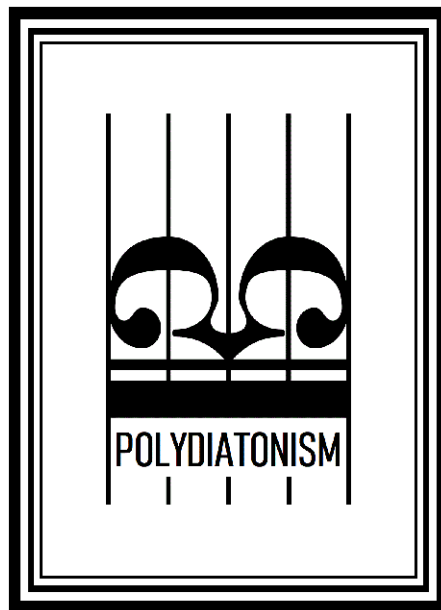


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Polydiatonism

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At first

There are several concepts and attributes which related only to the Polydiatonism. These words, which have their own intrinsic meaning in Polydiatonism, are shown in *italics* throughout the text.

The concept of Polydiatonism

The starting point of several years of development work for a new composing method was polyphonic music that used church modes.

Church modes belong to the diatonic scales. Diatonic scales are the same as heptatonia prima scales. Thus, they belong to the heptatonic scales. There are seven tones on the heptatonic scales, and their tones are not defined. There are seven-tone scales in the world with different intervals than on a diatonic scale. In the Western music tradition, the intervals known today as whole step and half step are used. Diatonic scales have five whole step and two half step. The position of the half steps relative to each other determines the structure of the scale. In the diatonic scale, there are two and three whole steps between the half steps. This scale is called the Heptatonia Prima scale. In the Heptatonia Secunda scale there are one and four whole steps between the half steps. In the Heptatonia Tertia on the scale, the half steps are next to each other so there are zero and five whole-steps between them. Thus, all the heptatonic scales used in the Western tradition music are related to each other. The Heptatonia Secunda and Heptatonia Tertia scales can be considered to be variations or variants of the Heptatonia Prima scale.

In Polydiatonism diatonic Heptatonia Prima scales are formed and used in the same way as church modes. Then the scales have the same tones and the order of the intervals, and they differ only by their starting tones, i.e. their *Mark Notes*. Polyphonic sound is formed by using simultaneously scales based on different *Mark Note*. In *Polydiatonism*, this principle is extended to include

Heptatonia Secunda and Heptatonia Tertia scales. They are used in exactly the same way and with the same tools as diatonic Heptatonia Prima scales.

For *Polydiatonism* the Heptatonia Prima, Heptatonia Secunda and Heptatonia Tertia scales fall under the extended concept of diatonic scales. Because of this, they all are commonly referred to as *ADI (Augmented Diatonic Scales)*. Because of this expanded concept of diatonic scales and polyphonic composition, the composition method is called *Polydiatonism*.

I Basics

Purpose

Autonomous music

Definition

Autonomy comes from the Latin and Greek words auto = itself; nomos = legal. In practice autonomy means independence or "works according to its own laws".

The concept of music

Polydiatonic music is based on Western concept of music its history and theory.

Music as a concept is always sound that is made in musical purpose by people to the other people. In the sound there must always be form and structure which is possible to notice by people. This excludes from the concept of music sounds of animals and nature, and also sound which people produce randomly. Sounds of animals are meant to the other animals, and they are not understandable by people. Sounds of nature are random by nature and that is why those have no form or architectural structure which people could observe with by their cognitive abilities and by the perceptual psychology. Spontaneous random

sounds that is made by people are generated by some activity or are generated by some tool or machine. In those sound are missing all architectural structures and other forms which are necessary for understanding music.

Music must always be built on people cognitive abilities and the perceptual psychology. Only thus the character of composition and its architectural structure can become observed and understood by hearing.

Content of music

Music has always had the tendency to endeavor represent some happening or thing outside from music. Great part of the time, Western music was tied to the aspirations of religion and the Church. In addition to this, troubadours, trouvères and minne singers performed love songs among the people, and dance music was performed at the palaces. Opera is the clearest example of programmatic contents of art music but the 1800s, also in concert music actively intended to perform things outside from music. A trend called "program music" evolved, in which concert compositions were also named after the events they described. Different styles of music, have been emerged according to different the musical mindsets at different times. They have been influenced by the environment and its history, by the interconnected composers and players as well as the instruments used, listeners and others. Later, by studying the common features of each emerging musical style, the rules they followed have been worked out. In this way, different styles can be identified and distinguished.

There has always been a musical line alongside "program music" that target is to minimize outside influences. As a result, the concept of absolute music was born in the 19th century. With the long evolution, the 20th century, with contemporary music, began to actively develop music whose content is entirely derived from the laws of music itself.

Absolute music

The premise of absolute music is that music only describes its own inner world, which contains all its beauty. Music is made up of an infinite number of physical phenomena and their combinations. Due to the enormous number of phenomena, the code of absolute music has not been drafted, but it can be considered including all musical events whose cause and effect are interdependent, without external influence.

By merely following these internal rules of music in composition work, one easily finds himself in a situation where the limits of the listener's musical cognitive qualities are exceeded. It leads to compositions that produce music executed by the idea of absolute music, but whose events and form are impossible for the listener to perceive. As a result, the composition sounds like a chaotic noise. The composer must either accept this or, in order to avoid it, have to bear in mind his listeners, detaching himself from some internal rules of pure music by adding outside influences.

From absolute music to Autonomous Music

The way a composer in his work is able to disassociate himself from outside influences and to adhere only to the intrinsic laws of music sets limits to the level of music absolutism.

Autonomous Music is intended, through practical rules, to carry as far as possible the idea of absolute music. There are many non-musical human factors associated with all musical creativity, which have led to the emergence of different styles, with their own rules. The situation is opposite in *Autonomous Music*. As far as possible in order to fulfill the ideal of absolute music, *Autonomous Music* first develops a set of rules by which the works are composed.

The starting point for Autonomous Music

Like absolute music, *Autonomous Music* is built on the inner premises of music and seeks to bring out the inner beauty of music without outside influences.

Autonomous Music emphasizes the importance of composing rules. They are the only way to produce music that is built as much as possible on the music's own internal premises, counteracting outside influences. Because of the unlimited amount of internal rules and rule structures in music, the starting point for *Autonomous Music* is to form rules based purely on the internal structure of music and on human cognitive qualities.

The most important cognitive qualities include recognizing and remembering musical events and their structures, as well as the ability to compare them. Similarly, the most significant intrinsic qualities of music include the different mathematical relationships between pitches and temporal durations, and their smaller and larger architectural structures. These two bases, the internal rules of music and the human cognitive boundaries of music, determine the starting point for *Autonomous Music*.

The idea behind the concept of *Autonomous Music* is to cover as much as possible all that is needed to compose. When every single rule is always based directly on an intrinsic need for music and a person's cognitive qualities, so does a set of rules. In composing, self-guiding rules within the rules automatically produce the end result of the idea of *Autonomous Music*. The closest to *Autonomous Music* is when the composition work follows the set rules as closely as possible.

Polydiatonism is intended to produce compositions based on the idea of *Autonomous Music*, based on the long history of Western music.

Basis

The basics are in European medieval and renaissance music.

Music based on diatonic scales, or church modes, which today are called modes, began to evolve into polyphonic music in the 12th century. At that time, all the sounds played at the same time were always in the same mode. With the development of harmony that began, these modes, using the diatonic scale, remained only Aeolian and Ionian church mode. Aeolian is the same as the currently used minor scale and the Ionian is the same as the currently used major scale.

"New Old Music"

The original diatonic scales, or church modes, are included in the heptatonic scales. By introducing and working with other heptatonic scales consisting of full and half-tone scales in a manner similar to the use of *Polydiatonism* modes, the number of scales used are greatly expanded. Thus, a large number of equal scales based on the principle of diatonic scales are available. In *Polydiatonism* these are all collectively called *Adi*. Unlike the original church modes, all voices playing at the same time, in *polydiatonism* are always in a different *Adi* of the same *Adi Group*.

Compared to the use of church modes, the basic difference in *Polydiatonism* is the simultaneous use of several church modes and the independence of the melody lines, without the chord function. All church modes are in use, in their basic forms, and they are equal. In addition, other heptatonic scales formed just like church modes are used in exactly the same way.

Because of these differences, it is conceivable to imagine that *Polydiatonism* forms a branch of its own in the Western music family. Theoretically, it would be at the time when polyphony began to be used in church modes, but chord theories had not yet been formed.

Concepts used in Polydiatonism

Brief description of later dimensions, concepts, and designations.

Identification markings of notes

In the textual presentation, the notes are identified by a modified English style note. Notation accidentals are marked by using letter b for flat and letter x for sharp, which follows the identification letter of the note. Chromatic scale is c, cx/db, d, dx/eb, e/fb, ex/f, fx/gb, g, gx/ab, a, ax/bb, b/cb.

Sound Pattern

A *Sound Pattern* is a combination of a rhythm pattern and a melody pattern. The length of *Sound Patterns* has not specified. The shortest *Sound Pattern* is a *Stamp* and the longest is a *Cord*.

Stamp

The *stamp* is formed by *sound patterns*. It is the smallest musically recognizable structure.

Autonomous Music

In *Autonomous Music* the music is influenced only by its internal laws and rules. The contribution of non-musical influences to the content of *Autonomous Music* is minimized by strict compliance with the rules.

Comparison Principle

The *Comparison Principle* is the central principle of *Polydiatonism*. In *Polydiatonism*, the musical events are compared to each other. By comparison, the architectural structure of the composition becomes clear and the music is understood.

Degree of Change

The *Degree of Change* is the magnitude and extent of differences in musical events when comparing them to each other.

Dividing of composing work

The basic idea of *Polydiatonism* is the division of the work into distinct independent phases between composition, arranging, and performance.

Arrangement

Arrangement is a score itself and also the work when *Binding* is transformed into score.

Temporal equivalence

The sequence of events of the scores corresponds to the *Temporal Equivalence* of Western musical notation.

Event-related equivalence

The *Event-related equivalence* extends the *Temporal Equivalence* of a *Binding* vertically. Thus, the events of the *Temporal Equivalence* of the *Binding* expands to the several staves and various octaves.

Arranger

Arranger is the person who transforms a *Binding* into score. That does not offer as great potential as arranging but its potential is larger than in orchestration.

Generic scale

Generic scale is the basic scale whereby is possible to produce all other scales. The notes in all scales are equal but starting note is different (for example church modes).

Modes

Heptatonia prima scales or modes or church modes or diatonic scales

Scale group

Scales which are produced by using the same generic scale. Generic scales are heptatonia prima, heptatonia secunda and heptatonia tertia. From each generic scale are produced scale group in the same way as church modes are produced from diatonic scales i.e. heptatonia prima generic scale.

Added scales

According to principles of diatonic scales built heptatonia secunda and heptatonia tertia are called *Added Scales*. At these scales, the positions of the half-steps are different from the original states.

Adi (Augmented Diatonic Scale)

Adi is a generic term for all heptatonic, or seven-tone, scales used in *polydiatonism*.

Mark Note

The first note of the *Adi* on which the *adi* is based is the *Mark Note*.

Scale Model

The *Scale Model* is the graphical model of *Adi*.

Scale Model Table

The *Scale Model Table* contains options for interval ratios for all *Adis*. All *Adis* are transformed and transposed by using the *Scale Model Table*. See Attachment 1 "The use of Scale Model Table".

Starting Scale

The *Starting Scale* is obtained by using the *Scale Model* and the *Scale Model Table*.

Anchor Adi

The *Anchor Adi* originate to the starting scale by using the chromatic part of the *Scale Model Table*. An *Anchor Adi* is used to form an *Adi Group*. There may be several *Anchor Adis*, as each transposition of the *Starting Scale* produces a new *Anchor Adi*.

First Anchor Adi

The *First Anchor Adi* is directly formed from *Starting Scale*.

Adi List

The *Adi List* is produced by using the notes of *Anchor Adi*. For every note of *Anchor Adi* is made the scale by using the notes of the *Anchor Adi*. This is exactly the way how the church modes have been formed.

Adi Group

The *Adi Group* is a group of *Adis* which are formed according the rules of *Polydiatonism*. The *Sound Patterns* of the *Cords* are based on the *Adi Groups*. In a *Double-Cord Binding* there are the *Anchor Adi* and the *Side Adi*. In a *Triple-Cord Binding* there are the *Anchor Adi*, the *Lower Adi* and the *Upper Adi*. The *Adi Group* is transposed as a whole.

