FH MMA SALZBURG – MUSIC PRODUCTION, LINEAR COMPOSITION

LINEAR COMPOSITION 1

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MUSICAL FORM

Musical from is sometimes used to refer to a particular "musical style", which is determined by melodic and harmonic language, rhythms, musical instruments used, as well as historical and geographical origins.

Within the vocabulary of art-music, **musical form** refers more to the type of structure on which the music is built (specifically, the *macrostructure*). It has often been defined as a set of strategies designed to find a successful mean between the opposite extremes of "unrelieved repetition" and "unrelieved alteration" (Scholes, Percy A. – *The Oxford Companion to Music*).

Example of *unrelieved repetition* (the same element is repeated over and over again):

    X X X X X X X X …

The danger of a musical piece based on unrelieved repetition is of course to cause boredom.

Example of *unrelieved alteration* (no repetition, new elements are continuously introduced):

    X O □ ◊ ● Δ ¤ …

A musical piece based on unrelieved alteration can soon cause listening fatigue and loss of interest, as it is not possible to recognize and hence relate to any of the new musical elements introduced. This is one of the problems of some contemporary musical styles, as the language and form do not follow any pattern that might be recognizable by the listener.

Richard Middleton (*Form* – 1999), describe musical form also through "repetition and difference", presumably after Gilles Deleuze's – *Difference and Repetition* (1968). Musical form should not be confused with content (the parts) or with surface (the detail, or *microstructure*), however there is no clear line dividing them. "Form is supposed to cover the shape or structure of the work; content its substance, meaning, ideas, or expressive effects" (Middleton 1999).

MOTIF AND RIFF

The smallest building blocks within the musical structure are:

- the *motif* or *figure*, which is a short musical idea such as a succession of notes organized by melodic or harmonic content;
- the *riff*, which is similar to the motif, however with a stronger rhythmical rather than melodic or harmonic quality.

PHRASE, THEME, PASSAGE

PHRASE

The further organization of motifs, through repetition and variation, leads to a true **musical phrase** having a definite rhythm and duration, with distinctive melodic and harmonic character. Typical musical phrases can be 2, 4, 8 or 16 bar long.

Similarly, the combination of riffs can build a **rhythmic pattern**, which can be 1 or more bars long.

THEME

A phrase with distinctive character can serve as **Theme** for a music piece. Several themes can be used in different sections of a piece (Opening or Main Theme, Secondary Theme, etc.), alternating or combined together. Some musical forms include sections characterized by extensive transformations, de- and reconstruction, and combinations of the thematic material. For example, in the **Sonata Form**, this section is called *Development*.

PASSAGE

Phrases are organized into musical "sentences" or "paragraphs", like for example the **verse** and **refrain** of a song. This can be determined by the verse-form or metre of the words or the steps of a dance.

PIECE

The next level concerns the entire structure (*macrostructure*) of any single self-contained **musical piece**. If the Hymn, ballad, blues or dance simply repeats the same musical material indefinitely, then the piece is said to be in *strophic form* overall:

A A' A'' A''' A'''' …

If it repeats with distinct changes each time in setting, ornamentation, or instrumentation, then the piece is a *Theme and Variations*.

If two different themes are alternated indefinitely, as in a song alternating verse and refrain (chorus), then this gives rise to a two-fold or *binary form*:

A B A B A …

If the theme is played (ev. twice), then a new theme is introduced, the piece then closes with a return of the first theme, we have a simple *ternary form*:

(A A) B A

A complex piece can have both binary and ternary elements at different organizational levels.

For example a baroque Minuet is usually based on a simple binary form (a a b b), it is then followed by another Minuet with different register or instrumentation (called the "Trio"), after which the first Minuet is repeated once:

(a a b b)	(c c d d)	(a b)
A	**B**	**A'**

This is overall a *ternary form* A B A: the piece is binary on the lower organizational level, but ternary on the higher.

