THIRTY-SIX
TRANSCENDENTAL STUDIES
by THEO CHARLIER

COMPLETE WITH ALL KNOWN ERRATA
TRANSLATED BY KELSEY ANDERSON
ENGRAVED BY JOHN LAVERTY

THIRTY-SIX OF THE FINEST STUDIES EVER WRITTEN FOR THE TRUMPET. COVERING STYLE, TECHNIQUE, ARTICULATION, INTERVALS, RHYTHM, DOUBLE AND TRIPLE TONGUING, SLURS, FINGERING, ARPEGGIOS, OCTAVES, TRILLS, ORNAMENTS AND MUCH MORE

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Author’s Foreword

Here you find a series of thirty-six studies for soprano piston trumpet, cornet, or flugelhorn, designed to help young artists who aspire to tackle the demands of modern music.

Today, working orchestral trumpeters must have best in class technique while also being accomplished musically. Modern composers no longer consider the difficulties in their compositions. They conceive the music, it pleases them, and the artist must push himself to play it! Whether you use an instrument in C, Bb, or in A, or, an older instrument in F, E, Eb, D, etc, the trumpeter no longer uses crooks as they would have done in the past. Modern works almost never allow sufficient time to re-tune, and would compromise the intonation of the instrument.

Since the piston trumpet is a chromatic instrument, like the flute, piano, or the violin, we should expect it to perform in a similar manner. Transposition should be adopted to do away with this inconvenience.

If the student trumpeter wishes to play in all keys, both sharps and flats, he should dedicate himself to careful study.

Over the course of my career as a performer and a teacher, I have experienced a variety of challenges which I have always tried to improve upon through appropriate exercises. I made note of these, as much for my personal use as for the education of my students. These studies have proven so valuable to many friends and former students that they honoured me with well wishes and insisted upon this publication.

Sensitive to their wishes, I decided to examine my manuscripts. I think that in choosing these thirty-six studies, which I present to you today, I might bring very humbly, a useful compliment to the works of my illustrious predecessors, both ancient and contemporary.

I have arranged them as methodically as possible, addressing rhythm, staccato tonguing in all of its forms, legato and slurring, and introducing excerpts as they would have been written by advanced composers who make use of the full capabilities of the instrument.

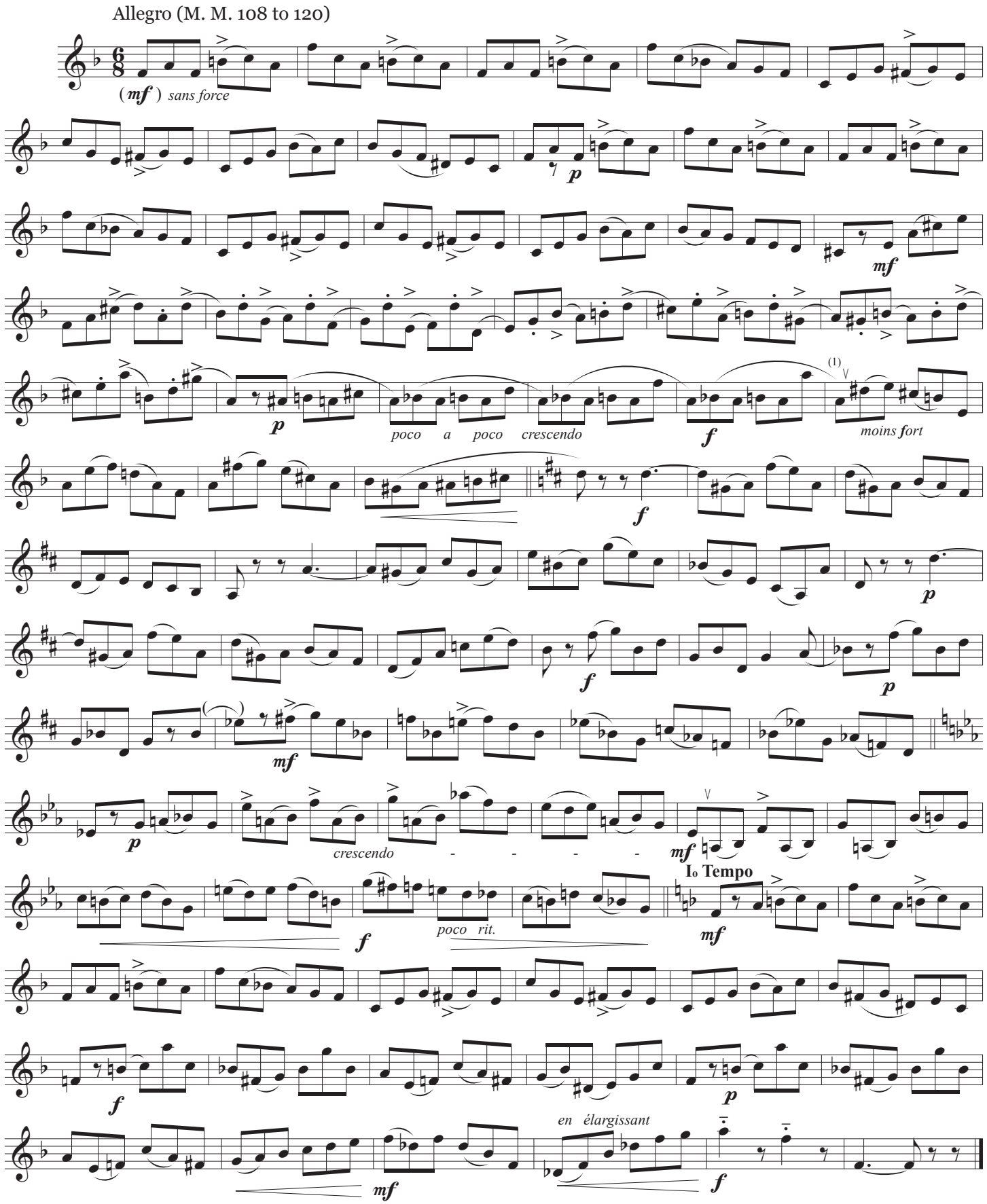
In general, and despite their transcendence, I have tried to make the practice of these thirty-six studies as enjoyable as possible. I thought it would be interesting to include written technical notes in strategic spots, both practical and historical, to both inform the student and also to give him a rest.

I hope that my efforts will continue to form the technique of young players. My efforts would be repaid - a hundredfold - if my work could help them overcome a few of the obstacles they will encounter over the course of their artistic career.

Théo Charlier
Professor at the Liège Royal Conservatory of Music

Articulation *(De l'articulation)*

Théo Charlier, Study No.1



[1] *This symbol ∨ indicates a breath.*

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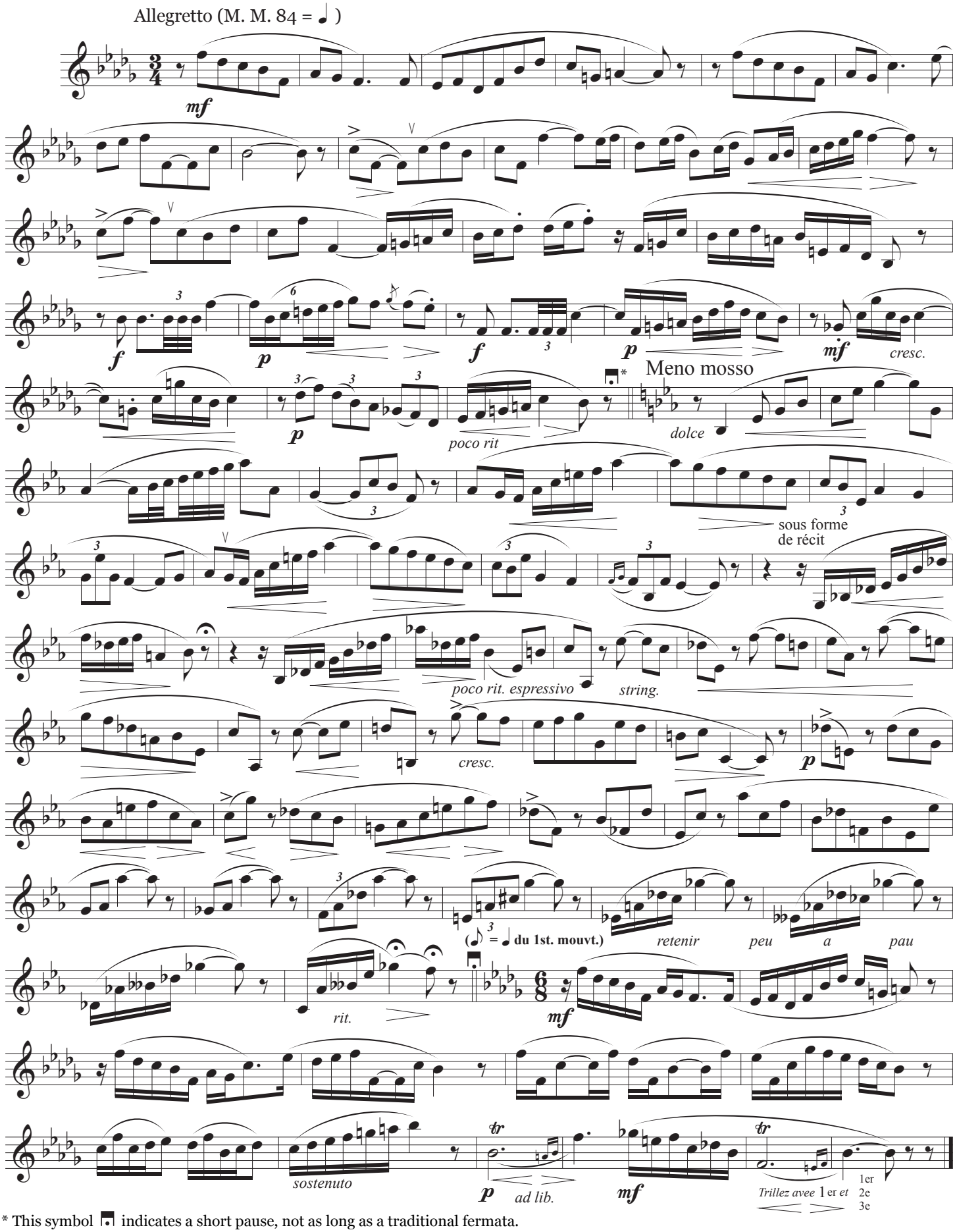
Style *(Du style)*