Link

The *Link* is the only chord which has a meaning in *Polydiatonism*. The link consists of the *Mark Note* of the *Anchor Adi* and *Mark Notes* of the *Adi Group* which is selected for it. The *Sound Patterns* of the *Fractions* always end with their current *Adi Mark Note*. In that way the *Link* forms automatically the end chord of the *Fractions*. This end chord is the *Link*.

First Adi Group

The *First Adi Group* is based on the first *Anchor Adi* which is based on *Starting Scale*. Because transpositions of *Bindings* are made during *Transition Phase*, the *First Adi Group* is the only one that can occur in the *Index Phase*.

Mutual Harmony

Mutual Harmony is the chord of sounds that are playing at the same time. In *Polydiatonism* the *Mutual Harmony* is controlled mainly through *Adi Groups*.

Scale Feel

Every *Adi* has its own character i.e. the *Scale Feel*. It consists on the relationship of *Mark Note* and location of semi step intervals. In *Polydiatonism*, the *Scale Feel* comes out best in the *Adi Rotation* of melody lines.

Cord

The *Cord* is a *Binding*-length single-tone *Sound Pattern*.

Adi Group of Double-Cord Binding and Triple-Cord Binding

The *Adi Group* which is made for *Double-Cord Binding* or *Triple-Cord Binding*. The *Cord* for percussion is not counted.

Side Adi

The *Side Adi* belongs to the *Double-Cord Binding* and it is formed from the *Anchor Adi*.

Lower Adi and Upper Adi

The *Lower Adi* and *Upper Adi* belongs to the *Triple-Cord Binding*, and they are formed from the *Anchor Adi*.

Adi Rotation

Within the *Adi Rotation*, the *Cords* exchanges *Adis* between each other. The *Sound Patterns* of *Cords* remain, but they are using different *Adi*. Intervals of notes in the *Sound Pattern* changes but the order of the notes remains unchanged.

Variant Tone

The *Variant Tone* is a chromatic scale tone that is not part of the current *Adi*.

Free Scale

Into the *Free Scale* it has been added notes into the *Adi* which does not belong there. After adding the scale is not heptatonic scale anymore, but composing method follows the principals of *Polydiatonism*. This is the opportunity that does not belong to the pure *Polydiatonism*.

Fraction

The *Fraction* is the part of the *Phase* that is made up of the *Sound Patterns* of the *Cords* inside it. These *Sound Patterns* are called *Spans*. With *Fractions* is controlled the architectural structure of a *Phase*.

Phase

The *Phase* is a larger independent part of the *Binding*. Its architectural form is formed by *Fractions*. The *Phases* allow for the implementation of larger architectural structures as required by the *Comparison Principle*. The *Phases* are the *Index Phase*, the *Comparison Phase*, the *Transition Phase* and the *Final Phase*.

Span

The *Span* is the part of one *Cord*, inside the *Fraction*. It is an independent *Sound Pattern* which follows the *Comparison Principle* and is formed of *Stamps*. For each *Cord of Binding*, there is always one *Span* in the *Fraction*. The *Span* is the smallest musical unit of the *Binding*. The *Span* ends with a *Closing Note*, which is always the *Mark Note* of its own current *Adi*. With the *Span* is controlled the architectural structure of a single *Fraction*.

Additional fraction

The *Fraction* in the *Comparison Phase* that is not included to the *Index Phase*. It is formed by using *Sound Patterns Stamps* of the *Index Phase*.

Closing Note

The *Closing Note* is the latest note in the *Span* of the *Fraction*. It is always the *Mark Note* of its own *Adi*, what is used at that moment in the *Span*. The *Closing Note* must always be recognizable.

Closing Measure

Polydiatonism uses a musical notation based on Western music. In this kind of presentation the *Fraction* ends to the *Closing Measure*.

Replacement Function

When arranging it is possible to replace the pause that follows the *Closing Note* of the *Span* by the note or the note by an equal rest.

Binding

The *Binding* is one-piece wholeness that is the actual composing of *Polydistonism* made by the composer and what is needed for arranging. The *Binding* may include one or several voices. Voices are called *Cords*. The *Binding* is built-up one or several *Cords* which are divided in *Phases*. The *Binding* is not intended to be played, but must be arranged to the score.

Composition Chart

In the *Composition Chart*, the structure of the *Binding* is represented graphically. In the *Composition Chart* are shown on the timeline all events of the *Cords* in the length of the *Binding*.

Score

The score is arranged *Binding*. The score is a complete musical work to be performed.

Folder

The *Folder* is a collection of scores formed from two or more *Bindings* in the arrangement stage. The *Folder* is thought to be a multi-part opus.

Instrument Matrix

The *Instrument Matrix* does not belong into *Polydiatonism* but it is a very suitable way to arrange the *Binding*. In the *Instrument Matrix* are shown groups of instruments. Each group is marked by the own symbol and consist all instruments for every *Cord*.

II Composing method

Scale groups and polyphony

The *Binding* is completely polyphonic, using scales which generic scale is diatonic heptatonia prima scale and also scales heptatonia secunda and heptatonia tertia which have the same intervals in different order. From each generic scale has been formed a *Scale Group* in the same way as the church modes has been formed. All scales in the *Scale Group* have the same value and are used in the same way. These scales are called as *Adi*. Each *Binding* use only *Adis* of one *Adi Group* which are made on one scale of one *Scale Group*.

Polydiatonism is built on the interaction of independent *Sound Patterns*. Unlike music based on chords and chord relationships, *Polydiatonism* focuses on comparing changes in individual *Sound Patterns*, as well as comparing different *Sound Patterns* and musical events to each other. This is the *Comparison Principle of Polydiatonism*.

The chord concept of Polydiatonism

Harmony

When the *Sound Patterns* of the various sounds are completely independent and the presentation is polyphonic, the musical way of thinking is horizontal. Therefore, harmony of sounds, that is, *Mutual Harmony*, must be realized in some other way than based on chords, i.e. vertical thinking. In *Polydiatonism* this occurs with the *Adi* and, in rare cases, with the additional note it contains.

Mutual Harmony, Scale Feel and chords

Mutual Harmony and a *Scale Feel* are mainly manifested in the selection of *Adis* and the relationship between the melodic movements of the voices.

Mutual Harmony is mainly controlled by the selection of *Adis* playing simultaneously. *Adi Group* are formed for *Mutual Harmony*.

Mutual Harmony

Mutual Harmony is the harmony formed by sounds that are simultaneously playing. Their fluctuations in the consonant-dissonance scale bring their own dimension of comparability to music. The *Sound Patterns* of completely independent melodies naturally produce a great deal of dissonance. This diminishes the *Mutual Harmony* produced by the consonance-dissonance relationship. Therefore, particular consideration should be given to ways of expanding consonantity in the consonantal direction. In *Polydiatonism*, this is done by selecting *Adis* into the *Adi Group*, that is, the selection of the *Link* and by the interplay of the *Sound Patterns* of the various *Cords*. The harmony of *Mutual Harmony* is mainly realized in long common notes. Fast short notes cannot give a strong harmonic effect. It can be amplified by using notes of *Link* in long notes of *Sound Pattern*. In this case, the effect of the note length must be proportional to the tempo.

Scale Feel

Each *Adi* has its own character i.e. *Scale Feel*. It depends on the relationship between the *Mark Note* and the half steps in the scale. The *Scale Feel* of the melody is strengthened by terminating each *Span* of each *Cord* to the *Mark Note* of the current *Adi*. Then, to the end of each *Fraction*, will automatically form the end chord i.e. the *Link* that merges *Adis* of the *Adi Group*. Because the *Adi Group's Adis* are based on the notes of the *Anchor Adi*, the *Link* stress the unity of *Adi Group*. One of the most prominent points of the *Scale Feel* comparison is the *Adi Rotation*. This difference of melodies, when they appear in different *Adis*, is also unified by the *Link*.

Inner Harmony

The melody has an *Inner Harmony*, which is formed by a structure of consecutive pitches of melodies. The intonations of a single melody are not

strongly dissonant or consonant. Nevertheless, they reinforce the *Adi's Scale Feel*, regardless of the duration of the notes. The consecutive notes used in the *Adi* melody can enhance the melody's Inner Harmony.

Chords of Polydiatonism

Polydiatonism is a completely polyphonic composition composed of independent *Sound Patterns*. However, notes playing at the same time automatically form chords. Due to the polyphonic structure, there are no distinct chords in *Polydiatonism* and consequently neither dependencies between them. Thus, it is not necessary to identify chords or chord progression.

Following the idea of *Polydiatonism*, *Sound Patterns* always play a decisive role and chord formation is secondary. Because the occurrence of dissonances in polyphony is more natural than consonances, it is possible to increase consonances by the active melody line designing. In this way it is possible to increase amount of spectrum of chords in the area of consonance-dissonance. The formation of chords follows the style commonly used in Western music. The sound designing of melodies should not unnecessarily eliminate the dissonances because the various self-generated dissonances enrich the overall tone and give each composition its characteristic character.

The wide range of chords produced by *Mutual Harmony* gives a great deal of potential when orchestrating, with a variety of instrument choices and volume variations, to bring out a variety of different tones.

The end chord i.e. the *Link*, is the only separately defined chord, and is automatically formed when one complies with the requirement that all *Cords* must always end with the *Mark Note* of *Adi* currently in use.

Polydiatonism-type music

The purpose of composing *Polydiatonism*-type music is to get as close to *Autonomous Music* as possible. To achieve this, these rules must be followed as closely as possible.

Composing

In *Polydiatonism*-type music, the composer creates a *Binding* that is the actual composition. It is the starting structure for the arranging on which the work is presented. *Binding* must implement the idea of *Autonomous Music* as precisely as possible.

The requirements of *Autonomous Music* are achieved by creating an architectural entity for the *Binding* that follows as closely as possible the rules of *Polydiatonism*-type music.

Arranging and presentation

The idea of *Autonomous* music is merely to tie the composition itself to its own laws. Due to the large number of human factors involved in arranging and presentation, and due to the structure of the instruments and the environmental impact, the demands of *Autonomous Music* are not met. This is characteristic of audible music and thus acceptable.

Comparison Principle

The *Comparison Principle* is the central principle of *Polydiatonism*. It is the basic starting point for understanding and interpreting a composition. According to the *Comparison Principle*, *Polydiatonism* is based on the comparison of different musical subjects.

The composition must be composed in such a way that the listener can compare the musical events by listening only. In *Polydiatonism*, understanding the architectural structure and interpretation of a work through comparability means

understanding music. Therefore, all aspects of the composition are kept as simple as possible, without sacrificing their musical approach. This requirement of simplicity is one of the basic starting points for the *Comparison Principle*. If there are several equivalent options for a single musical event in the composition work, the simplest alternative is always sought.

Degree of Change

Comparison shows the degree of similarities and differences i.e. *Comparison Levels*. The *Index Phase* presents all the information in its basic form, so it sets the baseline for comparison. Within the *Index Phase*, some changes that need comparing are also automatically happening, but amount of them should try to keep a minimum. In the *Comparison Phases*, the *Degree of Change* is compared with both the *Index Phase* and the preceding *Comparison Phases*. The *Degree of Change* is the magnitude of the difference observed in the comparison.

The smallest change in a *Phase* has only one change compared to the *Index Phase*. The *Comparison Level* rises and the *Degree of Change* increases as more changes occur within the *Phase*. In order to realize the ideal of comparability and simplicity, one must strive to keep the number of simultaneous changes small. *Adi Rotation* and transposes occur only during the *Transition Phase*.

The architectural structure of the *Binding* is constructed by *Comparison Levels* which according by the *Comparison Principle* must be identified only by listening.

The divide of composition work

The divide of composition is one of the bases of *Polydiatonism*. The work is divided into three independent areas. When composing, i.e. in the first step, a *Binding* is created, and on the basis of it in the second step i.e. the arranging, the score is built which is in the third step performed. The idea involves a clear

division between these tasks, each of which can be done by the same person or by a different person.

Composer

In the beginning the composer builds a composing i.e. *Binding*. It is a musical entity, that includes everything for arranging. The *Binding* is the composer's final finished composition. Although the *Binding* is possible to perform, it is not its purpose. The purpose is to be the starting point for the score that is performable. In *Polydiatonism*, a score is an independent musical work intended to be performed.

Arranger

The arranger changes the *Binding* into a playable score. The arranger can be either the composer himself, another person or a group. In *Polydiatonism*, the possibilities of arranging is wider than in orchestration, but more limited than in arranging in general. In *Polydiatonism*, all the actions permitted in the work of arranging are listed separately.

Folder

The larger entities which are build during the orchestration phase are *Folders*. They consist of several arranged *Bindings*. The *Bindings* of the *Folder* are not predetermined, but the arranger selects the *Bindings* of his choice and arranges a large, uniform score of them. Because of this, the *Bindings* are always one-piece.