If the piece is based on a returning main theme A alternated with sections (*episodes)* based on contrasting themes and musical material (here called B, C, D, etc.), we have a *rondo* form:

A B A C A D A …

CYCLE

The grandest level of organization is sometimes called **cycle**: it is the arrangement of several more or less self-contained pieces into a large-scale composition.

For example, a set of songs having a common or related theme may be presented as a *song-cycle*, while a set of baroque dances (such as Allemande, Courante, Sarabande, Gigue) was presented as a *suite.*

A *Symphony*, a *Concerto* and a *Sonata* differ in scale and instrumentation, bur are similarly organized into *movements*, often designated by their performing tempo, musical form or dance style, for example:

Allegro – Adagio – Minuet – Rondo (Presto)

ELEMENTS OF ORCHESTRATION

Orchestration (also called *instrumentation*) is the study or practice of writing and arranging music for orchestra or, in general, for any musical ensemble. It is the assignment of different instruments to play the different parts of a musical work (e.g., melody, bassline, harmony, rhythm, etc.). It can also mean adapting music composed for another medium for an orchestra.

The following information will help you improve your orchestration skills when working with orchestral and symphonic sample libraries, as well as when scoring for real instruments.

MONOPHONY / HOMOPHONY / POLYPHONY

Monophony is the simplest of musical textures, consisting in a single melody, typically sung by a single singer, or played by a single performer, without accompanying harmony or chords. A melody is also considered monophonic if a group of singers or performers sings or plays the same melody at the unison, or duplicated at the octave.

Homophony is a texture where a primary part (that can be the top voice, but could also be another part) is supported by one or more sections that perform the harmony, bass line, etc. The main melody predominates, while the other parts perform supporting motifs and riffs or elaborate accompaniments. Most scores from the classic and romantic period tend to be homophonic in character (with one dominating melody).

Polyphony is a texture where there are two or more simultaneous parts performing independent melodies or themes. Within the context of Western music, the term refers to music forms such as the **canon** and **fugue** from the late Middle Ages through the Renaissance and in the Baroque times.

Probably the most famous composer of polyphonic music is **Johann Sebastian Bach** (1685 – 1750). What makes his music extraordinary and timeless is not just the sheer complexity of the texture, nor the skills that were required to write such music using very stringent composition "rules", but the apparent ease with which he managed to write beautiful, emotional and extraordinary music that can be enjoyed even by non-specialists, *in spite* of the use of complex forms like fugues and canons. Works that are definitely worth listening are: The *Well-Tempered Clavier* part I & II that include a total of 48 Preludes and Fugues in every possible major and minor tonality (something that had never been attempted to this extent before him), the *Kunst der Fuge*, one of the most unique collections of fugues and canons all based on a single theme, the *B-minor Mass* (listen for example to the Kyrie Eleison https://www.youtube.com/watch?v=zS2biN257sQ – the choir part of the fugue starts at 02:22), etc.

Music from the classical period is characterized by its mainly homophonic character, where a melody predominates while other voices play accompaniment parts. In the opening of the 1st movement of **W. A. Mozart** *Symphony K.551 "Jupiter"* in C Major you can hear monophonic phrases (performed by the *Tutti*, the complete orchestra) alternating with homophonic phrases (performed by the strings alone).
You can listen to the *Symphony K.551 here*: https://www.youtube.com/watch?v=gAmw8ATln68

Although less common, works by classical composers could also include sections or entire movements written in polyphonic texture. For example, parts of **W. A. Mozart**'s *Requiem* are strictly polyphonic and sometimes similar in texture and even in style to Bach's *B-minor Mass* and *Passions*.
Listen for example: https://www.youtube.com/watch?v=GC_m_5Ow7ec – The Introduction alternates polyphonic/imitative sections with homophonic sections, while the Kyrie at 4:44 is a fugue with counter-subject.