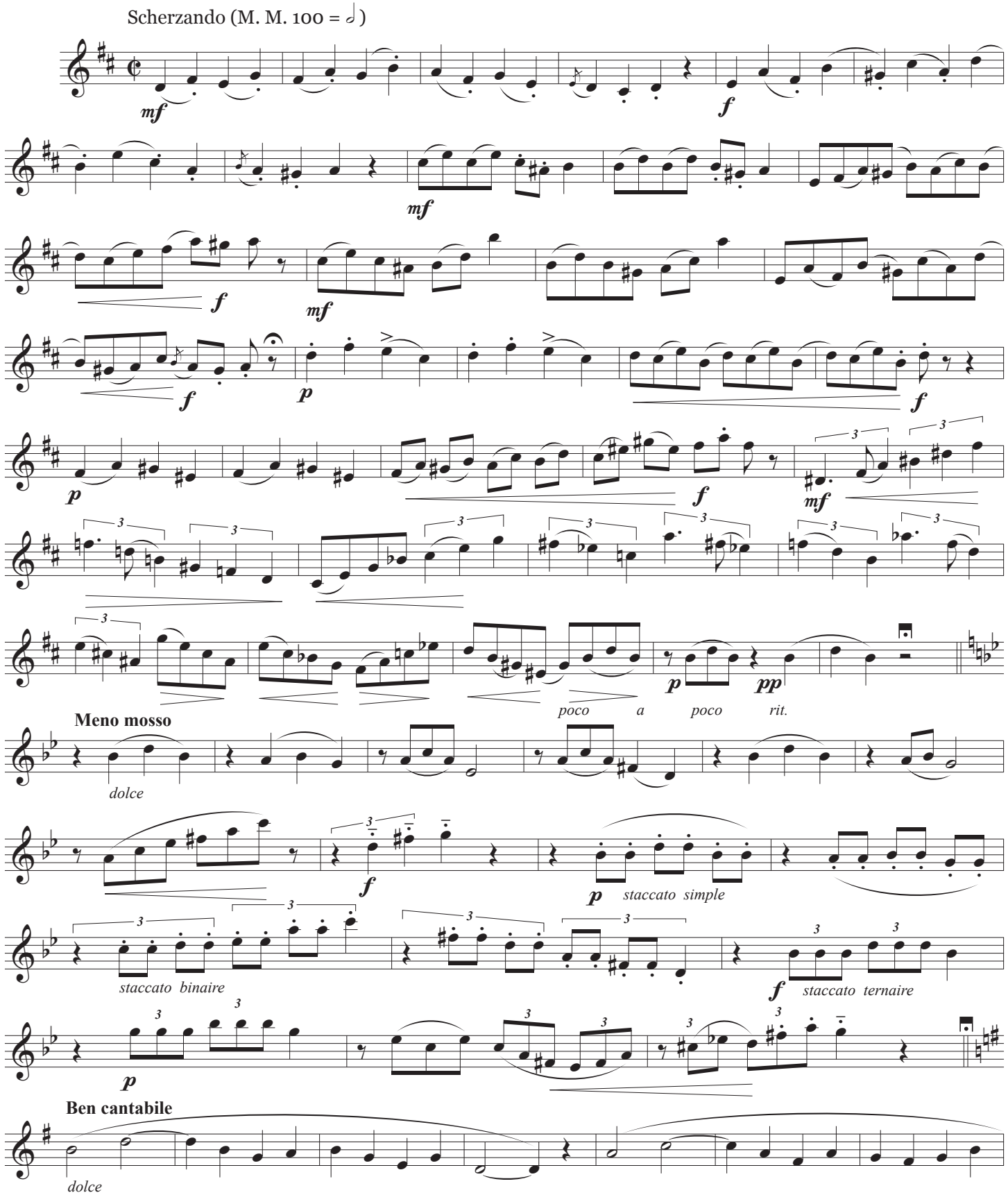
Théo Charlier, Study No.2

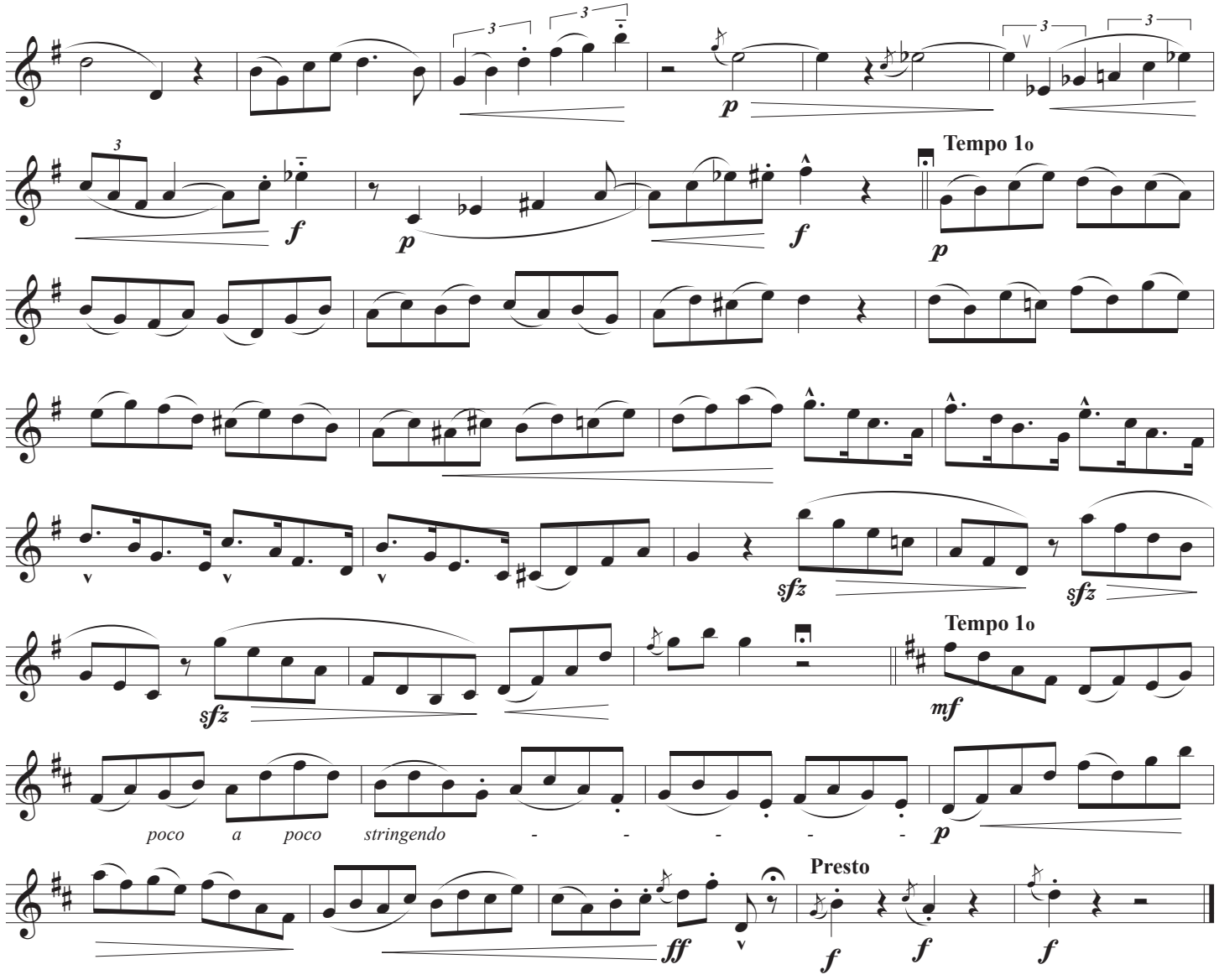


* This symbol 𝄐 indicates a short pause, not as long as a traditional fermata.

Intervals: Thirds *(Intervalles: les tierces)*

Théo Charlier, Study No.3





Humour in Charlier's Third Study

This etude invites humorous interpretation. Each group of two slurred quarter notes can be played with emphasis (weight, and/or length) on the first note, followed by a short, clipped staccato quarter, giving them a stiff, robotic character. Exaggerate the dynamics.

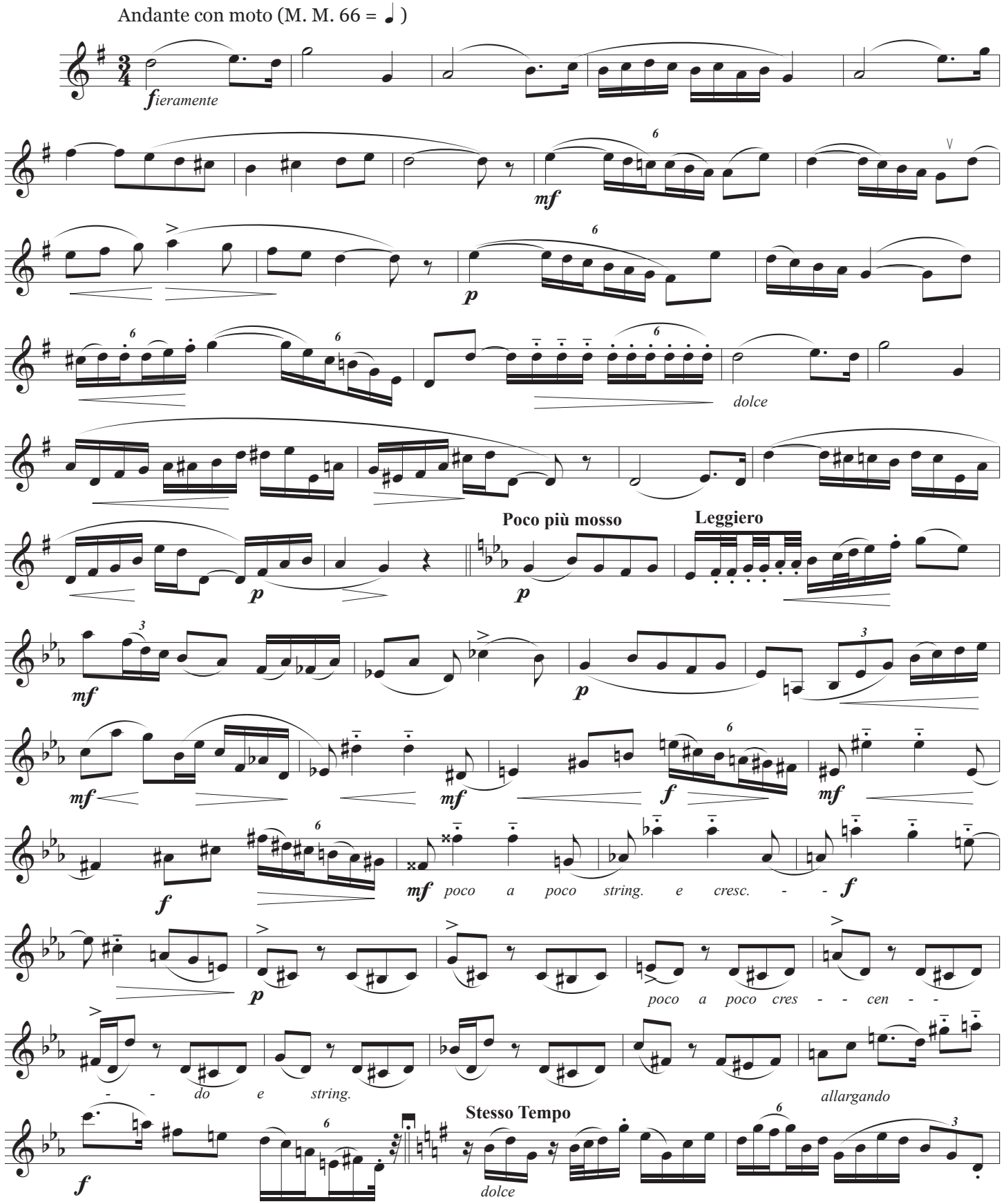
The shift to g minor at *meno mosso* invites lugubrious "crocodile tears" in each short gesture. At *ben cantabile,* Charlier offers an opportunity to sing through sustained melodic material. The following *Tempo I* can be approached lightly, with smooth legato.

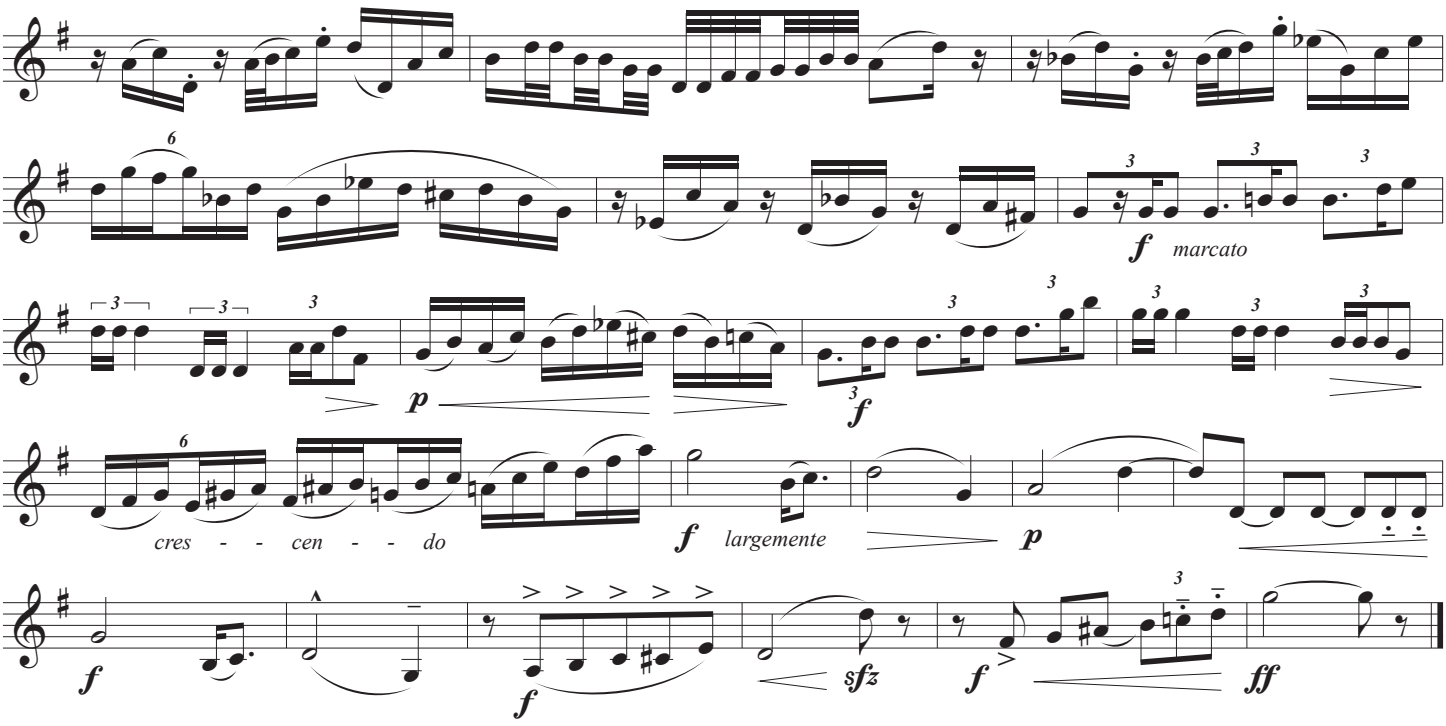
The *stringendo* in the coda creates a rather frantic dash to the final *ff*. After the brief, charged pause, the final two bars deliver a sassy last laugh.

Louis Ranger

Style *(Du style)*

Théo Charlier, Study No.4





Let us avoid the use of crooks

The small instruments with mouthpieces, such as they are, should not rationally make use of only one key. Changing the key, is to unbalance the instrument. One must, with every mutation, employ meticulous care with the execution of certain works, which is sometimes nearly impossible. Artists who use this category of instruments (hornists, cornetists, trumpeters) should be compelled to know in depth transpositions and not make use of crooks, except in extreme circumstances. But a serious player will always be tempted to conquer the difficulties which will arise when doing so, especially when it comes to intonation. He will quickly notice that with a little practice he will become the master of all that is presented to him.

While waiting for this level of mastery when using a single key instrument, it will be useful to learn to proportionally adjust each slide to fine tune the intonation: 1. make sure that the 1st slide is exactly twice the length of the 2nd slide; 2. make sure that the 3rd slide is exactly three times the length of the 2nd slide.

Omitting these guidelines would be a serious mistake, which would compromise, in terms of intonation, not only the desk to which one belongs, but even still the intonation of the entire orchestra and the success of the work being “executed”…in the sinister sense of the word.

Théo Charlier

Articulation *(De l'articulation)*

Théo Charlier, Study No.5

All° assai (M. M. 112 = ♩.)

mf

al Coda

p

f

mf

f

p

crescendo

f

dolce

f

(D.C.)

sans ralentir

Coda

cres - - - cen - - - do

f *p*

cres - - - cen - - - do

f

poco allargando

Advice to Young Artists

In the orchestra, the player has self control and does not speak during the playing of the piece (unless when absolutely necessary).

He has an instrument that is functioning perfectly and a good mute that does not alter the integrity of the scale.

Before an orchestra performance the player should take great care to not play excerpts or themes from the piece to be performed, which is in very poor taste.

He turns the pages without any sound, especially during a complete silence.

He is in his chair on time and, during the rehearsals, gets up as little as possible.

He moves the slides of his instrument quietly by lowering the pistons first so as to avoid an audible explosion of air.

He does not blow violently through the instrument to expel the water that has condensed inside of it. A prolonged gentle stream of air will be much more efficient.

He has his instrument tuned and adjusted before going on stage. When he does this in a waiting room, he takes care to note the temperature of the room, knowing that the speed of sound increases with heat and slows down with cold, and should make the necessary tuning adjustments to the instrument.

If he needs to step away from the orchestra in order to play a solo from a distance, he should know that the sound will lower noticeably with increasing distance. He will need to raise the pitch of his instrument and he should measure the amount of adjustment needed in advance.

He counts his measures of rest carefully; all the while, while playing, he relies as much on a good cue as he does on counted measures. An error is easily made, and a good cue does not lie.

He follows the feelings of the conductor. He is flexible and attentive, altering his sound according to what is asked of him, and connecting with the conductor and any other instruments in the phrasing.

He increases or decreases the dynamics requested in order to contribute to the performance.

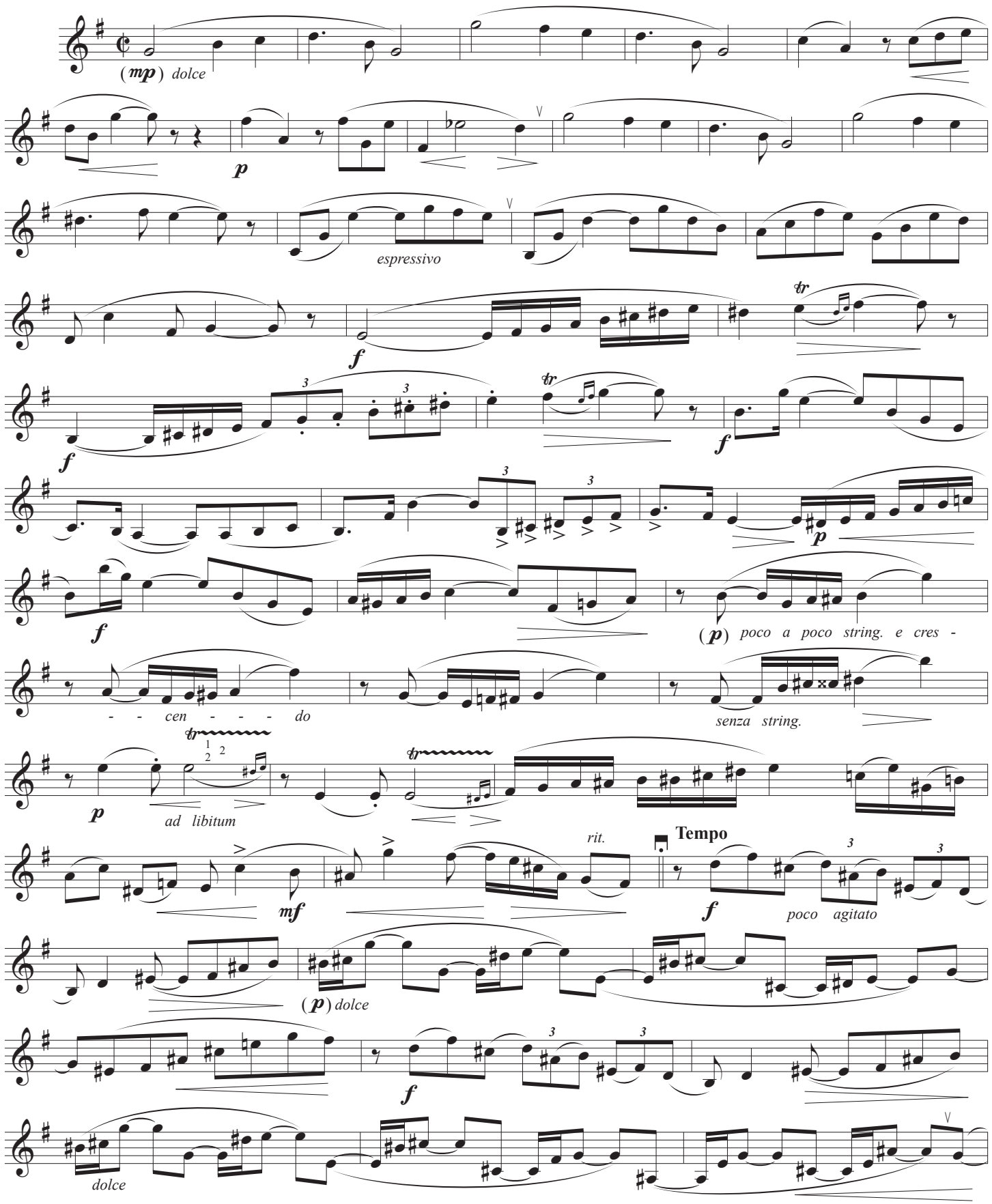
If he follows these conditions, the player will be doing justice to his work, and will be held in high esteem.