Performers

From the arranged opus is formed a performance. It can be done and perform by a player or players, conductor, arranger, composer or somebody else.

III Theoretical part

The basis of *Polydiatonism* are heptatonic scales on which the architectural form of the whole work is based.

Scales in general (As a source, e.g. <https://www.britannica.com> and Wikipedia)

In ancient Greek music the descending tetrachord was the basic unit of analysis, and scale systems were formed by joining successive tetrachords. In Western music, the tetrachord is an ascending series of four notes. The Tetrachord has two full-steps and one half-step intervals in a row. Two consecutive tetrachords, the outermost tones of which are octave apart, form the basic scale of Western music. Thus, c d e f and g a b c form a western major scale c d e f g a b c. This creates a seven-notes heptatonic scale. There are different seven-notes scales around the world. Often their intervals of notes is different than in the Western music.

Church modes in Western musical theory which based on tetrachords of ancient Greece are heptatonic scales called diatonic scales. Diatonic scales have five full-steps and two half-steps intervals within an octave. There are two or three full-steps between half-steps, depending on their position on the scale. These later evolved into a major and minor scale system.

Heptatonic scale

The heptatonic scale has seven tones in the octave range. The size of the intervals is not defined. Also, the location of different pitch ranges has not been defined. Thus, the pitch ranges of the heptatonic scale may be a combination of half pitch and smaller, full pitch and larger intervals. Such scales can be found all over the world (China, India, Africa).

Scale model

A *Scale Model* is a representation of the intervals of notes in the scale. The *Scale Model* can be represented either by a graphical representation of the intervals or by the letters w or h. In lettering, w is a full step and h is a half step.

Example: x x x x x x x x or wwhwwwh.

Diatonic scales

Heptatonia prima or Church Modes i.e. Modes

Diatonic scales are included in heptatonic scales. Diatonic i.e. heptatonia prima scales are the same than church modes or just modes (modus, lat). Their *Scale Model* has two and three full steps between the half steps. All modes are formed when each note on the diatonic scale is, in turn, the basic note of the mode. Since the structure of each mode, i.e. the ratio of the half steps to the base note of the scale, is different, so is the nature of the modes.

Example: wwhwwwh, hwwhwww or whwwwhw.

Modes can be transposed to start from any chromatic scale note. Then their pitch changes, but the scale structure does not change, so the nature of the mode does not change.

Church modes in brief

Diatonic scales i.e. church modes create a long, cohesive historical continuum into Western music. Diatonic scales were used in Gregorian chant and medieval music before the 17th century. Originally they were called church modes, but nowadays they are commonly called just modes.

The diatonic scale has seven tones and is composed of two interconnected tetrachord containing four tones.

Church modes are obtained by joining two tetrachords with the same outermost notes which are the octave apart. Thus, the tetrachords c, d, e, f, and g, a, b, c combined form the Ionian church mode c, d, e, f, g, a, b, c, which is the same as the C major scale currently in use. This scale also serves as a generic scale for church modes. Such a scale has five whole steps and two half steps.

Church modes consist of the same diatonic scale, when each note is, in turn, the first note of the scale.

Church modes and their current names:

Ionian Same as the current major scale



Dorian



Phrygian



Lydian



Mixolydian



Aeolian Same as the current minor scale



Locrian



The order of the half steps of modes

In the diatonic scale there are different numbers of whole steps between the two half steps. Since transposition allows all scale patterns to be started from any tune, the order of the half steps is irrelevant to the desired scale.

In the diatonic scale there are different numbers of full steps between the two half steps. Since transposition allows all scale patterns to be started from any note of chromatic scale, the order of the half steps is irrelevant to the desired scale.

Example:

If the original scale model is wwhwwh there first are two whole steps and then three whole steps between half steps. This scale model can be used to create an Ionian church mode that corresponds to the current C major scale. Its notes are c, d, e, f, g, a, b, c.

If desired, to swap the order of whole steps of this scale then the scale model is wwwhwwh where at first are three whole steps and then two whole steps between half steps. In that case the scale starting from c would be c, d, e, fis, g, a, b, c. The interval sequence is the same as the Lydian church mode that begins from f note. Its notes are f, g, a, b, c, d, e, f. When this mode is transposed to start from c we get the scale what we desired c, d, e, fis, g, a, b, c.

Added Scales

The formation of a diatonic scale from two similar tetrachords determines the order of its whole steps and half steps in the scales.

According to the Western music tradition, the scale may contain only whole steps and half steps. By changing the position of the half steps in the scale, it is possible to produce non-modal heptatonic scales.

Heptatonia secunda

The heptatonia secunda scale models are formed by having one and four whole step between the half steps. Otherwise, the scales which are created with this *Scale Model* can be used in the same way as the modes, with one of them acting as their generic scale.

Example: whwwwwh or hwwwwhw etc.

Heptatonia tertia

Heptatonia tertia is a scale in which the half steps are side by side. In this case, the scale has five full steps in a row and there are no full steps between the half steps. Scale is also called the Neapolitan scale. The scales created with this *Scale Model* can also be used in the same way as the modes, one of which also acts as a generic scale.

Example: hwwwwh or whhwww.

Adi

Overview

In addition to the old diatonic church modes based on the heptatonia prima scale, which are the starting point for *Polydiatonism*, heptatonia secunda and heptatonia tertia are also used. Thus, the scales using the same basic starting point have been added to the concept of the diatonic scale, that is, only full steps and half steps, seven tone scales. All of these scales are used in exactly the same way. There are the same rules and tools for creating and using them. The scales are collectively called as *Adi* (Augmented Diatonic Scale), which is a generic

term for all heptatonic scales based on the principle of diatonic scales used in *Polydiatonism*.

Identifying characters of notes in the text

The notes are identified by the English character notation c, d, e, f, g, a, b, c. Like the English notation, the character b is used for the flat mark, which is added after the note character. The # sign, often used as a sharp mark, is not always possible or practical to use in all written presentations. The letter s (sharp) is not practical, because in the German style, es and as mean flat e and a. For this reason, in *Polydiatonism*, a x is added as a sharp mark, after the note character. According to this notation, the chromatic scale is c, cx / db, d, dx / eb, e / fb, ex / f, fx / gb, g, gx / ab, a, ax / bb, b / cb.

Scale model

The *Scale Model* is a graphical model of the heptatonic scale that shows the locations of the half steps. It is a graphical representation of the relationships between intervals on a single scale. The *Scale Model* corresponds to the representation of the *Scale Model Table* and can be placed directly in the table.

Example:

The scale with the pitch ranges wwhwwwh (w is full step and h is half step)
The *Scale Model* is x x x x x x x. The *Scale Model* is the same as the Ionian church mode, which corresponds to the current C major scale.

Scale Model Table

The *Scale Model Table* is a graphical table that contains options for interval relationships for all *Adis*. The table can be used to build all the necessary *Adis*. The greatest significance of the table is theoretical. It can be used to identify and organize the *Adis* used to build a *Binding*. The use of a *Scale Model* makes

the starting point and architectural structure of the work in written form easier to control.

Structure of the Scale Model Table

In the current notation, the C major where are no key signatures, has always been the starting point for modes. It is also useful as a starting point for forming *Adis* and thus also as a starting point for a *Scale Model Table*.

The *Scale Model Table* is made up of three heptatonic initial scales in C major, which are extended to two octaves. The initial scales are divided into three rows according to the position of the half steps. These lines are identified by Roman numerals I, II and III. The *Starting Points* of the *Scale Models* start from different columns and are marked with Arabic numerals 1-12. Row I of the table corresponds to the church modes or heptatonia prima scales. Row II corresponds to the heptatonia secunda scales and Row III corresponds to the heptatonia tertia scales. This table can be used to build all *Adis*.

The *Scale Model Table* provides the IDs of scales and *Adis*. ID markings are for theoretical purposes only. A chromatic section has been added to the *Scale Model Table*. It provides notes for *Adis* and simplifies the transpositions of *Adis*.

Scale model table and its chromatic section

Scale Model

	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1
I	x		x		x	x		x		x		x	x		x		x	x		x		x		x	x
II	x		x		x		x		x	x		x	x		x		x		x	x		x		x	x
III	x		x		x		x		x		x	x	x		x		x		x		x		x	x	x
	c	cx	d	dx	e	f	fx	g	gx	a	ax	b	c	cx	d	dx	e	f	fx	g	gx	a	ax	b	c
		db		eb			gb		ab		bb			db		eb			gb		ab		bb		

Starting Scale

The theoretical significance of the *Starting Scale* in *Polydiatonism* is to obtain a universal id for the *Scale Model*.

The graphical representation of the *Scale Model* is placed under the title of the "Scale Model" in the space reserved for it. The distances of the notes in the graphical model must match the distances in the table.

The *Starting Scale* is obtained by placing the *Scale Model* over the corresponding figure in the *Scale Model Table*. Similarly, an interval combination formed by a diatonic scale can be extracted from the table as an *Starting Scale*.

The *Starting Scale* is identified by its starting point coordinates in the *Scale Model Table*. For example, the starting scale pattern id may be III7, where the starting point of the scale pattern is at that point in the table. The *Scale Model* could be placed directly on the *Chromatic Part of the Table*, but using the table provides an ID for the *Starting Scale* and all *Adis*, which is the main reason for using the *Scale Model Table*.

The *Binding* may contain only one *Scale Model* and one *Starting Scale* formed by it.

Scale Model usage diagram: See Attachment 1 "The use of the Scale Model Table".

Anchor Adi

Notation of Starting Scale

The *Starting Scale* is notated by moving its first character to begin at the desired position on the *Chromatic Part of the Scale Model Table* and replacing each position on the *Starting Scale* with a corresponding chromatic scale note. These notes produce *Adi* for the desired pitch, corresponding to the *Starting*

Scale. It is the *First Anchor Adi* which *Mark Note* is its first note. The unique ID of the *Anchor Adi* is formed by the coordinates of the *Scale Model Table* of the *Starting Scale* and the *Mark Note* of the *Anchor Adi*.

Notation is called according to a *Transformation* of the *Mark Note of Anchor Adi*.

Example:

F-transformation, when the *Mark Note of the Anchor Adi* begins with the chromatic part f-note.

Since the *Binding* has only one *Starting Scale*, it can have only one *First Anchor Adi*.

Identification of Adis

Identification of Anchor Adis

Anchor Adis receive their ID as a combination of the *Starting Scale*, the *Mark Note of the First selected Anchor Adi* and the *Mark Note* of them own. This theoretical structure of *Polydiatonism* can most clearly be seen when church modes are used in the examples.

Example 1: Generating the ID for the *First Anchor Adi*

If you select x x x x x x x x as the *Scale Model*, the intervals are wwhwwwh. The ID is formed by the coordinates of the *Scale Model Table* corresponding to the *Starting Point of the Scale Model* when the *Scale Model* is placed in the corresponding position on the *Scale Model Table*. According to this example, the *Starting Point of the Scale Model* is I1. When this scale pattern is moved to a point beginning with a c-note on the chromatic scale, the *Starting Scale* ID becomes I1c. Thus, the notes on the *Starting Scale* are c d e f g a b c. This is similar to Ionian church mode, which is the same as the C major scale. After that to the id is added the *Mark Note of the Anchor Adi of the Adi*

Group and the *Mark Note* of that *Adi*. In this case, the *Starting Scale* becomes the *First Anchor Adi*. According to its *Starting Scale* it is *C-transformation*, corresponding to its symbolic transposing. The *First Anchor Adi* is also automatically the *Anchor Adi* of its own *Adi Group*, so in this example it will get the id I1c/c,c.

An example as simplified

I1	The coordinates of the first character of the <i>Scale Model</i> in the <i>Scale Model Table</i> .
I1c	The ID corresponding to the <i>Starting Note</i> of the <i>Starting Scale</i> .
I1c/c	The ID according to the <i>Mark Note</i> of the <i>First Anchor Adi</i> of the <i>Adi Group</i> .
I1c/c,c	The ID according to the <i>Mark Note</i> of this particular <i>Adi</i> .

In this case it is the *First Anchor Adi*.

Example 2: ID for the *First Anchor Adi* if the starting note is f

If the *Anchor Adi* had started with a f-note of chromatic scale, it would have received the symbol I1f/f,f. In that case, its notes would have been f g a bb c d e f, and it would have corresponded to the transposed Ionian church mode whose *mark note* would be f. So it would be the *F-Transformation* of the *Starting Scale*. The structure of the id would be formed on the same basis as in Example 1.

Example 3: ID for the *Anchor Adi* which is transposed from the *First Anchor Adi*.