There are also several polyphonic sections in **Ludwig van Beethoven**'s symphonies. This video is an analysis of every fugal passage from the Beethoven Symphonies: https://www.youtube.com/watch?v=i7lr1cSQi5o

INSTRUMENTAL RANGE

In music, the **range**, or **chromatic range**, of a musical instrument is the distance from the lowest to the highest pitch it can play. For a singing voice, the equivalent is the **vocal range**. The range of a musical part is the distance between its lowest and highest note.

When arranging for acoustic instruments, it is important to be aware of the range of each instrument type. You should not assume that instruments sound great throughout their range: through experience and analysis of existing orchestral score, you should also try to understand which is the "ideal" range of each instrument type, where the tonal color, volume output etc. are best suited to perform a main theme or a specific musical part.

You can refer to this page for an overview of common instruments musical ranges:
https://en.wikipedia.org/wiki/Range_(music)#Typical_ranges

TRANSPOSING INSTRUMENTS

You should also be aware of **transposing instruments**, for which music notation is not written at the *concert pitch* (the pitch of a non-transposing instrument, such as the piano).

For example, a **Trumpet in B♭**, or a **Clarinet in B♭**, sound one tone lower than the written notation. If you wish these instruments to perform a piece in C Major, you would have to write the notation in D Major.

The **Horn in F** sounds one fifth lower than written. If you wish the horn to perform in C Major, you have to write the notation in G Major.

Other instruments, like the **Piccolo Flute**, sound at the same note, but one octave higher than written.

SOLO / TUTTI / UNISONI / DIVISI

Sometimes in orchestral music it is required that only the leading performer of a group plays a part as "soloist". Other times, it is required to divide an instrumental section in several different parts to achieve a more complex arrangement that could not be played with just the standard groups. The following indications on the score are used to achieve these changes.

Solo (Italian for *alone* or *only*) is used when the composer wants just the leading performer of an instrumental section to play a part. For example, if "solo" is used for the first Violin section, only the leader of that section (the principal first violinist, in this case also called the "concertmaster") will play. If it is used for the Horn section, only the principal hornist will play.

Soli can mean "two or more players". If you want just 2 celli in the cello section to play, you can write "2 Vc. Soli". Soli can also mean "an important line for a full section" (for example, all horns).

Tutti (Italian for *everyone* or *all together*) is used when all performers in an instrumental section are required to play. It cancels the "solo" marking.

Gli Altri (Italian for *the others*) is rarer. It designates all performers in an instrumental section *except* the principal (the soloist). It might be used for a section to accompany their leading performer with a different part.

divisi (Italian for *divided*, often abbreviated "div.") signifies a two-part division of a section, that will then play 2 different parts. Divisions in 3 (div. a 3) or 4 parts (div. a 4) are also possible. It is mainly used for the string sections, that have the highest number of performers per section and can be easily divided in groups.
An example of extensive use of Divisi: *Also sprach Zarath*ustra, Richard Strauß.

unisoni (Italian for *unison*, often abbreviated "unis.") cancels the "divisi" marking and requires again an entire instrumental section to play the *same* part.

"divisi" and "unisoni" are only used for the string sections.

This video shows examples about the above techniques: https://www.youtube.com/watch?v=MgYLKP-E-rA

ORCHESTRAL COLORS: TYPICAL COMBINATIONS AND CONTRASTS

Doublings of two or more instrumental parts, either within the same section of instruments (for example, within the bowed strings section), or across different sections (for example, strings + woodwinds, or strings + brass), is often used to achieve particular and distinctive orchestral colors.

STRING COMBINATIONS

Violin I & II	unison or octave	thick, bright, and rich, ideal for main themes
Celli & Basses	bass plays 1 octave lower	the basses reinforces the cello parts
Violins & Celli	usually octaves	rich sound, can be used for a melody that is not at the top
Violas & Celli	usually octaves, also unison	darker tone than celli + violins, celli more present
Violins & Violas	unison or octave	powerful, warm unison in octaves the violas add depth to the violins