Théo Charlier
Conservatoire Royal de Musique de Liège

Style *(Du style)*

Théo Charlier, Study No.6

Andante cantabile *without slowing* (M. M. 63 = 𝅗𝅥)



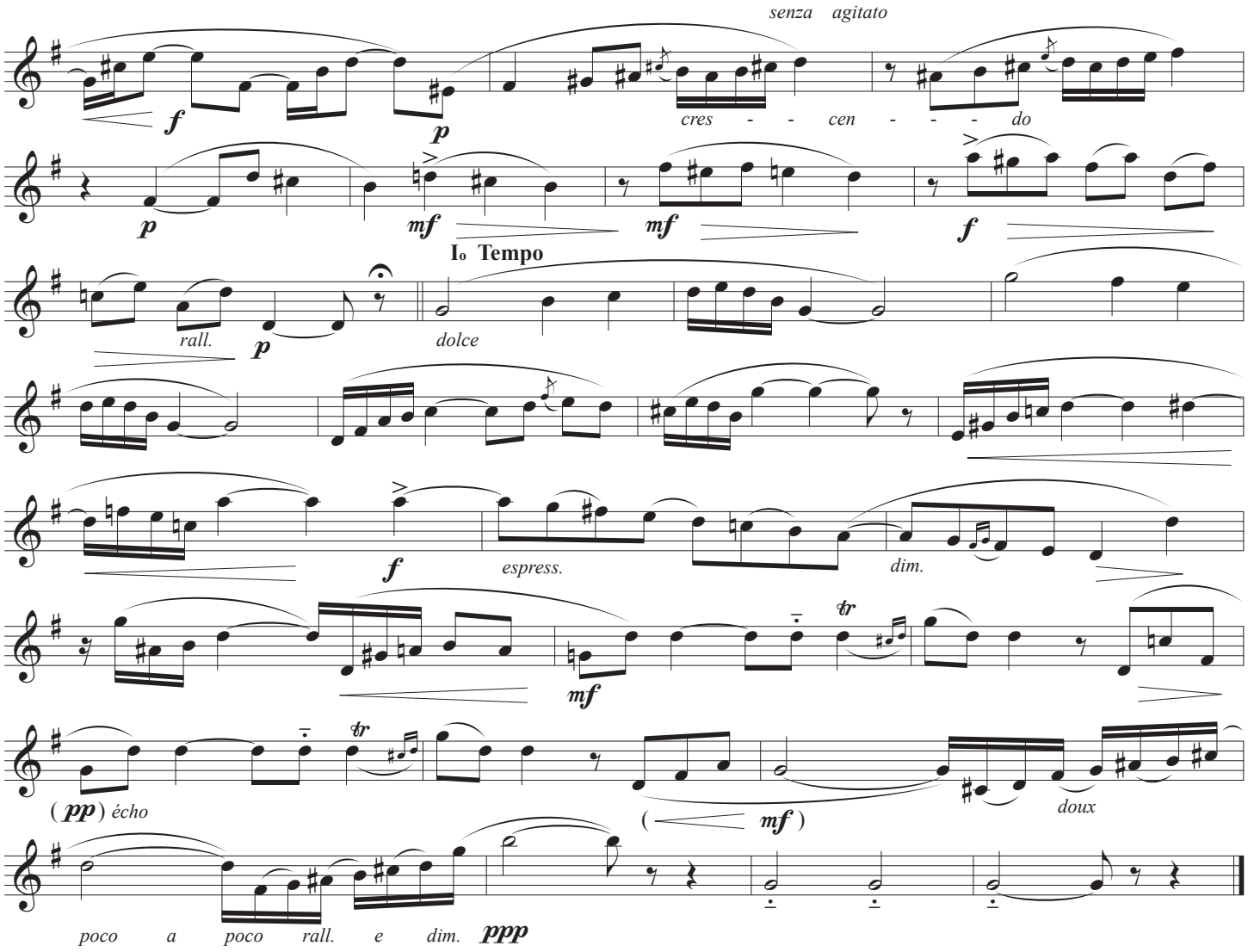
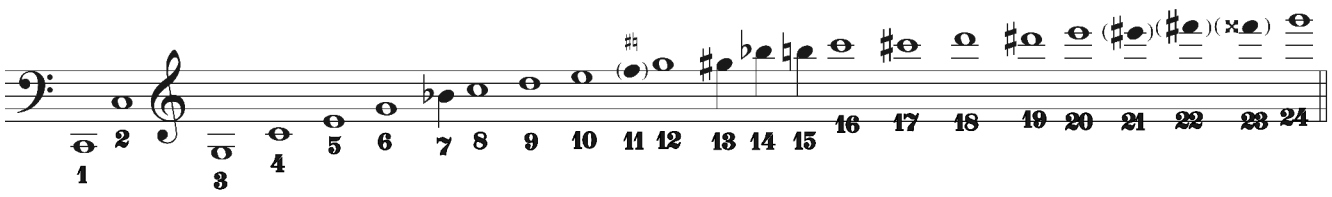


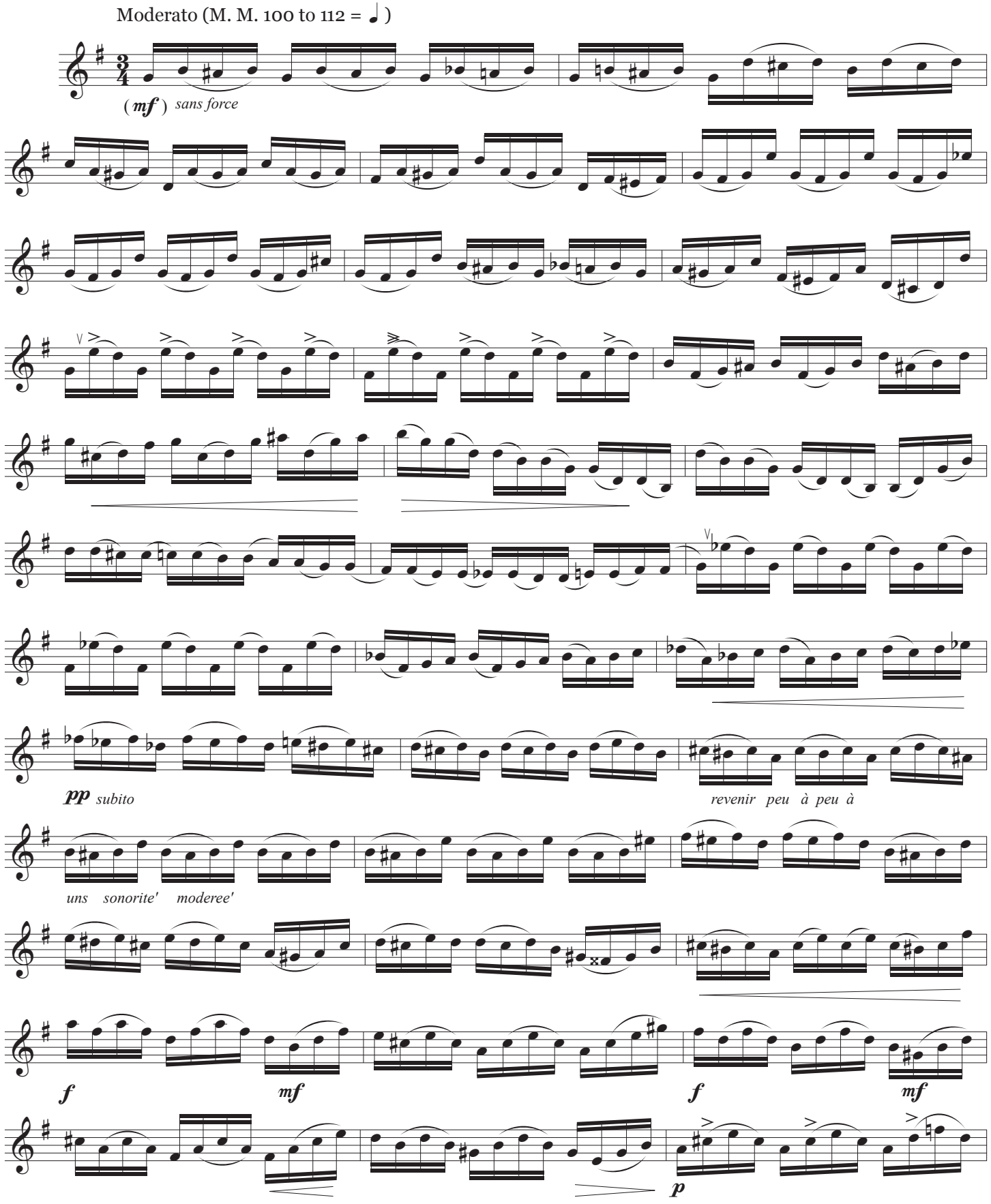
Table of Harmonics From the Fundamental to the 24th

The numbers represent the number of divisions of the standing wave; Though the harmonics we commonly use are from 1 - 18, it is good to know the corresponding notes for harmonics 19 - 24. The 15th is too flat, and harmonics 21, 22, and 23 are rarely used.

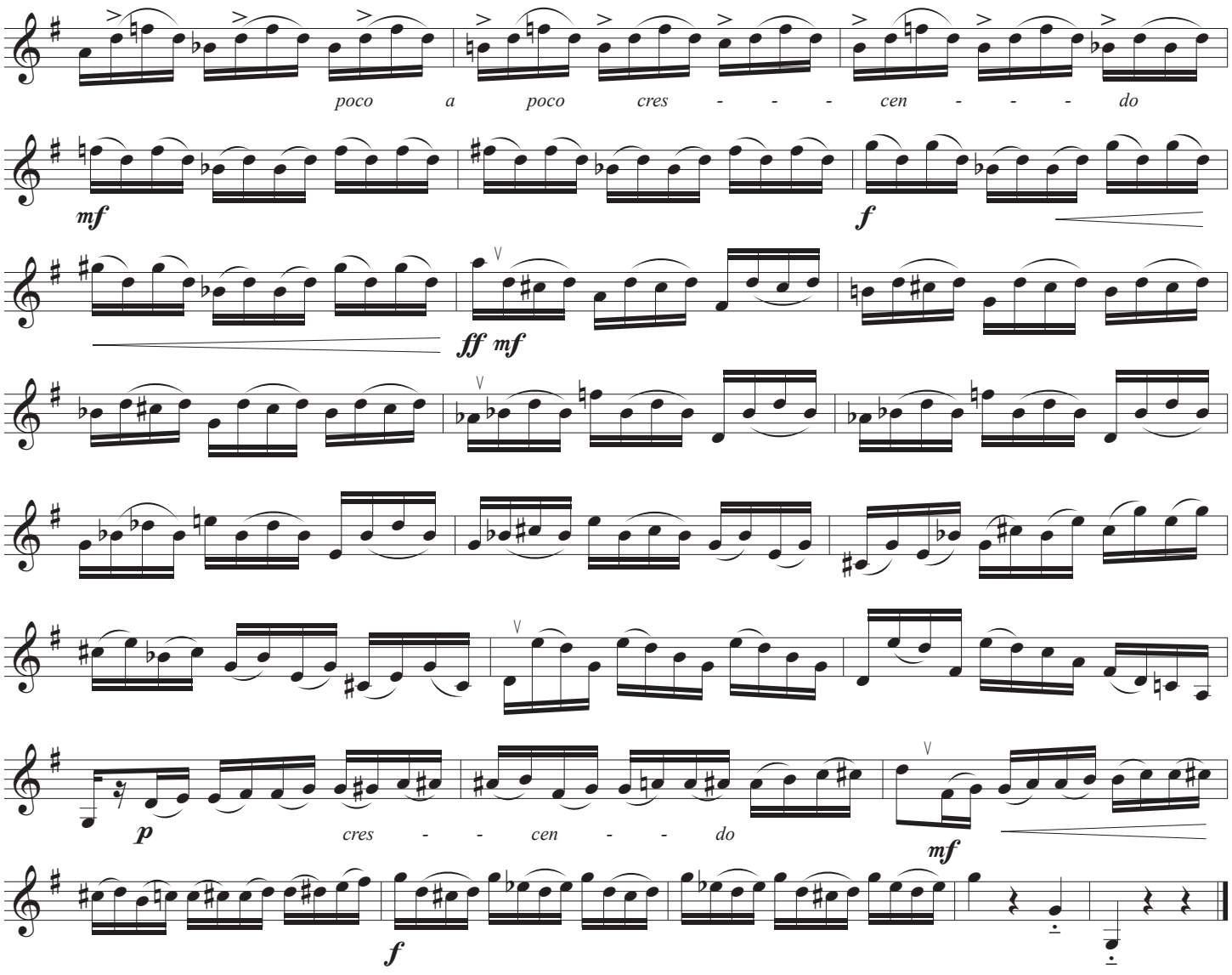


Technique *(Du mécanisme)*

Théo Charlier, Study No.7



This study can also be transposed into Ab and Bb major.