If the transposition of the *Adi Group* based on the *Anchor Adi* of Example 1 were to be transposed into a new *Anchor Adi* starting with a g-tone, it would be the *G-Transformation* of the *First Anchor Adi*. Then it would start with a g-

note, so its *Mark Note* would be g. Intervals would be the same wwhwwwh but the notes would be g a b c d e f x g. Since this would be the transposing of the *First Adi Group*, the *Anchor Adi* of this *Adi Group* is not the *First Anchor Adi*. Thus, this *Anchor Adi* would receive the ID I1c/g,g. In this ID, the last g indicates the *Mark Note* of the *Adi*. The preceding g tells the *Mark Note* of the *Anchor Adi* of this *Adi Group*. Since the *Mark Note* of the *Adi* is the same as the *Mark Note* of the *Anchor Adi* of the *Adi Group*, the *Adi* is the *Anchor Adi* of this *Adi Group*. Because the character preceding of the /-character, which is the first note of the *Starting Scale*, and the character after it, which is the *Mark Note* of the *Anchor Adi*, are different the *Adi* is not the *First Anchor Adi*, but its transposed *G-Transform*.

An example as simplified

I1	The coordinates of the first character of the <i>Scale Model</i> in the <i>Scale Model Table</i> .
I1c	The ID corresponding to the <i>Starting Note</i> of the <i>Starting Scale</i> .
I1c/g	The ID corresponding to <i>Mark Note</i> of the <i>Anchor Adi</i> of the <i>Adi Group</i> .
I1c/g,g	The ID according to the <i>Mark Note</i> of this particular <i>Adi</i> .

In this case, it is an *Anchor Adi*, but it is not the *First Anchor Adi*. The *First Anchor Adi* begins with c-note but this *Adi* starts with g-note. So the *First Anchor Adi* is transposed to begin with g-note i.e. it is the *G-Transformation* of the *First Anchor Adi*.

Adi List

Adi Groups are formed for *Anchor Adis*. If desired, the formation of the *Adi Group* may be preceded by the formation of an *Adi List* for each *Anchor Adi*.

The formation of an *Adi List* is a theoretical operation of *Polydiatonic* music that the formation of *Adi List* can be theoretically presented. It is not necessary to make an *Adi List* in practical composition work. This is unnecessary because the selection of *Side Adi*, and *Lower Adi* and *Upper Adi* can easily be made directly based on their selection rule using a *Scale Model Table*.

The *Adi List* is an ensemble of seven *Adis*, formed for each note of the *Anchor Adi* by using the notes of *Anchor Adi*. This corresponds to the way church modes are formed. The *Mark Note* of each *Adi* is its first note.

Each *Adi* is identified by replacing the last character of the *Anchor Adi* id to the *Mark Note* of this *Adi*.

From the *Adi List*, for the *Anchor Adi*, according to the rules of *Polydiatonism*, either the *Side Adi* in *Double-Cord* presentations or the *Lower Adi* and the *Upper Adi* in *Triple-Cord* presentations are chosen. They will be identified according to the *Adi List*.

Example 1: Producing an *Adi List* for C-Transformation

When forming the *Adi List* it is for the sake of clarity, easier to use established church modes as an example. The example also clarifies the meaning of the last character of the *Adi* ID.

For church modes, the *Starting Scale* starts at the line I. When the Ionian scale is selected as *C-Transformation* i.e. in its basic form as the *First Anchor Adi*, its symbol is, according to previous examples, I1c/c,c. The *Adi List* built on this scale is:

c, d, e, f, g, a, b, c	I1c/c,c	Ionian	Major scale
d, e, f, g, a, b, c, d	I1c/c,d	Dorian	
e, f, g, a, b, c, d, e	I1c/c,e	Phrygian	
f, g, a, b, c, d, e, f	I1c/c,f	Lydian	
g, a, b, c, d, e, f,g	I1c/c,g	Mixolydian	
a, b, c, d, e, f,g	I1c/c,a	Aeolian	Minor scale

b, c, d, e, f,g,b	I1c/c,b	Locrian
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Example 2: Producing an *Adi List* for D-Transformation

Based to the *Scale Model* of Example 1, for the *First Anchor Adi* is selected the D-Transformation of the *Scale Model* i.e. the Dorian church mode.

d, e, f, g, a, b, c, d	I1d/d,d	Dorian	
e, f, g, a, b, c, d, e	I1d/d,e	Phrygian	
f, g, a, b, c, d, e, f	I1d/d,f	Lydian	
g, a, b, c, d, e, f,g	I1d/d,g	Mixolydian	
a, b, c, d, e, f,g	I1d/d,a	Aeolian	Minor scale
b, c, d, e, f,g,b	I1d/d,b	Locrian	
c, d, e, f, g, a, b, c	I1d/d,c	Ionian	Major scale

Example 3: The *Adi List* for the *Anchor Adi* which is not the *First Anchor Adi*

When using *Adi List* of Example 1, and *Anchor Adi* is not the *First Anchor Adi* but as the *First Achor Adi* there is G-transformation.

c, d, e, f, g, a, b, c	I1g/c,c	Ionian	Major scale
d, e, f, g, a, b, c, d	I1g/c,d	Dorian	
e, f, g, a, b, c, d, e	I1g/c,e	Phrygian	
f, g, a, b, c, d, e, f	I1g/c,f	Lydian	
g, a, b, c, d, e, f,g	I1g/c,g	Mixolydian	
a, b, c, d, e, f,g	I1g/c,a	Aeolian	Minor scale
b, c, d, e, f,g,b	I1g/c,b	Locrian	

Adi Group

The sound patterns of the *Cords* are built on *Adis*. Because the *Cords* playing at the same time must be in different *Adi*, a own *Adi* is needed for each *Cord*. An exception is the *Cord* made for percussion, which does not follow the *Adi Rotation*, but its tunes are picked up from tunes of the other *Cords* and picked tunes follows the time duration of those tunes. *Mutual Harmony* and *Scale Feel*

are mainly controlled by the selection of *Adis* playing at the same time. These *Adis* playing at the same time form an *Adi Group* selected according to the desired harmony.

There is only one *Adi Group* constructed for the *First Anchor Adi*. All the other *Adi Groups* are formed by transposing.

Transposing

The most extensive architectural structures of the composition are transposings. When transposed, the melody lines of the *Cords* are changed to a new pitch.

First, the *Starting Scale* is placed at the desired position on the chromatic part of the *Scale Model Table*. The notes thus formed become the *First Anchor Adi* whose *Mark Note* is the first note on the scale.

An *Adi Group* is formed for this *First Anchor Adi*. Also, this *First Adi Group* is called according to the *Mark Note* of its *Anchor Adi*.

The other *Adi Groups* are formed by transposing this *Adi Group* as a whole to the new pitch. The tunes of *Adis* will change, but relations of intervals and scales remain. In this way it is possible to form several new *Adi Groups* and the structure of those *Adi Groups* are identical to the *First Adi Group* but in different pitch. In each transposing, the *Adi Group* will get its own *Anchor Adi*. The first note in each *Adi* in the *Adi Group* is the *Mark Note* of that *Adi*. The *Adi Groups* get by transposing are called *Transformation* according to the *Mark Note* of the *Anchor Adis*.

Example: Designation of the transposed *Adi Group*

F-*Transformation* when the *Mark Note* of the *Anchor Adi* is f.

The amount of transposings depends on architectural structure of composition.

Formation of an Adi Group

An *Adi Group* is formed when there is more than one *Cord*. In practice, based on the *Anchor Adi*, a group of two or three *Adi* is formed, depending on whether the *Binding* contains *Double-Cord* or *Triple-Cord*. Since disharmony is normal in polyphonic music of free melodies, when forming the *Adi Group* is good to favor harmony because that extends the area of harmony-disharmony. A general rule, an adequate interval is sought between the *Mark Notes* of the *Adi Group* because it brings out the character of the *Adis* in the best possible way and thus emphasizes the *Mutual Harmony* of the scales. Also, the *Scale Feel* is more evident. The *Mark Notes* of the *Adis* of *Adi Group* forms the *Link*.

Because all *Adis* in the *Adi Group* are picked from the *Adi List*, they have a unique ID. If an *Adi List* is not created, all necessary *Adis* are created and identified on the same principle as they would have been when the *Adi List* was created.

Link

Because each *Fraction* must always end to the *Mark Note* of its *Adi*, the *Link* is always the last chord that the *Spans of Fractions* form together. The *Link* is the only chord that plays a role in *Polydiatonism*.

The *Link* is born when for the *Anchor Adi* is formed, the *Side Adi* in *Double-Cord Binding*, or the *Upper* and the *Lower Adis* in *Triple-Cord Binding*. The *Side Adi*, the *Upper Adi* and the *Lower Adi* are formed by searching from the *Mark Note* of the *Anchor Adi*, the note which belongs to the *Anchor Adi* and is in desired distance from the *Mark Note* of the *Anchor Adi*. This selected note belongs to the *Link* and is the *Mark Note* of the new *Adi*. A new *Adi* is formed for this *Mark Note* by using notes of the *Anchor Adi*. In the *Double-Cord Binding*, *Adi* is called the *Side Adi*, and in the *Triple-Cord Binding*, the *Adis* are called the *Lower Adi* and the *Upper Adi*, depending on which side of the *Mark Note* of the *Anchor Adi* the *Mark Notes* of the new *Adis* are selected.

Double-Cord Adi Group

In the *Double-Cord Binding*, for the pitch of the *Mark Note* of the *Anchor Adi* and the *Mark Note* of the *Side Adi*, are selected from the notes of the *Anchor Adi* those that in the best way produces desired Mutual Harmony to the *Link*.

Both *Sound Patterns of the Cord* which are played at the same time, must be in one *Adi* of the *Adi Group*, and they must not be in the same *Adi* at the same time.

Example: Selecting *Adis* for the *Double-Cord Adi Group*

Example of a *Double-Cord Adi Group*.

The *Mark Note* of the *Anchor Adi* is capital letter and the *Mark Note of Side Adi* of the *Adi Group* is small letters.

C g or I1c/c,c I1c/c;g Ionian ja Mixolydian church mode.

The *Anchor Adi* is I1c/c,c or Ionian church mode or nowadays major scale. Because in its id there is c/c,c part it is the *First Anchor Adi*. For the *Side Adi* is selected I1c/c,g, which includes into the *Anchor Adi* and is the scale of the *Scale List* that starts from the upper fifth of the *Mark Note of the Anchor Adi*. It is corresponding Mixolydian church mode.

Triple-Cord Adi Group

In the *Triple-Cord Binding*, from the *Anchor Adi* notes that are below and above the *Mark Note* of the *Anchor Adi*, are selected those which best produce the desired harmonic *Link*. The selected notes will become the *Mark Notes* of the *Adis* to be formed. For the note below the *Mark Note* of the *Anchor Adi*, a scale i.e. *Lower Adi* is formed, by using the notes of the *Anchor Adi*. Similarly, the *Upper Adi* is formed, for the note, that is selected above of the *Mark Note* of the *Anchor Adi*.

These three *Adis* form the *Adi Group* for *Triple-Cord Binding*. The sound patterns of all the *Cords* playing at the same time must belong to one of these *Adis*, and they must not be in the same *Adi* at the same time.

For the sake of *Comparison Principle*, the *Triple-Cord Binding* is in practice an upper limit.

Example: Selecting *Adis* for the *Triple-Cord Adi Group*

Example of a *Triple-Cord Adi Group*.

The *Mark Note* of the *Anchor Adi* is the capital letter and the *Mark Notes* of *Upper* and *Lower Adis* of the *Adi Group* are small letters.

a C e eli I1c/c,a I1c/c,c I1c/c,e

For the *First Anchor Adi* I1c/c,c, which is a Ionian church mode and corresponds to the current major scale, both the *Lower Adi* and the *Upper Adi* have been selected. The *Mark Note* of the *Lower Adi* is the third below the *Mark Note Anchor Adi*, and the *Mark Note* of the *Upper Adi* is the third above the *Mark Note* of the *Anchor Adi*. The *Lower Adi* is I1c/c,a, and it is an Aeolian church mode that corresponds to the current minor scale. The *Upper Adi* is I1c/c,e, which is a Phrygian church mode.

Key signatures

Because nowadays commonly used musical notation is also used for *Adis*, key signatures don't always fit notes of *Adis*. In these cases, it is most practical to use the key signatures that most closely cover the tones of *Adi*, and then add needed accidentals.

Example 1: Selecting key signatures for the scale

For the *Scale Model* is selected x x x x x x x which is located in the position II5 of *Scale Model Table*. It is then transposed to begin from the c-note of the chromatic part of the *Scale Model Table*. So the id of the *Anchor Adi* will

be II5c/c,c. In that case the c-note is the *Mark Note* of the *Anchor Adi*, according to which every transposing will be done. The notes of this scale are c d e f g a b bb c and pitch relations are wwhwhww. For this scale it is possible to use key signatures of Eb major and add neutral accidental to every eb-note. Although this is the *First Anchor Adi*, it is called *C-Transformation* according to its *Starting Point*.

