAIBA 20 % IABABICAB 20 %	
Correlations	0.781	0.767	0.869	0.608

TABLE 5. The standard forms, extensions and correlations of the time periods

A glance at this table reveals and confirms the differences between these periods, presented above, at the beginning of the Results. Each period will be presented in detail separately in the following section.

1962-63

The use of the standard forms during this period was fairly close to the average of the entire material. The percentage of IAABAI was approximately the same, IABABI was used some 10% more and 'other' forms about 10% less than in the whole material. Their extensions were the most frequently used ones in the whole material as well, although during this period the percentages were higher (both of them were 15,9% in the entire selection).

The average prototypicality (0.781) of 1962-63 was very close to that of the whole material (0.756). In Table 6 the songs of this group were presented according to their correlation values.[12]

Year	No	Song	Correl	Form		
1963	5.a	I Want To Hold Your Hand	0.953	In	IA A B AIB A	co
1963	3.a	From Me To You	0.922	In	IA A B AIA B A	co
1962	1.b	PS I love you	0.87		B IA A B AIB A	co
1963	2.a	Please Please Me	0.857	In	IA B A BI C A B	co
1963	4.b	I'll Get You	0.857	In	IA B A BI C A B	co
1963	5.b	This Boy	0.838	In	IA A B AI	co
1962	1.a	Love me do	0.692	In	IA A B AI S A	co
1963	4.a	She Loves You	0.689		C IA B A BI C A B C	co
1963	2.b	Ask Me Why	0.625	In	IA B A BI C D A B D C D	co
1963	3.b	Thank You Girl	0.511	In	IA A B WI A	co

TABLE 6. The songs of 1962-63 arranged in order according to the correlation value

All the correlation values were high and the standard deviation (0.14) was low. The standard forms did play a significant role here. All but one song was based on standard forms. The only exception, *Thank You Girl* (3b) had the lowest correlation value in this selection. On the other hand, *This Boy* (5b), whose form was 'pure' IAABAI did not have the highest correlation but quite an average one. Thus, the songs that belonged to this time period were typically based on standard forms with their standard extensions.

[12] In this and following similar figures the numbers indicating the lyrics are excluded since this presentation is clearer and it does not affect the results in any way. They are, however, shown in the table in Appendix 1.

1964-65

The use of standard forms in this group was similar to the first period and the entire selection as well, though slight differences occurred. The IAABAI forms were used 10% more and the 'other' forms 12% less than in the whole material

The extensions used in this period were the three main extensions used in the entire selection as well, with the exception that the IAABAISBA form was used much more than in the entire selection. This is explained by the fact that this is the only group where it appears in more than one song.

The average prototypicality value 0.767 of this period was closest to that of the whole material. Yet this group included the song with the lowest prototypicality value in the entire selection (10b). The standard deviation of the prototypicality rates was 0.20.

Year	No	Song	Correl		Form	
1965	11.b	We Can Work It Out	0.932		IA A B AI B A	co
1965	10.a	Help!	0.925	In	IA B A BI A B	co
1965	9.b	Yes It Is	0.916	In	IA A B AI B A	
1964	8.a	I Feel Fine	0.898	In	IA A B AI S A B A	co
1965	11.a	Day Tripper	0.836	In	IA B A BI S A B	co
1964	6.a	Can't Buy Me Love	0.814		B IA A B AI S B A B	
1965	9.a	Ticket To Ride	0.765	In	IA B A BI C A B C A B	co
1964	7.b	Things We Said Today	0.765	In	IA B A BI C A B C A B	co
1964	8.b	She's A Woman	0.754	In	IA A B AI S B A	co
1964	7.a	A Hard Day's Night	0.723		IA A B AI S B A	co
1964	6.b	You Can't Do That	0.706	In	IA A B AI S B A	
1965	10.b	I'm Down	0.173		IA A S AI S A A	co

TABLE 7. The songs of 1964-65 arranged in order according to the correlation value

Again the IAABAIBA form was on the top of the list. It is interesting, however, to notice the effect of the intros and codas in these forms. The first song (We Can Work It Out 11b) and third song (Yes It Is 9b) were based on exactly the same forms, except that the former had a coda and the latter an intro. Yet the one with a coda had highest correlation value in this period, which indicated that a coda was a more typical factor in this material than an intro.

1966-67

The songs belonging to this group were entirely based on standard forms. IAABAI included 60% and IABABI 40% of the forms. The extensions were also the same as the two most frequently used ones in the whole material.

The average prototypicality value of this group (0.869) was the highest of all the groups. The standard deviation of the prototypicality values was the lowest of all the groups, 0.08.

Year	No	Song	Correl	Form		
1967	15.b	Baby, You're A Rich Man	0,956	In	IA A B AI B	co
1966	12.b	Rain	0,953	In	IA A B AI B A	co
1967	15.a	All You Need Is Love	0,941	In	A IA A B AI B A B B	co
1967	14.a	Strawberry Fields Forever	0,899	In	B IA B A BI A B	co
1966	12.a	Paperback Writer	0,897		B IA A B AI A B	co
1966	13.b	Yellow Submarine	0,871		IA A B AI B S A B	co
1967	16.b	I Am The Walrus	0,857	In	IA B A BI C A B	co
1967	16.a	Hello, Goodbye	0,842		IA B A BI S B A B	co
1967	14.b	Penny Lane	0,769		IA A B AI S B A A B B	
1966	13.a	Eleanor Rigby	0,703		C IA B A BI C A B	

TABLE 8. The songs of 1966-67 arranged in order according to the correlation value

Even the lowest correlation value in this group was quite high. The single 15 'All You Need Is Love'/'Baby You're A Rich Man' had the highest prototypicality rate in the entire selection and the first song in this period, 'Baby You're A Rich Man' (15b), had the highest rate among all the songs. Again, the extension IAABAIB(A) dominated the top of the list.

1968-70

The last period differed from all the previous periods. The relative amount of the standard forms was the lowest, the group of 'other' forms was 58,3% of all forms, and there were not two similar extensions in this group.

The previous results of this study did imply that the prototypicality of this group was low. In fact the average prototypicality value of the selection (0.608) was the lowest of the entire selection. The standard deviation was 0.197, which was the second highest of the selections. The diversity of the forms during this period was obvious. There were some songs whose correlation value was above the average of the entire material, but in ten cases out of twelve it was below the average. Many songs had an extremely low correlation value. *Hey Jude* (18a) was based on normative IAABAI form extended by the normative BA-extension. The low correlation value of this particular song is, however, explained by the long extension of C-sections at the end.

Year	No	Song	Correl	Form		
1969	21.b	Come Together	0.871	In	IA A B AI B S A B	co
1968	17.a	Lady Madonna	0.831	In	IA B A SI A B A	
1969	20.b	Old Brown Shoe	0.736	In	IA B A BI C S S C A B	co
1969	19.b	Don't Let Me Down	0.728	In	B IA B C BI A B B	
1970	22.a	Let It Be	0.721	In	IA A B AI A B B W S S B A A B B	
1969	20.a	The Ballad Of John And Yoko	0.643		IA A A BI A A	co
1968	18.b	Revolution	0.637	In	IA A B CI A A B C S A A B C	co
1968	17.b	The Inner Light	0.611	In	IA B W AI B	co
1969	21.a	Something	0.566	In	IA A B SI A	co
1969	19.a	Get Back	0.363	In	IA B S BI S A B S B	co
1968	18.a	Hey Jude	0.298		IA A B AI B A C C C C C C C C	co
1970	22.b	You Know My Name	0.286	In	IA A A AI A A A S S	co

TABLE 9. The songs of 1968-70 arranged in order according to the correlation value

A and B sides of the singles

A comparison of the material can be made between the A and the B sides of the singles. The different sides had a different role or purpose in the marketing of the singles. A side was of the main commercial interest and therefore it was brought to the fore more strongly in marketing. In some cases the Beatles released singles with two A sides. Then both of the songs were marketed in parallel without emphasizing one over the other. Sometimes this was due to the competition between Lennon and McCartney: both of them simply wanted to have an A side of the single and neither of them would give up. However, both sides of these double A side singles are considered here as A sides.

I compared the percentage values of used standard forms and standard extension with the percentages of other used forms. The results are shown in Figures, 3 and 4.

The A-sides of the singles were firmly based on the standard forms, they were used 100% from 1962 until 1967. The percentual amount of the extensions was precisely the same as that of the normative standard forms. The 'other' forms had a peak in the years 68-69, which was seen also in the results of the whole material.

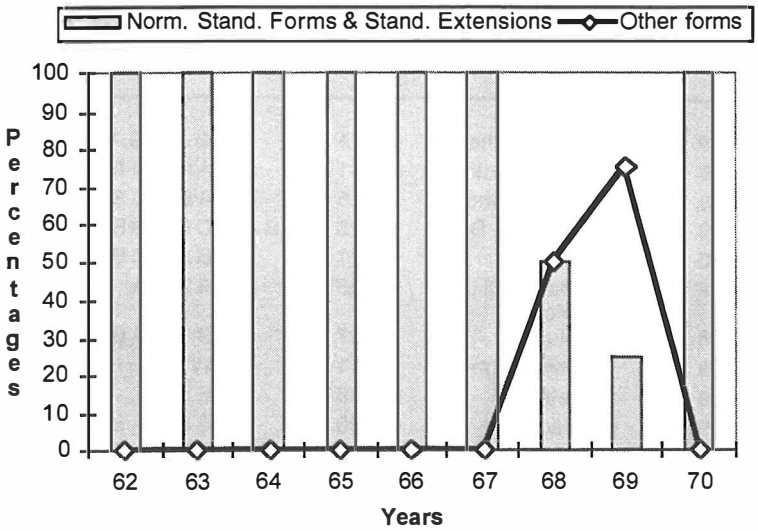

Figure 3. The percentage of normative standard forms and standard extensions compared to other forms in the A sides of the singles (# 26)

The results of the B sides are presented in Figure 4.

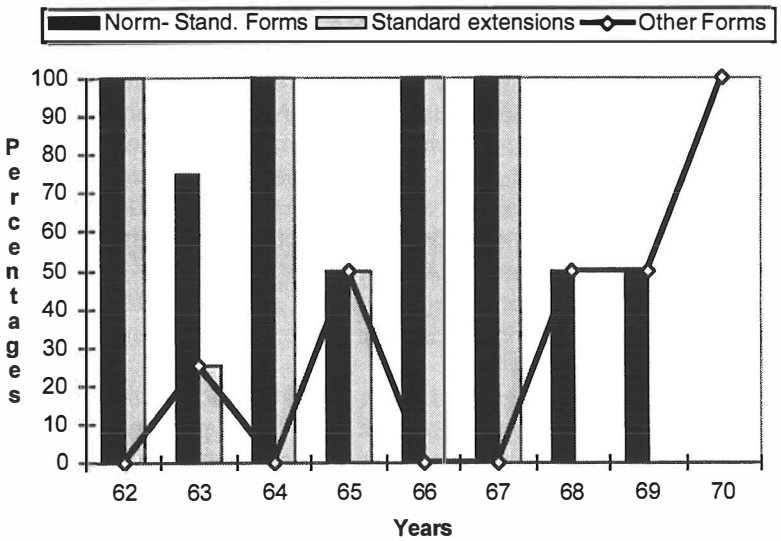

Figure 4. The percentage of normative standard forms and standard extensions compared to other forms in the B sides of the singles (#18)

The results of the B-sides of the singles were much more diversified than those of the A-sides. The normative standard forms were not always automatically followed by standard extensions as in the case of A-sides, and the amount of the used standard forms was smaller and varied from the beginning. The 'other' forms were used since the second year and the amount increased at the end.

The prototypicality rates and the standard deviations of the correlation values support the difference between A and B sides of the singles.

	A-sides	B-sides
Average correlation	0.778	0.71
Standard deviation	0.167	0.215

TABLE 10. The correlation values and the standard deviations of the correlation values of the A sides and the B sides of the singles.

The average prototypicality of the A-sides was higher than that of the B-sides, yet the standard deviation is smaller, too. The more normative forms have also high prototypicality rates. The average correlation of the A-sides is (0.778) also above the average of the entire selection 0.756, whereas average correlation of the B sides is below that.

CONCLUSIONS AND DISCUSSION

This study aimed at shedding light on the concept of form and its change in the music of the Beatles in 1962-70. The main concepts in this study were standard forms and prototypicality. The main hypothesis of the study was that the use of the standard forms was stronger during the early years than the late years. The more specific purpose of the research was to study the percentages of the used standard forms and their extensions and prototypical examples. The findings support the main hypothesis that the standard forms were dominant in the early material. However, the change in the use of form occurs at a fairly late stage, during the last period (1968-70), which differs strikingly from the others. During this period the standard forms and their extensions become the minority after being the main form types during the first three periods (1962-63, 1964-65, 1966-67).

Popular music was rapidly changing during the 60's and the music of the Beatles seems to follow this general trend, too (Björnberg). The results concerning the last period can also be interpreted as an indication of moving towards the verse/chorus form. According to Davis (1989, 33), this is a form

type used from the mid-sixties and it is still used very much today. Verses alternate with a chorus and songs become longer. This is what actually happened in the music of the Beatles. Today the verse/chorus form has more or less replaced |AABA| and |ABAB| forms.

Many previous studies support these results. Firstly, the strong use of standard forms during the early years (1962-65) was expected. The standard forms were indeed used as models in the songwriting process. This is confirmed by the research of Heinonen (1995, 109). He has studied the compositional processes of the Beatles. He came to the conclusion that the typical song writing and recording process of a Lennon-McCartney song, which are 92,3 % of the analyzed songs, was based on six stages:

1) getting an idea and developing it further;
2) grasping the A section (verse);
3) writing the B section (chorus, middle eight) and working out the basic unit of the overall form (usually AABA);
4) grasping the overall form (the amount and order of the verses and choruses, writing the intro, solo and coda);
5) arranging and determining the timbre;
6) recording and mixing.

The standard forms had a specific and acknowledged influence on the construction of form, and the extensions were often made based on the normative standard form. Further, stages 1-3 were often done during the actual writing process (standard forms), while stages 4-6 took place in the studio (extensions).[13] Later, at the time of the last period, the Beatles started consiously breaking these models and patterns of form.

Eerola (1997) has studied the stylistic periods of the Beatles. His study supported the generally accepted division of the styles of the Beatles into three periods: early period, experimental period and late (cf. Heinonen and Eerola, p.3 in this book). Figure 2 of the present study (p. 70) showed the average prototypicality, the standard deviation of the correlation values, and used normative standard forms of each year. The changes in this figure can be compared to the division confirmed by Eerola and divided into three phases. The first phase is from 1962 until 1965, where the amount of normative standard forms and the standard deviations have similar figures. This corresponds to the 'early period' in Eerola's study. Second phase is from 1966 until 1967, where all the three parameters follow the same direction. This corresponds to the 'experimental period in Eerola's study. In the last phase the standard deviation line follows the direction of the average prototypicality line, this was the 'last period' in Eerola's study. What

[13] Even though this article does not concern the actual writing and arranging process of the songs, it should be mentioned that the producer of the Beatles, George Martin, had an influence on the final construction of form during the studio stages. In the beginning his 'speciality' was intros and codas and solos. He often suggested e.g. whether a song should begin with a B or A section (Martin & Hornsby1979, 132-3).

can be made of this connection? The standard deviation always seemed to follow the figure, which had higher ratings. In the beginning it was the normative standard forms, in the end the prototypicality. One thing is certain, the middle phase, where all three had the same direction and the lines were close to each other, the result emphasizes the general findings of my study: that period had the highest average prototypicality and amount of used standard forms.

There are also incidents that happened to occur at the same points where the phases and the style periods according to Eerola changed. Those are changes in the recording team of the Beatles (cf. Heinonen, p. 101 in this book). It seems that the 'original' recording team (Martin, Smith, Langham, Lincoln, Emerick or Scott) was working with the Beatles in the studio during the first phase. In the second, 'conventional', period the staff changed a little, though the main source of influence, Martin, stayed (Martin, Emerick, McDonald or Lush). During the last period, during which the experiments on forms started, the changes in the recording team are most radical. Martin did not produce the songs anymore, Smith and Emerick were not involved, practically all the names mentioned before were absent and the Beatles were responsible for the decisions made in the studio. This can not be ignored since as it has been stated earlier that often constructing the final form of the songs was part of the studio work rather than the writing process (cf. p. 72 in this article). Evidently it was George Martin whose handprints can be seen partly in the results of the present study.

There are, however, controversial results, too. The results of my study were not completely compatible with the study of Eerola. They did not support the change from the early to the experimental period, which happened during 1964-66. Stylistically both of these periods had their own distinctive features and the difference is quite clear. However, in the present study the period 1966-67 differs from the two previous ones slightly because of the purer use of standard forms and higher prototypicality. What can be said about the experimental period regarding the use of form at this time? The forms used during this period are certainly not very experimental since all songs were based on standard forms. Further, the most prototypical examples are found during this period and the average prototypicality is the highest.

There is also a similarity between these two figures. The curve after 1967 — sharply descending prototypicality — represents the fall of the experimental period in Eerola's study. It clearly indicates the differences between the experimental and last period. However, these two figures look similar but represent different things. The peak during 1966-67 in Eerola's figure represents the experimental elements in the music. The figure of prototypicality represents the conventional, traditional concept and use of form. The experiments in form started after the stylistical experimental stage. In some sense the "purity" of form supports the life span of the experimental period, thus not in a way one would expect - it is not part of the experiment

but rather a non-experimental feature. Form is not a stylistic feature of music in the same sense as the parameters Eerola has studied.[14]

An explanation for this difference can be offered. When the experiments were carried out in the other features, the form remained as a solid, familiar basis, on which the other experiments could be built. The statement from Meyer (1973, cf. p. 67 in this article) regarding variation can be understood in a larger context and it supports this view. When something new was tried, some other things had to remain stable, everything could not be experimented with at the same time.

The differences between the A and the B sides were also clear. Because the A-sides were intended for the main markets they were significantly more strongly based on the standard forms and standard extensions than the B-sides. This is a very logical and expected finding and supports the view that the more commercial music is more "standard" and typical than the other songs.

There are three critical points in this study. The first involves the analysis of form, the second the method and the third the relation of this sample to the entire production of the Beatles.

Firstly, in the analysis of music there are always decisions the analyst has to make. In the actual procedure of analyzing the form I have followed the rules presented above as strictly as possible. Yet I am aware that there is always some space for different interpretations. The analyst also has the power to influence the results of the study e.g. by choosing the parameters taken into account in the analysis. I am aware that I have had to face similar decisions as well and a different selection of the parameters might have altered the results. A parameter that could be significant but is left out in the present study is the length of the sections. In the analysis of standard forms and prototypes all e.g. AABA forms are considered to be the same whether the length of each section is 8 or 24 bars (both examples are found in the material). Naturally the closer to 8 bars the length, the more "standard" a form is viewed to be. This aspect will be considered in the future research.

Secondly, statistical analysis has often been a target of heavy criticism by music researchers. It has not been considered a proper tool for analysis and some researchers avoid it because it is traditionally considered to be a method used only in the natural sciences, not the humanities. However, I am convinced that statistical analysis is an appropriate method in the analysis of music and form[15]. What is typical or prototypical is not always perfectly clear when defined by intuition or memory because of the ways of thinking of human beings. Although frequently occuring features are often considered typical ones, our minds also tend to remember atypical examples of a style or schema (Mandler 1982, 105; Eerola 1997, 82). Categorization is typical of people's everyday thinking but it is biased. Therefore statistical analysis can be used in order to avoid incorrect results. It reveals the biased

[14] These are e.g. meter, instrumentation, effects, lyrics, and harmony (Eerola 1997, 31.f).

[15] See also Rautio 1993, 113.

representations based on the way our mind works. (See also Eerola's article in this book.)

Thirdly, the results of this study are based on a sample, which covers only a small part of all the songs released by the Beatles. Moreover, the singles were released for the commercial markets and they had a far greater importance as purchased goods then than they have now. This certainly had an effect on the selection of the songs chosen to be released as singles and thereby also on the results of this study. However, I believe that this study provides a direction for the study of the concept of form and its change on the Beatles albums, too. Whether this is the case remains to be seen in my future research.