The Metronome

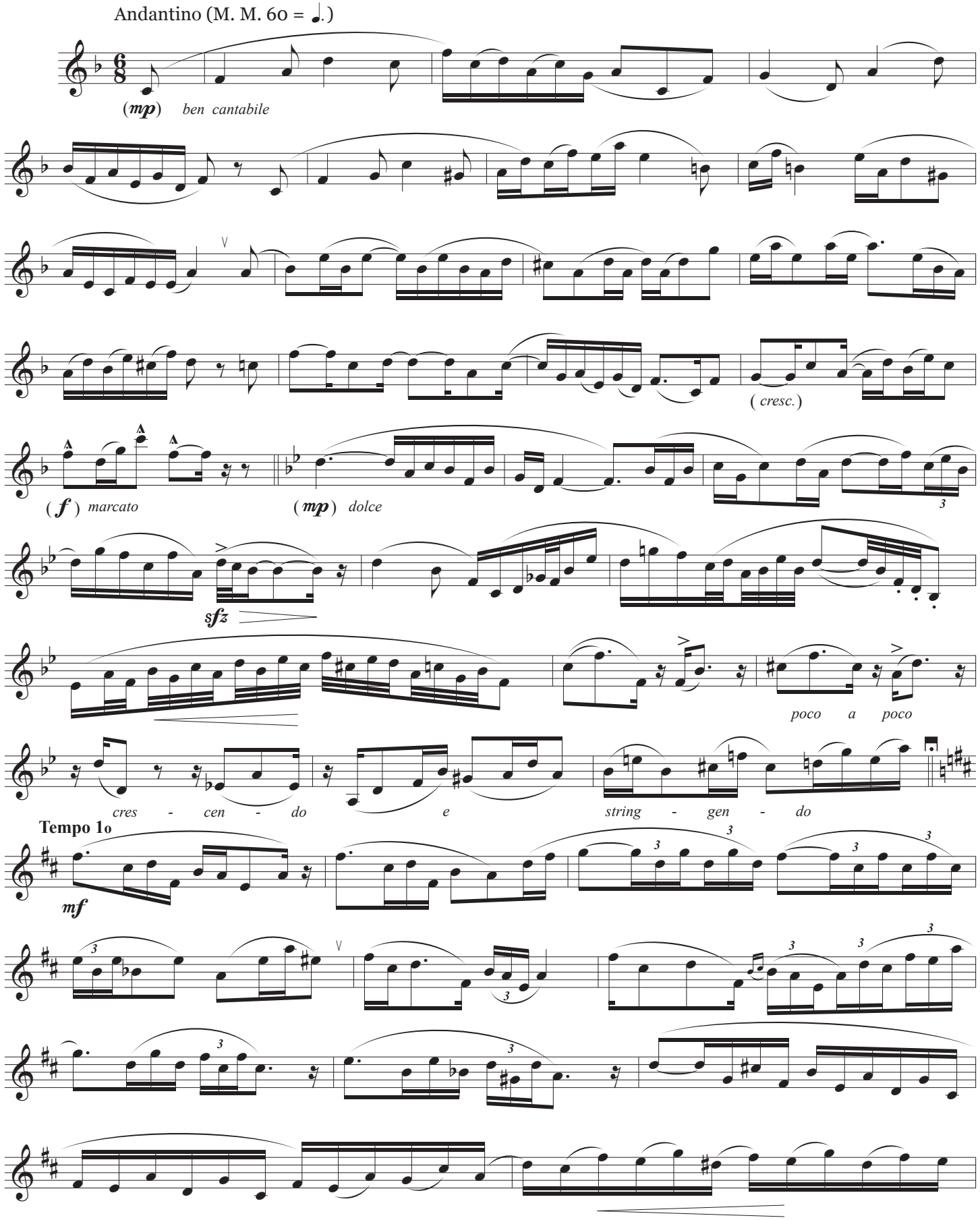
- From the Greek Metron (measure) and Nomos (rule) -

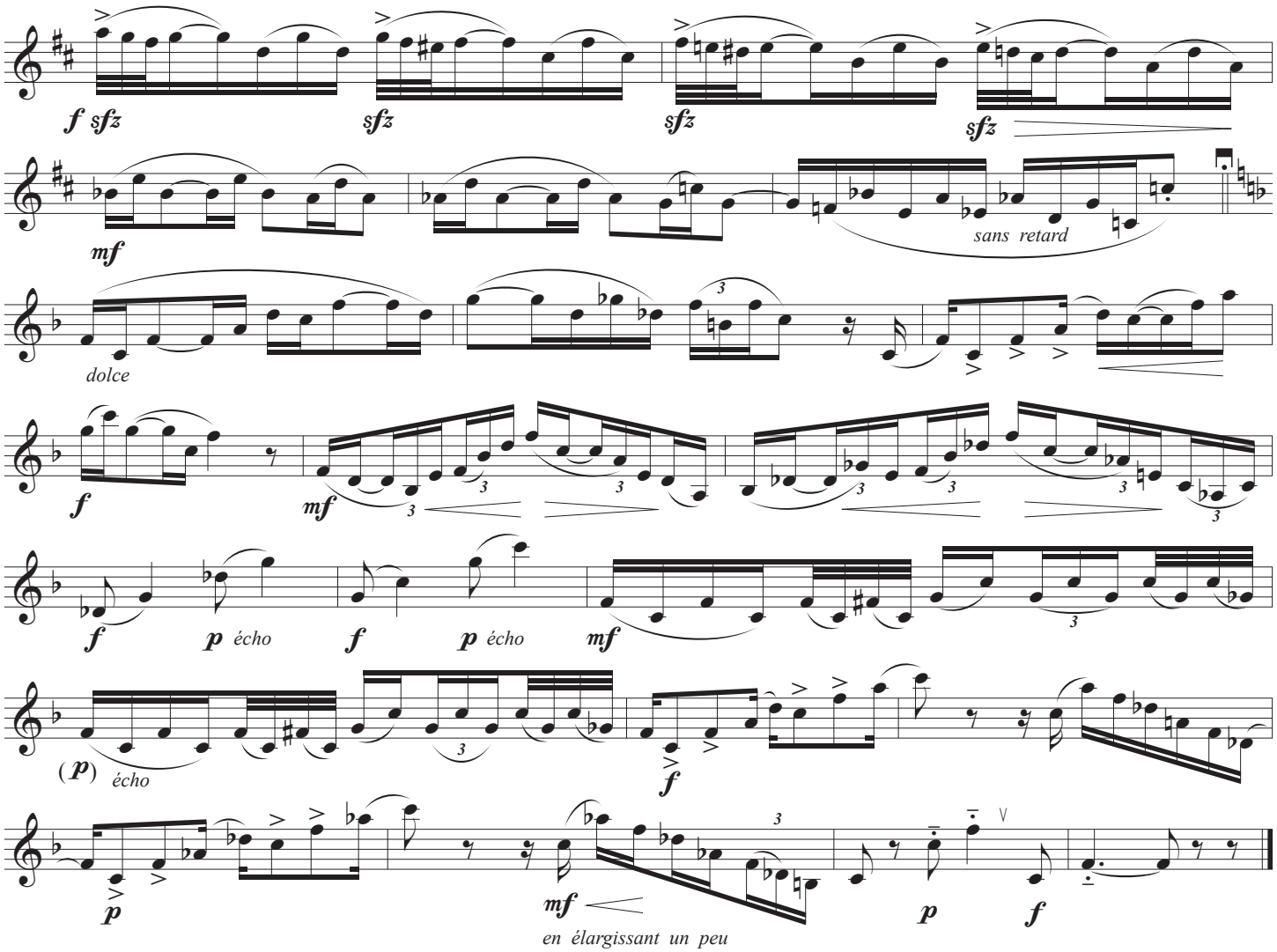
The numbers placed on the white band which is found behind the pendulum indicate the number of swings it will complete in one minute. As such, 48 - 88 - 116, etc. indicate that when the movable weight is placed on that number, the pendulum will make 48 - 88 or 116 swings per minute, which you will hear as a *tick-tock* as it moves back and forth.

Théo Charlier

Intervals: Fourths *(Intervalles: les quartes)*

Théo Charlier, Study No.8





Theory of the Instrument

There is no three valve or piston instrument that is perfectly in tune when a combination of valves are required to play a note. Here is the reason: the use of any one piston lengthens the column of air so as to lower the pitch: one tone if we press the first valve; half a tone if we press the second valve, a tone and a half if we press the third valve.

This much we know for sure.

Imagine, for example, a trumpet in B-flat (with a theoretical length of 1.475 meters) where we press all three valves down to play an F-sharp or C-sharp. These pitches require a supplemental air column of 0.612 meters. The sum of the three slides added when pressing valves 1, 2, and 3 should meet this requirement. But, the 1st piston lowered gives us a length of 0.181m, the 2nd, 0.088m, and the 3rd, 0.279m. This makes a total of 0.548m.

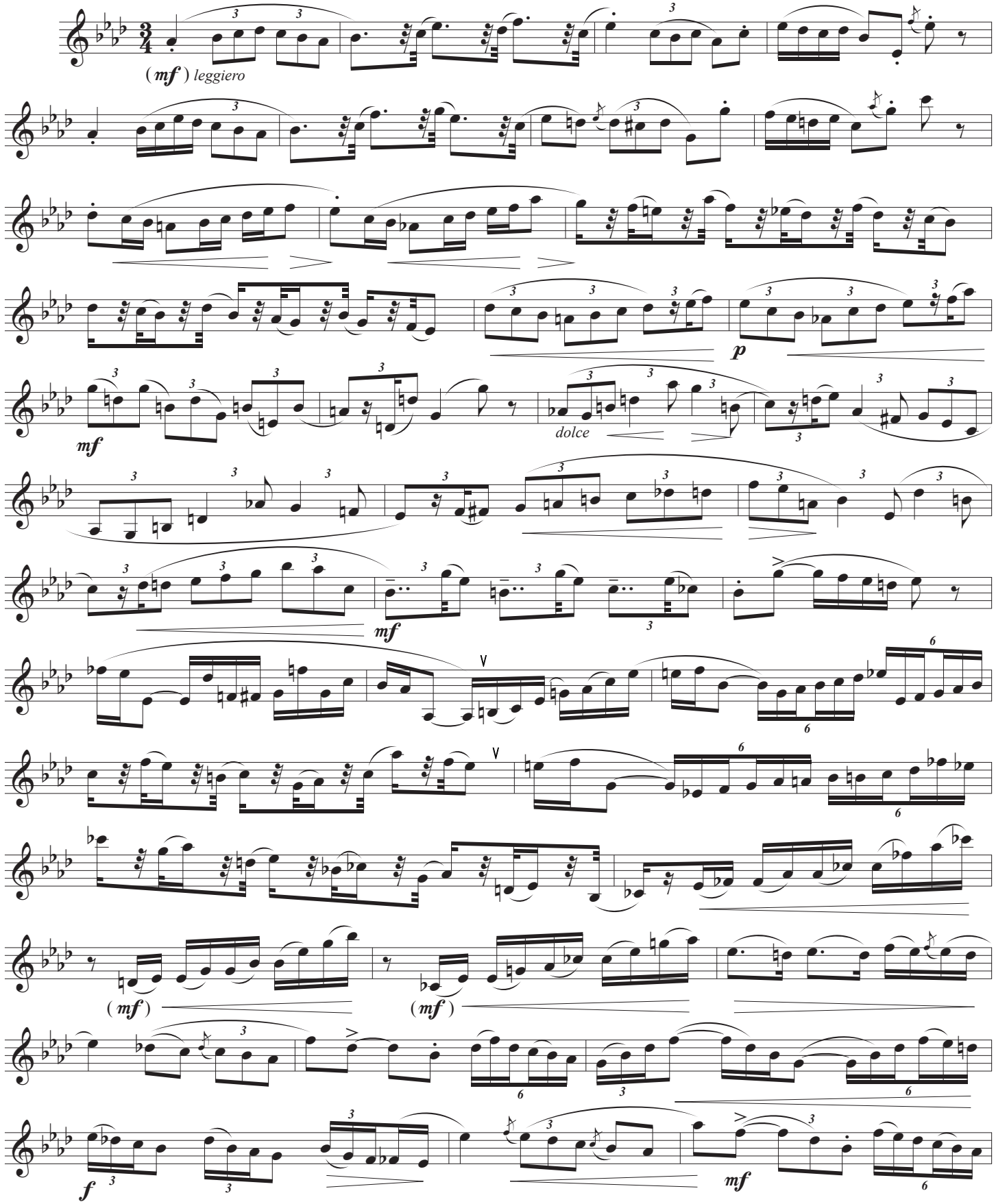
We are missing, therefore, is 0.612m minus 0.548m totalling 0.064m. This means the resulting pitches are going to be too high. These out of tune notes are most often corrected through the use of the lips. It goes without saying that accuracy is only acquired through a great deal of practice and repetition. There are instruments with movable 1st valve slides, but [currently] these are quite rare. A movable 3rd valve slide is seen more frequently today and gives good results.