Example 2: Alternative key signature selections for the scale

If the *F-Transformation* is made in transposing, that is, the *Anchor Adi* is transposed to begin from the f-note, then the new notes of *Anchor Adi* are then f g a bb c db eb f. The new *Anchor Adi* will be labeled II5c/f,f. In this case, you can use the Ab major key signatures and add neutral accidental to each ab-note. Another option is to use the Bb major key signatures and add neutral accidental for each d-note.

Example 3: Second alternative key signature selections for the scale

If a *D-Transformation* is made in transposing, that is, the *Anchor Adi* is transposed to begin from a d-note, then the new *Anchor Adi* is then d e fx g a bb c d. The pitch relations remain the same. The ID to the formed *Anchor Adi* is II5c/d,d. In this case, you can use the F major key signatures and add a sharp accidental for each f-note. Another option is to use the G major key signatures and add flat accidentals for each b-note.

The examples show that the concept of the scale of *Polydiatonism* is different that it is in the present major-minor system.

Adi Rotation

Adi Rotation is the most important thing that bring up the *Comparison Principle* of *Polydiatonism*. It is the second largest architectural structure after transposing. The *Adi Rotation* is only used in *Comparison Phases* and it is always done inside of *Transition Phases*.

In *Adi Rotation* the *Adis* of the *Cords* swap their positions. The sound patterns of the *Cords* continue in the same *Cord* but in a different *Adi*. In practice the sound pattern in some *Adi* of the *Adi Group* will move to another *Adi* of the same *Adi Group* without any changings so that the *Closing Note* of the sound pattern will be the *Mark Note* of the new *Adi*. Melody changes its character because the relations of the half steps to the *Mark Note* will change. Because the *Cords* must not be in the same *Adi* at the same time, the *Cords* in practice exchanges their *Adis*.

Variation

The *Binding* creation variation is mostly done by *Adi Rotation*, and also by the *Additional Fractions* which are formed from the *Fractions* of the *Index Phase*. *Additional Fractions* is possible to variate also. The most exceptional way to variate is to replace the *Sound Pattern* of some *Fraction* of the *Cord* by rests. In that case one *Sound Pattern* of the *Cord* does not exist at all in that *Fraction*. This kind of variation, suitable for exceptional circumstances is possible to use very seldom. At most it is in use jazz-style composing, where the improvisation in the performance will fill the rested part. In this kind of case, the rested part of the *Cord* is marked the way that indicates improvisation, instead rest-marks.

In arranging there are also some variation possibilities in use which are told in the Arranging part.

Variant Tone

Short tones can temporarily be *Variant Tones* i.e. tones which are took from chromatic scale and does not belong to the *Adi* in use. *Variant Tones* must not weaken the *Scale Feel* of the *Adi*. That is why amount of the *Variant Tones* must be very small. They may be as an additional part of melody, or the ornament notes, only for the musical purposes.

Mainly *Variant Tones* can be used in *Transition Phases* when transpose. When transpose is wanted to be as smooth as possible the tones of the new key can be

used before transpose. In this case the *Variant Tones* can be slightly longer than usually.

Free Scale

It also possible to weaken the *Scale Feel* purposely by adding freely *Variant Tones*. When *Variant Tones* are increased end up to completely new kind of scale and the *Scale Feel*. In this case it will replace the original *Adi* with a whole new scale.

The purpose is to highlight the own character of the *Adi* by limited amount of *Variant Tones*.

In theory it is possible to add *Variant Tones* up to chromatic scale but then question is not any more music of *Polydiatonism* that use *Adis*. If such a composition follows other rules as closely as possible to the rules of *Polydiatonism*, then *Polydiatonism* will serve as its structural, ideological framework for *Autonomous Music*.

Theoretical purpose of Adi

Adi is the general theoretical basic structure which is common for all *Bindings* to be formed. With *Adis* are constructed all the initial values for which are the basis of the *Binding*. This kind of theoretical practice gives the premises to the work of composing to get as near as possible to the *Autonomous Music*.

When composition specific *Adis* are created the general ID of them are changed to more practical ones that is the composition specific ID of *Fractions*. Because these IDs are composition specific, the same id mean different thing in different composition.

IV Architectural structure

Binding

Overview

The one-part *Binding* is the first and most important phase of the three-stage work of *Polydiatonism*.

The *Binding* is the complete set for the arrangement and for that it contains all the needed information. The *Binding* is the final form of the composition composed by the composer. It is the actual composition. The *Binding* can be either monophonic or polyphonic. The *Sound Patterns* of the *Binding* are called *Cords*.

The *Binding* is built with one or several *Cords* which contain its whole musical content. The *Binding* is not intended to be presented, but must always be arranged to the presentation.

The overall structure of the *Binding* is designed and presented using a *Composition Chart*. See Attachment 2 "Example of the Composition Chart".

Cord

The overall architectural plan of the opus is presented in the *Binding* which is implemented by using *Cords* which are divided into sections. Each *Cord* of the length of the *Binding* comprises one independent sound pattern with its own *Fractions*, *Spans*, and *Phases*. The *Cord* contains musical content throughout the entire composition of each sound. As a whole, a *Binding* consists of one or more *Cords* divided into *Phases*.

The *Sound Patterns* of the *Cords* are based on the *First Adi Group* that is formed according to the *First Anchor Adi* and to transpose of the group.

Number of Cords

The number of *Cords* is free. There is only one *Cord* in a solo work, but there are more in larger works. Even if the number of *Cords* are free, according to the *Comparison Principle*, three *Cords* in practice are the maximum number. This does not include written percussion *Cord*. Three *Cords* are manageable by listening but they give unlimited variability possibilities. For the listener bigger amount of *Cords* makes realization of the *Comparison Principle* very difficult. For the composer three *Cords* are enough they gives unlimited options to the musical expression.

Use of Cords

The *Phases*, *Fractions* and *Spans* of a *Binding* shall be of equal length in time and in structure if there is more than one *Cord*. The *Transition Phases* must be in the same location on all *Cords*. The *Cords* must not be in the same *Adi* at the same time. The *Adi Rotation* can happen only inside of the *Transition Phase*.

Transposes are the largest architectural structures. They happen at the same time in all *Cords*, inside of the *Transition Phase*. For that reason the *Adi Group* which has made of the *First Anchor Adi* is the only that can be in all *Phases* including the *Index Phase*. All the other *Adi Groups* can only be in the *Phases* which comes after the *Index Phase*.

The *Cords* are identified by the IDs *R*, *S* and *T*. The *Fractions* contained in the *Cords* are identified by the *Span-specific* symbols which indicate the *Span of the Fraction* of the *Cord*. In particular, if you want to create your own *Cord* for percussion, it will be labeled *O*.

The architectural shape of the *Binding* will be got by dividing the *Cord* or the *Cords* into the *Phases*. By combining the *Fractions* forming the complete *Phases*, each *Cord* produces an architectural structure that gives the desired musical overall picture.

The composer creates enough *Fractions* to make different combinations. This means creating *Fraction-specific Spans* for each *Cord of the Binding*. Every created *Span* will be marked by the ID of its own. *Fraction-specific Spans* always appear together. Because these identifier symbols include the musical content of the entire *Fraction*, the architectural structure of the *Binding* can be controlled by connecting together these symbols. In this way, all the *Cords* form a chain of *Span* symbols contained in the *Fractions*, which represent the entire *Sound Pattern* of each *Cord*. Since the *Cord-specific Span* symbols contained in a *Fraction* always occur together, it would be possible to assign a single symbol to the *Fraction*. However, due to *Adi Rotations*, it is more illustrative to present the *Fractions* with separate *Span* symbols.

When combining the *Span* symbols contained in the *Fractions* with their respective notated *Sound Patterns* produces a finished *Binding*. The *Binding Sound Patterns* can be written to any clef because when arranging music they are written to the pitches of the selected instruments.

Phase

The *Phase* is a larger independent part of a *Binding* consisting of *Cords*. The architectural structure of the *Binding* is formed by using *Phases*.

The architectural form of the *Phase* is constructed by means of connected *Fractions*. Thus, with the *Phases* can be made larger architectural structures, as required by the *Comparison Principle*. A sufficient number of *Phases* are made to achieve the desired architectural structure. The length of the *Phases* is freely selectable.

According to the *Comparison Principle*, the identifiability of *Phases* is based on the content of the *Fractions* that make up the *Phases*. When listening, *Fraction*, *Adi Rotations* of *Fractions* and transposes of *Fractions* are compared to each other. Based on these comparisons, to the listener becomes clear about the sequencing of the *Cords*, their musical character and thus the architectural structure of the whole opus.

Index Phase

The first *Phase* is always the *Index Phase*. It is a *Phase* that introduces, in its basic form and in chronological order, all the first *Fractions* of all *Cords* based on the *Adi Group* formed by the *First Anchor Adi* given by the *Starting Scale*. The purpose of the *Index Phase* is to make the musical starting point familiar. All later variation are made up of the parts of this *Phase*, and everything to be heard later are compared to it.

At the beginning of the *Index Phase*, there may be a separate period that starts the *Binding*. Such a start-up period is either a *Transition Phase* or part of a *Transition Phase*, or, like an *Additional Fraction*, a *Phase* constructed from the *Stamps of the Fraction* of the *Transition Phase*. This musical exception is an independent part of *Binding* that creates the desired musical beginning for the *Index Phase*. The *Transition Phase* that starts the *Binding* is not part of the *Index Phase*, nor is it repeated in the *Comparison Phase* or the *Final Phase*. Thus, this *Transition Phase* is very loosely included in the architectural structure of the composition. Its greatest significance is revealed in the arrangement.

For musical reasons in the *Comparison Phases* as variations formed *Additional Fractions* are not presented in the *Index Phase*.

Comparison Phase

The *Phases* which follows the *Index Phase* are the *Comparison Phases*. The amount and length of the *Comparison Phases* are free. They are mainly formed from *Fractions of Index Phase* by using *Adi Rotation*, but it is also possible to use both *Fractions of Index Phase* in they original form and *Additional Fractions*.

The difference heard in the comparison is the *Degree of Change*. The number of changes in the *Comparison Phases* compared to the *Index Phase* and previous *Comparison Phases* determines their level of *Degree of Change*.

Additional Fraction

In *Comparison Phases* it is possible to use *Additional Fractions* which are not introduced in the *Index Phase*. The purpose of the *Additional Fractions* is to add surprise and exceptionalism to the comparison. They need to be build partly to the *Stamps of the Fractions* which are introduced in the *Index Phase* so that their comparability would support the architectural structure of the whole *Binding*. If *Additional Fractions* occur in the *Comparison Phase*, they increase the level of its *Degree of Change*.

Final Phase

The last one is the *Final Phase*. It is free in length and repeats *Fractions* of the *Index Phase* in their original basic form or transposed basic form. Not all *Fractions* in an *Index Phase* need to be included in the *Final Phase*, nor should the *Fractions* contained in it need to be in the order of the *Index Phase*.

Transition Phase

Transition Phases always occurs between all other *Phases*. They are very short *Phases* the length of one or two *Fractions*. The purpose of the *Transition Phases* is to group and illustrates larger architectural entities into identifiable units.

Adi Rotations and transposes which are the largest structures in use in the *Binding* are always made inside the *Transition Phases*.

For the *Transition Phases* are created the *Fractions* of its own where are *Cord-specific Spans* differing from other *Phases*. This is also done to the *Phase* that is preceding the *Index Phase* in the beginning of the *Binding*.

Fraction

The composer constructs a sufficient number of *Fractions* of the same musical length of the desired musical form. According to the comparison principle, each

Span of Fraction must be recognizable as the *Sound Pattern* of its own. Each *Cord* has its own *Spans*, which are used only in that *Cord*.

The first *Spans of Fractions* are always made with the *Adi Group* formed by the *First Anchor Adi*. The *Index Phase* contains only *Fractions* based on these *Spans*. Using these *Spans*, the *Fractions* used in the *Comparison Phases* are formed by the *Adi Rotation*. This gives each *Fraction* its own form for each *Adi* in the *Adi Group*.

If necessary, *Additional Fractions* can be formed for *Comparison Phases* by combining the *Stamps* of the *Spans* contained in the *Index Phase Fractions* and with the new *Stamps of the Spans* created for the *Additional Fractions*. The *Additional Fractions* which are formed must have the same length and shape as the *Fractions of the Index Phase*. They will also be varied in the same way as are the *Fractions of the Index Phase*.