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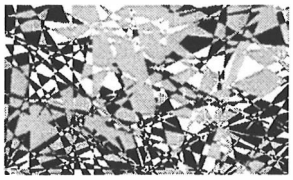
APPENDIX. 1.
The table of the forms of the 22 singles by the Beatles (1962-70) (based on the list of the officially published singles in UK [Lewisohn 1996, 350])

Year	No	Song	Correl	In	Form / number of bars													co	Recording	Mixing	Released
1962	1a	Love medo	0,692	X 8	A 13	A 13	B 8	A 13	S(b') 12	A 13								X 6	6/6/62; 4,11/9/62	6/6/62; 4,11/9/62; 25/2/1963	5/10/62
1962	1b	PS I love you	0,87	B 8	A1 10	A2 10	B 8	A1 10	B 8	A2 10								X 4	6/6/62; 11/9/62	6/6/62; 11/9/62; 25/2/63	
1963	2a	Please Please Me	0,857	X 4	A1 8	B 8	A2 8	B 8	C 10	A1 8	B 8							X 5	11/9/62; 26/11/62	30/11/62; 25/2/63	11/1/63
1963	2b	Ask Me Why	0,625	X 2	A1 7	B1 6	A2 7	B2 6	C 8	D 6	A1 7	B1 6	D 6	C 8	D 6			X 5	6/6/62; 26/11/62	6/6/62; 30/11/62; 25/2/1963	
1963	3a	From Me To You	0,922	X 4	A1 8	A2 8	B 8	A1 8	A1' 8	B 8	A1 8							X 4	5/3/63	14/3/63	11/4/63
1963	3b	Thank You Girl	0,511	X 4	A1 12	A2 12	B 12	W 4	A1 12									X 12	5,13/3/63	13/3/63	
1963	4a	She Loves You	0,689	C 8	A1 8	B 8	A2 8	B 8	C 8	A3 8	B 8	C 8						X 13	1/7/63	4/7/62; 8/11/66	23/8/63
1963	4b	I'll Get You	0,857	X 4	A1 8	B 8	A2 8	B' 8	C 8	A1 8	B 8							X 4	1/7/1963	4/7/1963	
1963	5a	I Want To Hold Your Hand	0,953	X 4	A1 12	A2 12	B 11	A3 12	B 11	A3' 12								X 3	7/10/63	21/10/63; 8/6(65; 7/11/1966	29/11/63
1963	5b	This Boy	0,838	X 4	A1 8	A2 8	B 8	A3 8										X 4	17/10/63	21/10/63; 10/11/66	
1964	6a	Can't Buy Me Love	0,814	B' 6	A1 12	A2 12	B 8	A3 12	S (a) 12	B 8	A3 12	B' 8							29/1/64; 25/2/64; 10/3/64	26/2/64; 10/3/64	20/3/64

Year	No	Song	Correl	In	Form / number of bars												co	Recording	Mixing	Released
1964	6b	You Can't Do That	0,706	X 4	A1 12	A2 12	B 8	A3 12	S (a) 12	B 8	A3 13							25/2/64; 22/5/64	26/2/64; 10/3/64	
1964	7a	A Hard Day's Night	0,723		A1 12	A2 12	B 8	A1 12	S (a) 12	B 8	A1 12						X 4	16/4/64	20,23/4/64; 9,22/6/64	10/7/64
1964	7b	Things We Said Today	0,765	X 2	A1 8	B 9	A2 8	B' 8	C 8	A3 8	B' 8	C 8	A3 8	B' 8			X 4	2,3/6/64	9,22/6/64	
1964	8a	I Feel Fine	0,898	X 8	A1 10	A2 10	B 8	A3 10	S (a') 14	A2 10	B 8	A3 10					X 6-	18/10/64	21,22,27/10/64	27/11/64
1964	8b	She's A Woman	0,754	X 8	A1 24	A2 24	B 4	A1 24	S (a') 12	B 4	A1 24						X 6-	8/10/64	12,21/10/64	
1965	9a	Ticket To Ride	0,765	X 4	A1 8	B 8	A2 8	B 8	C 9	A1 8	B 8	C 9	A2 8	B 8			X 6-	15/12/65	18,23/2/65	9/4/65
1965	9b	Yes It Is	0,916	X 1	A1 8	A2 8	B 5	A3 8	B 5	A3 9								16/2/65	18,23/2/65	
1965	10a	Help!	0,925	X 8	A1 16	B 16	A2 16	B 16	A1' 16	B 16							X 2	13/4/1965	18/4/65; 18/6/65	23/7/65
1965	10b	I'm Down	0,173		A1 14	A2 14	S(a') 12	A3 14	S (a') 12	A' 12	A' 12						X 6-	14/6/65	18/6/65	
1965	11a	Day Tripper	0,836	X 8	A1 10	B 10	A2 10	B 10	S (a) 12	A3 10	B 10						X 10-	16/10/65	25/10/65; 10/11/66	3/12/65
1965	11b	We Can Work It Out	0,932		A1 8	A2 8	B 12	A3 8	B 12	A3 8							X 2	20,29/10/65	28,29/10/65; 10/11/65 10/11/1966	

Year	No	Song	Correl	In	Form / number of bars												co	Recording	Mixing	Released
1966	12a	Paperback Writer	0,897	B 8	A1 12	A2 12	B 8	A3 12	A4 12	B 8							X 16	13,14/4/66	14/6/66; 31/10/66	10/6/66
1966	12b	Rain	0,953	X 4	A1 9	A2 10	B 12	A3 9	B 12	A4 10							X 8	14,16/4/66	16/4/66; 2/12/69	
1966	13a	Eleanor Rigby	0,703	C 8	A1 10	B 8	A2 10	B 8	C 8	A3 10	B' 9							28,29/4/66; 6/6/66	29/4/66; 22/6/66	5/8/66
1966	13b	Yellow Submarine	0,871		A1 8	A2 8	B 8	A3 8	B 8	S (a) 8	A4 8	B 8					X 6-	26/5/66; 1/6/66	2,3,22/6/66	
1967	14a	Strawberry Fields Forever	0,899	X 4 B' 10	A1 8	B 11	A2 8	B 11	A3 8	B 11							X 16-	24,28,29/11/66; 8,9,15,21/12/66	28,29/11/66; 9,15,22,29/12/66; 26/10/71	17/2/67
1967	14b	Penny Lane	0,769		A1 8	A2 8	B 8	A3 8	S (a) 8	B 8	A4 8	A5 8	B 8	B' 9				29,30/12/66; 4,5,6,9,10,12,17/1/67	29,30/12/66; 9,12,17,25/1/67; 30/9/71	
1967	15a	All You Need Is Love	0,941	X 3 A' 8	A1 8	A2 8	B 8	A' 8	B 8	A3 8	B 8	B 8					X 16-	14,19,23,24,25, 26/6/67; 9/10/1968	21,26/6/67: 1/11/67;	7/7/67
1967	15b	Baby, You're A Rich Man	0,956	X 8	A1 11	A2 11	B 12	A3 11	B 12								X 8-	11/5/67	11/5/67; 22/10/71	
1967	16a	Hello, Goodbye	0,842		A1 7	B 9	A2 7	B 9	S (a) 7	B 9	A1 7	B' 14					X 12-	2,19,20,25/10/65; 1,2/11/67	2,6,15/11/67	24/11/67
1967	16b	I Am The Walrus	0,857	X 7	A1 6	B1 9	A2 11	B2 13	C 9	A3 6	B3 9						X 8-	5,6,27,28/9/67	5,6,28,29/9/67	
1968	17a	Lady Madonna	0,831	X 8	A1 16	B1 16	A2 16	S (b) 16	A3 16	B2 16	A1' 15							3,6/2/68	6,15/2/68;2/12/69	15/3/68

Year	No	Song	Correl	In	Form / number of bars																co	Recording	Mixing	Released
1968	17b	The Inner Light	0,611	X 10	A1 8	B1 7	W 10	A1 8	B1 7												X 12	12/1/68; 6,8/2/68	6,8/2/68; 27/1/70	
1968	18a	Hey Jude	0,298		A1 8	A2 8	B1 13	A3 8	B2 13	A1 9	C 4	C 4	C 4	C 4	C 4	C 4	C 4	C 4	X 4	29,30,31/7/68; 1,2/8/68	30/7/68; 2,6,8/8/68	26/8/68
1968	18b	Revolution	0,637	X 4	A1 7	A2 7	B1 6	C 8	A3 7	A4 7	B2 6	C 8	S(a) 9	A5 7	A6 7	B 6	C 8		X 8	9,10,11,12/7/68	12,15/7/68; 5/12/69	
1969	19a	Get Back	0,363	X 4	A1 8	B 8	S(a) 8	B 8	S (a) 8	A4 8	B 8	S(a) 8	B						X 8-	23,27,28,30/1/69	5/2/69; 26/3/69; 4,7/4/69; 26/3/70	5/5/69
1969	19b	Don't Let Me Down	0,728	X 2	B 8	A1 8	B 8	C 8	B 8	A2 8	B 8	B 8								22,28,30/1/69	5/2/69; 4/4/69	
1969	20a	The Ballad Of John And Yoko	0,643		A1 16	A2 16	A3 16	B 8	A4 16	A5 16									X 8	14/4/69	14/4/69	30/5/69
1969	20b	Old Brown Shoe	0,736	X 4	A1 8	B 10	A2 8	B' 8	C1 12	S(a) 8	S(b) 8	C2 12	A3 8	B 12					X 16-	25/2/69; 16,18/4/69	25/2/69; 16,18/4/69	
1969	21a	Something	0,566	X 1	A1 9	A2 10	B 8	S(a) 9	A3 8										X 4	25/2/69; 16/4/69; 2,5/5/69 11,16/7/69; 15/8/69	25/2/69; 6/5/69; 11/7/69; 19/8/69	31/10/69
1969	21b	Come Together	0,871	X 4	A1 12	A2 8	B 6	A3 8	B 6	S(a) 10	A5 8	B 6							X 16-	21,22,23,25,29,30/7/69	7/8/69;	
1970	22a	Let It Be	0,721	X 4	A1 4	A2 4	B 4	A3 4	A4 4	B 4	B 4	W 4	S(a) 4	S(a) 4	B 4	A5 4	A6 4	B 4	B 4	25,26,31/1/69 30/4/69; 4/1/70	4,8/1/70; 26/3/70	6/3/70
1970	22b	You Know My Name	0,286	X 2	A1 16	A2 14	A3 11	A4 11	A5 9	A6 11	A7 12	S(a) 11	S(a) 11						X 8	17/5/67; 7,8/6/67 30/4/1969	7,9/6/67; 30/4/69; 26/11/1969	



BEATLES 2000

THE BEATLES AS A SMALL GROUP
The Effect of Group Development on Group Performance

Yrjö Heinonen

The aim of the study is to explain the changes in the performance (productivity and outcome quality) of the Beatles on the basis of a theory of small group development. Small groups have been studied mainly in social psychology. The most frequently studied groups include therapy groups, sports groups, and organizational work groups. One of the leading models in this field is the life-cycle model, which assumes that a small group goes through several (usually 3-7) distinguishable but overlapping stages. The development is assumed to be caused by changes in group dynamics occurring between the members of the group as well as between the larger organizations it works with. The present study may be considered as an explanatory case study. According to Yin (1993, 5), this kind of study "presents data bearing on cause-effect relationships — explaining which causes produce which effects." Here the main issue is, then, to explain which causes in the development of the Beatles as a small group have which effects on the performance (productivity and outcome quality) of the group during their recording career. This is done by

comparing numerical values representing the changes in certain relevant activities that reflect the development of the Beatles as a group to a theoretical (numerical) model of group development presented here. The results are assumed to contribute both the Beatles research — or, research on other socio-musical groups as well — and small group research in general.

THEORETICAL FOUNDATIONS

Group and related concepts

To begin with an intuitive definition of group, the Merriam-Webster's Collegiate Dictionary (1995) defines the term 'group' simply as "a number of individuals assembled together or having some unifying relationship". In scholarly literature the definition of the term varies according to, for example, the size, function, or structure of the groups in question (cf. Cartwright & Zander 1968, Gibbard & al 1974, Shaw 1981, and Luft 1984). The following definition of the term 'small group' is adopted here:

> "A small group consists of three or more persons who are mutually involved in ongoing social interaction aimed at achieving a common goal. This is accomplished through their interdependent action within an organized pattern of roles and norms called group structure." (Boalt Boëthius 1983.)

Groups usually perform many functions. The three main functions are, according to McGrath (1991, 151), the group's *production function*, its *member-support function*, and its *group well being function*. The main function of a group is determined by its *primary goal* (or primary task). Two kinds of groups, differing from each other as to their primary goal, have usually been distinguished: *social groups* (basic-assumption groups) and *work groups* (task groups or task-oriented groups).[1] In social groups the emphasis is on the member-support and group well-being function, whereas in work groups the emphasis is on the production function. In this study the Beatles is considered primarily as a work group.

Group *cohesion* is one of the most important concepts in small group theory. In spite of this there is no general agreement on what 'cohesion' or 'cohesiveness' exactly means (cf. Luft 1984, 18-19; Budman & al 1993; Mudrack 1989; and Roark & Sharah 1989). Cohesion has been defined as "the resultant of all forces acting upon group members to remain in or leave the group" (Shaw 1981). At a more detailed level, the following

[1] As to a more detailed definitions of the terms 'work group' and 'basic-assumption group' see Turquet (1974).

characteristics have been associated with group cohesion (Littlepage & al 1989; Luft 1984):

- members are willing to work together and are satisfied
- members are motivated to work toward the group's objectives
- the group is well organized or becomes well organized

The first characterization is obviously connected to the member-support and the well-being function of the group. It also comes close to the term 'group drive', which refers to "the arousal level, motivation to work, and enthusiasm of the group" (cf. Greene 1989). Other definitions, in turn, refer rather to the goals and structure — and, indirectly, to the production function — of the group. They are closely associated with 'goal acceptance' and 'desire for group's success' (cf. Greene 1989). Finally, also 'cooperation' is considered as a cohesion-related concept.[2] To sum up: it seems that the definition of 'cohesion' depends on the kind or nature of the group — that is, whether it is a social group or a work group. Here a broad definition is preferred. Hence, all above-mentioned characteristics are regarded as cohesion-related factors.

Conflict is closely associated with lack of cohesion. Sanders & Baron (1975) have defined the term as "the desire or duty to make two mutually exclusive responses either simultaneously or when there is not enough time to make both" (cited by Shaw 1981, 55). Wall & al (1987, 12) have used the term to refer "primarily to extended disagreements typically found in small groups attempting to reach consensus" (cf. also Wall & Nolan 1987). A *role conflict* — that is, a conflict concerning the roles of individual members of the group — results when "the expectations associated with two or more positions in different groups that and individual occupies are incompatible, or when the various expectations associated with a single position that a person occupies are incompatible" (Shaw 1981, 456). Finally, if 'cooperation' is considered as a cohesion-related conflict, then 'competition' should be regarded as a conflict-related concept.[3]

The term 'group performance' has, again, been defined in a number of ways (cf. Evans & Dion 1989 and Kelly & Karau 1993). The definition of Kelly & Karau (1993) seems most promising because it distinguishes between the quantitative and qualitative aspect of group performance: group *productivity* refers to the rate of performance (quantitative aspect), whereas *outcome quality* refers to the quality of performance (qualitative aspect). Perhaps the

[2] The Merriam-Webster's Collegiate Dictionary (1995) defines the term 'cooperative' as "marked by a willingness and ability to work with others" (definition 1b). This definition comes very close to the definition of 'cohesion' by Littlepage & al 1989 as "members are willing to work together and are satisfied".

[3] The Merriam-Webster's Collegiate Dictionary (1995) defines the term 'conflict' as "competitive or opposing action of incompatibles: antagonistic state or action (as of divergent ideas, interests, or persons)" (definition 2a).

simplest and yet relevant way to define productivity is to consider it as group's output per time unit, as Schachter & al (1968) have done. Wall & al (1987, 42) have, in turn, defined outcome quality according to the following four criteria: *workability* — the extent to which ideas or plans can actually be conducted; *usefulness* — the extent to which the ideas or plans are of value and likely to attract audience; *creativity* — the extent to which the ideas and plans are insightful and original; and *attention to detail* — the extent to which the different ideas are coherent in terms of a larger plan.

Group development

Group development could be defined roughly as resultant of changes in group cohesion. Several different models have been presented to describe this process (cf. Gibbard & al 1974, Luft 1984, and Wheelan & McKeage 1993). Gibbard & al (1974) have reduced this variety into three main types (models). According to the *linear-progressive model*, a group moves from a "hesitant, testing state through conflict to cohesion and, in the last phase to the accomplishment of the primary task of the group" (Gibbard & al 1974, 86). The *life-cycle model* also assumes linear progression but emphasizes the importance of a terminal phase.[4] According to the *pendulum model*, a group oscillates between member-based (emphasis on individuals) and group-based (emphasis on group) phases.

Luft (1984) has proposed, on the basis of the Bennis & Shepard model (1974), that group development can be divided into the following two main phases (stages): "in phase 1 the [work] group emerges out of a collection of disparate individuals; in phase 2 the individuals emerge out of a working group" (Luft 1984, 36). A minimal definition of the development of a work group would, then, comprise a *formation* stage, a *work group* stage, and a *termination* stage. Here two transitional stages are also taken into account. The first, an *integration* stage, refers to the process where the working group emerges out of individuals. The second, a *differentiation* stage, refers to the process where the individuals again emerge out of the work group. These definitions are also in line with the definitions of the terms 'integration' and 'differentiation' given by Gruenfeld & O'Connor (1993). On this basis a five-stage life-cycle model of group development is presented. The model comprises the following five stages: (1) group formation, (2) group integration, (3) work group, (4) group differentiation, and (5) group termination. A more detailed description of the characteristics of the different stages is presented in Table 1. Gjerdingen (1988) has suggested that the life-cycles of musical styles can be described in relation to a statistical normal distribution. In support of this hypothesis he found that the life-span of the changing-note schema — a popular melodic turn of phrase during the

[4] For a more detailed description of the characteristics of the terminal phase cf. Rose 1989 and Keyton 1993.

classic-romantic era — approximates a normal distribution. A subsequent study (Eerola 1997) showed that Gjerdingen's hypothesis also applies to the "rise and fall" of the experimental style of the Beatles. It is assumed here that the same approach may also be applied to the description of the life-cycles of different stages of small group development. A combination of the five-stage model of small group development and the assumption that the life-cycles of each stage approximate a normal distribution results in a model called here the normal distribution model of small group development (NDM).

A normal distribution is symmetric. Gjerdingen claims that distributions describing the life-spans of musical styles are skewed due to the effect of memory. In his model, the rise towards the peak is first delayed and then rapidly accelerated so that the peak itself occurs slightly before as expected on the basis of a normal distribution. The fall from the peak is, again, first delayed and then rapidly accelerated. (Gjerdingen 1988, 104-105.) It is assumed here that Gjerdingen's life-span model can also be applied to describe the distribution across time of the features associated with a certain stage of small group development.

The relation of group development and performance

Firstly, there is evidence supporting the hypothesis that the group development process itself has an effect on group performance. Clinical practice suggests that a (therapy) group which goes through prolonged successive stages predicted by stage theorists is more successful than a group with no clear developmental pattern (Tschuschke & MacKenzie 1989).

Different group development models place the peaks in group performance at different stages of the group's life-cycle. According to the linear-progressive model, "group activity reaches peak of efficient work and then ends or continues at that level of development" (Gibbard & al 1974, 85). The life-cycle model, in turn, "places the period of maximum productivity near but not at the end" (Gibbard & al 1974, 86). It seems reasonable to assume that the linear-progressive model applies best to groups formed to perform a certain project or a task only once, while the life-cycle model applies better to groups performing similar projects or tasks continuously.

The empirical results of Wheelan & McKeage (1993) correspond better with the life-cycle model than with the linear-progressive model. They found that expressions attributed to the work group stage and cohesion (statements representing purposeful, goal-directed activity and task-oriented efforts) decreased towards the group termination, with a simultaneous increase in expressions attributed to group differentiation and conflict (statements conveying participation in a struggle to overcome someone or something and implying argumentativeness, criticism, or aggression).