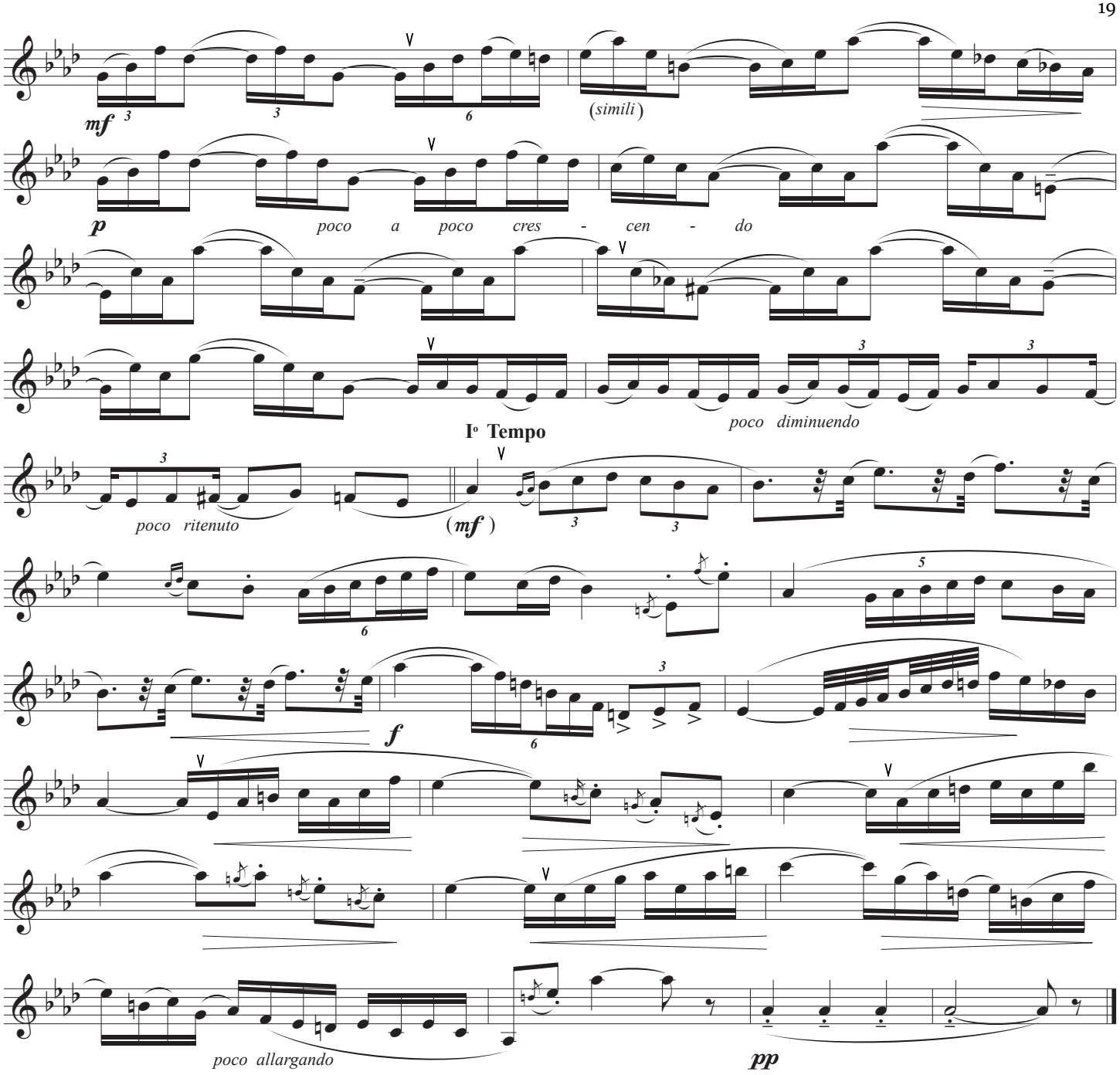
Théo Charlier

Scherzetto

Théo Charlier, Study No.9

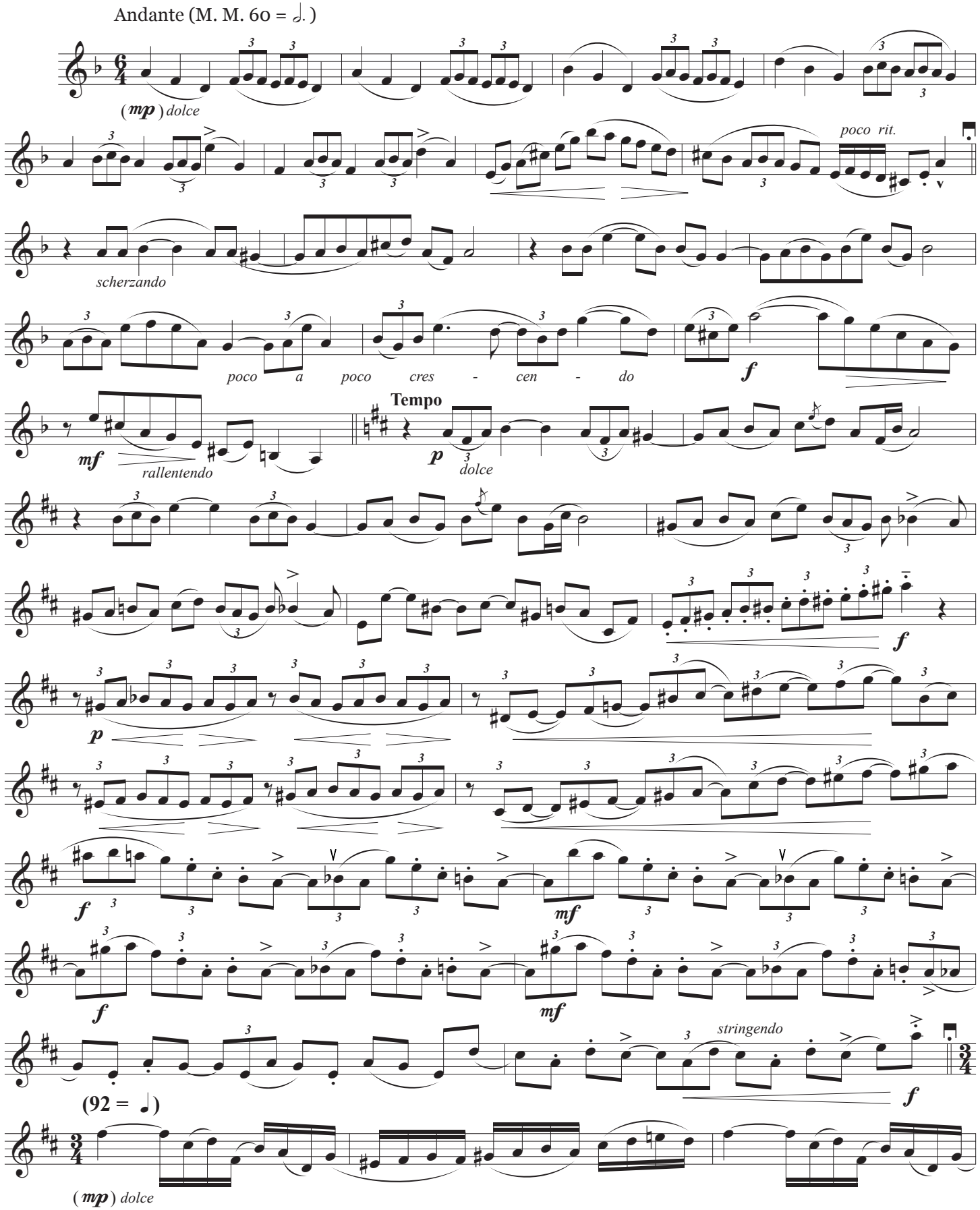
Allegro scherzando (M. M. 84 = ♩)

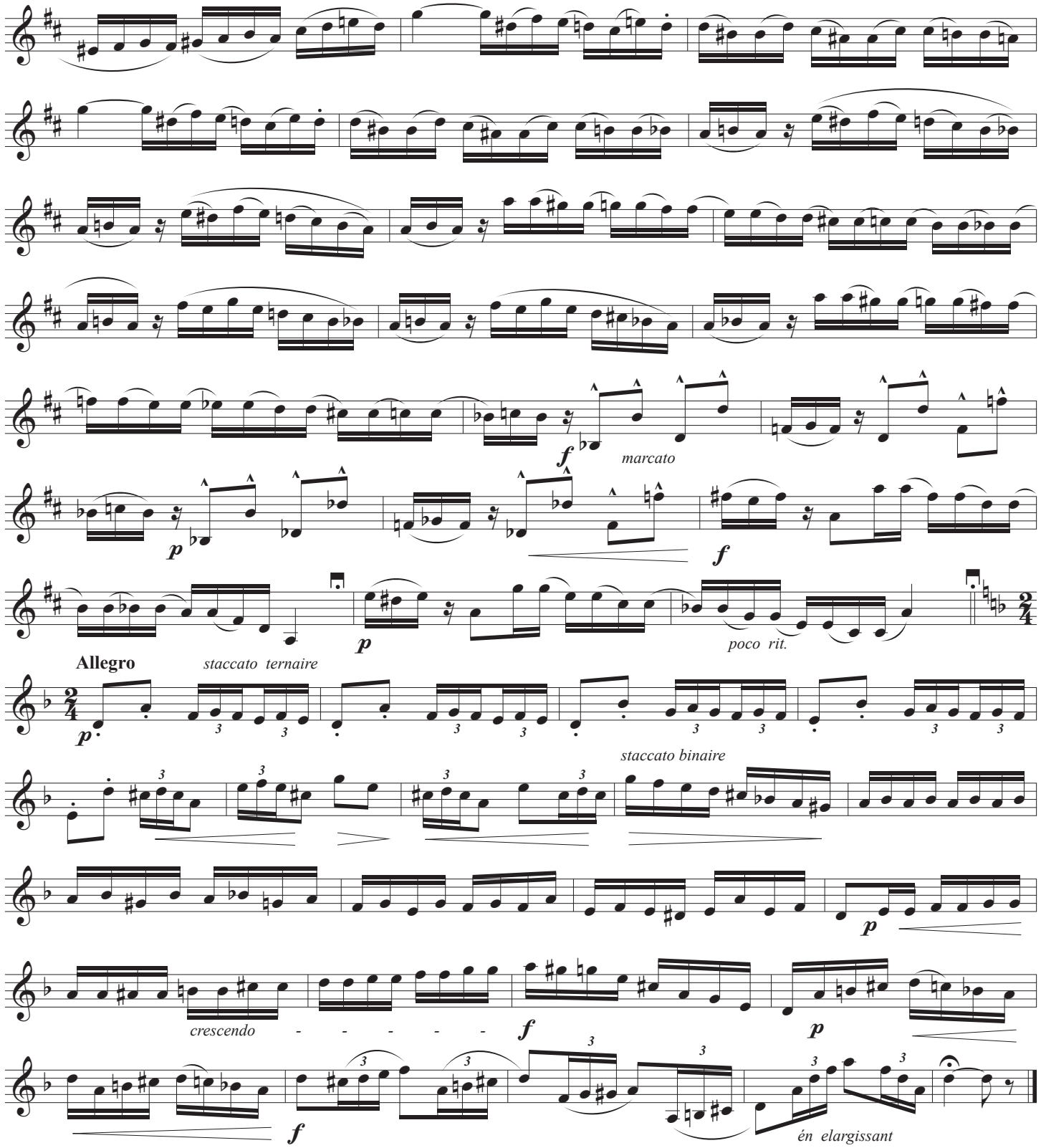



mf
(simili)
p
poco a poco cres - cen - do
poco diminuendo
Io Tempo
poco ritenuto
(mf)
f
poco allargando
pp

Rhythm *(Du rythme)*

Théo Charlier, Study No.10

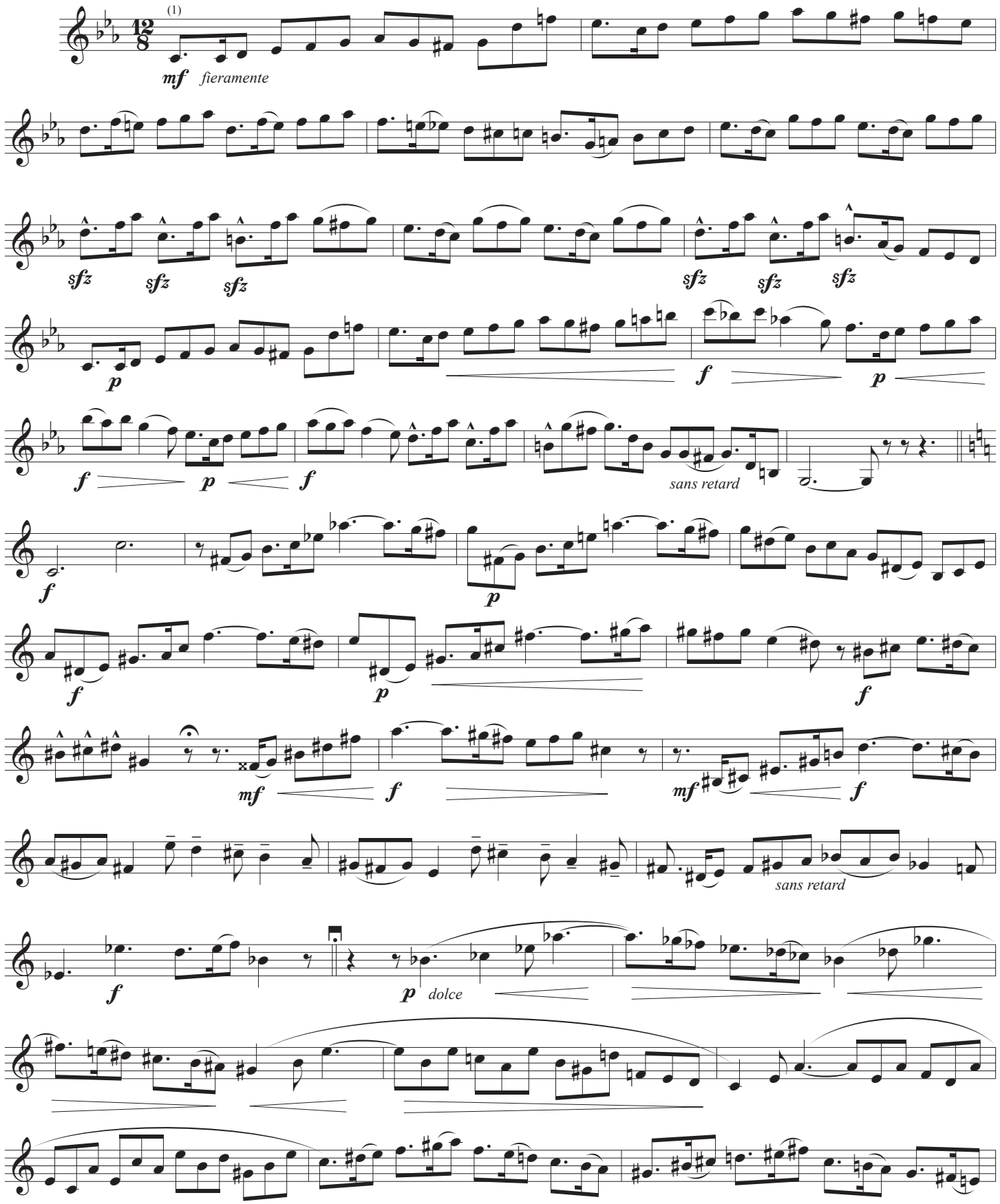



f
marcato
p
f
p
poco rit.
Allegro
staccato ternaire
p
staccato binaire
p
crescendo
f
p
f
én elargissant

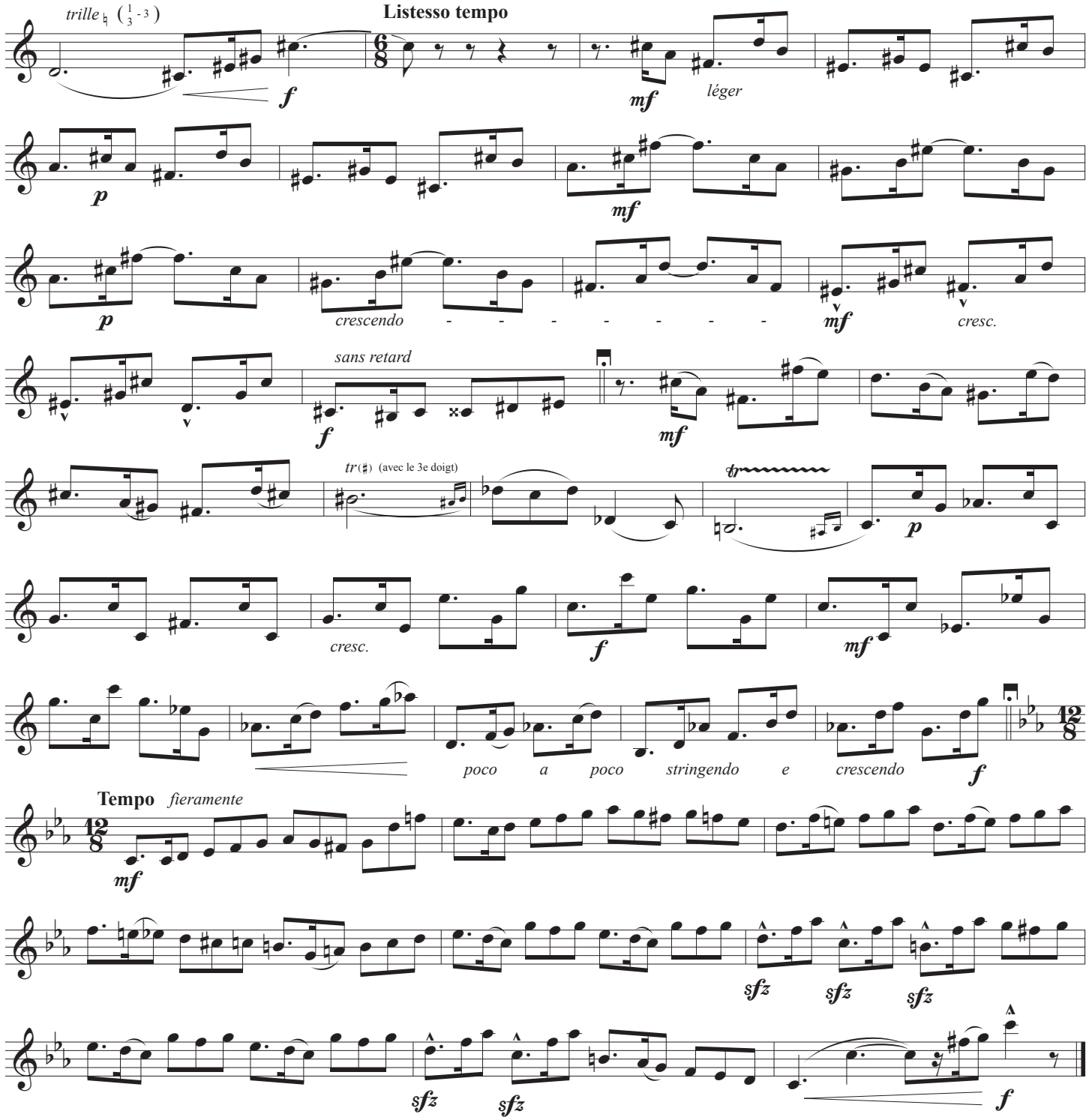
Fantasy *(Fantaisie)*

Théo Charlier, Study No.11

All° Moderato (M. M. 108 = ♩.)