For the *Transition Phase* are formed the *Fractions* of its own. The *Adi Rotation* of the *Fractions* of the *Transition Phase* is similar to that of the other *Fractions*.

The *Fractions* of the *Transition Phase* are only used in the *Transition Phases* and sometimes in the beginning of the *Binding*.

Each *Span* in the *Fraction* appears only in its own *Cord* and in the current *Adi of the Cord*. Thus, each *Cord* is made up of a chain of the *Spans of the Fractions*, formed on that *Cord*.

The *Cords* at the same time sounding must not be in the same *Adi*, so the *Spans* and *Fractions* sounding at the same time are also in the different *Adi*.

Percussion Fraction

If percussions have an own *Cord*, it is divided into *Fractions* according to exactly the same principles as *Sound Pattern Cords*. The content of the *Fraction* is formed by picking it from the contents of the simultaneous *Sound*

Pattern Cords. The picking can be done freely by using the contents of different *Cords*.

If only unpitched percussions are used, the demand of the picking is duration and rhythm of the tone of the *Sound Pattern* of the selected *Cord*.

If the pitched percussions are used, the demand of the picking is duration and rhythm and pitch of the tone of the *Sound Pattern* of the selected *Cord*.

ID markings of Fractions

The architectural structure of the composition is formed by interlocking the *Phases* formed by the *Fractions*. *Adis* identifiers are general-theoretical and identify each *Adi* on a general level. Their interpretation is not a composition-specific, but a general notation system related to the theory of *Polydiatonism*.

Instead of *Adi's* identification markings, a unique identification mark is required for each *Span of the Fraction*. Unlike *Adi's* generic identifiers, these identifiers are not generic, but composition-specific, whereby the content of the same identifier is different in different compositions.

These composition-specific identifiers are used to form and represent the desired architectural structure. All the *Spans of the Fractions* are identified by three-letter symbols formed from the identifiers of the *Cords*.

Structure of ID marking

The first letter on the *Span ID* indicates the *Cord*. It is the same letter used to label the *Cord*.

The second letter is the *Mark Note* of the *Adi*, which at that moment is on that *Cord*. This character (*Mark Note*) follows the *Adi Rotation* of the *Index Phase*. It does not follow transposing, because then it is possible to get formed a letter combination which already is in use as a symbol for a *Span* with different

contents. The transposing is marked on the *Composition Chart* with a separate marking.

The third letter identifies the *Fraction*. Each *Fraction* with an independent *Sound Pattern* has its own marking. To the marking is used a lowercase letter that is the same for each *Span in the Fraction*.

The percussion *Cord* does not include an identification tag, only the used instrument.

Example 1: Producing an ID for the *Span of Fraction*

The IDs of the *Spans* can be for example *Raa*, *Sca*, etc. According to that in ID *Raa* the letter *R* shows the first *Cord*, the middle letter *a* shows the *Mark Note of the Adi*, in this case, the *Adi* which starts with a *a-note*, and the last letter *a* identified the *Sound Pattern* of the *Span of Fraction*.

The *Spans* of the *Transition Phases* are marked for example *Ras*, *Scs*, etc. In this case the interpretation of IDs is the same as before but the last letter *s* shows that it is the *Span of the Transition Phase*. If there are several different *Spans of Transition Phase* in the same *Adi*, the *Spans* can separate from each other by a number for example *Ras1*, *Ras2*, etc.

Example 2: Transposing does not change the ID of the *Span of Fraction*

The second letter of the ID of the *Spans of the Fractions* does not follow transposes. If for example the Aeolian church mode is selected to the *First Anchor Adi* and its ID is *I1a/a,a*. Because it is the *First Anchor Adi* it becomes the *Anchor Adi* which is used in the *Index Phase*. Its *Mark Note* is note *a*. The *Mark Note* for the *Upper Adi* is selected note *c* and the *Mark Note* for the *Lower Adi* is selected note *f*. Thus, the IDs of the *Spans* of the first *Fraction* in the *Cord R* can for example be *Raa*, for the *Upper Adi* in the *Cord S* it can be *Sca* and for the *Lower Adi* in the *Cord T* it can be *Tfa*.

If the *Comparison Phase* is transposed by using the *F-Transformation* and if the second letter would follow it the new IDs for the *Spans of the Fractions* would be *Rfa* for *Span* of the *Cord R*, *Saa* for the *Span* of the *Cord S* and *Tda* for the *Span* of the *Cord T*. In the *Adi Rotation* which is done after the transpose the IDs would be *Raa* for the *Span* of the *Cord R*, *Sda* for the *Span* of the *Cord S*, and *Tfa* for the *Span* of the *Cord T*. So, after transpose and *Adi Rotation* there is in the *Index Phase* and *Comparison Phase* the same IDs for their *Spans* of the *Cords R*. Both IDs are *Raa* although the different content.

Even if these *Spans* with the different contents never occur at the same time, by using the same ID in the different meaning will increase confusion in the architectural description of the *Composition Chart*. That is why the second letter of the ID of the *Span of the Fraction* does not follow the transpose but stay the same. In the *Composition Chart* the transposes are shown by using the different marking.

Example 3: The ID of the percussion *Cord*

The name for the *Cord* of percussions is letter *O*. The notes for the *Spans* of percussions are picked from different *Cords* when composing and from the notes of different instruments when arrange, that is done according to the principles of the *Partial Instrumentation*. For this reason the IDs for percussion can be numbers when composing, and abbreviations of the instruments when arrange. Thus, the ID in the percussion *Span of the Fraction* can be *O1, O2, O3*, etc. or *B* (bass drum), *T* (timpani) etc.

Closing Note

Because the *Cords* are divided into parts of exactly the same length also all *Fractions* are exactly the same length. For this reason also, *Spans of Fractions* must be exactly the same length. Each *Span* end to the *Closing Note*, which always is *Mark Note of the Adi* in use at that moment. Together *Closing Notes* of the *Spans* forms the *Link*.

To terminate a *Span*, it is considered to be the *Mark Note of the Adi* used by the *Span* at its last measure i.e. the *Closing Measure*. Usually, the end of the *Span* must be clear and easily recognizable by hearing. In a situation where in the *Closing Measure* has a note that starts the next *Span of Fraction*, and that note has the same pitch than the *Mark Note* of the previous *Span of Fraction* the *Closing Note* must be the longest note in the *Closing Measure*. The end of the *Span of the Fraction* can also be seen from another *Span of the Fraction* of the *Cord*. This requires that, in at least one of the *Cords*, the *Closing Note* of the *Span of the Fraction* must be unmistakably clear. In a situation where the *Span of the Fraction* ends a measure before last measure or *Closing Note* is shorter than in the other *Spans* the difference must fill by rest mark that the length is equal in all *Spans*, as demanded.

If there is a rest mark in the *Closing Measure* after the *Closing Note*, or notes which are melodically preparing the next *Span*, or ornament notes, at composing it must keep in mind, the possible Replacement Function when arrangement.

If, for rhythmic reasons, the *Span of Fraction* ends in several *Mark Notes*, they can be joined at the arrangement by a tie. Hereby the combined notes can be written with one note corresponding to their length. For example, three $1/4$ notes combined with the tie can be marked with a dotted half note.

Composition Chart

The *Composition Chart* describes the content of the *Binding* with symbolic notations and shows the architectural structure of the whole *Binding*. In the composition chart, all events on the *Cords* are represented by symbols associated with the timeline notation.

Although the *Composition Chart* is a description of the *Binding*, it can also be used as a help when arranging. In this case, symbols representing different groups of players can be added above the symbols of the *Spans of the Fractions* of the *Cords*.

Example of Composition Chart: See Attachment 2 "Example of the Composition Chart".

Jazz style composition

In Polydiatonism it is also possible to create a *Binding* based on jazz-style improvisation. Such a *Binding* differs from the normal *Binding* only in *Comparison Phases*.

In the *Comparison Phases* of the Jazz work, one *Cord* at a time is free for improvisation. Improvisation is done using the current *Adi*. The beginning and end of free improvisation are marked into the stave. The used *Adi* is also marked to the stave, as well as the transposes and the accidentals needed for the *Adi*. Otherwise, the stave of the score will be left blank in the improvisation part.

Improvisation also has to follow the rule that the *Cords* should not be in the same *Adi* at the same time. Also when improvising, *Adi* must be able to recognize by the base of *Mark Note*.

Improvisation can change in the *Transition Phase* to the different *Cord*, but improvisation can only occur on one *Cord* at a time.

When arranging a *Binding*, the improvisation note is transferred as such to the musical notes of the players playing that *Cord*.

Pitched percussion instruments are assimilated to the other instruments and for them are applied the part of chapter "Binding-Fraction-Percussion Fraction".

The use of unpitched percussion instruments is totally free.

In general, the jazz *Binding* will be constructed following the principles of *Polydiatonism*.

Naming a work

The work is divided into two parts, a *Binding* and a score. There is only one *Binding* per composition, but there can be endless arrangements of scores.

The *Binding* is named by the composer and the formation of the name is free. The score is named by the arranger. The name of the score is also free, but the title or separate description must indicate both the composer and the *Binding* on which the score is based.

In a traditional Western musical performance, this can be done most simply by adding into the opening page as a title the name which the arranger has given and below that as a subtitle the name which the composer has given. In this way, the arranged score and the *Binding* on which it is based, it will be clear. As usual, the composer and arranger are marked to the right side of the opening page, above the staff.

One possibility to name a Binding

Argument

Just as the symphony has become the common name for a certain style of music, *diunum* is a common name for compositions based on *Polydiatonism*.

Structure of the name

The starting point for the development of *Polydiatonism* is based on diatonic scales, and hence the reference to them remains in the name of the method. Likewise, it remains in the naming of works.

The composition is named by combining the word *diunum* and the mark of the year, followed by the serial number for the year in which the work was completed. *Di* in the beginning of the name refers to diatonic scales. Because the *Bindings* are always one-part, it is brought to light by the Latin word *unum*.

Finally, in the Nordic countries, the year of manufacture of the precious metals, to which the work of that year was completed, is marked with a serial number.

After that there is the year code of precious metals which is used in Nordic countries. It tells the year when the work was completed. The last number is the order number of compositions which were completed in that year.

Year Code

The year code consists of a character and a number. The letters used are A, B, C, D, E, F, G, H, I, K, L, M, N, O, P, Q, R, S, T, U, V, X, Y and Z. Each character represents the year. It is followed by a sequence number. It indicates the sequence number of the current use of the character sequence. The entry began in 1810, which is marked by letter A. The series first completed in 1833. This year corresponds with the last letter of the series, Z. The series then began again in 1834 and corresponded to the entry A2. This means that the character set is used for the second time. This character set became complete in 1857 and is labeled Z2. A new series of letters began again in 1858 and is labeled A3. This way, by using the letter sequence over and over again, the marking can continue forever.

Year Code Table:

R9=2018
 S9=2019
 T9=2020
 U9=2021
 V9=2022
 X9=2023
 Y9=2024
 Z9=2025
 A10=2026
 B10=2027
 C10=2028
 ...

Creating a name by using an example:

Diunum R92

Di Diatonic principles based composing method,
 unum one piece work,
 R9 which was completed in 2018
 2 and was composer's second composition which completed that year.

One way to name the score

The score arranged by composer is possible to name same way than the *Binding*. This name will be the Title of the score. As well, in this case the name of the *Binding* is placed to the Subtitle. If the composer make more than one arranging, from the same *Binding* and use the same title, they are separated by version number v2, v3, etc. to each other. The first arranging does not get the version number. The name of the composer will be in the space reserved for it, to the right side of the opening page, above the stave.

It always possible to give the kind of title to the Score what kind of the composer wants when arranging but the subtitle must always be the name of the *Binding*.

When the arranger gives the name to the score, it will be the title and subtitle is always the name of the *Binding* which composer has given. If the arranger makes several arrangements from the same *Binding*, each can have the title what arranger wants. As well, in this case the name of the *Binding* is placed to the subtitle. Both the arranger and the composer will be marked to the right side of the opening page, above the stave.

V Arrangement

At first

The *Binding* is the composition that includes all the theoretical information of music of the opus. Because *Binding* is not intended for performing, it must arrange into the form for performing.

The presentation follows the traditional Western notation.

Principles

In arranging the *Binding* is transformed into a format to be performed. For the demands of *Autonomous Music* contained in *Polydiatonism* to be fulfilled, the transformation must follow the rules developed for it. As a result, the potential for the transformation is narrower than in arranging in general, but wider than in orchestration. Despite the limited possibilities of arranging in *Polydiatonism*, this transformation is called arrangement, it is made by arranger, the work is called arranging, and the end result is a performable score.