The effect of cohesion on productivity

The importance attributed to cohesion by small group researchers stems, according to Greene (1989, 6), "primarily from its presumed effect on group productivity; that is, high cohesion facilitates or enhances productivity, while the lack of it constrains or limits productivity." This notion becomes very clear in the following statement by Shaw:

> "In spite of some equivocal evidence, it seems evident that the empirical data support the hypothesis that high-cohesive groups are more effective than low cohesive groups in achieving their goals. The cohesive group does whatever it tries to do better than the noncohesive group." (Shaw 1981, 225.)

This hypothesis has been confirmed by many subsequent studies. Evans & Dion (1991, 180), for example, concluded that the relationship between group cohesion and performance is "both stable and positive".

The effect of cohesiveness upon group performance is also mediated by motivational factors such as goal acceptance and group drive. Greene (1989) has emphasized the central role of goal acceptance in determining both cohesion and productivity. According to him, goal acceptance affects productivity both directly and indirectly, through its direct effects on group drive (cf. also Littlepage & al 1989). There is also evidence to support the positive effect of other cohesion-related factors, such as cooperation, on productivity: Deutsch (1968) showed that both quantitative productivity (output per unit time) and qualitative productivity (insightfulness of the output) was clearly higher in cooperative groups than in competitive groups.

The effect of conflict on outcome quality

If cohesion is defined as "willing work together" and "being satisfied", disagreement and conflict are — by definition — in contradiction with cohesion. Further, if cohesion is expected to affect group performance positively, then conflict should be expected to affect it negatively.

It seems, however, evident that this is true only as far as the quantitative aspect of performance (productivity) is concerned: according to some studies, a moderate amount of conflict seems even to be a prerequisite of high outcome quality. Wall & al (1987, 34) have concluded that "conflict, in the form of extended disagreement, tends to increase the quality of outcome up to some critical point". Their results also showed that lack of conflict decreases outcome quality: "individuals in groups experiencing no conflicts evidence greater overall satisfaction but lower outcome quality" (Wall & al 1987,34). The increase in outcome quality requires, however, that conflicts are managed integratively — that is, in such a manner that the members are highly motivated to ensure both their own concerns and the concerns of other members. The findings of the JEMCO project (cf. O'Connor & al 1993 and McGrath & al 1993) support these results: increased level of experienced conflict decreases performance temporarily but groups with

continuously high levels of conflict perform difficult tasks better than groups with low levels of conflict.

The development of the Beatles as a small group

The following is a rough outline of the development of the Beatles as a small group. During 1957-60 the group (called the Quarrymen from 1957 to 1959) is best described as an amateur schoolboy band. The line-up was in constant change but the core of the Beatles — John Lennon, Paul McCartney, and George Harrison — emerged during this stage. During 1960-62 the group (now called the Beatles) became a professional performing group, performing mainly in the nightclubs of Hamburg and ballrooms and clubs of Liverpool. The line-up was Lennon (lead singer, rhythm guitar), McCartney (lead singer, different instruments during 1960-61, from 1961 on the bass), Harrison (lead guitar, background vocals), Stuart Sutcliffe (bass, only in 1960-61), and Pete Best (drums). The group was tied to different organizations by promotors Alan Williams and Bruno Koschmider, later by Brian Epstein who became their manager at the end of 1961. In 1962 the Beatles signed a recording contract with the EMI recording company. At the same time the drummer Pete Best was replaced by Ringo Starr (Richard Starkey).

During 1963-65 there was a quite clear division of labour between the members of the group as well as between the group and Epstein on the one hand and the staff of EMI (especially the producer George Martin and the recording engineer Norman Smith) on the other. The Beatles performed and released both cover versions and songs of their own. The own songs were written by Lennon and McCartney, either separately or in collaboration. Lennon and McCartney also wrote songs for other members of Epstein's office NEMS. Lennon was the main lead singer, McCartney being the second lead singer. When Lennon sang the lead, McCartney and Harrison usually sang the harmony or backing. When McCartney sang the lead, Lennon and Harrison sang the backing. Harrison played the lead guitar, Lennon the rhythm guitar, McCartney the bass, and Starr the drums. There was also a clear-cut division of labour between the Beatles and the EMI staff. The final sound as well as the format of the records was to a relatively great degree created by George Martin, with the help of the recording engineer Norman Smith. Actually, the "concise commercial statement" character of the early period recordings of the Beatles was to a relatively high degree created in the studio by the producer George Martin and the recording engineer Norman Smith. Much was done in the control room after the songs were recorded — in the absence of the Beatles. Epstein and Martin expected the Beatles to release three singles and two albums during each year. This happened — and the result was what was called Beatlemania.

During 1965-67 the fixed division of labour changed: there were three songwriters (Lennon, McCartney and Harrison) but no basic line-up. The Beatles began to release only their own songs. Lennon and McCartney stopped writing songs for other artists on Epstein's team (NEMS) and

concentrated solely on the Beatles. Harrison was still the main lead guitarist but also started to play the sitar. Occasionally also Lennon and McCartney played the lead guitar. McCartney continued on the bass but played also the piano. Starr kept playing the drums and percussion. Lennon's role as a performing musician became more obscure: he now played the acoustic guitar more often than the electric rhythm guitar and played also the harmonium, electric organ, and different percussion instruments (the maracas and tambourine). Harrison introduced the sitar. Session musicians were used to play strings, brass or woodwinds, sometimes also Indian instruments like tablas and tambura. The Beatles started to contribute more to the production process (recording, mixing, releasing). George Martin still produced the records but now he also wrote the arrangements for the session musicians. The roles of the recording engineer (mainly Geoff Emerick) as well as the 2nd engineers (mainly Phil McDonald and Richard Lush) became more important. The fascinating soundscape of 'Revolver' and 'Sgt Pepper' was created through a close-knit cooperation of the Beatles and the EMI recording team: George Martin (producer/arranger), Geoff Emerick (recording engineer), and Phil McDonald or Richard Lush (tape operators). Geoff Emerick's work on 'Sgt Pepper' was awarded a Grammy for the best-engineered album in 1967. The "art rock" character of the middle period records was created by the Beatles and the EMI recording staff (Martin, Emerick, McDonald and Lush) during the lengthy sessions where all five stages of the producing process — songwriting, arranging, recording, mixing, and releasing — constantly overlapped.

The end of public performances in 1966 made the role of the manager Brian Epstein less important than it was before. After the death of manager Brian Epstein in 1967 things began to go wrong. Although the Beatles founded their own company called Apple, it was obvious that the group was not a working team anymore. Rather they were four independent musicians, each of them writing and singing their own songs and using the others as if they were session musicians. Occasionally a single member — usually Paul McCartney — played all the instruments on a track. Also other rock musicians (Eric Clapton, Billy Preston) were allowed to contribute on the records. Lennon, McCartney and Harrison began to write songs for their solo releases as well as for other artists (mainly for those who had a contract with Apple Records). The role of the EMI staff became weaker because in practice the Beatles wrote, arranged, recorded and produced many of their songs themselves. There was neither a clear division of labour nor close-knit cooperation between the members of the Beatles and between the group and the EMI recording staff. There was no fixed EMI recording team either. Producers, recording engineers and tape operators came and went. George Martin did not contribute to the last album ('Let It Be') at all — in early 1969 the project was given to the recording engineer Glyn Jones but it was eventually Phil Spector who produced the album in 1970. Both George Martin and Paul McCartney were very dissatisfied with the final result. 'Abbey Road' — recorded after 'Let It Be' but released before it — was the true swan song of the Beatles. This album was, again, produced by George

Martin and engineered mainly by Geoff Emerick and Phil McDonald. The result was, again, awarded a Grammy as the best-engineered album of 1969. In 1968 Lennon and Harrison had already released their first albums as solo artists. McCartney and Starr came along in 1970. The Beatles disbanded in the same year. The "let-it-be" character of the late period was partly due to the conflicts within the Beatles but also to the fact that there was neither clear division of labour nor cooperation between the Beatles and the EMI staff (with the exception of 'Abbey Road').

It is suggested that the stages in the development of the Beatles as a small group correspond with the five stages of the normal distribution model of small group development as follows: (1) group formation — the Quarrymen years (1957-60), (2) group integration — the Hamburg-Cavern years (1960-62), (3) the work group stage — the Beatlemania years (1962-65), (4) group differentiation — the psychedelic or art-rock years (1965-67), (5) and group termination — the post-Epstein years (1967-70).

HYPOTHESES, PROCEDURE, AND MATERIALS

Hypotheses

It is assumed here, on the basis of all the above-mentioned findings, that the period of maximum productivity (rate of performance) is associated with a high level of cohesion and occurs during the work group stage (WORK), whereas the period of maximum outcome quality (quality of performance) is associated with a moderate level of conflict and occurs during the group differentiation stage (DIFF). On the basis of NDM, the following hypotheses concerning the relationship of group development and performance are presented. A strong positive relationship is assumed to exist between

- the distribution of WORK activities predicted by NDM and the actual division of labour during the work group stage of the Beatles
- the distribution of WORK activities predicted by NDM and the actual productivity of the Beatles
- the actual WORK type division of labour and the actual productivity of the Beatles
- the distribution of DIFF activities predicted by NDM and the actual division of labour during the differentiation stage of the Beatles
- the distribution of DIFF activities predicted by NDM and the actual outcome quality of the Beatles
- the actual DIFF type of division of labour and the actual outcome quality of the Beatles

In order to test these hypotheses, the career of the Beatles was considered to correspond with the five-stage life-cycle model presented above.

Figure 1 shows the expectation values of the WORK activities/productivity and DIFF activities/outcome quality of the Beatles across time, given by NDM.

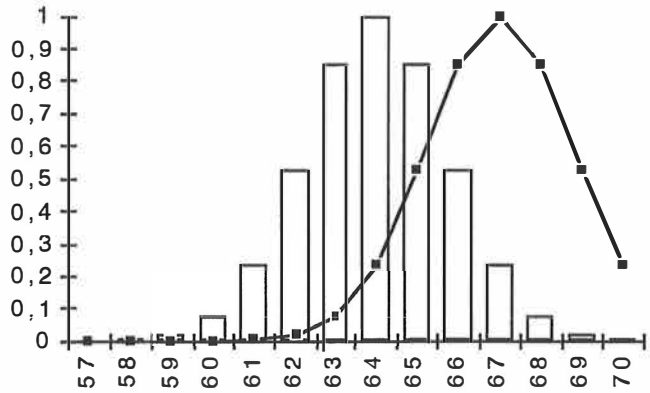


FIGURE 1. Distribution of WORK activities/productivity (columns) and DIFF activities/outcome quality (line) of the Beatles, according to NDM.

The relation of these expectation values and the actual development and performance of the Beatles was studied using simple statistical methods (correlation analysis, comparison of the properties of the distributions).

Procedure and materials

Group development

The distribution of WORK and DIFF activities was studied as to the division of labour within the Beatles as well as between the Beatles and the EMI recording team. Only activities associated directly with record making were taken into account. It followed from this that activities like touring, broadcasting, and filming — to mention but three — were excluded. The division of labour was studied according to the following three aspects: repertoire, ensemble structure, and recording team. It was assumed that changes in these three aspects reflect essential changes in the division of labour within the Beatles and between the Beatles and the EMI staff because they are closely associated to the main activities of record making. Repertoire is associated with songwriting and choosing songs to be recorded. Ensemble structure, in tum, is associated with arranging and actual performance of the songs at the recording studio. Finally, the recording team is, of course, associated with the actual recording and mixing of the songs.

Repertoire

In analyzing the repertoire a song was taken as the unit of analysis. The songs were viewed as falling in the categories shown in Table 2, according to the different stages of group development.

STAGES	REPERTOIRE CATEGORIES
WORK	cover versions; Lennon-McCartney collaborations; songs written by Lennon separately; songs written for or given to NEMS artists
DIFF	songs written separately by Lennon, McCartney, or Harrison
TERM	songs written by Starr or Martin; other collaborations than Lennon-McCartney; songs written for or given to non-NEMS artists; songs included in solo releases (both covers and own)

Table 2. Repertoire categories

The categories were considered as mutually exclusive with the exception of songs written separately by Lennon, which were regarded as representing both the WORK and DIFF types of division of labour. Belonging to a repertoire category was credited by a value of 1, whereas not belonging to a repertoire category received a value of 0. The quantification was based on the credit breakdowns presented by Dowlding (1989). A song was considered as written "separately" if the credit breakdown for the main songwriter in Dowlding's quantification was more than .75. Otherwise the song was considered as written in collaboration. Next the number of songs belonging to each category was calculated according to their release year. These numbers were then divided by the total number of songs released during that year. The overall contribution of a certain division of labour as to the repertoire was determined by adding the relative values of relevant repertoire categories. Thus, the theoretical range of repertoire score for each year could run from 0 to 1.

Ensemble structure

A song was taken as the unit of analysis also in analyzing the changes in ensemble structure. The songs were viewed as falling in the categories presented in Table 3, according to the different stages of group development.

STAGE	ENSEMBLE STRUCTURE CATEGORIES
WORK	Beatles 1 (without SM)
DIFF	Beatles 2 (without SM) any Beatles line-up with SM 1
TERM	Beatles 3 (without SM) any Beatles line-up with SM 2

Table 3. Ensemble structure categories.

The Beatles 1 ("the basic Beatles") line-up was defined as follows: — John Lennon: *rhythm/acoustic guitar*, vocals, harmonica; Paul McCartney — *bass*, vocals; George Harrison — *lead guitar*, vocals; Ringo Starr — *drums*, percussion, vocals; George Martin (producer) — piano. Minimal requirements for the Beatles 1 line-up was that (1) all members of the group attended and (2) played the instruments referred to by italics, and (3) one or more of the members did the vocals. Lennon's harmonica, Starr's percussion, and Martin's piano were regarded as optional. The following three characteristics were considered as typical of the Beatles 2 line-up: (1) the members of the group played instruments not belonging to the basic line-up (excluding, however, role changes — that is, cases in which at least one member of the group plays an instrument 'belonging' to another member's territory in the basic Beatles line-up); (2) all members of the group attend but one or more of them did not play any instrument (they only sang lead or harmony/backing vocals); and (3) only 2-3 members of the Beatles attended. The Beatles 3 line-up was, in turn, defined according to the following two criteria: (1) role changes, that is, one or more members of the group played an instrument 'belonging' to another member's territory in the basic Beatles line-up and (2) only one member of the Beatles attended without session musicians. The 'session musicians 1' (SM 1) line-up was considered to include professional session musicians and ensembles with the exception of the producer George Martin and outstanding rock musicians. The 'session musicians 2' (SM 2) line-up was considered to include (1) outstanding rock musicians (such as Eric Clapton, Brian Jones, and Billy Preston) and (2) non-professionals (friends, girlfriends, wives etc.) as "session musicians".

The 'pure' Beatles line-ups were considered as mutually exclusive. As line-up combinations (Beatles + SM) were used, an ensemble structure could be regarded as representing both the DIFF and TERM types of division of labour. Belonging to an ensemble structure category was, again, credited by a value of 1 and not belonging to an ensemble structure category received a value of 0. The quantification was based on the information concerning the instrumentation presented by Dowlding (1989). The number

of songs belonging to each category was calculated according to their release year. These numbers were then divided by the total number of songs released during that year. The overall contribution of a certain division of labour as to the ensemble structure was determined by adding the relative values of relevant ensemble structure categories. The theoretical range of ensemble structure score for each year could run, again, from 0 to 1.

Recording team

In analyzing the contribution of the EMI recording teams a recording session was taken as the unit of analysis. The sessions were viewed as falling in categories displayed in Table 4, according to the different stages of group development.

STAGE	RECORDING TEAM CATEGORIES
WORK	producer: George Martin recording engineer: Norman Smith tape operator: Richard Langham, A.B. Lincoln, Geoff Emerick, or Ken Scott
DIFF	producer: George Martin recording engineer: Geoff Emerick tape operator: Phil McDonald or Richard Lush
TERM	producer: other than Martin recording engineer: other than Smith or Emerick tape operator: other than above

Table 4. Recording team categories

The recording team categories were considered as mutually exclusive. Belonging to a recording team category was credited by a value of 1, whereas not belonging to a recording team category received a value of 0. The quantification was based on the information concerning the EMI recording staff presented in Lewisohn (1988). The number of sessions belonging to each category was calculated according to the years the sessions were held. These numbers were then divided by the total number of sessions held during the year in question. The overall contribution of a certain recording team was determined by adding the relative values of relevant recording team categories. The theoretical range of recording team score for each year could run, then, from 0 to 1.

Group performance

The performance of the Beatles was measured according to their productivity (quantitative aspect) and outcome quality (qualitative aspect). Productivity was measured according to output per unit time (the amount of records and songs per year). Outcome quality was measured according to subjective album ratings. Chart success was used as a third measure and it was assumed to correspond rather to productivity than outcome quality.

Productivity

The productivity of the Beatles across time (1962-70) was studied according to the number of songs and records they released during each year. Only official UK and US releases (cf. Lewisohn 1988, 200-201) were taken into account. A numerical (relative) productivity score was derived as follows. The number of official UK and US releases (be it a single, EP, or an album) were added up separately for each year. This sum total was multiplied by the number of new songs — that is, songs not released before in any format — released during the same year. Annual values were then divided by the highest of all values so that the theoretical range of productivity score for each year could run from 0 to 1.

Chart success

Although measuring chart success may seem simple, measuring it reliably is a difficult task (cf. Quirin & Cohen 1987). As examining the Beatles' chart success during 1962-70 the UK single and album charts (New Musical Express) as well as the US single and album charts (Billboard) were taken into account. The overall chart success was determined as to the following three aspects:

- highest position (in the TOP 20)
- weeks at No 1
- chart life (weeks in the TOP 40)

The sources used were as follows: UK single charts (Jasper 1983), UK album charts (Gray & al 1995), US single charts (Harry 1992), and US album charts (Whitburn 1995).

A numerical (relative) chart success score was derived for each single and album as follows. Firstly, the numbers indicating the highest position in the TOP 20 were transformed into reverse order according to the following principle: 1 = 20, 2 = 19, ..., 19 = 2, and 20 = 1. These numbers were then divided by 20 and multiplied by 1/3 (0,333333). Secondly, the number of weeks each single or album stayed at No 1 was divided by the highest number of weeks any Beatles single or album stayed at No 1 in that particular chart. These values were, again, multiplied by 1/3 (0,333333). Thirdly, the number of weeks each single or album stayed in the TOP 40 was

divided by the highest number of weeks any Beatles album stayed in the TOP 40 of that particular chart. Again these values were multiplied by 1/3 (0,333333). Next the values indicating the highest position, weeks at No 1, and weeks in TOP 40 were added up so that the theoretical range of score for each single or album could run from 0 to 1.

Album ratings

Although measuring chart success reliably is a difficult task, measuring the (aesthetic) quality of the output of a popular music group is still much more problematic. Here subjective album ratings were taken as the data for the analysis. The album ratings were based on Colin Larkin's All Time TOP 1000 Albums (1994).[5] Larkin's book is divided into lists by genre. The Beatles' albums can be found exclusively under the title 'The TOP 250 Rock and Pop Albums'. Only the TOP 100 of this list was used here.

Only the official UK album releases during 1962-70 were taken into account. This excludes, for example the US release of Magical Mystery in 1967 (in the UK Magical Mystery Tour was released only as an EP). Also albums containing only a little new material performed by the Beatles were singled out. Table 5 displays the official UK album releases in chronological order as well as the relative amount of new songs released on each album. Albums containing mostly new songs performed by the Beatles are marked by asterisks. Songs were considered as new if they were not released in the UK in any format before the release of the album. However, songs released simultaneously both in single and album formats were considered as new. In this sense, for example, 'Love Me Do' and 'Help' were not new songs because both of them were released in single format before the release of the albums. However, for example 'A Hard Day's Night' and 'Eleanor Rigby' were considered as new songs because they were released as singles at the same time as in album format. Cover versions were considered as new if

[5] I am extremely well aware of the fact that Larkin's ratings are both subjective and a matter of dispute. There is no objective measure for the aesthetic quality of the output of the Beatles (or any other group or artist, either). In any case, Larkin's ratings are very well in line with, for example, Ian MacDonald's characterization of the "periods" of the Beatles: "going up" — 1962-1965; "the top" — 1966-67 (Revolver and Sgt Pepper); and "coming down" — 1967-70. Rubber Soul, Revolver, Sgt Pepper, the White Album, and Abbey Road have also been considered the best Beatles albums in many other ratings, Revolver or Sgt Pepper being usually the best (Nyman 1995). The same albums — with the exception of the White Album — also received Grammy Awards during the Sixties. Grammies were awarded as follows: Michelle/Rubber Soul (song of the year, best contemporary vocal performance); Revolver (best album cover); Sgt Pepper (best album, best contemporary album, best engineered album, best album cover); Abbey Road (best engineered album). In 1970 Let It Be received a Grammy (best original movie score). Despite different tastes there seems to be quite general agreement as to the outcome quality of the Beatles. In my opinion, Larkin's album ratings reflect this agreement quite faithfully in an easily quantifiable form. Moreover, it seems obvious that Sgt Pepper — as compared to all other Beatles albums — best fulfils the criteria for outcome quality given by Wall & al (1987, 42) and referred to above.