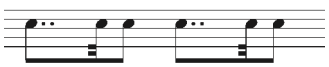


(1) *Preparatory study for Théo Charlier's "Solo de Conours"*



More often than not, this rhythm is not properly observed. That is regrettable. We could play it effectively if we play it like this: A) double the dot on the first note; B) then half the length of the second note; C) play the third note as written.

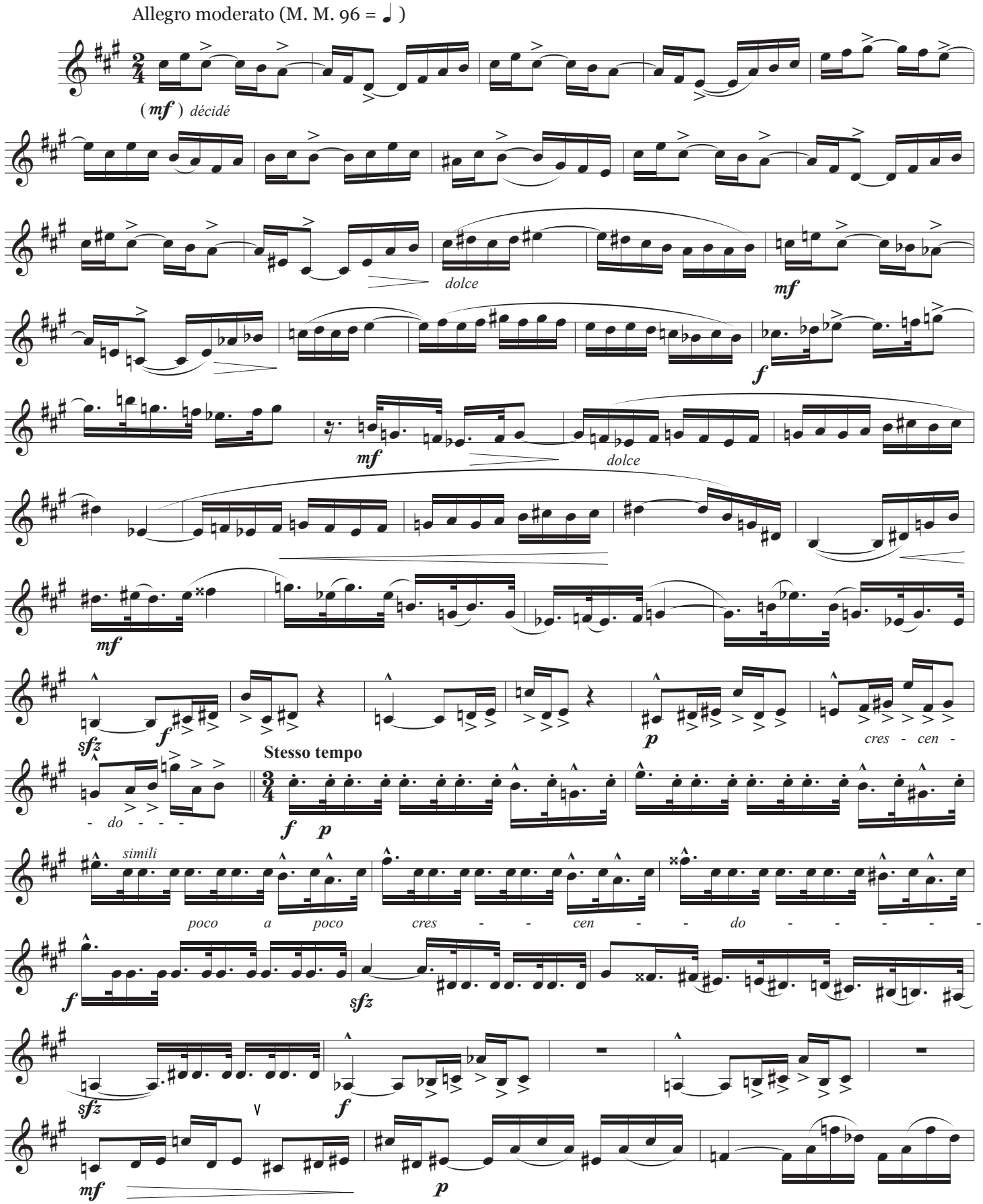
Example:

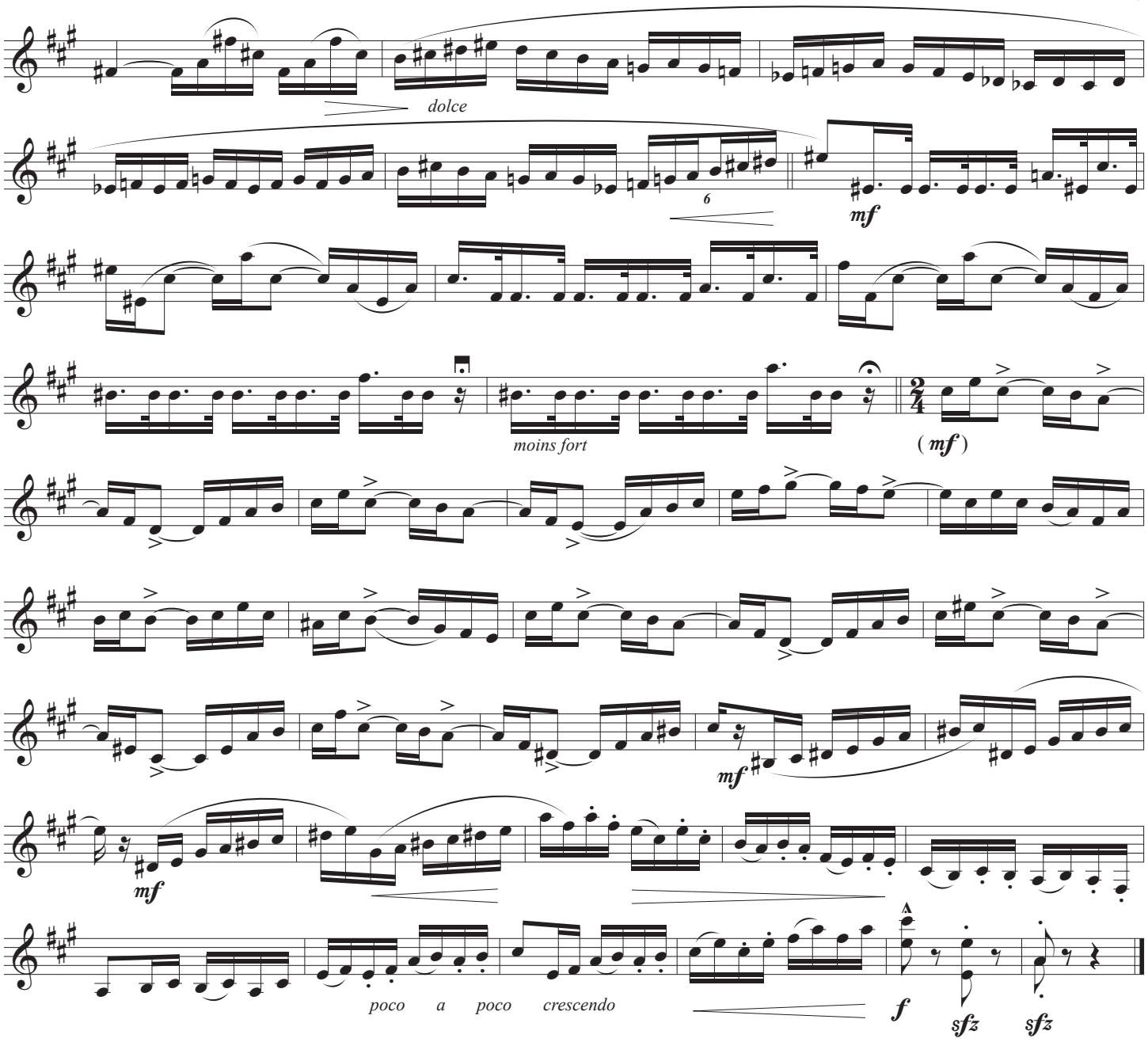


This method will give us a better chance of conserving the character of this rhythmic pattern, but it is preferable to respect the existing notation if possible.

Modern Study *(Étude moderne)*

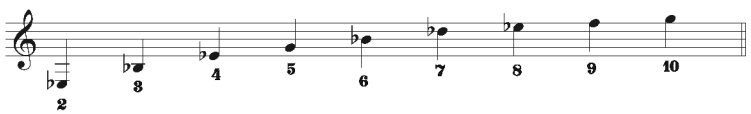
Théo Charlier, Study No.12





Air

Air is the body which vibrates inside wind instruments; whether made of wood, glass, brass, bronze, the timbre is the same. Conclusive experiments began around 1846 (according to Victor Mahillon) by Adolphe Sax, the Belgian instrument maker established in Paris, which showed that the material of the instrument does not affect how the sound is formed.[1] The proportions of the air column are determined by the shape of the tubing and the way in which the vibrations of air are generated are the only things that cause the timbre to vary (the wooden trumpet demonstrates this conclusively); this instrument has a natural timbre that is identical to that of the brass trumpet, and is in Eb and produces the following notes:

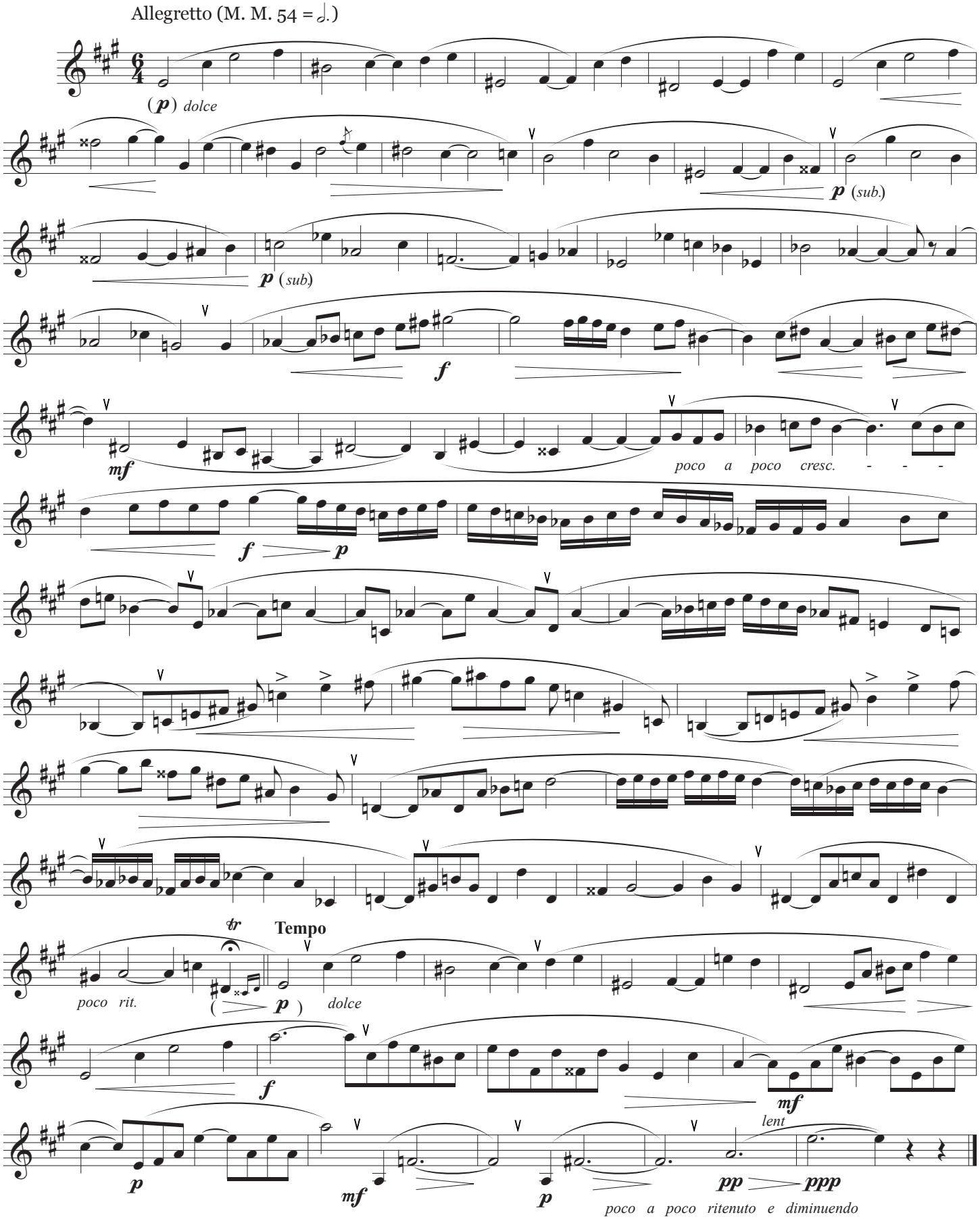


Théo Charlier

[1] V. Mahillon, Museum of the Conservatory of Brussels, No.572, 1st Volume, 2nd Edition).