Even if the possibilities of arranger in *Polydiatonism* are limited, according to copyright, he/she is the arranger. This does not change the limits of the transforming. Regardless of the name of the arranger, in transforming a *Binding* into a score, he/she must follow to the rules, spirit and purpose of *Polydiatonism*.

Following these principles, is the complete freedom to arrange of all *Bindings* into a score, in accordance with copyright laws, treaties and practices. Otherwise, it is forbidden.

Rules of arranging

Equivalences

Temporal Equivalence

The temporal sequence of events in the stave of the *Binding* is in accordance with Western musical writing practice. All events in the stave are chronologically left to right and top to bottom. Thus, the stave represents a horizontal timeline that defines the location of all events, their chronology, and their relationship to each other. This is a *Temporal Equivalence*.

Event-related equivalence

Event-related Equivalence in *Polydiatonism* extends the *Temporal Equivalence* of a *Binding* vertically. The number of staves is free, so all events, every sound or some other mark of the *Binding*, can be represented by their own stave. In the *Event-related Equivalence* are followed *Temporal Equivalence*.

The only exceptions to the *Sound Patterns of the Bindings*:

1. The pitch can be changed only in the octaves.
2. The sound is possible to multiply for several octaves simultaneously.
3. The way to produce the sound or sounds is free.

General rule

The arranger can be the composer himself, another person or a group. From the same *Binding* can be arranged unlimited amount of scores.

Basis

The *Binding* can be freely arranged for any instrument ensemble or to the computer.

The arranger builds to the instrument ensemble of his/her choice or computer a score which is based on the *Binding*. When arranging, the information of the *Binding* is transformed into a performance format following the *Temporal Equivalence* and *Event-related Equivalence*. The basic principle is that nothing in the information of the *Binding* is omitted or added to it. Only separately listed exceptions are allowed. The intent is to add those markings that are necessary for performance and playability which the *Binding* does not include. Anything what is added shall not change the content of the *Binding* which base is *Polydiatonism* theory. When arranging, always must be work according to the basic idea of the *Polydiatonism*.

Possibilities to follow Equivalences in practice

The score must include the theoretical and architectural structure of the *Binding* completely, without adding or omitting anything, only exceptions listed explicitly are allowed.

The length of the score and its distribution into the various parts is exactly the same as it is in the *Binding*. All entries of the *Binding* must be moved exactly the similar and in exactly to the identical temporal position of the score. All *Cords* must be arranged as such and the *Sound Patterns* of the *Cords* must not be changed.

The pitch of the *Sound Patterns* of a *Binding* can be changed in the octaves and may be freely written for any instrument or group of instruments, in the whole or in part, provided that all markings of the *Binding* are included into the score to the corresponding temporal location.

Permitted additions and exceptions in arrangement work

Partial Instrumentation

Although everything that is in the *Binding* must be in the score, the instrumentation is free. The *Sound Pattern of a Cord* can be shared freely between different instruments and groups of instruments, as long as the *Sound Pattern of the Cord* as a whole is repeated at the same time as in the *Binding*, that is, the requirements of *Equivalences* are met. In this case, the *Sound Pattern of the Cord* does not need to be complete or uniform for any instrument or group of instruments. At its smallest, an instrument or group of instruments plays only a small part or individual tones of the *Sound Pattern of the Cord*. The rest notes of the *Sound Pattern of the Cord* are played, according to the *Principle of Equivalences*, on other instruments so that nothing is omitted from the information of the *Sound Pattern of the Binding*, and nothing is added. Instruments which play single notes can be equated with pitched percussion instruments.

Percussion

There are two kinds of percussion, pitched percussion instruments and unpitched percussion instruments.

Binding without percussion part

If there is no percussion instrument part in the *Binding* the use of them is free when arranging.

Pitched percussion instruments can be arranged in the same way than all other instruments. In this kind of case, it is possible to use *Principle of Partial Instrumentation*.

The use of unpitched percussion instruments is free for arranger. They also have to follow the *Principle of Partial Instrumentation* with regard to the rhythm and duration of the tunes.

Binding with marked percussion instruments

Marked percussion instruments parts are one of the *Cord of the Binding*, but they are arranged for the percussions. The arranging shall be done in accordance with the arranging rules.

For other percussion instruments, it is considered that the *Binding* does not have a percussion part for them and those will be dealt with accordingly.

Tempo markings

If the composer has done the tempo marking in the beginning of the *Binding*, it is the default tempo. When arranging it is possible to use different tempo than what is default. If there is no tempo marking it is free for arranger to decide.

The arranger can decide the tempo changes during the composition.

Dynamics

The arranger can freely decide all dynamics and changes of them.

Replacement Function

Overview

When arranging it is possible to make replacement for rest or note.

A: In the *Replacement Function*, the rest that is after the *Closing Note of a the Span* of the *Fraction* can be replaced, in whole or in part, by the *Closing Note*

that is before the rest, or by a note or several notes or ornament notes which are after the *Closing Note* and belong to the next *Span of the Fraction*.

B: Likewise, a note or notes following a *Closing Note* which is inside the *Closing Measure* but belongs to the next *Span of the Fraction* can, may be replaced by a rest or rests corresponding to their duration.

According to the previous rules these both actions can be done one after the other. In this *Double Replacement Function* from those previous rules first will be done part B and then part A. It gives the possibility to replace a note, notes or ornament notes, which belong to the next *Span of Fraction*, by extending the *Closing Note* of the previous *Span of Fraction*. In practice, at first a note, notes or ornament notes which belong to the next *Span of Fraction* are replaced by the rest and then the rest is replaced by extending the *Closing Note* of the previous *Span of Fraction*.

Replacement operations must be carried out in accordance with the principle of *Polydiatonism*, whereby all the *Fractions* are of the same length and must therefore terminate at the same time. The *Span* can also end at a rest.

At least one of the *Closing Note* of the *Span of Fraction* sounding at same time must be such that, despite the *Replacement Function*, the *Closing Note* is unquestionably clear. In cases of doubt, this determines the *Closing Note* of the other *Spans* and thus the final point of the entire *Fraction*.

Replacements are not allowed to do to the upbeat in the beginning of the composition.

Permitted additions when arrange

All the other additions are listed in the attachment 3.

Comparison Principle when arranging

The arranger must follow the *Comparison Principle* as closely as possible. In practice, for purposes of the *Comparison Principle*, it is desirable for the arranger to select for each *Cord* its own pitch at which height the *Cord* generally sounds. In this case, each *Cord* will primarily appear on instruments of the selected pitch. Thus, for example, the *Cord* selected for the bass is generally present in the lower sound level instruments, but it can also sound in other instruments and at different pitches, according to the groups of instruments made up when arranging.

When distributing the *Sound Patterns* to different groups of instruments, their sounds may "cross", i.e. the ascending melody that begins lower than the upper downward melody begins, and at some point the pitches change position, after which the previous lower one sound is higher than the previous higher one sound. The dissonances created in such situations increase the spectrum of harmony. Both melodies must have their own, strong and independent sound pattern so that they are easy to follow for the *Comparison Principle* come true.

Folder

The *Bindings* are always one-piece. It gives one or more arranger unlimited opportunities to form larger entities. The larger entities, that is, *Folders*, contains several orchestral arrangements of one or more *Bindings*.

There are several ways to create *Folders*. It is possible to make an unlimited amount of arrangement and interpretations from one *Binding*. This gives the possibilities to perform several different orchestral arrangements from a single *Binding* in the same concert or recording.

It is possible to arrange the same *Binding* into a *Folder*, either by one or more people, and present it in a larger series.

The *Folder* can also be arranged from several separate *Binding* which are matching together. The *Bindings* are free to select by the arranger. Each *Binding* may be arranged by one or more persons.

Instrument Matrix

This part is not included in *Polydiatonism*.

According to the rules of *Polydiatonism*, the *Binding* can be arranged as a score as wanted.

When arranging it is possible but not necessary to use *Instrument Matrix*. It is an alternative, well-suited to *Polydiatonism*, the arrangement of a score from a *Binding*.

The *Instrument Matrix* is formed individually for every composition. It shows groups of instruments formed for different sound pitches and for different *Cords*. In the *Instrument Matrix* there are all the instrument combinations of the orchestra needed for the performance. These combinations can be identified by identification symbols.

Although the *Composition Chart* only describes the structure of the *Binding*, it is possible to add the identification symbols of the instrument groups to it.

Creating a Instrument Matrix

For the score, the arranger builds groups of instruments that produce the desired sound properties. They are formed by dividing the orchestra into groups of different instrument combinations or by selecting the groups of instruments that will form the orchestra. One group of instruments lists the instruments for each *Cord*. Each instrument group will be marked by a unique identifier. When listing the groups of instruments and their identifiers to be used in the arrangement, the results is the composition specific *Instrument Matrix*.

Arranging by using Instrument Matrix

The arranging is done by combining the symbols of the *Span of the Fraction* to the symbols of the *Instrument Matrix* with which groups of instruments gives the desired sound combination.

When in the notation step are shifting from the instrument groups to another, it is possible to smooth the change by extending the adjacent instrument combinations on the top of each other by a few measure. In this kind of case, the sounds of these instrument groups overlap for a while, and the sharpness of the change can be controlled by changes in the volume of the instruments in the groups.

Identification of groups of instruments

Since the instrument groups of the *Instrument Matrix* contain the instruments and their distribution on different *Cords*, they can be identified by symbols such as *a, b, c*, etc. Subgroups such as *a1, a2, b1, b2*, etc. can also be added to these groups.

These instrument groups, identified by the symbols, are used when arranged the *Binding* as a score by combining the symbols of the *Instrument Matrix* with the symbols of the *Spans of Fractions*.

Example:

The instrument group *a1* can be associated with the symbols *Rca, Sea, Taa*, because the *a1* symbol contains all instruments that are played on each *Span of Fraction*.

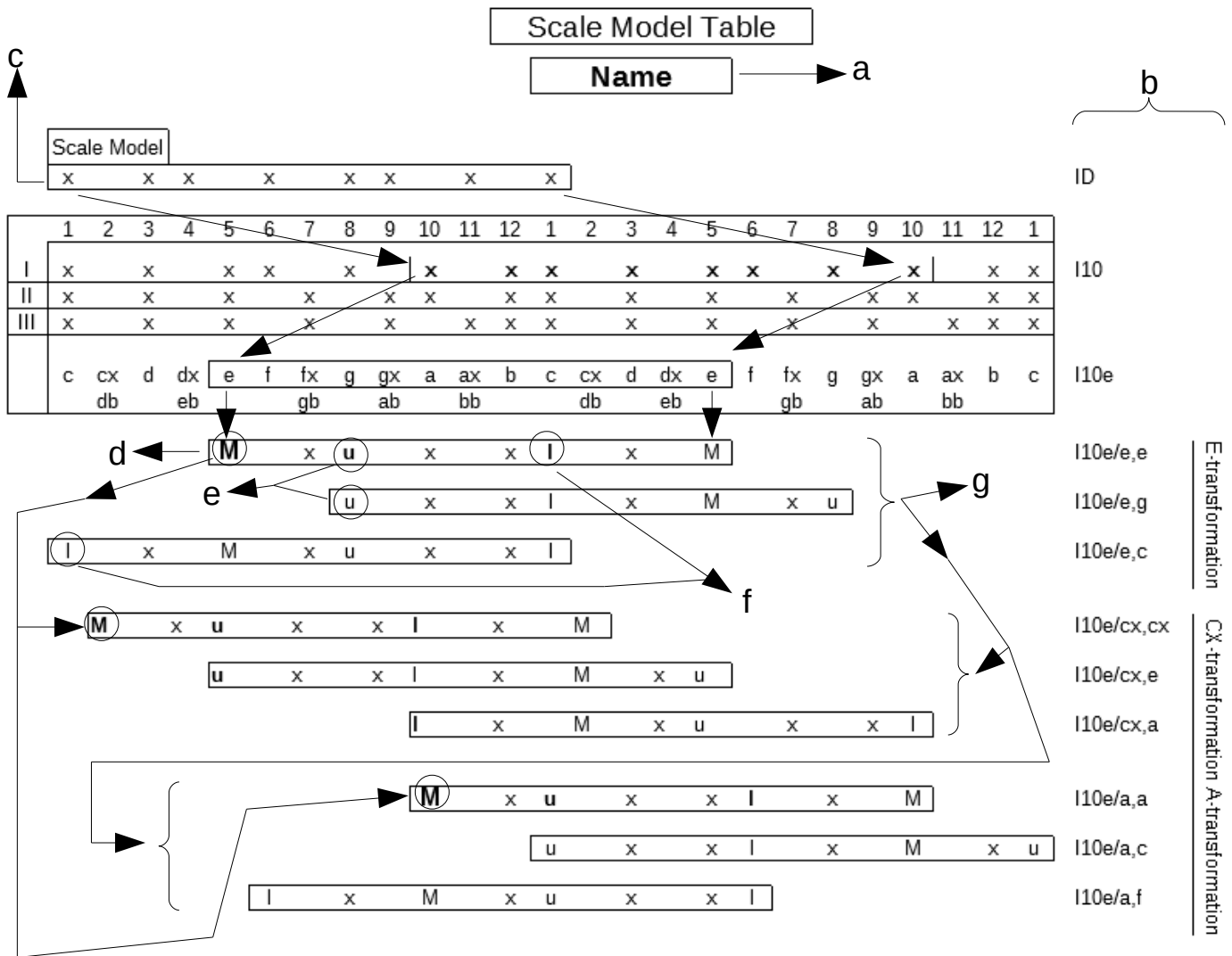
Using the symbols and the notes of the Fraction, the arranger writes the final score.