WOODWIND COMBINATIONS

▪	Flutes & Oboes	unison, or oboe octave down	oboes tame the brightness of flutes
▪	Piccolo & Flutes	piccolo octave up	the piccolo adds a lot of brightness on top
▪	Oboes & Bassoons	bassoons octave down	bassoons add roundness to the oboes
▪	Clarinets & Bassoons	unison, or bassoons octave down	smooth, dark, mellow
▪	Flutes & Clarinets	usually clarinets octave down	clarinets add body to the flutes
▪	Oboes & Clarinets	clarinets octave down	not very common
▪	Flutes & Bassoons	octave	rather uncommon due to range difference

BRASS COMBINATIONS

▪	Horns & Trumpets	unison or octave	thick, rich sound
▪	Trumpets & Trombones	unison or octave	bright, less thick than with horns
▪	Trombones & Tuba	unison	effective for lower harmony, trombones add clarity to the tuba
▪	Bass Trombone & Tuba	unison	good for long root notes
▪	Horns and Tuba	octave	warm, round sound

CROSS-SECTION COMBINATIONS

If you have a 4 parts harmony, you can easily duplicate voices across sections using instruments in a similar range. The bass/bass clarinet/tuba usually play one octave lower than celli/bassoons/trombones.

	STRINGS	WOODWINDS	BRASS	
▪	Violin I	Flutes	Trumpets	usually unison
▪	Violin II	Oboes	Trumpets	usually unison
▪	Violas	Clarinets	Horns	usually unison
▪	Celli	Bassoons	Trombones	usually unison
▪	Basses	Bass-Clarinet	Tuba	usually unison

https://www.youtube.com/watch?v=Np6IggHD3aw

If you have more than 4 parts, you can use the "divisi" function to split strings groups and perform the additional voices, or distribute the voices across different sections.

Try to avoid simply duplicating *all parts*: this way you might achieve a very massive, but rather indistinct sort of texture. Instead, it is more interesting to introduce variations and contrasts between different instrumental colors and combinations, complex phrases that are performed by different sections, or bouncing between instrumental groups, etc.

Doubling at the unison or octave can be problematic in the performance (when arranging for a real orchestra) due to the different way certain instruments react to dynamics and intonation. For instance, flutes tend to be sharp (too high) when played loudly, and to be flat (too low) when played softly. Reed woodwinds, like clarinets, oboes, and bassoons, tend to do exactly the opposite.

FOREGROUND / MIDDLEGROUND / BACKGROUND ELEMENTS

You should try to distribute parts with different musical functions to different sections and combinations of instruments. Place main themes and essential parts in the foreground; accompaniment parts or secondary themes can blend in the middleground; non-essential "decoration" parts, such as arpeggios, runs, etc. can be placed mostly in the background.

For example, if the musical texture is *homophonic*, you might have:

- a main part (melody, theme) in the *foreground* performed by one or more instrumental groups (for example: Strings I and Flutes);
- other parts in the *middleground* playing the accompaniment (the remaining Strings sections, ev. doubled by some Woodwinds and Brass);
- additional parts or instruments (like a Harp, Piano, or Mallets) playing *background* "decoration", not essential for the piece to work, but adding an extra layer of interest and complexity.

A great example of a score with several layers of complexity is the original Star Wars soundtrack by John Williams. While the themes themselves are rather simple and straightforward in structure, which makes them very easy to memorize and recognize, there is a lot of additional rhythmic, harmonic and melodic layers that contribute to the overall composition.

Here you can listen to the *Star Wars Suite for Orchestra* in five movements. Try to follow the additional lines beside the main themes to understand how such complex orchestral arrangements are structured.
https://www.youtube.com/watch?v=_3AiYIxBwD0

DYNAMICS / EXPRESSION

You should try to be as accurate as possible when preparing a score to be performed and recorded by live players: the clearer the indications of dynamics, expression, and articulation, the less time will be spent discussing how the music is supposed to be interpreted and more time actually recording meaningful takes.