Prelude *(Prélude)*

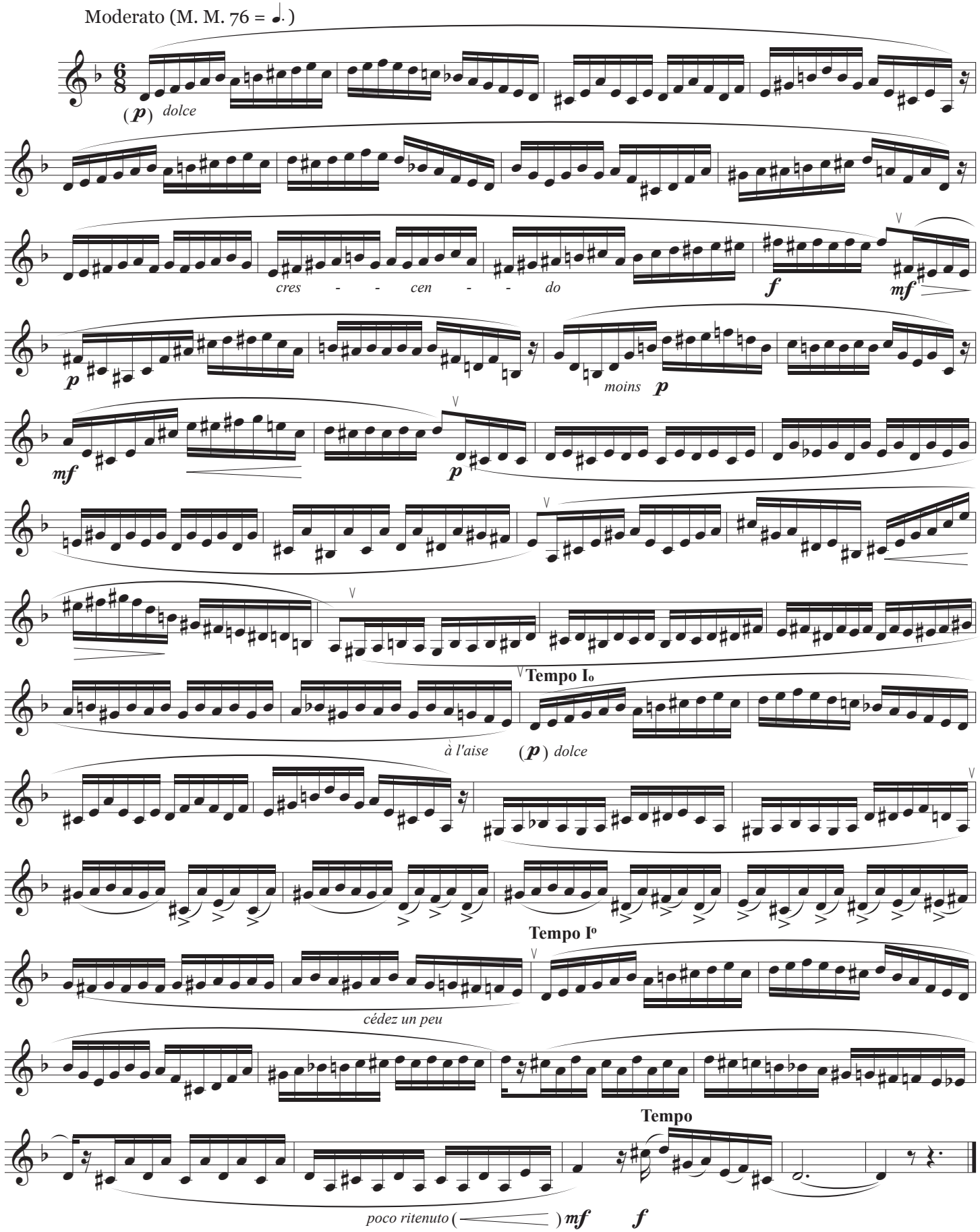
Théo Charlier, Study No.13



Exercise for the 3rd Finger *(Pour l'exercice du 3e doigt)*

Théo Charlier, Study No.14

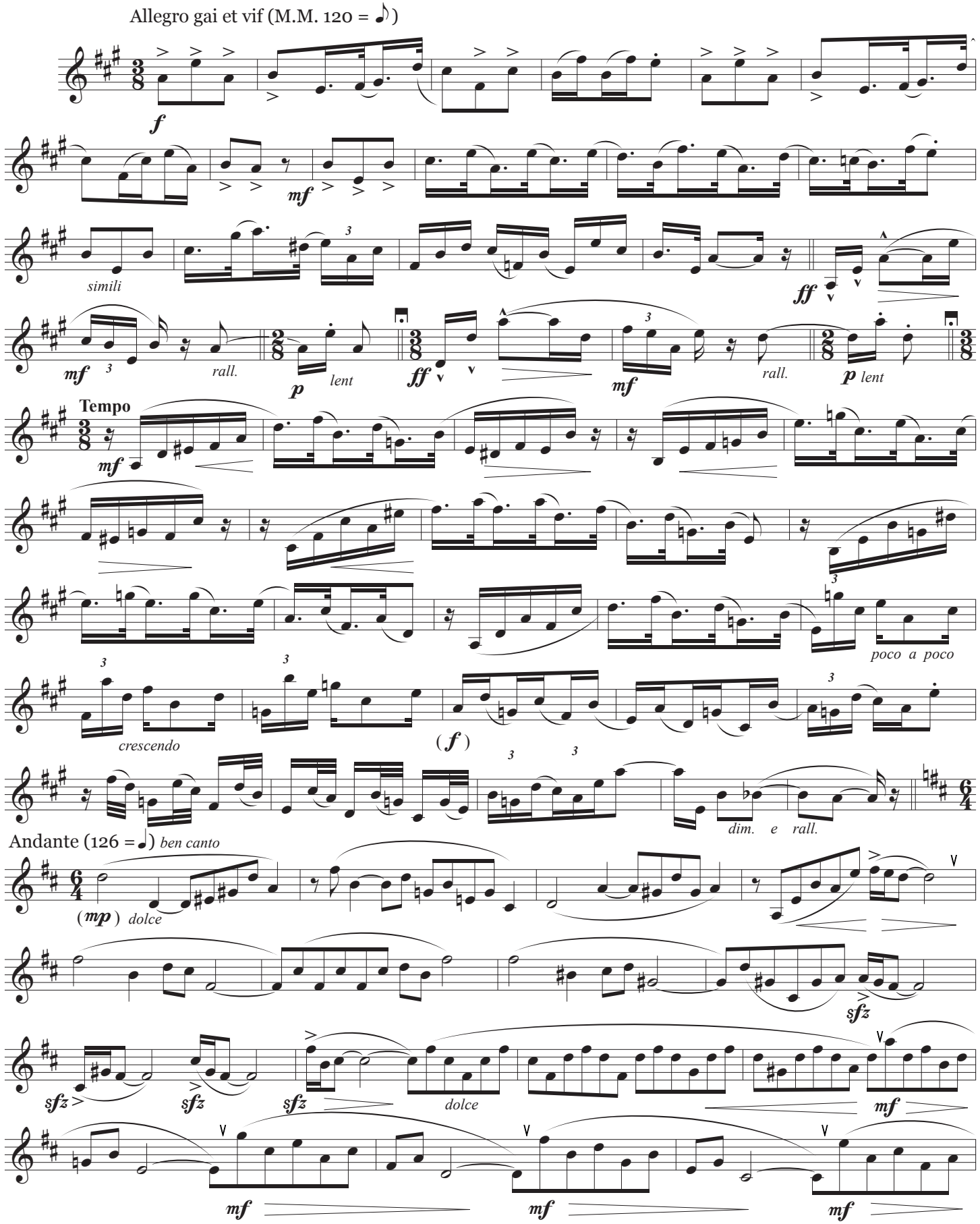
Moderato (M. M. 76 = ♩.)

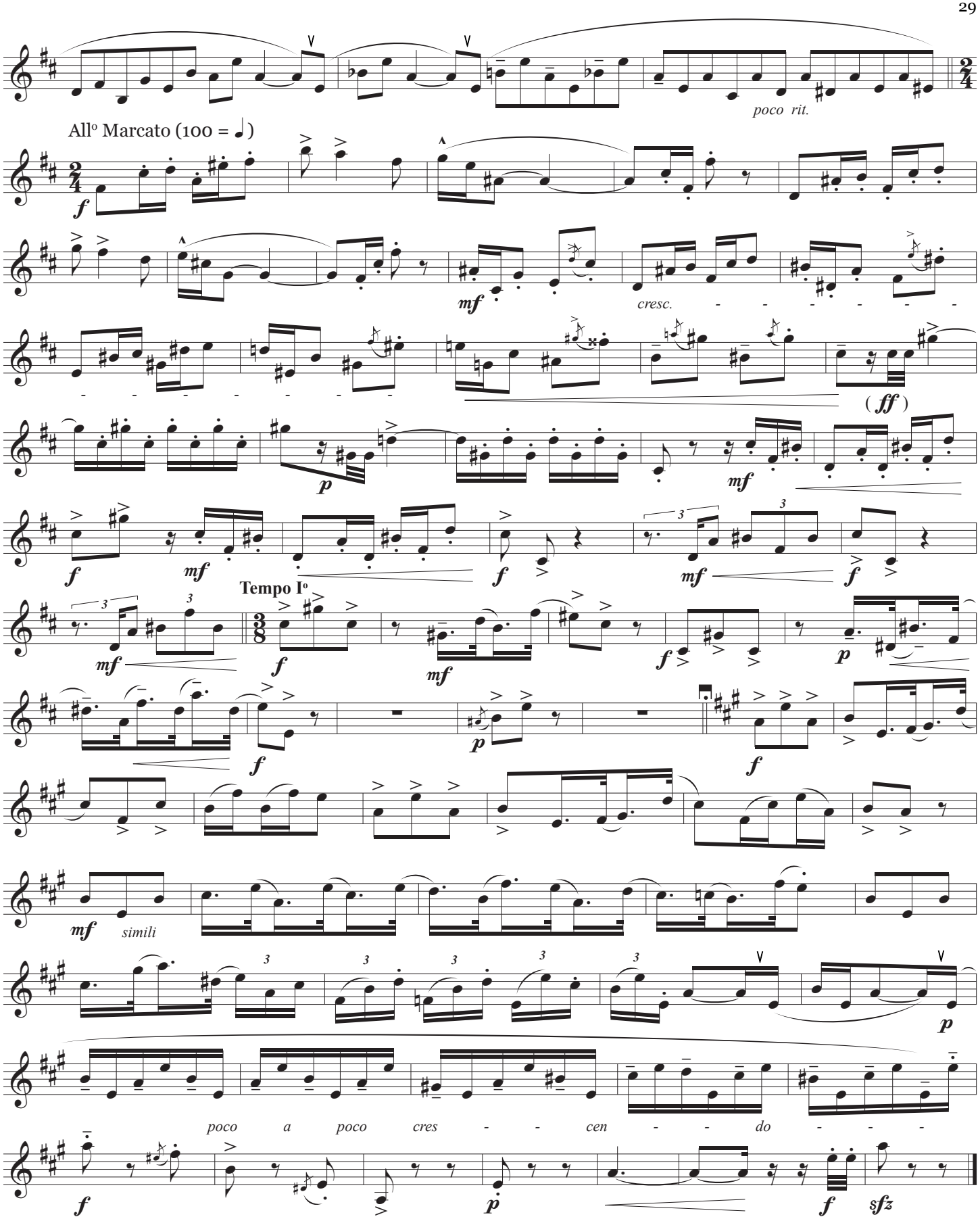


Transpose a tone higher, into E minor; Transpose a minor third higher, into F minor; Transpose a fourth higher, into G minor and double tongue.

Intervals: Fifths *(Intervalles: les quintes)*

Théo Charlier, Study No.15

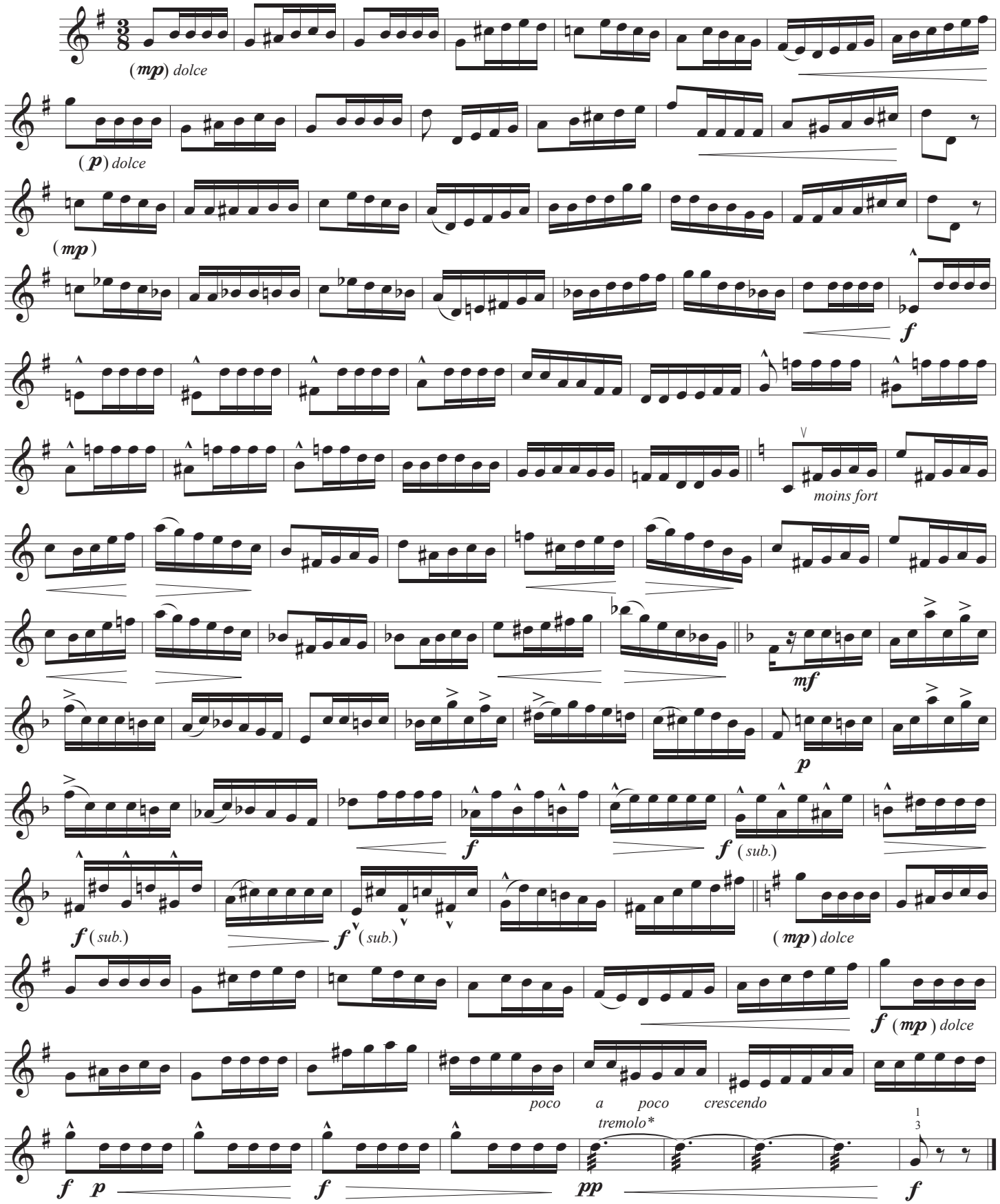



poco rit.
All° Marcato (100 = ♩)
cresc.
(ff)
Tempo I°
simili
poco a poco cres - - cen - - do - - -

Double Tonguing *(Du staccato binaire)*

Théo Charlier, Study No.16

Allegro (M. M. 84 = ♩.)



* To play this tremolo, break the air column by alternating the 1st and 3rd valves. Press the 1st valve and tremolo with the 3rd.

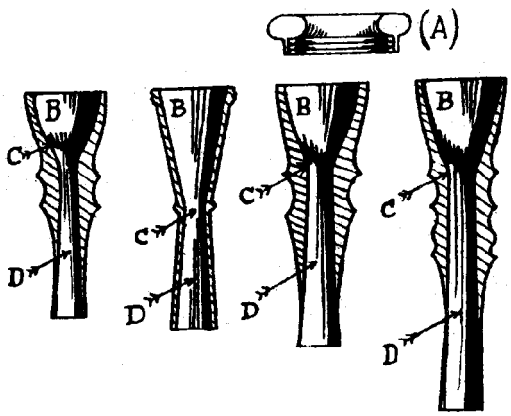
The Mouthpiece

The mouthpiece is made up of 4 main components: A. the rim B. the cup C. the throat and D. the backbore. The cup, which generates the sound, must be proportional to the length of the air column. If it is too deep it makes the upper register flat, and in reverse it raises it.

The mouthpiece that we use must be the one that was supplied with the instrument or one of similar size, except for the rim which could be larger or smaller based on the size of your lips and teeth, which vary greatly from person to person.

The beauty of the timbre depends on the flexibility of the pressure of the mouthpiece against the lips. This pressure, which should not be forced, can compromise the sonority, as the tension can restrict the precise division of the air column. It is, therefore, of utmost necessity, in order to obtain a pure sound and avoid tiring the lips with excess pressure or blowing too hard, which would have no other effect except to paralyze and prevent not only the purity of sound, but also its production.