YEAR	ALBUM	NEW SONGS
1962	—	0,00
1963	Please Please Me	0,71*
	With The Beatles	1,00*
1964	A Hard Day's Night	0,85*
	Beatles For Sale	1,00*
1965	Help!	0,86*
	Rubber Soul	1,00*
1966	Revolver	1,00*
	A Collection of the Beatles Oldies	0,06
1967	Sgt Pepper's Lonely Hearts Club Band	1,00*
1968	The Beatles ("White Album")	1,00*
1969	Yellow Submarine	0,31
	Abbey Road	1,00*
1970	Let It Be	0,82*

Table 5. Official UK album releases in a chronological order.

they were not released before by the Beatles in any record format (single, EP, LP).

A numerical (relative) outcome quality score was derived for each album as follows. First the numbers indicating the positions in the TOP 100 of Larkin's TOP 250 rock and pop albums were transformed into reverse order according to the following principle: 1 = 100, 2 = 99, ..., 99 = 2, and 100 = 1. Next the inverted position numbers were divided by 100 so that the theoretical range of score for each album could run from 0 to 1. The scores were then added up according to the release years of the albums. Finally these sum totals were divided by the number of albums released during the year in question.

RESULTS

Table 6 summarizes the correlation values between all variables studied in this study.

	W/NDM	W/act	PROD	CHsucc	D/NDM	D/act	ALBr
W/NDM	...	.92***	.81***	.73**	.09	.31	.09
W/act		...	.83***	.79***	.07	.27	.08
PROD			...	.96***	.29	.43	.22
CHsucc				...	.49	.61*	.41
D/NDM					...	.84***	.96***
D/act						...	.82***
ALBr							...

* = statistically significant at $p < .05$
** = statistically significant at $p < .01$
*** = statistically significant at $p < .001$

Abbreviations:

W/NDM = expectation values for WORK related variables given by NDM
W/act = actual WORK type of division of labour
PROD = actual productivity
CHsucc = actual chart success
D/NDM = expectation values for DIFF related variables given by NDM
ALBr = album ratings (Larkin 1994)

Table 6. Correlations between WORK and DIFF related factors.

All correlations between the four variables taken to represent the work group stage (NDM of WORK, the actual division of labour, productivity, chart success) were both positive and statistically significant at $p < .001$ — with the exception of the correlation between NDM of WORK and chart success, which was statistically significant "only" at $p < .01$. All correlation values between the variables representing the work group stage and the group differentiation stage were positive but statistically nonsignificant. All correlation values between the three variables taken to represent the group differentiation stage (NDM of DIFF, the actual division of labour, album ratings) were positive and statistically significant at $p < .001$. The correlation values between the WORK and DIFF related variables were positive but statistically nonsignificant — with the exception of the correlation between actual DIFF activities and chart success, which was statistically significant at $p < .05$.

Work group stage and productivity/chart success

NDM of WORK and actual WORK activities

Figure 2 displays the distribution of actual WORK activities of the Beatles across time as compared to NDM of WORK type division of labour.

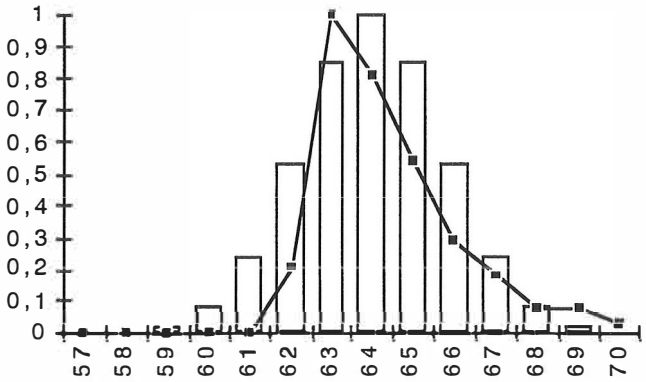


Fig. 2. NDM of WORK (columns) as compared to actual WORK activities (line).

The distributions are highly similar (r. = .92; p < .001). However, the peak in the actual distribution of WORK activities occurs one year before the peak in the model. The distribution is also otherwise skewed in the sense of Gjerdingen's life-span model.

NDM of WORK and productivity

Figure 3 shows the NDM of WORK activities as compared to the actual productivity of the Beatles across time.

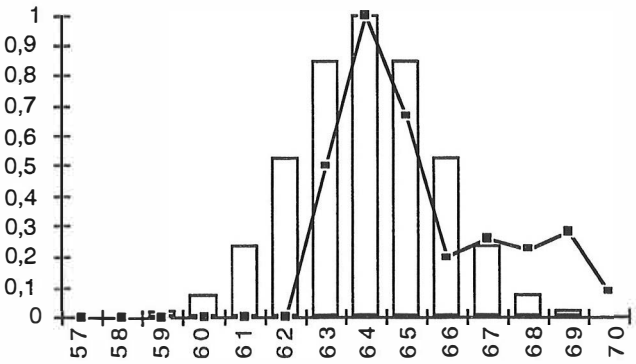


Figure 3. NDM of WORK (columns) and actual productivity (line).

The correlation between the two distributions is high ($r = .81$; $p < .001$) and the productivity curve is, again, skewed in the sense of Gjerdingen's life-span model.

Figure 4 presents the actual WORK activities as compared to the actual productivity of the Beatles across time.

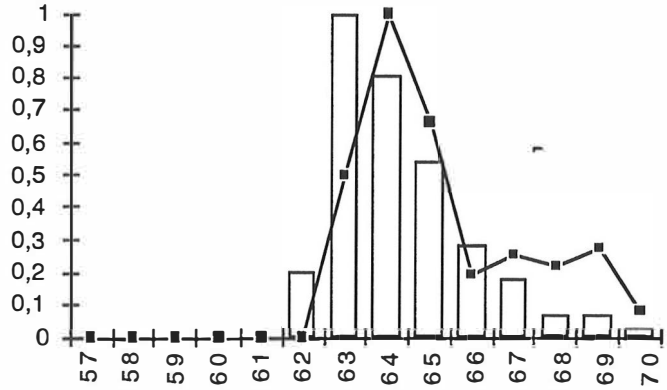


Figure 4. WORK activities (columns) and productivity (line).

The correlation between these two distributions is high ($r = .83$; $p < .001$). Both curves are skewed in the sense of Gjerdingen's life-span model. The peak in the productivity curve occurs one year later than the peak in the WORK activities curve. This seems to imply that a change in productivity is a (delayed) consequence of a change in the division of labour.

NDM of WORK and chart success

Figure 5 displays the chart success of the Beatles as compared to the NDM of WORK type division of labour.

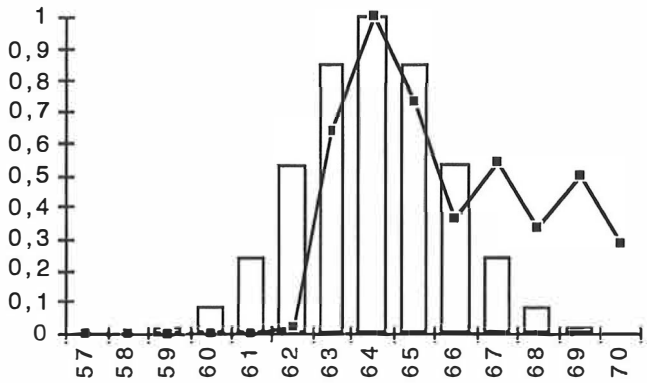


Figure 5. NDM of WORK (columns) and chart success (line).

The distributions are, again, rather similar (r = .73). However, in this case the correlation was statistically significant "only" at p < .01. Although the peak occurs in both distributions at the same year (1964), the chart success curve is skewed in the sense Gjerdingen's life-span model expects.

Actual WORK activities and chart success

Figure 6 shows the chart success of the Beatles as compared to the actual distribution of WORK activities.

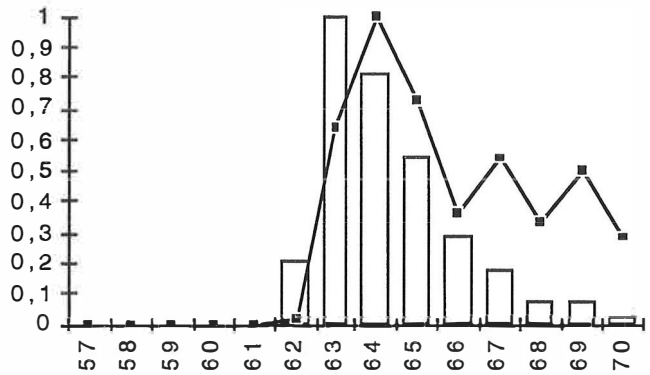


Figure 6. Actual WORK activities (columns) and chart success (line).

Although the peaks in these two distributions do not coincide, the correlation is .79 (significant at p < .001). The changes in chart success occur quite consistently a year later than corresponding changes in actual distribution of WORK activities, with the exception of the years 1967-70. A tentative explanation for this could be that the chart success of the Beatles was a consequence of their WORK type of division of labour.

Productivity and chart success

Figure 7 presents the actual productivity of the Beatles as compared to their chart success across time. The distributions are highly similar (r = .96; p < .001). Both distributions are also skewed in the sense of Gjerdingen's life-span model. There is, indeed, a very strong relationship between the actual productivity and chart success of the Beatles. An obvious interpretation of this fact is that anything the Beatles released during the 1960's sold very well.

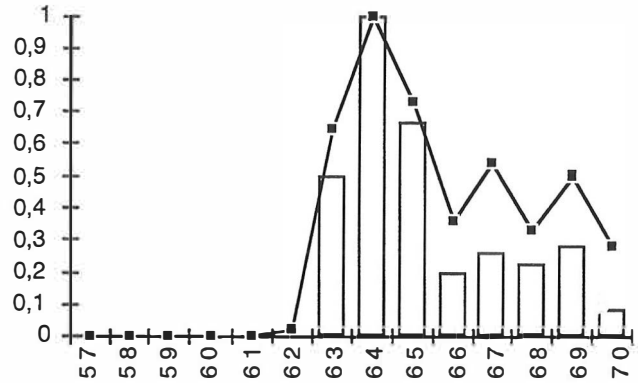


Figure 7. Actual productivity (columns) and chart success (line).

Group differentiation and outcome quality

Figure 8 displays the actual distribution of DIFF activities across time as compared to NDM of DIFF type of division of labour.

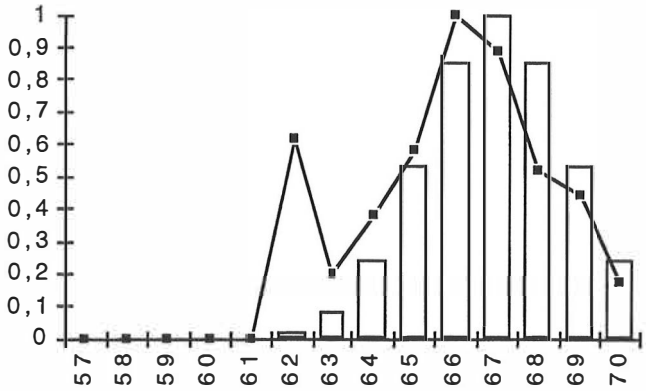


Figure 8. NDM of DIFF (columns) and actual DIFF activities (line).

The distributions are highly similar ($r. = .84$; $p < 0.001$), although there is an unexpected peak in DIFF type of division of labour at 1962. Another deviation from NDM is that — with the exception of 1962 — the changes in actual DIFF type of division of labour occur one year before the corresponding changes in NDM. The actual distribution of DIFF type of division of labour is, again, slightly skewed in the sense of Gjerdingen's life-span model.

Figure 9 shows the album ratings as compared to NDM of DIFF type of division of labour.

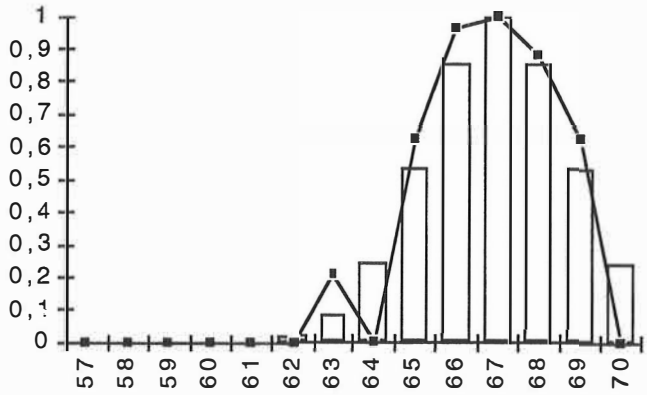


Figure 9. NDM of DIFF (columns) and album ratings (line).

These distributions are extremely similar (r = .96; p < .001). The only salient deviation is the peak in the album ratings at 1963. Here the album ratings curve is not skewed in the sense Gjerdingen's life-span model expects.

Figure 10 presents the album ratings as compared to the actual distribution of DIFF type activities.

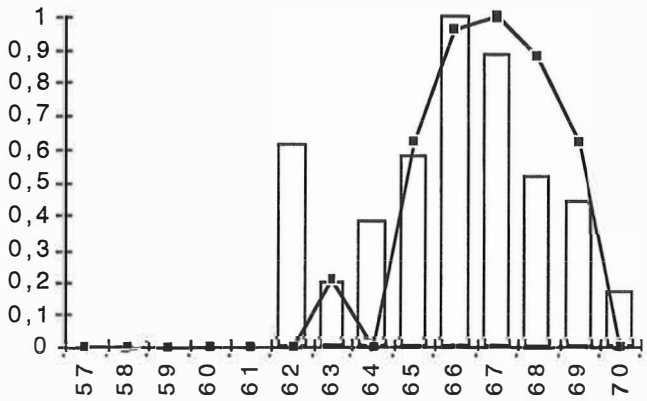


Figure 10. Actual DIFF activities (columns) and album ratings (line).

These distributions are, again, highly similar (r = .82; p < 001). The most salient dissimilarities are the two unexpected peaks that occur during 1962-63: (1) the peak in the distribution actual DIFF type activities at 1962, and (2) the peak in album ratings curve at 1963. It is also remarkable that the changes in the album ratings occur consistently a year after corresponding changes in actual DIFF type activities. This holds also for the unexpected peaks during 1962-63. A tentative explanation for this could be that the outcome quality of the Beatles was a consequence of their DIFF type of division of labour.

Possible explanations for the unexpected results concerning the chart success

The correlation between NDM of WORK and chart success was significant "only" at $p < .01$. Although this correlation is positive and statistically significant, it is clearly lower than the other correlation values between the WORK related variables. The correlation between the actual DIFF activities and chart success was significant at $p < .05$. This was the only case where a positive and statistically significant correlation was found between WORK and DIFF related variables. An obvious reason for these deviations is the existence of two unexpected peaks in chart success at 1967 and 1969. Possible explanations for this phenomenon are discussed in the following.

An analogical situation may, again, be found from Gjerdingen (1988, 195-197), who suggests that an unexpected change in a melodic schema's population may be a consequent of a temporary rise of a new melodic complex. It is assumed here that the same principle may also be true as to the effect of group development on performance. In other words, an unexpected change (peak) in group performance may be a consequent of the emergence of a new division of labour.

Figure 11 displays an application of NDM where the subsequent stages of group development (group differentiation, group termination) result in temporary peaks in group performance. In this modified NDM the curve representing the WORK activities is based on normal distribution as in the original WORK model but is slightly narrower than the one in the original. The curve representing the group differentiation stage was obtained by dividing the values of the work group stage by 2. The curve representing the group termination stage was, in turn, obtained by dividing the same values by 3.[6]

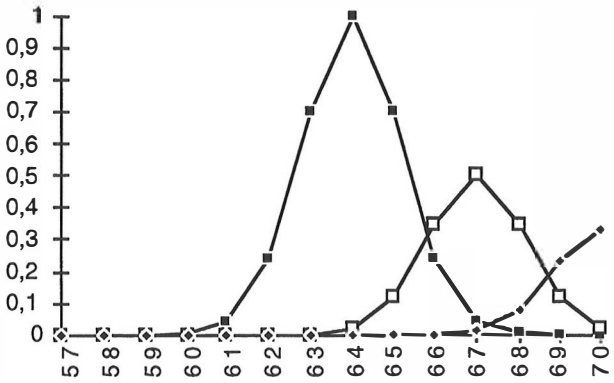


Figure 11. Temporary peaks in group performance due to the effect of subsequent group development stages.

[6] In mathematics, the principle of values descending according to the formula 1st = x:1, 2nd = x:2, 3rd = x:3, ..., nth = x:n is known as the law of Zipf.

The modified NDM predicts temporary peaks at 1967 and 1970. Figure 12 shows the chart success of the Beatles as compared to this model. The distributions are highly similar and the correlation is, of course, also very high ($r = .95$; $p < .001$). The only major differences may be found at 1962 and 1969. The unexpectedly low value at 1962 is, again, due to the low number of records during that year.

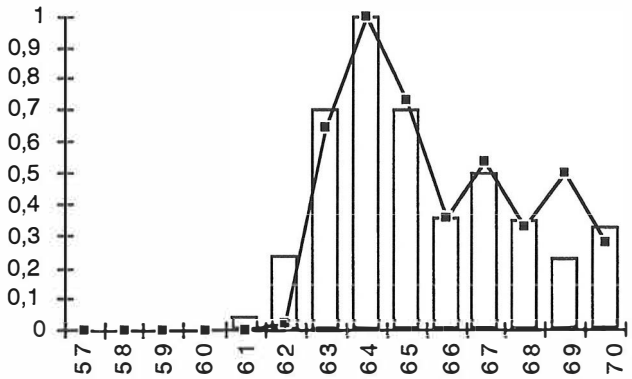


Figure 12. The chart success of the Beatles (line) as compared to the modified NDM (columns).

But how does one explain the peak at 1969?

An explanation based on the group development process can be found by a closer investigation of the changes in the division of labour immediately preceding and following a peak in chart success, regardless of the stage of group development. Figure 13 presents the relation of a peak in chart success (1964, 1967, and 1969) to the preceding and following changes in the development of a certain type of division of labour (WORK, DIFF, TERM).

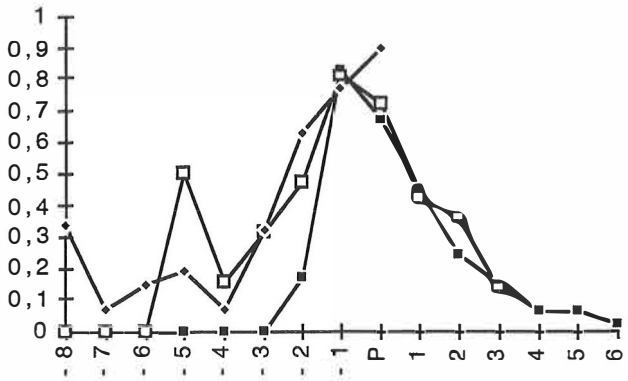


Figure 13. The relation of a peak in chart success (marked by P) to the preceding and following changes in development of a specific type of division of labour (WORK, DIFF, TERM).

At least the following features are typical of the relationship between a peak in chart success and a specific type of division of labour in all these three cases:

- a rapid development towards a specific type of division of labour, beginning four years before the peak in chart success
- during the year preceding the peak this specific division of labour covers approximately 80% of the relevant activities of the group
- during the peak year the division of labour starts to lose its significance and decreases rapidly during the following 3-5 years.