VI Contribution of performers

The performer or conductor may be a composer, arranger or other person. The performer will add to the score the notations necessary for presentation and interpretation.

Attachement 1

The use of the Scale Model Table



- a The name of the composition.
- b Scale IDs and conversions made.
- c *Scale Model*.
- e The *Mark Note* of the selected *Upper Adi* [u].
- f The *Mark Note* of the selected *Lower Adi* [l].
- g The *Adi Group* that is formed for the *First Anchor Adi*.

The graphical *Scale Model* of the desired scale is placed in its dedicated box (c).

A pattern corresponding to the graphical *Scale Model* is retrieved from the *Scale Model Table*.

The found pattern is placed at the desired position on the chromatic part of the *Scale Model Table*. In the example, its ID (b) becomes I10e.

The notes of the *First Anchor Adi* can be found in the chromatic section, from the positions indicated shown by the graphical *Scale Model*. The first note [M] of the *First Anchor Adi* is the *Mark Note* (d) on the scale. Based on this, to the ID of the *First Anchor Adi* (b) becomes I10e/e,e.

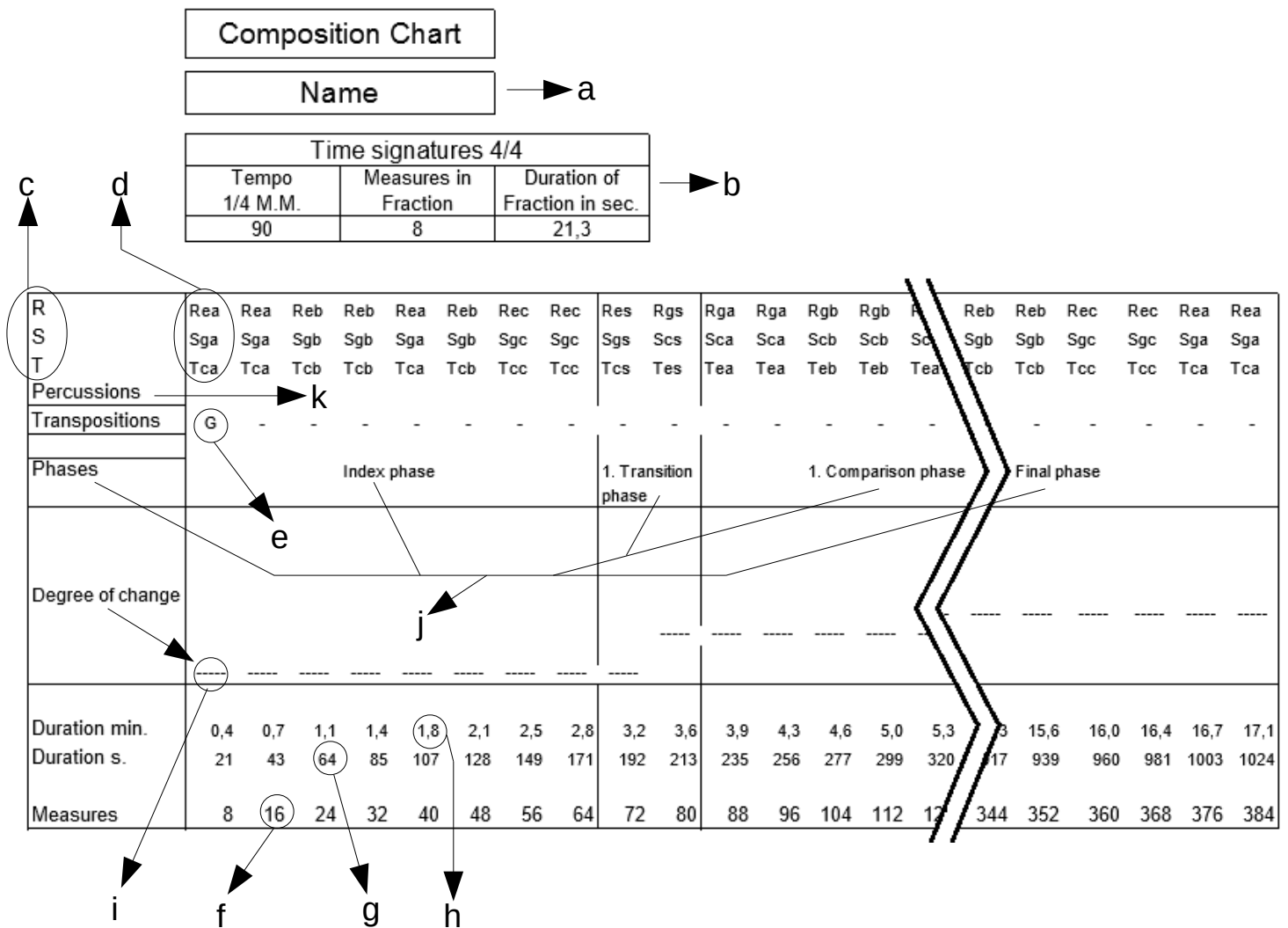
The *Adi Group* is formed for the *First Anchor Adi*. First, from the tones of the *Anchor Adi* are selected the *Mark Notes* (e) for the *Upper Adi* [u] and (f) for the *Lower Adi* [l]. By using the notes of the *Anchor Adi* are formed the scales for both selected *Mark Notes*. According to their *Mark Notes* are the IDs formed to them, I10e/e,g for the *Upper Adi* and I10e/e,c for the *Lower Adi*. In this way we have got the *First Adi Group*. According to the *Mark Note* of the *First Anchor Adi*, this *Adi Group* is called *E-Transformation*.

By transposing the whole *First Adi Group* are formed *Transformations*. The first *Transformation* is *CX-Transformation* which is named according to the *Mark Note* [M] of the *Anchor Adi* of the transposed group which is cx. The *Adis* of this group will get the IDs (b) I10e/cx,cx for the *Anchor Adi*, I10e/cx,e for the *Upper Adi* and I10e/cx,a for the *Lower Adi*.

By the same principle is formed second *Transformation* which *Mark Note* of the *Anchor Adi* is transposed to begin from the note a. In this way we get the *A-Transformation*. The *Adis* of this group will get the IDs (b) I10e/a,a for the *Anchor Adi*, I10e/a,c for the *Upper Adi* and I10e/a,f for the *Lower Adi*.

Attachement 2

Example of the Composition Chart



- a The name of the composition.
- b Basic data.
- c *Cords.*
- d *Span symbols of the Fraction.*
- e Transposing, that is marked by the *Mark Note of the Anchor Adi.*
- f The number of measures in the *Closing Measure* of the *Fraction.*
- g The time in minutes at the end of the *Closing Measure* of the *Fraction.*

- h The time in seconds at the end of the *Closing Measure* of the *Fraction*.
- i The level of the *Degree of Change* in differences according to the *Comparison Principle*.
- j Phases with which are formed the architectural structure of the *Binding*.
- k Percussions. If the composer has not included the part of percussions into the *Binding*, the arranger may mark the percussions used in each *Fraction* after the Percussions title. If the composer includes the part of percussions into the *Binding*, the title Percussions is changed to the character *O* that is the title of the *Cord* for the marked percussions.

If the arranger is using *Instrument Matrix* technique and like to use the *Composition Chart* as a help it is possible to add the IDs of the instrument combinations of the *Instrument Matrix* above the *Cord R*, over the *Composition Chart*.

Attachement 3

Details related to arranging

1.

The arranger builds a score for the orchestra composition or computer of their choice based on *Binding*.

The score must include the theoretical and architectural structure of the *Binding*, without adding or omitting anything, in accordance with the definition of *Equivalences*. Only separately listed exceptions are allowed.

Allowed entries can be added freely during arrangement. They must not alter the information content of the *Binding* and the theoretical structure of the *Binding* on which the score is based must always be recognizably.

The arranger shall follow *Comparison Principle* as closely as possible.

2.

The pitch of sound in the *Sound Patterns* are allowed to change only in octaves. They may be freely written on any instrument or group of instruments, in whole or in part, provided that all the entries in each *Binding* were included in the score, at a time corresponding to the *Binding* (*Comparison Principle*).

3.

The *Sound Pattern* of the *Cord* is allowed to be freely written on any instrument or group of instruments as long as the *Sound Pattern* of the *Cord* as a whole is repeated in the same time frame as the *Binding*, that is, the *Comparison Principle* are met.

4.

If there is no percussion instruments in *Binding*, their use in the arrange is free.

Pitched percussion instruments are arranged, as do other instruments. *Partial Instrumentation* principles can then be used.

Unpitched percussion instruments are freely in use of arranger. They also have to follow the principle of *Partial Instrumentation* in terms of rhythm and duration of the tunes.

5.

The marked percussion part is one *Cord* of the *Binding* which is arranged to percussion. Arrangement shall be made according to the same rules.

For other percussion instruments, the *Binding* is considered not having a percussion instrument part and shall be dealt with in accordance with point 4.

6.

If the composer has marked the tempo marking at the beginning of the *Binding*, it is the default tempo of the composition, which arranger can change. If the composer has not marked the tempo, it is freely selected by the arranger.

Changes in tempo during composition are at the discretion of the arranger.

7.

All sound volume levels and their changes are at the discretion of the arranger.

8.

The basic rule is that the *Closing Note* of a measure must always be recognizable. It must always be in the *Closing Measure*, and it must always be the *Mark Note* of the scale used in the *Fraction*. If the *Replacement Function* produces the note that belongs to the next *Fraction* and which is the *Mark Note* of the previous *Fraction*, then the *Closing Note* of the previous *Fraction* must be the longest note of the *Closing Measure*.

a.

The pause after the *Closing Note* of the *Fraction* in the *Closing Measure*, may be replaced, in whole or in part, by an extension of the duration of the *Closing note*.

b.

The duration of the *Closing note* of the *Fraction* can be shortened by inserting a pause of the same length.

c.

The note or notes behind the *Closing Note* in the *Closing Measure* of the *Fraction*, which belongs to the next *Fraction*, can be replaced by the pause or pauses equal length.

d.

The pause behind the *Closing Note* of the *Fraction* in the *Closing Measure* can be replaced by note, notes or ornament notes, which are starting the next *Fraction*.

e.

Previous actions can be done together. First the note or notes will be replaced by a pause and after that the pause will be replaced by note, notes or ornament notes.

f.

Replacement Function is not allowed to do to the first measure of the composition.

9.

To the score it is possible to add all general data which is normal in the Western music writing tradition. This kind of data is for example all which belongs to the title of the score and instruments and names of the people, and all other general information.

10.

All tempo markings and changes are allowed to add. These include both relative texts and absolute numbers.

11.

All volume markings and their changes can be added. These kinds of markings are for example ppp, pp, p, mp, mf, f, ff, fff, sf, fz, sfz, Crescendo and Diminuendo text or markings.

12.

It is allowed to add the tie, slur and phrase markings, but it is not allowed to remove those which are in the *Binding*.

13.

All markings related to the performance can be added. There are a lot of these kinds of markings and without exception they are in text form, for example accelerando, poco, pizzicato etc.

14.

All those ornaments which does not change the base information of the *Binding* are allowed to add, for example staccato, tenuto, accent etc.

15.

It is possible to add a different type of playing style markings into connection with the tempo marking if they do not change the base information of the *Binding*.

16.

It is possible to add markings for time handling, for example fermata, caesura, breath mark, general pause (G.p.) etc.

17.

To make the performance lively it is possible to add some type of marks also by the performer. These kinds of marks are a trill, tremolo, ornament notes but also pedal mark of piano, sordino, how to play instrument and different kinds of effects, etc.

18.

It is possible to add cue notes.

19.

It is not allowed to add glissando or any other changes to the pitch of the notes, except octave changes (see item 2).

20.

All chord marks are forbidden.

21.

It is possible to arrange the *Folder* by using several *Bindings* which arranger can freely select.

Every *Binding* of the *Folder* can be arranged by one or several arrangers, together or separately.