The following signs are indications of the relative dynamic level or volume at which a musical part should be performed:

ppp	**pianississimo** Extremely soft. Softer dynamics occur very infrequently and would be specified with additional *p*s.
pp	**pianissimo** Very soft.
p	**piano** Soft; louder than *pianissimo*.
mp	**mezzo piano** Moderately soft; louder than *piano*.
mf	**mezzo forte** Moderately loud; softer than *forte.* If no dynamic appears, *mezzo-forte* is assumed to be the prevailing dynamic level.
f	**forte** Loud.
ff	**fortissimo** Very loud.
fff	**fortississimo** Extremely loud. Louder dynamics occur very infrequently and would be specified with additional *f*s.
sfz	**sforzando** Literally "forced", denotes an abrupt, fierce accent on a single sound or chord. When written out in full, it applies to the sequence of sounds or chords under or over which it is placed.
<	**crescendo** A gradual increase in volume. Can be extended under many notes to indicate that the volume steadily increases during the passage.
>	**diminuendo** or **decrescendo** A gradual decrease in volume. Can be extended in the same manner as crescendo.

ARTICULATIONS AND EFFECTS

Articulations define how a group of notes should be performed in relation to each other: a group of notes can be connected (*legato*) or disconnected (*staccato*); a transition between the note pitches might be required (*glissando/portamento*); a note might be sustained longer than written (*fermata*), etc.

COMMON ARTICULATION MODES

These articulation modes are common for most instrumental groups:

- *legato* — ("bound together", "connected") musical notes are to be played or sung smoothly and connected
- *staccato* — ("disconnected", "detached") a note or chord is shortened in duration to ½ or even ¼ and played detached
- *marcato* — ("marked", "accentuated") *a* note, chord or passage to be played more forcefully or accentuated than other parts
- *tenuto* — ("held") indicates to hold a note or chord to its full length, or even slightly longer
- *fermata* — ("stop" or "break") indicates that a note or chord or rest is sustained longer than its written value; it usually appears in all parts of an ensemble, sometimes preceding a "cadenza" or at the end of a movement
- *slur* — when the first note of a slurred group is articulated, the others are not; in stringed instruments, the notes of a slurred group are performed in a single bow movement; in wind instruments, the notes within the slur are not "tongued" and are played in a continuous breath
- *glissando / portamento* — indicates a continuous, uninterrupted glide from one note to the next, including the pitches in-between; some instruments, like non-fretted strings, trombone, and human voice, can make this glide continuously (*portamento*), while others such as piano, harp or mallets blur the discrete pitches between the start and end note to mimic a continuous slide (*glissando*)

SPECIAL ARTICULATIONS – STRINGS

Some articulations are only possible on certain instruments. For example, these articulations can additional be performed on strings:
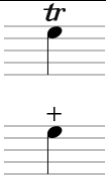
- *staccato* — a short note, played with a short quick bow stroke
- *spiccato* — similar to staccato, but even shorter; this is a different way to performing a short note, but keeping the bow in the same position and hitting the string perpendicularly (without horizontal motion), making the bow bounce off the string
- *pizzicato* — ("plucked") instead of using the bow, the string is plucked with a finger
- *arco* — ("bow") after a different articulation section, indicates to resume using the bow
- *col legno* — ("with the wood") striking and bouncing off the string similarly to spiccato, but with the wooden side of the bow, resulting in a tone with a strong percussive, wooden character
- *col sordino* — ("with the mute") mutes for string instruments of the violin family work by adding mass to the bridge, or occasionally by dampening the strings behind the bridge; they result in a darker, less brilliant sound because they dampen high-frequency vibrations in the bridge and shift its resonances to lower frequencies
- *sul ponticello* — ("on the bridge") is an indication to bow or pluck near the bridge, producing a characteristic thinner, bright tone that emphasizes the harmonics, rather than the fundamental
- *sul tasto* — ("on the fret") is an indication to bow or pluck over the fingerboard, that produces a duller, less harmonically rich tone
- *tremolo* — a rapidly repeated note, or alternation between two notes

- *flageolet*   or *harmonic*, designates playing a natural harmonic of the open strings; this is realized placing a finger softly on specific harmonic spots, without stopping the string vibration completely; possible harmonics are:
  - one octave (12 semitones up)
  - one octave and a fifth (17 semitones up)
  - two octaves (24 semitones up)
  - two octaves and a third (28 semitones up)

Other instrumental groups might also have specific types of articulations such as tremolo and flageolets, but they are performed and sound differently from the bowed strings group.