It seems, then, that the chart success is mainly but not completely determined by the WORK type of division of labour — other types (DIFF and TERM) result in temporary peaks as well. It also seems that a peak in chart success is always preceded by a period during which a certain division of labour emerges — regardless its type.

DISCUSSION

The main purpose of the study was to examine the effect of group development on performance, using the career of the Beatles as a case. The career of the Beatles was divided into five developmental stages as follows: formation (1957-60), integration (1960-62), work group (1962-65), differentiation (1965-67), and termination (1967-70). The changes in the amount of activities characteristic of each stage were assumed to exhibit a curve similar to a statistical normal distribution, possibly biased in the way Gjerdingen's (1988) life-span model expects. The values representing these activities were compared to expectation values given by a normal distribution model (NDM) of group development presented in this article.

All correlation values between the WORK-related variables (the distribution of WORK activities according to NDM, actual distribution of WORK activities, productivity, and chart success) were both positive and statistically significant at $p < .001$, with the exception of the correlation between the distribution of WORK activities predicted by NDM and chart success (this correlation was positive and statistically significant "only" at $p < .01$). All correlation values between the DIFF-related variables (the distribution of DIFF activities according to NDM, actual distribution of DIFF activities, outcome quality) were both positive and statistically significant at $p < .001$. A closer look at the properties of the actual distributions as compared to NDM revealed that the actual distributions tended to be skewed in the sense Gjerdingen's life-span model of stylistic development expects.

There were, however, unexpected peaks in the chart success. These unexpected results imply that although chart success is mainly determined

by the WORK type of division of labour, also DIFF and TERM types of division of labour may result in temporary peaks as well. It was also concluded that a peak in chart success is always preceded by a period during which a certain type of division of labour — not necessarily the WORK type — emerges.

It seems safe to say, in the light of these results, that there exists a positive and statistically significant correlation between the group development and performance of the Beatles, and that this correlation can be — at least partially — explained by the five-stage normal distribution model of small group development presented here. The results also imply that a peak in group performance (either in productivity or in outcome quality) occurs slightly after a peak in the corresponding stage of group development. In other words: a peak in productivity — as well as in chart success — occurs slightly after a peak in WORK type of division of labour, whereas a peak in outcome occurs slightly after a peak in DIFF type of division of labour. Changes in the performance of the Beatles are, then, considered as slightly delayed consequences of changes in the development of the Beatles as a small group.

Several limitations restrict the extent to which these findings can be generalized. One obvious limitation is due to the nature of a case study: no (statistical) generalizations can be made on the basis of a single case. Another limitation follows from narrowing the scope of the study to comprise only the recording career of the Beatles. Limiting the scope of the study to a single case do not, however, mean that no generalizations can be made. Yin (1993, 50) has made a distinction between statistical and analytical generalizations. Although statistical generalizations cannot be made on the basis of a single case, this does not exclude the possibility of analytical generalizations. In an analytic generalization, "a previously developed theory is used as a template against which to compare the empirical results of the case study." (Yin 1993, 50.) The results are, of course, more convincing if "two or more cases support the same theory but do not support an equally plausible, rival theory" (Yin 1993, 50).

The main concern here was to the study the relationship between the development of the Beatles as a small group and the effect of this development on the group's productivity and outcome quality. It is argued that the 5-stage life-cycle normal distribution model presented here explains this relationship quite well. More research is needed, however, if the model is assumed to explain the relationship between small group development and performance in general. To conclude with two practical implications: in light of the results of this study it seems that (1) best group performance cannot be expected to occur before and during the peak of the work group type of division of labour but only slightly afterwards, and (2) moderate conflict within a group is rather a requirement than an obstacle of high outcome quality — provided that the conflict is managed integratively.

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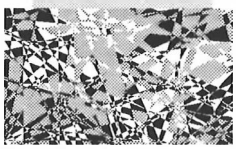

BEATLES 2000

Part Two

QUALITATIVE CASE STUDIES

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 preceeded 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 á 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 tabulature 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

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

done here. 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 explicitely 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.

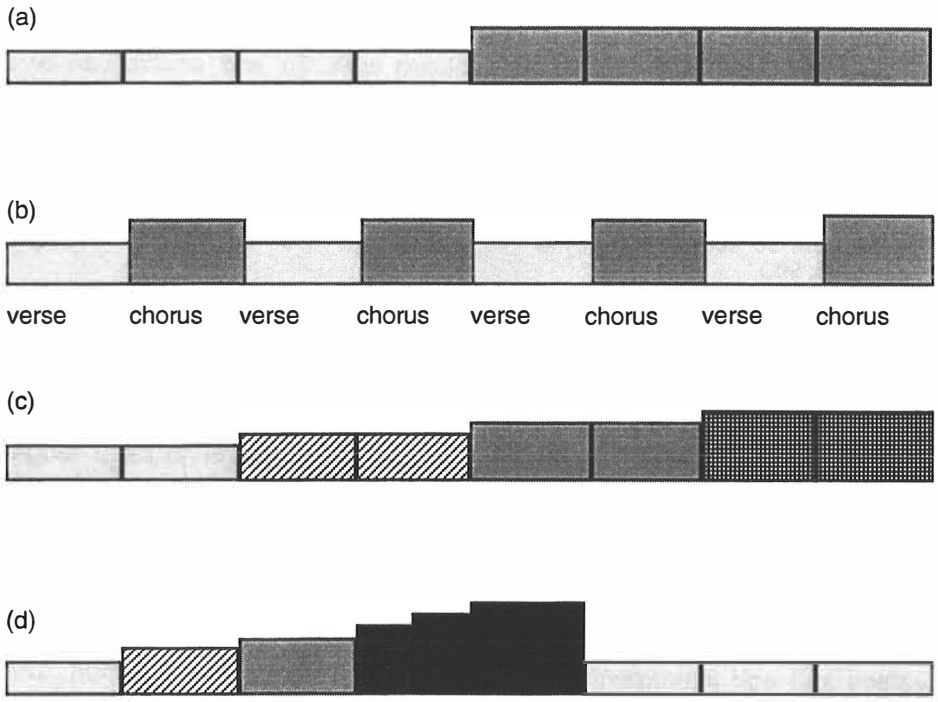

FIGURE 1. Common rules of thumb of creating variation in scoring. The rules a, c, and d are from Ingelf 1988.

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, Dowlding 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´

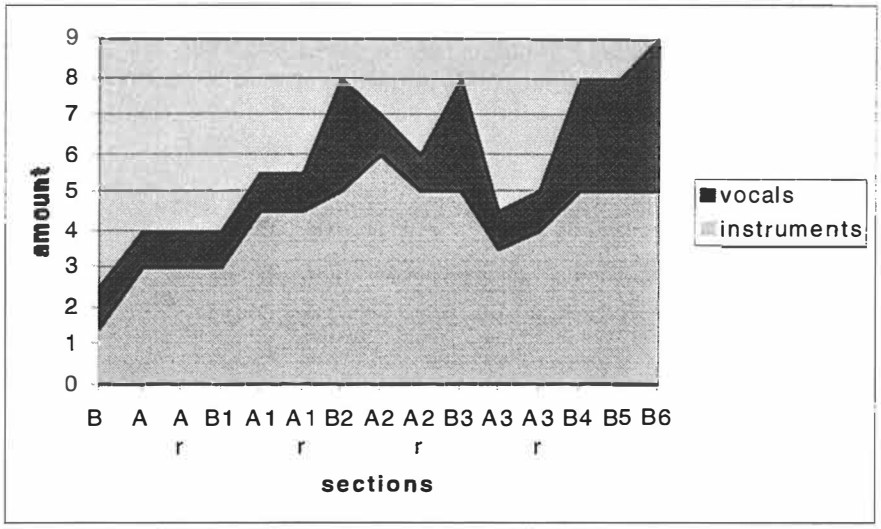

FIGURE 2. Changes in the amount of instrumental and vocal parts.

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 B2 as well as from A3 (rep) to B3 — 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.

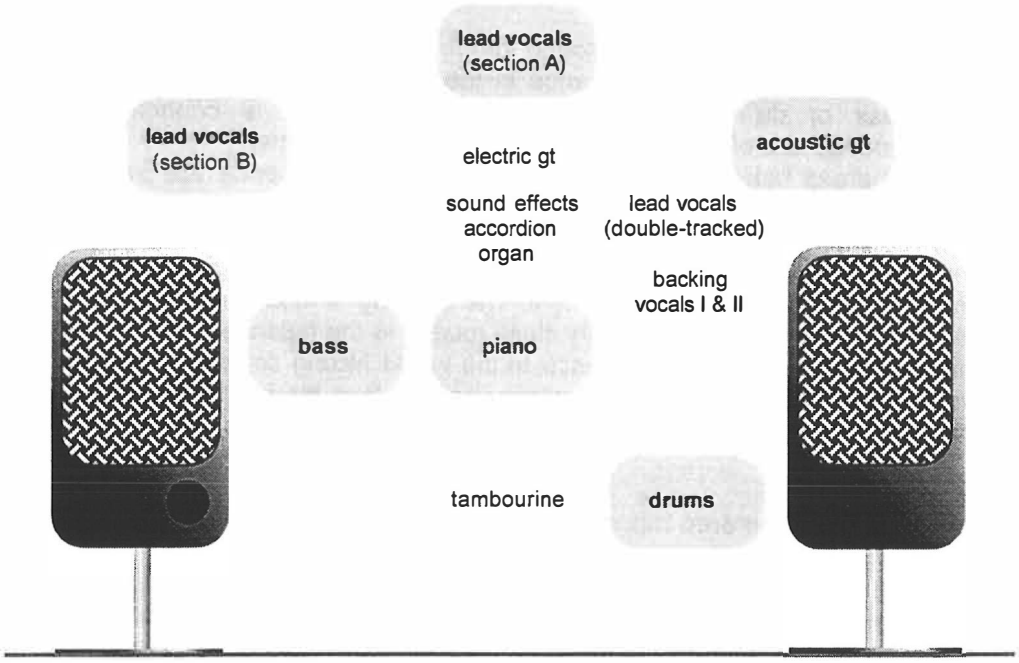

FIGURE 2. The overall plan of panning in 'Cry Baby Cry'.

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.

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

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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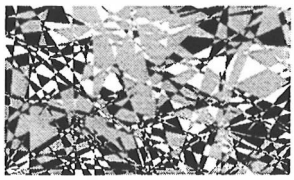

BEATLES 2000

Michelle, ma belle — SONGWRITING AS COPING WITH INNER CONFLICT

Yrjö Heinonen

Composing, songwriting and improvisation are, of course, widely used methods in music therapy. The aim of this paper is, however, to demonstrate that composing (including songwriting and improvisation) may be a part of coping with inner conflicts also in such cases where the main purpose of the composition process is not therapeutic but artistic. In this paper this assumption is explored by using the Lennon-McCartney ballad Michelle as a case. More detailed versions of certain parts of this study with complete references are reported in Heinonen 1992 and 1995a (in Finnish).

THEORETICAL FOUNDATIONS

It is common knowledge that Lennon and McCartney integrated musical material from various sources into a new and quite coherent style. Here it is

assumed further that McCartney (who was the main writer of 'Michelle') also integrated certain personal experiences into new configurations during the compositional process of 'Michelle'. The theoretical background of the study is based on Sigmund Freud's (1981) concept of creativity, Maynard Solomon's (1990) psycho-analytical view of biography, and Endel Tulving's (1983) theory of episodic memory. The core of this approach is beautifully formulated in Freud's "Creative Writing and Day-Dreaming" (first published in 1908):

> "A strong experience in the present awakens in the creative writer a memory of an earlier experience (usually belonging to his childhood) from which there now proceeds a wish which finds it fulfilment in the creative work. The work itself exhibits elements of the recent provoking occasion as well as of the old memory." (Freud 1981.)

Solomon's approach is explicitly based on Freud's thoughts. Tulving's theory is, in turn, based on experimental (cognitive) psychology. Nevertheless, as far as I can see, his findings give strong support to Freud's theory. An essential feature of Tulving's theory is, however, that later (interpolating) events change and modify the memory representation of the original event. The relation of personal life-experiences of a certain songwriter and a musical idea associated with these experiences is illustrated in Figure 1 (it is assumed here that the music heard in a certain occasion is an inseparable part of the experience of that occasion). The symbols M1, M2, ... , Mn in the Figure refer to the change in the memory representations of the original event, as a result of experiencing (partially) similar but not identical events. The term 'episodic structure' refers to a memory representation of a personally experienced event (episode).

Following Freud's, Solomon's and Tulving's ideas three events (impulses or situations) are distinguished as underlying the experiences behind the idea(s) of 'Michelle':

- *a remote event* — the death of McCartney's mother in October 1956;
- *a recent event* — the temporary break-up of McCartney and his girlfriend Jane Asher in autumn 1965; and
- *an immediate impulse* — the hurry to complete the *Rubber Soul* album in October 1965 in order to get it to the Christmas markets.

The aim of the study is to explore in which way these biographical facts are connected with each other, and how they are represented in 'Michelle'.

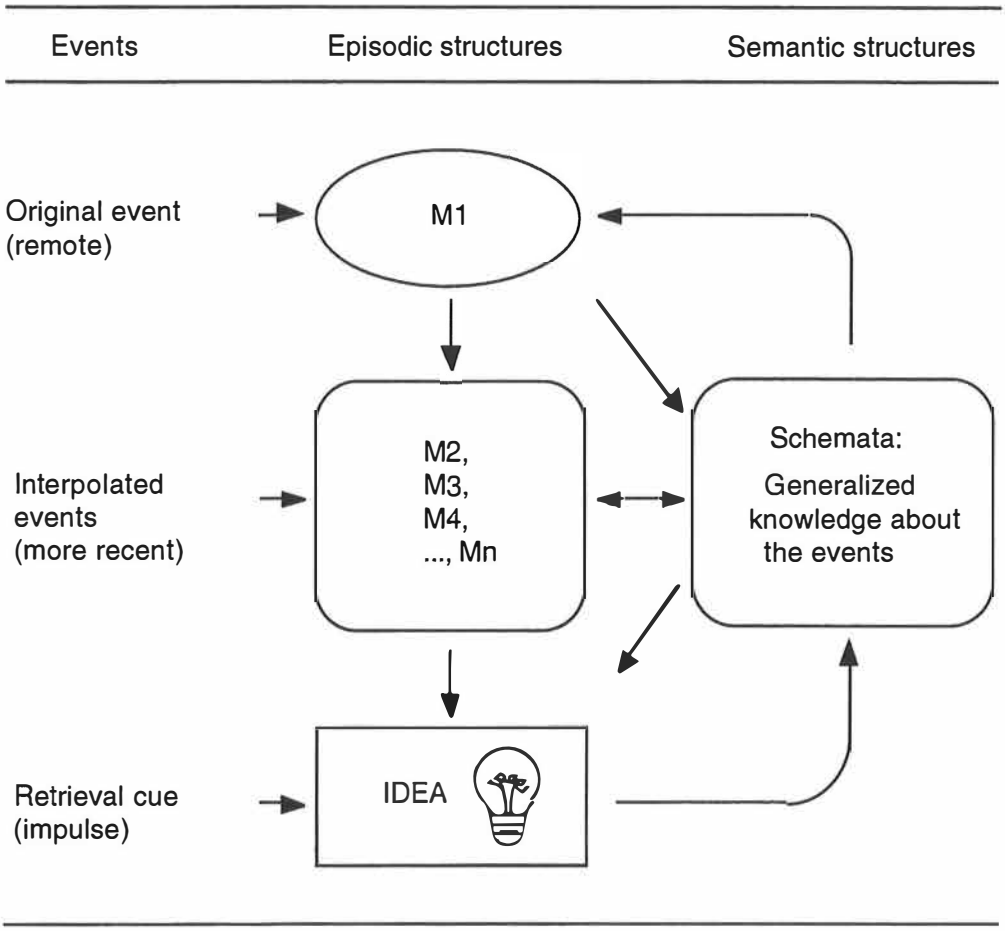

FIGURE 1. From experience to an idea (Heinonen 1995).

METHODOLOGICAL FOUNDATIONS AND PROCEDURE

Melodic invention (in general) is considered here as transformation and recombination — displacement and condensation in the psycho-analytical sense — of various kinds of fragments stored in long-term memory. In the case of autobiographical invention, a certain musical fragment is assumed to come into the composer's mind because the words of that musical phrase express what the composer is thinking or feeling at that moment (Theodor A. Reik; cited by Davis 1989). When a song is assumed to be (or known) to be autobiographical, it is possible to get a deeper insight to its autobiographical background by using the following procedure:

- divide the song into segments;
- search out and study the musical models of each segment and the song as a whole using structural similarities and biographical data as criteria;
- compare the lyrics of these models with the lyrics of the 'nostalgic' song in question and the life-situation of the writer of the song at the moment of writing it.

If the hypothesis stated above is correct, the lyrics of the model songs should reflect the emotional state of the writer of the song at the time of writing it.

In the first stage of the study 'Michelle' was divided into the following segments: the A section (bars 1-6 of the tune), the opening of the B section (bars 7-8 + 9-12 of the tune), and the closing of the B section (bars 13-16 of the tune). The structural features of the A and B sections may be summed up as follows: The tune of the A section is based at the background level on a descending linear progression in so called gypsy minor, interrupted on the 2nd degree (5 --- 4#-3-2 //). The corresponding harmony is based on the following chords: I --- vii7/V. At the foreground the melody proceeds by a descending sequence of a motif based on upward and downward fourths, harmonized by a chord progression based on the circle of fifths (I-iv7-VII). The opening of the B section (bars 7-8) of the melody is based on a 8-9-8 pattern, which is harmonized by a tonic minor chord. The B section is closed, again, by a descending linear progression 5 --- 4-3-2 //. However, here the fourth is natural — not sharp as in the case of the A section — and the 5th is repeated considerable many times. Also the chord progression (i --- VI7/V) at the background level is very similar to the tonal plan of the A section. At the foreground the chords are planned according a descending chromatic melody line from the tonic to the dominant, resulting the following chord progression: Fm, C+, Fm7, Fm6, Db, and C.

After the above-described analysis of 'Michelle' a sample of some 2500 popular compositions (consisting mainly of jazz, rock, and popular songs) from the 1920's to 1965 was surveyed in order to find to what degree the structural features described above could be found in the compositions of the sample. Finally standard biographies, interviews and descriptions of the recording sessions were surveyed in order to find any information concerning exact dates/years, contacts with assumed models, explicit statements about possible influences etc. If a certain song (1) shared significant structural similarities with 'Michelle' and (2) was evidently familiar to McCartney at the time of writing 'Michelle', it was also considered as a model of 'Michelle'. This criteria is based on Hermerén's (1975) study concerning influence in arts and literature (with respect to music see Platoff 1988 and Heinonen 1992). As a result nine songs — which all met the criteria just mentioned — were chosen as evident model songs of 'Michelle'. The names of these songs with some further information are given in Table 1 and the relevant structural features of the model songs are given in Table 2.

Section	Title of the song	Similarity between 'Michelle' and its model song
Section A	Summertime	5 ---------- 4 3 2 //
		i6---------- vii7/ V7 //
	All The Things You Are	3 6 2 5 1 4# 7# //
		i7 iv7 VII7 III7 VI7 V7 / V7 //
	Les Feuilles Mortes	123 6 7b12 5 671 4 567 3 //
		i7 iv7 VII7 III7 VI7 ii7 V7 i7 //
Section B (opening)	I Put A Spell On You	5-7b-8 (4 times)
		i ----------
	All I Have To Do Is Dream	6 (8) 7 (9) 6 (8) 5 (7) 4 (6) 3 (5)
Section B (closing)	Chim Chim Cher-ee	1 5 ---------- 4 ---------- 3 2 5 //
		8 7# 7b 6# 6b 5 4# 5 //
		i III5# i7 IV# iv i V7 / V7 //
	Long Tall Sally	3 ---------- 2 //
		I I I I //
	Samba De Uma Nota So	3 ---------- (3) //
		8 7# 7b 6# 8 7# 7b 6# //
		i7 #VII bvii #VI7 i7 #VII bvii #VI7 //
	A Taste Of Honey	1 5 8 6# 1 5 8 6# //
		8 7# 7b 6# 8 7# 7b 6# //
		i V i7 IV i V i7 IV //

Table 2. The appearance of certain structural features of 'Michelle' in its model songs.

Section	Title of the song	Implied Season	Implied mood	Tense	Theme(s)
Section A	Summertime	summer	happy happy	present future	care, love childhood wishes
	All The Things You Are	winter spring	empty, cold promised	present future	hope, idealization fulfillment of a dream, possessiveness
	Les Feuilles Mortes	summer autumn winter	paradise (lost) anxious empty, cold	past present future	memory of a loss, hopeless waiting
Section B (opening)	I Put A Spell On You	—	anxious	present future	being refused magical thinking
	All I Have To Do Is Dream	—	anxious happy (fake)	present future	being refused escaping into dreams
Section B (closing)	Chim Chim Cher-ee	—	cheerful	present	social differences
	Long Tall Sally	—	cheerful	present	unfaithfulness
	Samba De Una Nota So	—	empty humble balanced	past present future	return to the loved one (will come true)
	A Taste Of Honey	summer winter spring (?)	warm empty, cold warm (fake)	past present future	return to the loved one (never comes true)

Table 3. Thematic (temporal/emotional) implications in the lyrics of the models of 'Michelle'.

The following checking-list was used for the analysis of the nine model songs and their connections to McCartney's life:

- the *writing times* of the songs;
- *later currencies* of these songs;
- *temporal implications* in the lyrics of the songs;
- *formal or thematic similarities* between certain song and 'Michelle' concerning the lyrics.

The results were interpreted according to the following hypotheses: the more connections there can be found between different aspect of the checking-list, the more probably the lyrics of the song in question is assumed to reflect the emotional state of McCartney during the writing of 'Michelle'. At this point it is worth mentioning that McCartney wrote the A section of 'Michelle' during the Hamburg years (1960-62), probably in 1960 or 1961, and that the song was finished by Lennon an McCartney during the October and early November 1965 for the *Rubber Soul* album (which was recorded and released by the Beatles).

RESULTS

With respect to the writing times and temporal relevance of the models, it may be stated that the songs were current during the following four periods:

- 1935-55 — before the death of Mary McCartney ('Summertime', 'All The Things You Are', 'Les Feuilles Mortes', known in English as 'Autumn Leaves');
- 1956-58 — in the year of the death of Mary McCartney and immediately after it ('Long Tall Sally', 'I Put A Spell On You', 'All I Have To Do Is Dream');
- 1960-62 — during the Hamburg years and the time of writing of the A section of Michelle ('Samba De Uma Nota So', 'A Taste Of Honey'), and
- 1964-65 — immediately before the temporary break-up of McCartney and Asher and at the time when Michelle was finished ('Chim Chim Cher-ee').

It is worth mentioning that 'I Put A Spell On You' and 'A Taste Of Honey' were also current in 1965 — the year 'Michelle' was finished, recorded, and

released, and that 'Long Tall Sally' was current the whole time from 1956 through 1965.

The first of the four periods covers the time from (and even before) the birth of Paul McCartney to the advent of his adolescence. This period might be characterized as 'happy childhood'. The second period — the one associated with the death of McCartney's mother — and the third, the 'Hamburg period', cover together the time which might be characterized as 'anxious and lonely adolescence'. Finally, the fourth period represents in McCartney's life the dramatic shift from happiness into shock and loneliness, associated with his relationship and temporary break-up with Jane Asher. This period might be characterized as 'agonizing time of becoming an adult'. There are two obvious ways to interpret the fact that some model songs are current in two or more periods: (1) McCartney clings regressively to his childhood/adolescence, and (2) the break-up with Jane Asher re-activates the anxious emotions associated with the loss of his mother nine years before.

Other kinds of temporal connections between Michelle and some of its assumed models were found, too. Four of the model songs contain explicit references to the four seasons in such a way that certain season always symbolizes certain emotional state. Summer represents a paradise, which may be either present ('Summertime') or lost ('Les Feuilles Mortes'). Autumn, in tum, represents an anxious present ('Les Feuilles Mortes'). Winter refers to the near future — it is a long period of waiting for something to happen ('All The Things You Are', 'Les Feuilles Mortes', 'A Taste Of Honey'). Finally, Spring represents a "promised land', which is to be reached somewhere in a distant future ('All The Things You Are'). This is illustrated in Figure 2 (see also Table 3). It is worth remembering here that both the death of Mary McCartney and the temporary break-up with Jane Asher took place in autumn. It is obvious that to Paul McCartney the autumns 1956 and 1965 had, due to the two serious losses, quite similar emotional tuning. The same holds, of course, to the seasons immediately preceding and following these autumns. All this, it may be concluded, is — as Figure 2 illustrates — represented in Michelle through its model songs.

Many formal similarities were also found between the lyrics of 'Michelle' and its assumed model songs. In 'Summertime' there is the expession "but 'til that morning there is nothing to harm you", which can be formalized as "but 'til + a promise". In 'Michelle' there is the somewhat similar expression "until I find a way, I will say the only words I know that you'll understand", which, in turn can be formalized as "until + a promise". In 'Les Feuilles Mortes' the first phrase of the A section ends with the French word 'ensemble'. In 'Michelle' the second A section ends also with the French word 'ensemble'. The opening of the B section "I love you, I love you, I love you" is borrowed from Nina Simone's version of 'I Put A Spell On You' (this is confirmed by John Lennon). In 'All I Have To Do Is Dream' the successive verses are built according to the formula 'I want you/I need you/I love you'. The same holds with 'Michelle'. In 'Samba De Uma Nota So' the singer promises to "pour into one note all the love" he feels for his loved one.

Title of the song	Songwriters	Writing year	Influental recording artist(s)	Year of release	Played by the Beatles	
Summertime	Gershwin & Heyward	1935	Gene Vincent & the Blue Caps	1957	1958-61	
All The Things You Are	Kern & Hammerstein	1939	? (Mario Lanza)	1952	—	
Les Feuilles Mortes (Autumn Leaves)	Kosma & Prevent (Mercer) —	1947	? (Juliette Greco) ? (Nat King Cole)	1947	1956	
I Put A Spell On You	Hawkins	1956	Nina Simone	1965		*
All I Have To Do Is Dream	Bryant & Bryant	1958	The Everly Brothers	1958	1958-59	
Chim Chim Cher-ee	Sherman & Sherman	1964	Dick van Dyke & Julie Andrews	1964	—	*
Long Tall Sally	Johnson & Penniman & Blackwell	1956	Little Richard	1956	1957-65	*
Samba De Uma Nota So (One Note Samba)	Jobim & Mendonca	1960	Jõao Gilberto	1960	—	
A Taste Of Honey	Scott & Marlow	1960	Kenny Welch	1962	1962-63	*

TABLE 1.The models of 'Michelle'. The songs marked by and asterisk (*) were also current in 1965.

one. In 'Michelle' the singer very similarly promises to "say the only words" he knows that his loved one understands. Finally, in 'A Taste Of Honey' the singer promises to "come back for the honey and you", while in 'Michelle' the singer promises to "get to you somehow". In both cases the singer is longing to his loved one and promising to go to meet her again. It must be remembered that the model songs were chosen according to similarities concerning the music, not the lyrics. The fact that there are considerably many similarities also between the lyrics of 'Michelle' and its models gives strong support to the hypothesis that the music subconsciously conveys the content of the lyrics.

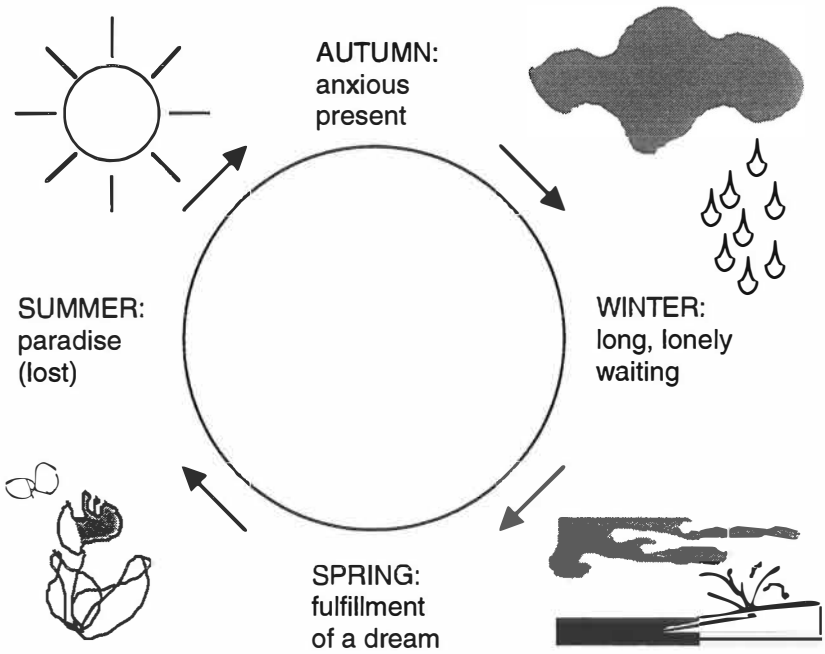

Figure 3. Emotional references to the four seasons in the model songs of 'Michelle'.

However, in many cases the meaning of the lyrics of a certain section of 'Michelle' was contradictory to the meaning of the lyrics of its assumed model songs (see Table 3). In these cases the music and the lyrics of 'Michelle' were considered to represent the manifest or conscious level of the singer while the music and the lyrics of the model songs were considered to represent the latent or subconscious level of the singer. In the first A section of 'Michelle' the singer sings that the words 'Michelle, ma belle' go together well. However — if the above hypothesis is correct — the subconscious model songs reveal that the togetherness is based on

childhood wishes ('Summertime'), idealization and possessiveness ('All The Things You Are'), and the fear of losing the loved one ('Les Feuilles Mortes'). The second A section repeats the words of the first one but now in French. This seems to emphasize the significance of the French model song ('Les Feuilles Mortes') and thus also the fear of loss. During the opening bars of the first B section, the singer intensively affirms his love. The subconscious model songs, however, speak about magic thinking ('I Put A Spell On You') and escape to dreams ('All I Have To Do Is Dream'). In the closing phrase the singer promises to "say the only words he knows that Michelle understands". Here this is assumed to represent an effort to cling to existing togetherness. However, the subconscious model songs represent a complex of contradictory emotions concerning social differences ('Chim Chim Cher'ee'), unfaithfulness ('Long Tall Sally'), and longing — back to the loved one ('Samba De Uma Nota So', 'A Taste Of Honey') and to childhood ('Summertime'). The rest of the song is based on alternation of the B and A sections, respectively. With regard to the B sections, the intensity of the affirmation becomes stronger from section to section as the singer realizes the contradiction between his conscious affirmation and the subconscious emotions representing the opposite. A guitar solo based on the A section shows the togetherness/separateness problem in a distorted or dream-like fashion. Every A and B section of the song ends with a cadence on V (which means that the home tonic is not reached, thus resulting in an unsatisfactory state). The coda offers a solution by ending on I, but the reprise of the guitar solo with its dreamlike quality speaks clearly for the final victory of regression.

SUMMARY AND CONCLUSIONS

The study was based on the Freudian concept of creativity, which states that in the creative process some recent event is mixed with some remote event (usually belonging to childhood), and that this fusion or condensation is somehow represented in the creative work.

The 'remote event' in the case studied here was the death of Mary McCartney. Obviously Paul McCartney associated some of the model songs with this event, partly because they were current at the time of the death of his mother, partly because their lyrics dealt with similar emotional experiences McCartney was living through at the time. Then there were some interpolated events — for example, being abroad (in Hamburg) and feeling home-sickness. Some of the model songs ('Samba De Uma Nota So' and 'A Taste Of Honey') were associated with these events (also 'Summertime' and 'Long Tall Sally' were current at this time). Finally there was the (temporary) break-up with Jane Asher, which was considered as the 'recent event'. Some model songs were associated with this event, again because they were current at the time and because their lyrics dealt with

relevant experiences. These songs were 'I Put A Spell On You', 'Chim Chim Cher-ee', 'Long Tall Sally', and 'A Taste Of Honey'. Obviously the break-up re-activated the traumatic experiences associated with the loss of his mother nine years before. It is noticeable that most of the model songs current at the time of the break-up were also current at the time of the death of Mary McCartney ('I Put A Spell On You', 'Long Tall Sally'), or during the Hamburg days ('A Taste Of Honey', 'Long Tall Sally').

It seems, then, that the writing process of 'Michelle' is a beautiful example of a creative process where it is possible to distinguish a remote event (the death of McCartney's mother), a recent event (the temporary break-up with Jane Asher), and an immediate impulse (the hurry to complete the Rubber Soul album for the Christmas markets). In other words, it seems safe to say that in the case of 'Michelle' the "work itself exhibits elements of the recent provoking occasion as well as of the old memory" in the Freudian manner described in the beginning of this paper. It also seems that there were some interpolated events — especially during the Hamburg days (1960-62) — which were, again, represented in 'Michelle' through its model songs. This, in turn, is consistent with Tulving's theory of episodic memory.

Further, it may be stated that strong support was found for the hypothesis that the lyrics of the model songs represent the latent or subconscious thoughts or feelings of the songwriter at the time of writing an autobiographical song. In this sense it may also be assumed that McCartney dealt with delicate and anxious personal experiences when writing 'Michelle'. It is not claimed that the counterpart of the singer in 'Michelle' was really McCartney, and the counterpart of 'Michelle' was really Jane Asher. However, it is concluded that 'Michelle' was, in fact, based on personal living-through of emotional experiences similar to those conveyed through its music and lyrics (including the connotations with its model songs).

As a conclusion it is stated that music can convey extramusical experiences and that in this sense songwriting may — at least in certain circumstances — also be a part of coping with inner conflicts. As an implication of the study it may also be assumed that the procedure used here might be a useful tool for therapists for example when analysing the musical products (compositions, songs, improvisations) of their clients.

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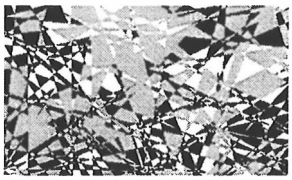


BEATLES 2000

"BLACK AND WHITE" MUSIC: Dialogue, Dysphoric Coding and the Death Drive in the Music of Bernard Herrmann, The Beatles, Stevie Wonder and Coolio

John Richardson

This paper came to be written as a result of a chance comment made by a colleague in a coffee room discussion between classes. The colleague[1], who is a Beatles scholar, had read that Beatles producer George Martin had been influenced by the film music composer Bernard Herrmann when writing the string arrangement to the song 'Eleanor Rigby'. Since I was teaching a course on film music at the time, he asked my opinion.

Initially the association seemed an unlikely one; Herrmann's music is known above all for its ability to impart to the cimematographic imagery of Alfred Hitchcock a degree of suspense and psychological engagement that the visual images alone are unable to sustain. As Herrmann himself has put it, Hitchcock "only finishes a picture 60 percent. I have to finish for him." (Herrmann quoted in Brown 1994, 290.) Notwithstanding the narcissism of this comment, I and my students found it to be surprisingly true when

[1] The colleague is Yrjö Heinonen, an editor of and contributor to this volume.

examining excerpts of this director's films with and without the accompanying music. But what of 'Eleanor Rigby'? The musical ethos of the Beatles seemed, on first consideration, far removed from that of Herrmann in the classic Hitchcock collaborations; films such as *Vertigo*, *North by North West*, and *Psycho*. A closer examination, however, revealed that there were some startling isomorphisms between 'Eleanor Rigby' and the films that had apparently influenced it, as well as between this song and another song, Stevie Wonder's 'Pastime Paradise', which, apparently, had been influenced by the Beatles' song.

The chain of influence did not end there, however. Wonder's 'Pastime Paradise' itself became an object of exchange when appropriated by the rap artist Coolio in his "cover version" of the song, the title of which was now 'Gangsta's Paradise' - noteworthy, aside from its intrinsic qualities, because of its use in the recent film *Dangerous Minds*. This long chain of influence is, of course, interesting in itself; more interesting, though, were certain consistencies in terms of affect and cultural connotations, which a closer examination of each one of these pieces of music revealed. This article, then, is concerned with elucidating further this particular chain of ideas, with understanding what is going on here in musical, semiotic, psychological and cultural terms, and with addressing the more general issue of how ideas propagated in this genre interact with - i.e., shape and are shaped by - our larger musical, personal and cultural consciousness.

ELEMENTS OF BERNARD HERRMANN'S STYLE

Since the whole hypothesis of this paper rests on the idea of the influence of the music of Bernard Herrmann on George Martin, this is where I shall begin my discussion. The following statement of Martin's gives us the premise of this paper directly from the horses mouth:

> "I was very much inspired by Bernard Herrmann, in particular a score he did for the Truffaut film *Fahrenheit 451*. That really impressed me, especially the strident string writing. When Paul told me he wanted the strings in 'Eleanor Rigby' to be doing a rhythm it was Herrmann's score which was of particular influence." (Martin quoted in Lewisohn 1988, 77.)

Rather than relying solely on this statement, however, it may be useful to delve a little deeper and examine independently, as it were, specific aspects of Herrmann's style that seem relevant to Martin's use of strings in 'Eleanor Rigby'. The following list of features is gleaned from the writing of two of the leading authorities on Herrmann's music (Bruce 1985, 35-137; Brown 1994, 148-174), as well as from my own experiences of the music:

Use of small "melodic" / rhythmic cells

Herrmann's approach ran counter to the predominant Hollywood tradition of film music scoring - as epitomised by the music of composers such as Erich Korngold and Max Steiner - in several significant respects, of which this is one of the most noteworthy. Herrmann deemed melody to be an inappropriate form of expression in film music; we "listen with only half an ear" (Brown 1994, 291), as the composer himself has put it. The presence of a melody that conforms to a preordained 8- or 16-bar rhythmic pattern can distract attention away from the tempo, the psychological mood and the broader affective ethos of the action on the screen, as well as constraining the composer as regards the manipulation of formal musical material. As minimalists would discover in their own compositions some years later, the generative potential of small "melodic"/rhythmic cells, or motifs, is almost unlimited, in contrast to longer melodic lines, which are considerably less flexible. This could be one of the reasons for the success both of Herrmann's music and that of (post)minimalists, such as Philip Glass[2], in the domain of film music. As regards 'Eleanor Rigby', the absence of melody in the string accompaniment is perhaps the most important factor.

Importance of tone colour

Contrary to Hollywood practices, Herrmann insisted on orchestrating his own music. An obvious implication of this is that the composer himself had the freedom to choose whatever instruments best conveyed the mood of the specific film. For Herrmann this sometimes resulted in unconventional and/or eccentric choices of instrumentation; a prime example of this is the film *Psycho*, in which the only instruments employed are strings, resulting in a quite distinctive sound. 'Eleanor Rigby' is, it should be noted, arranged solely for strings and vocals.

Polytonality

Despite his interest in contemporary music (the influence of composers like Stravinsky, Prokofiev, and Bartók is clearly perceptible, for example), Herrmann retained throughout his career a fundamentally communicative tonal style; but this is a tonality that often seems to be turned against itself. An example of this is the uncomfortable effect produced when two or more distinct key centres are heard simultaneously. Examples of polytonality such as this can be found in *Vertigo*, in the scenes when the male protagonist,

[2] In my recent study on Philip Glass, I have written further on parallels between the musical styles of Glass and Herrmann: these include "a penchant for parallel voice-leading, the extensive use of small, repetitive, rhythmic cells, and a distinctly unromantic approach to tonality" (Richardson 1998, 269). Moreover, I consider it likely that Herrmann may have had some direct influence on Glass's approach, particular in the context of film music.

Scottie, suffers from attacks of vertigo; also the final chord of *Psycho* is a pungent A-flat minor/ D major triadic compound chord. There is obviously no polytonality in 'Eleanor Rigby', but, as we shall see, some notion of poly- or *anti*-tonality can be identified in Coolio's vocals in 'Gangsta's Paradise'.