ORNAMENTS

Ornaments are abbreviation signs to perform embellishments, usually with notes that are directly above or under the noted pitch, within the scale used by the current tonality. Here are some common examples:

tr +	**Trill** A rapid alternation between the specified note and the next higher note (determined by key signature) within its duration, also called a "shake". When followed by a wavy horizontal line, this symbol indicates an extended, or running, trill. In music up to the time of Haydn or Mozart the trill begins on the upper auxiliary note.[10] In percussion notation, a trill is sometimes used to indicate a tremolo. In French baroque notation, the trill, or tremblement, was notated as a small cross above or beside the note.
	Upper mordent Rapidly play the principal note, the next higher note (according to key signature) then return to the principal note for the remaining duration. In some music, the mordent begins on the auxiliary note, and the alternation between the two notes may be extended. In handbells, this symbol is a "shake" and indicates the rapid shaking of the bells for the duration of the note.
	Lower mordent (inverted) Rapidly play the principal note, the note below it, then return to the principal note for the remaining duration. In much music, the mordent begins on the auxiliary note, and the alternation between the two notes may be extended.
	Gruppetto or Turn When placed directly above the note, the turn (also known as a gruppetto) indicates a sequence of upper auxiliary note, principal note, lower auxiliary note, and a return to the principal note. When placed to the right of the note, the principal note is played first, followed by the above pattern. Placing a vertical line through the turn symbol or inverting it, it indicates an inverted turn, in which the order of the auxiliary notes is reversed.
	Appoggiatura The first half of the principal note's duration has the pitch of the grace note (the first two-thirds if the principal note is a dotted note).
	Acciaccatura The acciaccatura is of very brief duration, as though brushed on the way to the principal note, which receives virtually all of its notated duration. In percussion notation, the acciaccatura symbol denotes the *flam* rudiment, the miniature note still positioned behind the main note but on the same line or space of the staff. The flam note is usually played just before the natural durational subdivision the main note is played on, with the timing and duration of the main note remaining unchanged.

SPECIAL EFFECTS

Sometimes, in modern and contemporary orchestral and chamber music scores, the live performers are asked to play pseudo-random, non-tonal textures in different instrumental ranges. The score often only gives a general indication of range, dynamic level, and/or texture, without specifying the exact pitch or duration of the single notes. For example, strings might be asked to play *tremolo* figures in a certain range, or randomly play *col legno* percussive effects. These techniques can produce rather chaotic, cluster-like effects, which can be used for suspenseful or dramatic scenes in certain film genres, especially horror and sci-fi.

If you want an example of how such modern scores might look like, here you can listen and see the score of *Dienstag Abschied* (from *Dienstag aus Licht*, 1991) by **Karlheinz Stockhausen**, for choir, electronic keyboards and tape (electronic music): https://www.youtube.com/watch?v=DEXESQuLG9U

A very valuable scoring tool to generate such non-tonal orchestral textures is THRILL for Kontakt, that was created pre-recording over 1000 orchestral sources, including non-tonal motifs, short phrases, clusters and special effects in a wide selection of frequency and dynamic ranges and performed on a variety of orchestral instruments. What makes it particularly interesting is the inclusion of a lot of unconventional sound sources, and the fact that it can be controlled in real time with a X-Y vector pad, blending and morphing different sources, dynamic levels, tonal ranges, and texture types. Here you can listen to a Thrill presets walkthrough: https://www.youtube.com/watch?v=yPnY6mjnzOU

WEBSITE

- https://www.digitalnaturalsound.com/fh-multimediaart/linear-composition.html
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