Repetitive devices

Repetition can be understood in many different ways - the very idea of tonality is dependent on the presence of repeated pitches - so to say that a piece of music is repetitive doesn't tell us very much. Qualitative distinctions in the specific affective content of repetitive music are clearly necessary. I have found a tripartite distinction useful in accounting for the different kinds of repetition I have encountered in various kinds of music. It is possible, however, that further, more specific distinctions would be helpful in accounting for the affects produced in other kinds of music, and that certain kinds of music fall outside of the scope of this model. This model is, it should be emphasised, culturally and historically specific. Furthermore, these should not be viewed as exclusive categories: in the music of Philip Glass, for example, all three of the following categories seem to play a part, as is the case apropos of the music we are discussing here.

Repetition as a means of creating suspense

This mode of repetition relates to the ideas of Leonard B. Meyer (see, e.g., Meyer 1956, 29-30), and other such theorists. The cumulative effect of repetition creates tension, the desire for change, resolution. Conventional tonal practice tells us that repetition can only go on so long before coming to an end; we expect or desire it to end. In Herrmann's music resolution is postponed or denied altogether; musical repetition can be sustained for extremely long periods of time, but infused with dysphoric markers as it invariably is, in the Hitchcock films, for example, little sense of acceptance, fulfilment or comfort with respect to the repetitive modality is permitted to seduce (or offer sanctuary to) the listener.

Some theorists have related repetition in music to the Freudian "death drive"[3]; in order break free from the influence of the regressive death drive we must, according to Freud, obey the teleological - forward striving, developmental, end-orientated - imperative which is the "reality principle" (see Freud 1961, 9-11). (Just *how* real the so called reality principle is has been aptly contested by much of the post-Lacanian psychoanalytical theory, which argues that what Lacan, after Freud, calls "the real" is a psychological

[3] Discussions of minimalist and postminimalist music - also referred to as *musique répétitive* - are the most noteworthy and relevant examples of this kind of research. Wim Mertens (1983, 122-124) was one of the first critics to relate repetition in minimalism to the Freudian death drive. Other noteworthy examples include articles by David Schwarz (1993) and Naomi Cumming (1997). Elucidating this relation is one of the central concerns in my work on the music of Philip Glass (see Richardson 1998).

construction like any other subjective category.) Music that conforms to the reality principle is, as one might expect, constantly and single-mindedly striving towards a goal, towards growth and development. It is music that is never "happy" in the present moment.

The Freudian view is useful for understanding how repetition in music can become dysphorically marked; in other words how it could be used to create a tense or oppressive atmosphere. Repetition as is a means of creating suspense, of invoking the Freudian death drive, is probably the most salient of these categories to the present discussion, particularly when it is combined with other musical elements such as the use of chromaticism and unresolved dissonances, both of which accentuate the dysphoric coding which is already present in the repetitive aspect of the music. Without the use of these additional markers, the music might equally well be interpreted from one of the following standpoints.

Repetition as groove

This much overlooked and under-theorised mode of repetition is beginning to gain a foothold in studies that pay adequate attention to the subjective aspects of musical experience. Susan McClary and Robert Walser's important article "Start Making Sense: Musicology Wrestles With Rock" (1990) set the agenda for studies of this type. At the heart of their work is the assumption that a repetitive beat or groove in pop music - and, indeed, any other form of music - can be experienced as extremely pleasurable. This category seeks to explain the physical, sensual side of musical experience. When we hear certain kinds of music we experience a tangible desire to move in time with the beat; and, moreover, by engaging with the rhythm, the groove, we feel subjectively as though we are gaining access to some primal, even *essential*, state of being whose reverberations seem to extend far back into our childhood and perhaps beyond.

Looked at from the theoretical standpoint, recent approaches in psychoanalysis and semiotics have questioned the orthodox Freudian view of repetition - but maintain, like Freud, that the use of repetition invokes an earlier stage in human development; a regression, if you like. This kind of regression could equally be termed a *pro*-gression, however, given that the negation of the ego-bound mode of experience that is the reality principle - the abnegation of the self by means of immersion in the non-personal Freudian *id* - can result in a kind of emancipation for the listening subject who may well experience this renunciation of egohood as the shedding of a worn out layer of skin. (Pursuing a post-Jungian interpretation, regression like this could, in addition to its destructive aspect, be viewed as a necessary stage in what Freud calls the individuation process.)

Freud's death drive plays an important part in much of the new psychoanalytical theory. In the theories of Jacques Lacan (e.g., 1977) and Julia Kristeva (e.g., 1986), for example, the so-called "imaginary" is governed over by the pulsional, repetitive modality of the death drive. The "imaginary" is a kind of subjective reconstruction of the experiences we

might have had in our mother's womb, and of the non-discursive modes of understanding we encounter in early infancy, prior to our initiation into what Lacan calls the symbolic sphere. Some feminists theorist, such as Hélène Cixous, Luce Irigaray and Kristeva, as well as theorists influenced by the feminist literature, have understood this subjective connection with the mother as a positive thing. Even though it is only imaginary (in other words, a reconstruction), they argue, it offers an alternative to the predominant phallic tendency in Western civilisation; the tendency towards egohood and away from the mother. Through this primordial experience of non-differentiated subjectivity, it is claimed, we might be able to understand the world in a more intuitive, more visceral, less law-governed way; a way that is, for example, far closer to the instinctive modes of being that some theorists claim are characteristic of female experience than life under the phallic imperative of the reality principle.

Not all theorists are entirely uncritical, however, as regards their endorsement of the Lacanian imaginary. In the writing of Kristeva (1986)[4], for example, the so-called semiotic modality allows for repetition both as euphorically and as dysphorically marked. The semiotic *chora* (a womb-like construct named after Plato's concept) is, for the subject involved in the regressive state, a site of rejuvenation - a pleasant, womb-like, nurturing environment - but also a potentially hazardous domain, in which complete annihilation of the subject is an ever-present possibility. This more ambivalent point of view regarding the death drive is extremely useful, I would contend, when discussing the Hitchcock/Herrmann collaborations. In the film *Vertigo*, for example, the music attempts to convey both fear and fascination of danger/death (the male protagonist Scottie's fear of heights and his contradictory desire to fall/die as well as his corresponding fascination with/fear of his female opposite number). In *Psycho*, as well, the dysphoric repetitive modality, as manifested in the "car" music we shall shortly be discussing, represents both the female protagonist's anxiety because of her alienation from society and the liberation experienced by her in stepping outside the frame that Lacan calls the symbolic. (That she must be made to pay for this transgression is another matter, which I shall turn to in a moment.)

Repetition as a distancing technique

In addition to the above affective modalities, a third mode of repetition can be identified: repetitive music can be used to draw attention to the constructedness of the musical discourse itself. This modality is closely, although not necessarily, related to Marxist thought, and to the idea that repetitive processes of labour result in the alienation of the work force from the products they are employed to make and from society in general. The most sophisticated formulations on this subject are those of Bertolt Brecht

[4] For a perceptive summary and critique of Kristeva's view from the standpoint of current feminist film theory see Silverman (1988, 101-140).

(e.g., 1964) and Walter Benjamin (e.g., 1968). According to this school of thought, technological means of reproduction can in a sense be turned against themselves. When engaging with works of art that employ Brechtian alienation (or distancing) effects audience members can be made more aware of the apparently irreconcilable rift between production and consumption in modern society; and, further, by becoming more aware of this rift they are liberated to adopt their own individual subject position vis-à-vis the work. Thus, for Benjamin, the absence of the conventional aura of authenticity from the work of art activates formerly passive consumers, turning them into "critics" and ultimately into producers of their own works of art. Benjamin (1968, 228-229) has argued that this kind of representation is, in fact, endemic to the cinematic art form.

Others critics (e.g., Adorno and Eisler 1994, 62-88; Gorbman 1987, 65-69; Flinn 1992, 3-8), however, claim that the tradition of verisimilitude which has predominated in the cinema only serves to cloud the issues surrounding the ontological and human origins of works of art. Be that as it may, certain critics (e.g., Brown 1994, 29)[5] contend that the Hitchcock/Herrmann collaborations are a specific instance of music/cinema in which the rhetorical means of expression are foregrounded to such a degree that identification in the classical sense becomes virtually impossible; some degree of distancing invariably occurs. Some examples of such foregrounding are, in the case of Hitchcock, the conspicuous use of montage technique (in the famous shower scene in *Psycho* for example) as well as other special effects (the equally famous zoom-in/pan-out effect used in the scenes of *Vertigo* when Scottie suffers from attacks of vertigo); and in the case of Herrmann, the techniques we are discussing. Thus, for Brown, repetition as a distancing strategy may be a significant aspect of Herrmann's style. While I to some extent agree with this inference, repetition as a distancing strategy is not the main focus of the present discussion. I have, however, found this view of repetition extremely useful in my discussions of other forms of repetitive music, such as that of Suzanne Vega and Philip Glass (see Richardson 1995; and 1998, 90-130). It could, moreover, prove useful in accounting for other overtly and intentionally mechanical or "dehumanised" forms of musical discourse, such as contemporary dance music like techno.

Chromaticism

As I have suggested earlier, repetition in itself seldom suffices as a means of encoding the music in dysphoric terms. In order to remove ambiguity in this respect, other means must be employed. In Herrmann's music, repetitive musical phrases are often "spiked" with highly dissonant passing tones. This approach is sometimes redolent of romantic music; indeed, a direct quote from Wagner's *Tristan und Isolde* can be found in one of the central love

[5] Brown (1994, 29) writes, in reference to *Psycho*, "both Hitchcock's and Herrmann's styles are so strong in their own right that they encourage a deconstructive reading of the film".

scenes of *Vertigo* (see Bruce 1985, 126-27). Usually, however, Herrmann's unromantic approach to other musical parameters is sufficient to impart to the music an unmistakably modern sound. Herrmann's extensive use of repeated melodic/rhythmic figures, or ostinatos, as a means of creating suspense is perhaps his most significant trademark. Examples of this are the main themes of the films *Cape Fear* (1961) and *Taxi Driver* (1975) (neither of them, coincidentally, directed by Hitchcock). Such figures produce tension in the music because of the dissonant intervals they pass through, which often clash violently with the underlying chordal sonorities. When they occur in long scenes in which there is no dialogue, such as the car sequences in both *Vertigo* (1958) and *Psycho* (1960), ostinato patterns such as this can be particularly effective.

Unresolved dissonances

A further significant use of dissonance is the extensive use of unresolved dissonances in chords; one of the most noteworthy of these is the highly ambiguous minor major-seventh chord, which Herrmann's uses extensively without feeling obliged to ensure that it resolves in the manner that common language tonality dictates. (Brown [1994, 153 and 160] refers to this as the "Hitchcock chord".) Examples of this can be found in the opening phrases of both *Vertigo* and *Psycho*. Which brings us to the final category.

Combined strategies

As we have seen, the isolated use of any one of these categories is insufficient to encode the music unequivocally in the desired manner. As regards repetition and the death drive, which are our primary concerns here, the combination of categories i, ii, iv, v and vi is the means by which the music become dysphorically marked in much of the music we shall be discussing.

HERRMANN-EUTICS AND THE BEATLES

The death drive of Marion Crane

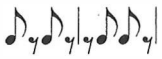
We have seen already how George Martin professed to being greatly influenced by Bernard Herrmann when writing the string arrangement to 'Eleanor Rigby'. Herrmann's approach to writing for the string instruments was distinctive throughout his career; the use of strong, staccato-like rhythmic accents, frugal use of vibrato technique, and "heavy-handed" bowing can all be distinguished in a number of Herrmann scores. Already in

his early film scores such as the Alfred Newman collaboration *The Egyptian* (1954), based on Mika Waltari's epic novel, Herrmann's distinctive string writing technique is clearly recognisable. The scene where the protagonist, Sinuhe, attempts to murder Nefernefer, for example, is highly evocative of the certain parts of the *Psycho* score. Similar writing can also be found in the film mentioned by Martin in the interview cited earlier, Truffaut's *Fahrenheit 451* (1966). This kind of writing is most prominent, however, in what is unquestionably Herrmann's best known film score, *Psycho*. Orchestrated for strings alone, the score to *Psycho* is characterised by one of the most distinctive and widely imitated sounds in the history of film music.

What, though, was the rationale for discarding all of the other sections of the orchestra? In order to fully understand the use of strings in *Psycho*, we must first take a hermeneutic diversion by way of Hitchcock's cinematographic practices. Hitchcock, it should be noted, had already worked with colour on several occasions before directing *Psycho* - in the films *Vertigo* and *North by Northwest* (1959), for example. Indeed, this was fast becoming the *only* way quality films were made in Hollywood. Hitchcock's decision to work in black and white was, therefore, a deliberate step backwards in time - a regression, to employ the Freudian term. Herrmann felt that this unprecedented move in cinematographic practice would have to be paralleled in some way in the music: "Once Hitchcock made his decision to shoot *Psycho* in black-and-white I knew that musically I had to counter-reinforce his decision, and I decided to use only string instruments throughout the movie" (Herrmann quoted in Bruce 1982, 183). In an earlier interview he put it in more poetic terms, stating that by limiting his orchestral palette to this instrument group he was "able to complement the black and white photography of the film with a black and white sound" (ibid.).

In order to shed further light on the dramatic/affective motivation behind Herrmann's "black and white sound", it is helpful to look at two specific contexts in which the music is found in the film. (The musical cues in question, as we shall see, bear also on our discussion of 'Eleanor Rigby'.)

Sforzando



Bb minor major-seventh

Example 1. Psycho: Opening Bars of Prelude

The first cue comprises four aggressively played B-flat minor major-seventh "Hitchcock" chords followed by a long, chromatic ostinato sequence. The music is played at frenetic pace (*allegro molto agitato*) and employs virtually all of the techniques discussed above to encode the music in strongly dysphoric terms. The dissonant opening chords are never satisfactorily resolved; moreover, the entire music of this section abounds with similar

unresolved sevenths and ninths. In addition, an agitated semitone motive (initially: C sharp - D - C sharp - D) adds an undercurrent of anxiety to this already angst-sodden piece of music. This music forms the foundation for the Prelude to the film. Most interesting, however, in terms of the present discussion, is the context in which it is found in the film proper.

The key action of the scene in question occurs when Marion Crane, the female protagonist, drops out from society, motivated on the one hand by her involvement in an exploitative and unfulfilling love affair, and on the other by an episode which occurs at the estate agents where she works as a secretary. A client of the firm upsets Marion with his arrogant and intimidating behaviour, after which he insists on paying for the property he has purchased in cash, making it necessary for her go to the bank to deposit the money. Marion complains to her boss of feeling unwell, after which she is allowed to go home early for the weekend. She tells her boss that she will deposit the money on the way home, which, as it turns out, she decides not to do. The cue begins - with the thrusting, staccato chords, followed by the driving ostinato pattern - as Marion is spotted leaving town with the money. Marion, who has stopped at traffic lights, exchanges smiles with her boss, who is crossing the road; a moment later he looks back, this time with a quizzical, suspicious look on his face. The cue begins at precisely this point and continues as the lights change and Marion drives away. It is at this point in the film that her ties with society become irrevocably severed.

Thus begins the drive that will take Marion Crane to Norman Bates's motel, where she will eventually be murdered. This is, quite literally, her death drive. More than that, though, it represents her alienation from society; a form of alienation that is moreover, tinged with fear and anxiety. The choice of Herrmann's black and white music as a means of representing Marion Crane's psychological point of view at this point in the film is clearly not an arbitrary one; the world in which she lives has from the opening scene of the film been lacklustre, estranged, monochromatic; paradoxically, it becomes even more so the more she struggles to break free, to infuse her life with colour.

Strings in film music are, it should be stressed, conventionally a sign of emotionalism, subjectivity *per se*; they are the romantic signifier *par excellence*, often becoming directly associated with romantic leading ladies (Gorbman 1987, 79-80). Here we see an uncanny inversion of the prevailing musical conventions; Herrmann employs cold and harsh tonal colours combined with violently insistent rhythmic phrasing and aggressive bowing techniques to transform the euphoric textures of romanticism into the harsh, dark and fearful other world of modernism. This music tells us in no uncertain terms that Marion Crane is driving away from her job and her life (in more senses than one).

The second cue of relevance is the music that is heard in the famous shower scene, and on two other occasions in the film when the detective searching for Marion is killed and, towards its end, when Bates unsuccessfully attempts to murder Marion's sister. This music is characterised by extremely harsh staccato bowing (relentlessly accenting

the downbeat), by the interval of a major seventh (from E to E flat; the minor second interval heard in the above cue, in inverted form), and by abrasively rising glissandi each of which culminates on one of the notes comprising the dissonant interval. In terms of affect, this passage has been described as imitative of bird cries. Birds are an important theme in the film, since the murderer, Bates, is an amateur taxidermist whose favourite subjects are birds. The bird analogy is taken further still in Marion Crane's name itself; the name of the character is also that of a bird, which lends an eerie sense of the inevitable to her murder - she was, or so it appears, created (either by Hitchcock or Fate) to be murdered (see Bruce 1985, 189). Other connotations include that of Marion Crane's screams as she is murdered, which in fact are muted by the extremely loud music heard in these passages; the forceful rhythmic phrasing combined with the slicing glissando figuration, moreover, provide a direct analogy to the stabbing motion itself.

The fact that both the music and the visual imagery of the shower scene are deeply disturbing, and that the whole film, on one level of interpretation, reinforces pervasive cultural myths regarding women and what happens to them the moment they decide to take control of their own destinies, is an aspect of discussions surrounding this film that should definitely not be disregarded. Brown (1994, 29) has argued, to some extent convincingly, that these more concrete layers of cultural meaning may be superseded by the disruptive natures of Hitchcock's and Herrmann's respective artistic idioms, both of which challenge, each in their own way, musical and cinematographic corollaries of the hegemonic cultural stereotypes Marion is attempting to flee. This, however, can only be partially true. *Psycho* clearly has a story; and its subversion through musico- and cinemato-rhetorical means can only be a part of the message that the film in its entirety is conveying to audiences. (I will dwell on this point no longer, but it did need to be made.)

The death drive of Eleanor Rigby (alias Bygraves[6])

When George Martin arranged 'Eleanor Rigby' for strings, there weren't a great many models to choose from of how strings could be used in the repetitive context of popular music. Herrmann's use of strings offered a clear alternative to the more stereotyped, romantic uses that had previously prevailed both in film and popular music; it was, moreover, a usage that, because of films like *Psycho,* was fast becoming a part of the musical vernacular of the general public.

There was, it is important to note, a clear textual/affective rationale for the choice of dysphoric as opposed to euphoric coding in this specific song. 'Eleanor Rigby' is a song about "lonely people"; people cut off from the

[6] One of the working titles for 'Eleanor Rigby' was 'Eleanor Bygraves' (Heinonen 1998). Note the etymology of the word: By-graves.

world, unable to connect. Furthermore, it is a song that invokes a dystopic present which seems unable to uproot itself from the past (the very use of strings is an obvious reference to past musical practices, for example). The regressive, backward-looking affective ethos of the song brings to mind also the division between the industrial north of England in the post-war era (when McCartney was growing up) and the more prosperous and tantalisingly elusive, for those who did not grow up there, South. There is, indeed, a very tangible sense in which 'Eleanor Rigby' can be seen as of a portrait of life in the grim and gloomy North, both nostalgic and dystopic; nostalgic because McCartney was now living in the South and evidently missed some aspects of his childhood experiences; dystopic because his memories appear not to have been altogether pleasant ones. In addition to these layers of meaning it has been suggested that the song is a deeply personal one for McCartney, whose relationship with Jane Asher had just broken up, and who may still have been troubled by the death of his mother (Heinonen 1998). A final perhaps not insignificant layer of meaning is the growing isolation of the Beatles themselves from the world around them; as Beatlemania took an ever stronger hold over the collective imagination of the public, McCartney and the other member of the group were, on the evidence of their statements at the time and subsequently, experiencing a growing sense of personal alienation.

As regards the text of the song, a number of clear isomorphisms can be identified between 'Eleanor Rigby' and *Psycho* both on the level of their larger dramatic trajectories and on the more concrete level of specific images that are common to both. The most striking image that is common to both is that of an elderly woman sitting alone at her window (Heinonen 1998). In *Psycho* the woman in question is the deceased Mrs Bates; in the second verse of 'Eleanor Rigby' it is Rigby herself. On the level of dramatic trajectory, and unquestionably also that of cultural myth (in the manner referred to by Barthes 1972), the common feature is the inexorable downward spiral of both of the female protagonists: from youth, through disillusionment and dysphoria, towards death.

Significantly, the verse of 'Eleanor Rigby' that contains the most overt references towards death is that in which the influence of Herrmann's string writing is at its most pronounced. In the second half of the third verse, as McCartney sings "Father Mackenzie, wiping the dirt from his hands as he walks from the grave" we hear vigorous staccato bowing very similar to that in the murder scenes of *Psycho*. In the chorus ("All the lonely people, where do they all come from"), moreover, a chromatically descending ostinato (D - D flat - C - B), played as a countermelody in the violas, is very similar to the dysphorically coded ostinato patterns which characterise numerous Herrmann scores; the resemblance of this pattern to a repeated semitone motif from the "car" cue in *Psycho* is, for example, noteworthy. Ascending and descending chromatic lines, articulated in mirrored contrary motion, are more prominent still in another scene from *Psycho*; in which Marion's searching sister, Lila, ascends a hill towards the Bates house (see Bruce 1985, 208-9; and Brown 1994, 168-69). In the case of Eleanor Rigby the

twice-repeated ostinato pattern becomes a microcosm of the narrative of the song; the descending chromatic lines mirror the irrevocable descent of Rigby herself at the same time as they invoke the death drive.

The harsh affect produced in the strings was reinforced in the techniques employed when recording the song. Geoff Emerick, the chief recording engineer working with the Beatles at the time, notes: "On 'Eleanor Rigby' we miked very, very close to the strings, almost touching them. No one had really done that before; the musicians were in horror." (Emerick quoted in Lewisohn 1988, 77.)[7] Horror was evidently the intended effect. The recording techniques employed in *Psycho* are unknown to the present writer, but, on the basis of the very similar sounds produced in the two recordings, it would come as no surprise if the techniques described by Emerick were not *entirely* without precedent.

Confirmation of the influence we have been discussing would appear to be given by another, more recent McCartney/Martin collaboration. A string arrangement of 'Eleanor Rigby' is used as one of the main non-diegetic themes in Paul McCartney's film *Give My Regards to Broad Street.* Interestingly, one of the other themes with which it interweaves during a key scene in the film, depicting a murder, is a direct quotation from the *Psycho* shower scene.

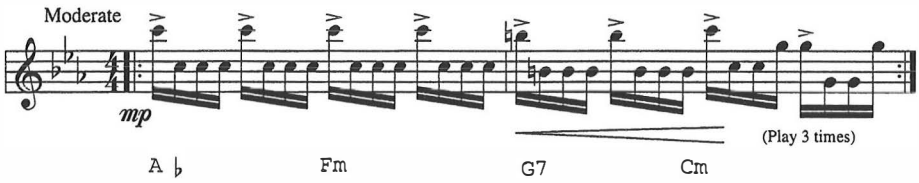
There is good reason to believe, therefore, that Bernard Herrmann's string writing in *Psycho* influenced Martin and possibly also McCartney when they were writing and arranging 'Eleanor Rigby'. Moreover, it appears that the influence was not restricted to formal isomorphisms, but can be said to extend to broader affective and connotative layers of meaning. In both cases repetitive rhythmic patterning combined with dysphoric coding reinforces the death drive as formulated in post-Freudian psychoanalysis. In both cases the death drive is mapped onto the psychological point of view of luckless female protagonists. Marion Crane in a sense becomes a model for Eleanor Rigby, and Rigby herself becomes a symbol not only of the inevitable fallen woman (Jane Asher?), but also of an analogous state of mind; a mode of living that can hardly be called living – a disconnected, monochromatic non-existence (drawn presumably from McCartney's own childhood and more recent experiences).

[7] Yrjö Heinonen drew my attention to this source and to the quotation from *Psycho* in *Give my Regards to Broad Street.*

HERRMANN-EUTIC CIRCLES: FROM 'PASTIME PARADISE' TO 'GANGSTA'S PARADISE'

"Would you like to go with me down my dead end street?"

In a recent television documentary on the making of the album *Songs in the Key of Life*, Stevie Wonder discusses the background to the song 'Pastime Paradise'. According to Wonder, the string sound of 'Eleanor Rigby' was one of the primary influences when he was writing this song. Interestingly, in light of the present discussion, the strings (or string synthesiser) in 'Pastime Paradise' resemble Herrmann's *Psycho* strings even more closely than they do those found in 'Eleanor Rigby'. This phenomenon could be compared to those genetically carried diseases that skip a generation but nevertheless are latent in the genes of the intermediary generation. In 'Pastime Paradise' much of the dysphoric force of the *Psycho* strings, a certain amount of which could be considered latent in 'Eleanor Rigby', is reactivated.



Example 2. 'Pastime Paradise': String Synthesiser Ostinato

Here we have spiky rhythmic accents similar to those in both *Psycho* and 'Eleanor Rigby' and an ostinato pattern similar to those we have discussed. The highest, accented line of the pattern (C – B natural – C – G) incorporates the semitone motif C – B natural, the intervallic relations of which are present in inverted form in the murder scene music from *Psycho*. Moreover, this same motif is heard both in the "hill" and "car" cues of this film and in the descending viola line in the chorus of 'Eleanor Rigby'.

The dysphoric coding in 'Pastime Paradise' is unmistakable. Moreover, similar issues are addressed to those discussed in connection with the Beatles' song. Here, once again, we have a group of people who are unable to connect with the present moment; forced from the perspective of the dystopic present to look to a utopia that is either in the past (in the first verse) or far away in their dreams of the future (in the second). In its new discursive context, Herrmann's "black and white" music takes on a whole new meaning; the dysphoric condition as described by Wonder in this song is inextricably linked to the plight of black Americans in what has sometimes

been referred to as the complacent 1970's, when the struggles and achievements of the 1960's civil rights movement were already fading in the minds of many. The primary addressee of the song is, it should be stressed, African-American - in contrast to another song on the album, *Village Ghetto Land*, which I shall turn to next, where the addressee is without any question white and middle-class. The problems are, above all, those that plague the African-American community - "evils of the world" such as "Dissipation, Race Relations, Segregation, Dispensation, Isolation, Exploitation, Mutilations, Mutations", and "Miscreation".

In musical terms, the solution to the dysphoric condition is the spiritual epiphany suggested, in the lyrics, in the second chorus ("Consolation, Integration, Verification of Revelations, Acclamation, World Salvation, Vibrations, Confirmation [...] to the peace of the world"); and, in the music, in the syncopated rhythms and improvisatory vocal style of the gospel choir as the song approaches its end. Here the tyranny of the death drive, as embodied in Herrmann's *Psycho* strings, is challenged and eventually eclipsed by the markedly African-American pleasures of Wonder and his accompanying choir; repetition as invoking the Freudian death drive meets its nemesis in repetition as groove, and groove eventually wins the day - not only in this song, but in other Stevie Wonder classics from the album, such as the irresistibly (I am tempted to say unbelievably) groovy songs 'Sir Duke' and 'I Wish'.

Wonder's message is that the struggle is an ongoing one, and the solutions can be found by spiritual/psychological self-examination and ongoing political vigilance – in other words the solutions are very much in the hands of black Americans themselves. Only then is liberation from the monochromatic black and white condition possible.

There is another song on *Songs in the Key of Life* that deals with the socio-economic alienation of African-Americans from mainstream (i.e., white middle-class) America. The song is *Village Ghetto Land*, which, interestingly, features a string arrangement very similar in tone to that of 'Pastime Paradise' – if a little more overtly influenced by classical music (specifically by Baroque ornamental practices). The most significant difference is that here, as in 'Eleanor Rigby', the only accompanying sound is that of strings (as in 'Pastime Paradise', it is, in fact, a string synthesiser). If the music is not so strongly dysphorically encoded in this song, the content of the lyrics is gloomier still than in its twin song, 'Pastime Paradise'. Here, moreover, there is no gospel choir to offer the promise of redemption to the listener.

Here, once again, Wonder addresses the problems of violence, drug abuse, poverty, and so on in urban North America today. And here, once again, Herrmann's "black and white" music takes on new connotations, suggesting the alienation of the black community from society as a whole; specifically from white society. The conventional voice of white, upper-middle-class, European civilisation - that of classical music - is appropriated by Wonder to provide an ironic backdrop to the visions of urban decay he paints in the lyrics; indeed, the addressee of the song is unmistakably white, upper-middle-class, and naïve. In the first line of the song, for example, he

pointedly asks: "Would you like to go with me down my dead end street?" Leaving very little to the imagination, Wonder proceeds to describe exactly what the addressee of the song is likely to find there should he or she accept the invitation; in a passage evocative of the shower scene in *Psycho*, he sings: "Broken glass is everywhere, it's a bloody scene, killing plagues the citizens, unless they own police". Even here, though, the message of the song should not be understood solely in negative terms; at the same time as Wonder spins out his undeniably apocalyptic thread, his own vocal, instrumental, and compositional virtuosity remind the listener that this is not a necessary state of affairs; that the conditions he is relating to us are the result of historical contingencies which can be transcended - as his own example eloquently proves.

Perhaps the monochromatic world portrayed in these songs is not so different to those of 'Eleanor Rigby' or 'Marion Crane'. The underlying theme, of course, is once again that of decay, decadence, and, ultimately, death. A second theme begins to emerge, however, if one looks a little more closely; namely, the socio-economic and psychological realities experienced by Crane, Rigby and the narrator of Wonder's song do, upon closer inspection, appear to have something more in common. Each one of these subjects is in their own way an outsider. Violence appears not to have played so great a part in the (early) lives of the Beatles as was the case for (the imaginary) Marion Crane or in the (all too real) world related to us the narrator(s) of Wonder's songs, but the dysphoric undertones of life on the margins of society - undertones of alienation, isolation, and colourlessness - are surprisingly similar in all of these examples.

The death drive of Louanne Johnson

As we trace our chain of influence to its final link, we come full circle and find ourselves once again in the domain of film. The film *Dangerous Minds* (1995) was inspired by the autobiographical book "My Posse Don't Do His Homework", written by Louanne Johnson. Louanne herself (played by Michelle Pfeiffer) is the main protagonist in the film, which tells of the efforts of this woman to overcome both the defeatist cynicism of her colleagues and the negative, self-destructive impulses of her students in her work as a teacher in the troubled "gangland" area of East Los Angeles.

One of the most striking aspects of this film is its music; specifically the song 'Gangsta's Paradise', performed by the rap artist Coolio, and made up largely of sampled excerpts from Stevie Wonder's *'Pastime* Paradise'. This music is used in contrast with passages of non-diegetic musical "texturing" composed and performed by Wendy and Lisa and by various other pieces of predominantly non-dysphorically marked (more often than not, euphorically marked) rap and hip-hop style dance music.

From the standpoint of the present discussion, of particular interest are some surprisingly transparent isomorphisms between the use of music in *Psycho* and this film. The song 'Gangsta's Paradise', which can also be considered

the film's main theme, is first played during the opening credits. Here no doubt is left as to the intended affective content of the music. The lyrics of the song deal are a shockingly candid portrayal of life in East LA; the epitome of this is the biblical quotation found in the opening line of the first stanza:

> "As I walk through the valley of the shadow of death
> I take a look at my life and realize there's not much left
> coz I've been blastin and laughin so long, that
> even my mama thinks that my mind is gone"

The intonation of the first two lines rises steadily in counterpoint to the "shower scene" string motif (C – B natural – C – G) appropriated from Bernard Herrmann via the Beatles and Stevie Wonder. This new melodic line brings to mind both the descending viola line from 'Eleanor Rigby' and the various chromatic themes from *Psycho*. More than either of these alternatives, however, its affective force is comparable to that of the rising glissandi in the "shower scene". Here the melodic line is not merely chromatic, it is microtonal; in other words it transgresses not only the rules of diatonic tonality, but also the entire 12-tone musical framework as it exists in the West. The effect is to create a growing sense of tension, as well as to suggest a dysphorically marked "uprising"; a transgressive movement away from law-bound musical discourse; a breaking of boundaries and/or taboos that the *Psycho* strings combined with the subject matter of the spoken text confirm is of its essence violent.[8]

Confirmation is also given *a la* Hitchcock using cinematographic techniques analogous to those found in the music. Here we see a return of Herrmann's "black and white" music as the entire opening sequence of the film is presented to us in black and white. The only exception to this is the title of the film itself, *Dangerous Minds*, which is underlined by a single red line; this line could represent the blood-stained dagger from *Psycho*, thus metaphorically underlining the violent subtext in the title; and/or simply be an directorial ploy to make the viewer more aware of the fact that the decision to shoot the opening sequence in black and white was a conscious one done from a contemporary standpoint. The primary purpose of this sequence is to establish an affective and geographico-temporal context for the rest of the film. Thus, in the opening shot we see graffiti-adorned derelict buildings; we see a makeshift shrine, with flowers and candles, that has been erected at the site of a gang-related murder; we see impersonal figures passing in and out of the camera's field of view ("all the lonely people..."); all of this in black and white. In short, we see alienation. As the music changes to music that is less dysphorically marked, so do the images; colour returns and we notice that the faceless figures that were scurrying about in the derelict streets are just ordinary kids. In the last moments of the black and white sequence there is an ominous-sounding cry and a black youth runs out from behind a

[8] For more on the transgressive aspects of rap, as well as many other questions relating to this genre, see Rose 1994.

parked car as if he were being chased. There is no threat of violence, however; he is simply running for his school bus.

Other key cues in the film featuring either the threat of violence or textual references to death are invariably accompanied by the death drive music: i.e., the "*Psycho* strings" sample from 'Pastime Paradise'. The texted version of the song is only heard on two subsequent occasions, however: during the closing credits and at what is undoubtedly a turning point in the film, when Louanne, a middle-class, white woman, takes it upon herself to drive deep into the heart of an African-American district of East LA, to the house of one of her students whose gang-related activities have kept him away from school. In this scene Louanne is forced to confront her own fears; thus the prayer with which the song opens ("As I walk through the valley of the shadow of death" [I shall fear no evil]) becomes her own prayer, and the music a reflection of her anxiety. The attraction and excitement of the song is also the attraction and excitement of danger, however; thus, the ambiguous nature of the death drive is here, as was the case in the Hitchcock films, very much in evidence. Here we also encounter another striking isomorphism: this is, in a very real sense, Louanne Johnson's death drive. The music does not culminate in her murder, as was the case with Marion Crane, but fear of/fascination with death is without question the implied affective "message".

There are important differences, however, between the death drive as it is found in *Psycho* and *Dangerous Minds*. Louanne Johnson is very much an active subject, who influences the world around her in a positive way and does not come to grief because she has dared to take on the (male/patriarchal/complacent) establishment; she quite literally lives to tell her tale, and that tale was, furthermore, turned into a film. But somehow *Dangerous Minds* does not - despite its music, which is excellent - quite live up to its potential. One is left wondering whether the film's happy ending challenges prevailing narrative conventions by allowing Louanne Johnson to transform her world and that of her under-privileged pupils, or whether this is all just good old Hollywood kitsch. The casting of the waifishly beautiful (if somewhat anorexic looking) Michelle Pfeiffer in the leading role no doubt contributes to this effect. (The scene where Pfeiffer demonstrates Judo to her group of hardened inner-city kids, for example, is particularly hard to swallow. Imagine the same scene played by someone akin to Alanis Morissette...) Other aspects of the story, which is apparently biographical, are not without their problems: the extent to which Johnson (as played by Pfeiffer) is helping the kids to help themselves or simply indulging in the (white, middle-class, missionary) fantasy of enlightening the savages, remains unclear in the film. We are not provided with sufficient insights into her motivation to be able to discern for certain. The music is, therefore, probably the film's most powerful asset.

DIALOGUE AND THE DEATH DRIVE: SOME TENTATIVE CONCLUSIONS

It seems somehow appropriate that the four-link chain of influence we have been following has taken us back to our starting point, the cinema. With the return to this medium, we see that in cinematic terms the connotative "core meaning" of the music has, through all its transformations, remained fairy constant; as the musical affect discussed here gets translated back into images, we observe, with some satisfaction, that very little has in fact changed. The core idea of isolation, alienation, and, more specifically, death anxiety is retained in all of these examples; in some cases with menacing or violent undertones, in others not.

Connotative layers of meaning in music are, however, conventionally assumed to unstable, ineffable, and, for many musicologists, best left untouched when discussing questions of musical influence. The conventional wisdom is that meanings such as this are easily affected by performance/contextual factors, not to mention cultural contexts as different as those we have been discussing, making it pointless to look beyond the syntax and abstract questions of style. Here, though, we see a surprising degree of stability as the music passes through different hands; stability not only of musical form but also of affect. The cultural resonances of the affect in question were, admittedly, transformed somewhat in the different contexts examined here; and this should definitely not be overlooked in studies of this kind. Affect itself, however, could well be more stable than is commonly assumed.

Mikhail Bakhtin's dialogical model (see, e.g., Bakhtin 1981) may offer some useful insights as regards the issues of intertextuality that are raised here. The idea of influence as an ongoing conversation, an exchange, a dialogue, would seem to be most apt in light of the issues we have discussed; as is the idea that discourse caries traces of social, ideological or other connotative meanings that get passed on from one artwork to the next as one influences or is influenced by the other. These meanings may become refracted, they may mutate or become inverted in the new contexts in which they are found, but the assumption that the work *engages* with other, existing works, from which it has taken influences - connotative meanings and all - is, I believe, an important step forwards in studies of this type, and one that a growing number of music critics seem willing to take. In some of the recent cultural theory, signs are regarded as being exchanged without any concern for their meaning. Baudrillard (1983), for example, talks of a simulacrum, of the ecstasy of communication - the pleasure of simply playing with signs. While notions such as this are useful in specific contexts, here what the music means clearly matters.

In my earlier writing (Richardson 1995; 1998), I have found Foucault's concept of "archaeology" useful (see, e.g., Foucault 1972), not so much as the research paradigm it is intended to be, but as a way of understanding new ways in which musical texts function and are exchanged in

contemporary society. Coolio's more or less direct appropriation of Stevie Wonder's song is an example of musical history being understood as a Foucauldian archive. A site that can be dug up, presented more or less as is, and allowed to resonate, with all of its historical connotations, in its new, contemporary context. Such a model is without any question of relevance here, and it may shed interesting new light on similar musical phenomena.

Another conclusion that can be drawn is the relevance of film music in investing music with connotative layers of meaning. Meaning in film music is commonly thought to be restricted to this genre. It is assumed that if the language of film music enters our broader musical vocabulary, our musical mother tongue, it does so first and foremost in terms of musical syntax. I would like to suggest that the example I have given is by no means exceptional; that it is quite common for meanings whose origins are in film music to filter into our broader musical vocabulary. This unquestionably has a great deal to doing with the metonymical signifying processes that are characteristic of this genre. Some semanticists have claimed that *all* meanings are, in one way or another, produced by metonymical relations (metonymy = the substitution of the whole of a category with its part); whether or not this is true more generally, it is certainly true of film music. A paradigm example of this kind of signification is the leitmotif, as found in opera (and numerous film scores). A musical motif is associated with a character or idea initially by dint of the physical presence of the character. Together the two form an experiential whole, which incorporates both the character and the musical motif. When the motif is heard later in the opera (even in the absence of the character with which it was earlier associated), the character or idea is nevertheless connoted. Thus, the motif becomes a metonym of the initial sign, which incorporated both the visual presence of the character and the music. I do not, of course, dispute the notion that other, more abstract processes of signification are constantly taking place in film and in other forms of art; but the idea of metonymy as a primary concern when looking at the generative processes behind connotative meaning is, I believe, a sound one. If this is true, then by observing how signification works in film music, by engaging in "close reading" of this kind, we may be able to understand more about how connotative meanings arise more generally in music. This is the case because in film these primary metonymical processes are directly observable, rather than being abstracted from their sources. That connotative meanings should be produced in this manner is nothing new, of course; it seems likely that they have *always* been produced in this way, in songs, music-theatre, drama, opera, as well as in ritual, religious, and ceremonial uses of music. Film, however, is a privileged site for these kind of generative processes in the modern world; simply because of its ubiquity. So by understanding more about film we might be able to learn more about our own musical consciousness vis-à-vis the collective musical and cultural processes with which it engages. This is just one example of the profound influence meanings generated in this manner can have; numerous similar examples undoubtedly await elucidation.

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