To use the same mouthpiece when playing different instruments (such as the bugle, the trumpet, the piston cornet, or horn) is a huge mistake; the same can be said for the tuba, baritone, or trombone. This will obviously result in the harmonic resonance being thrown out of balance by the irregularities and disproportions between the mouthpiece and the tubing.



To avoid this inconvenience, in 1910 I made a mouthpiece with an interchangeable rim to attach to different cups, either funnel or bowl shaped, and for which I obtained a patent (see right).

“Experience has proven that there is no greater disadvantage to artists who are desiring to play multiple instruments, than the changing of the rim of the mouthpiece, the only way to have a comfortable mouthpiece is to get used to it, through study and practice with the one that we own; in this way the lips vibrate under the pressure obtained by a consistent rim. This way we acquire the flexibility and elasticity that would not otherwise be obtainable by changing mouthpieces with different vibrating contours.”[1]

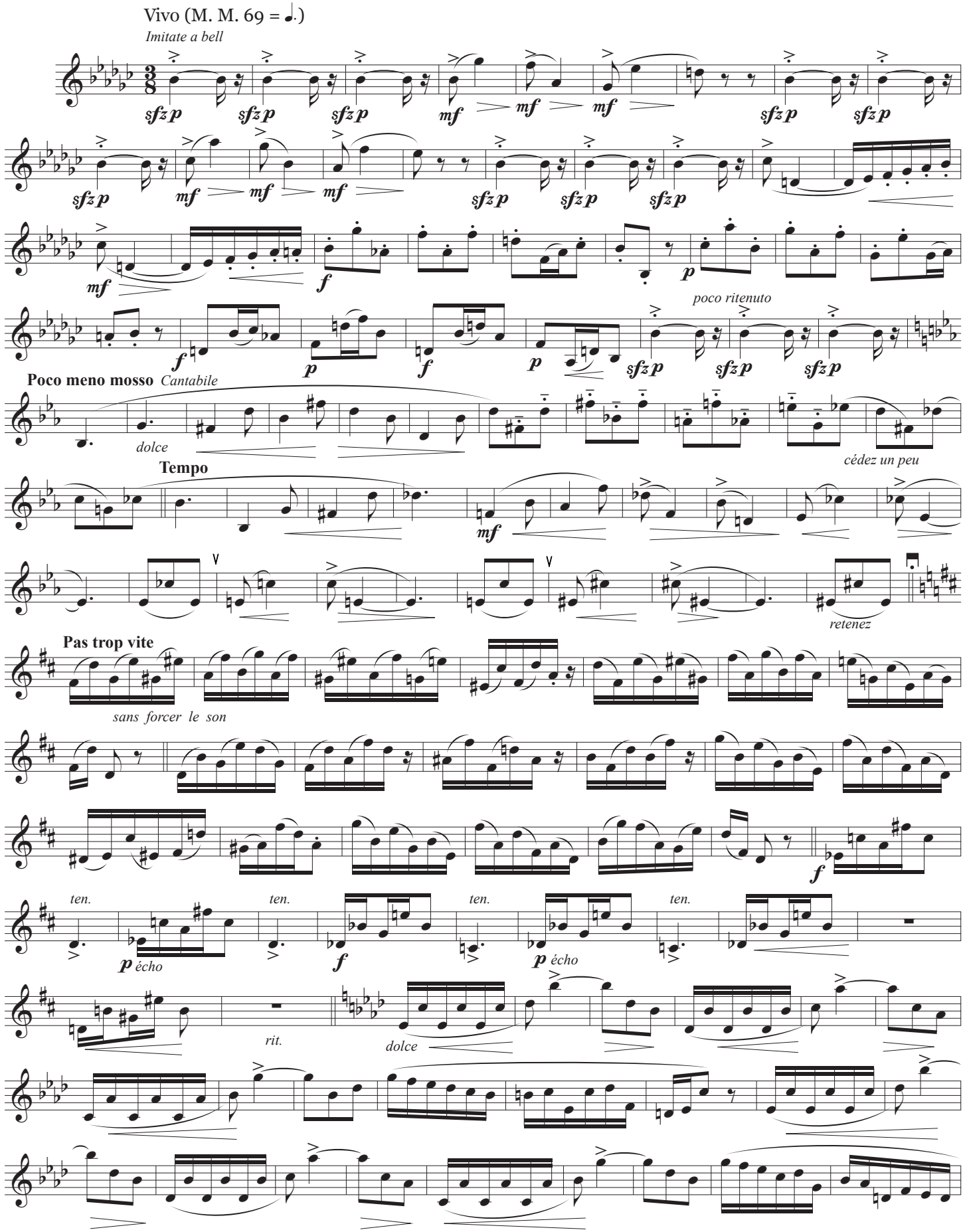
It is obvious that each player could have an interchangeable rim made to the diameter of the mouthpiece to which he is most accustomed, and by pairing it with the correct backbore, he would have no difficulty in maintaining a stable and flexible embouchure.

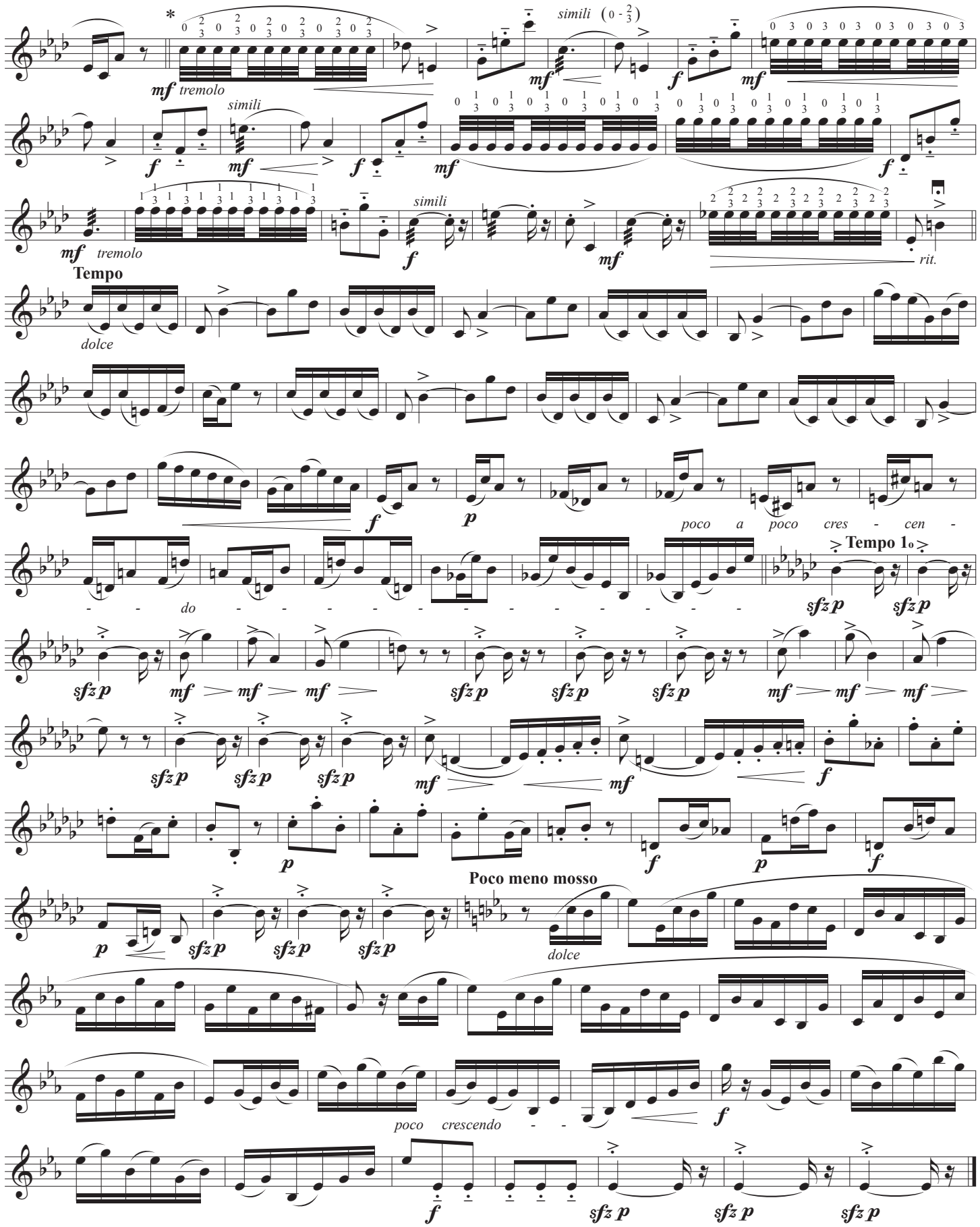
Théo Charlier
Conservatoire Royal de Musique de Liège

[1] V. Mahillon, Museum of the Conservatory of Brussels, No.572, 1st Volume, 2nd Edition.

Intervals: Sixths *(Intervalles: les sixtes)*

Théo Charlier, Study No.17

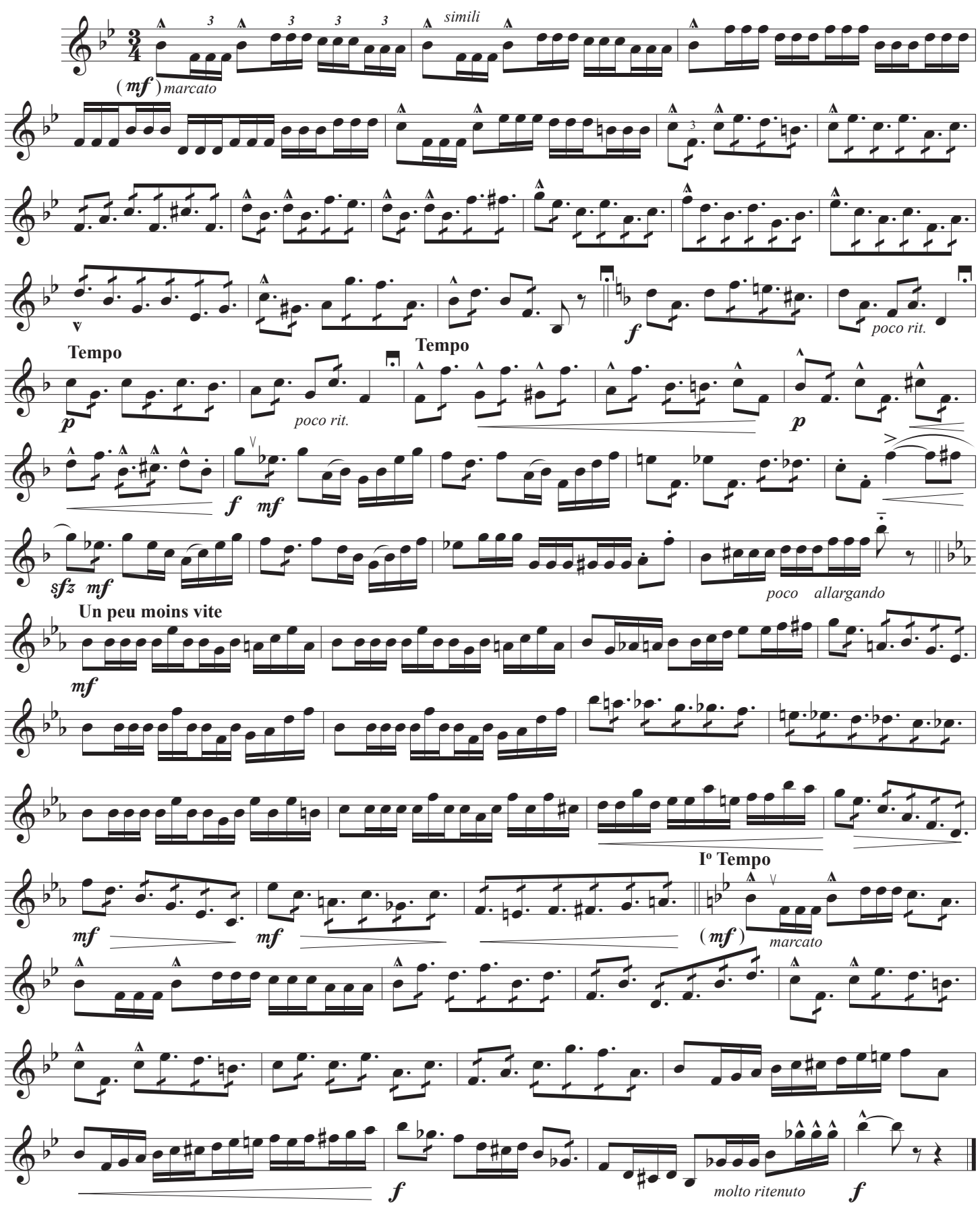




* To play this tremolo, use the indicated fingerings.

Triple Tonguing *(Du staccato ternaire)*

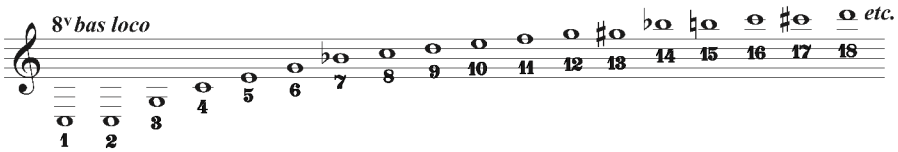
Théo Charlier, Study No.18



Best Writing Practices for Brass

It is known that each length of tubing makes a series of notes, where the pitch is dependant upon the pressure of the mouthpiece against the lips. The lips, in tandem with the breath, cause the air column to vibrate. These sounds, always the same pitches for the same length of tube, as called “harmonics.”

Traditionally, no matter the length of the instrument, the harmonic series is written as follows:

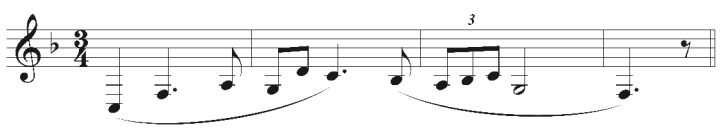


Before the invention of valves, which dates to 1814 (not including instruments with slides or keys), there were only natural instruments with crooks, which produced only the above harmonics. These harmonics do not make up a complete chromatic scale. To obtain the full chromatic scale, it is necessary to extend the principle tubing with an assortment of accessory tubes in convenient lengths (called valve slides) which are opened and closed by the valves at will. Therefore, we switch to the column of air that is the necessary length for the desired pitch.

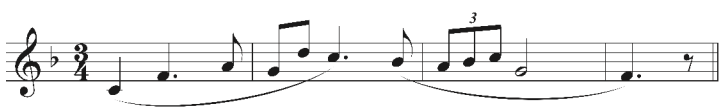
If we do not use the valves, the instrument will only produce the harmonics written above.

However, the writing for small instruments with a mouthpiece (little flugelhorn, little trumpet in D, soprano trumpets in C, B-flat, A, cornet, flugelhorn) would require the use of many additional ledger lines, it is common to write these parts an octave higher.

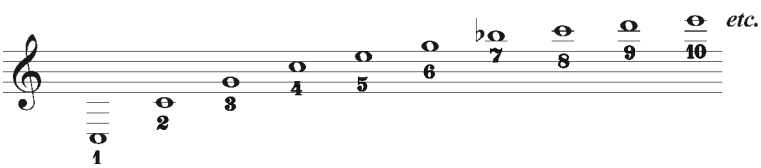
Therefore this musical phrase which should be written:



will actually be written:



and the harmonics would be incorrectly written:

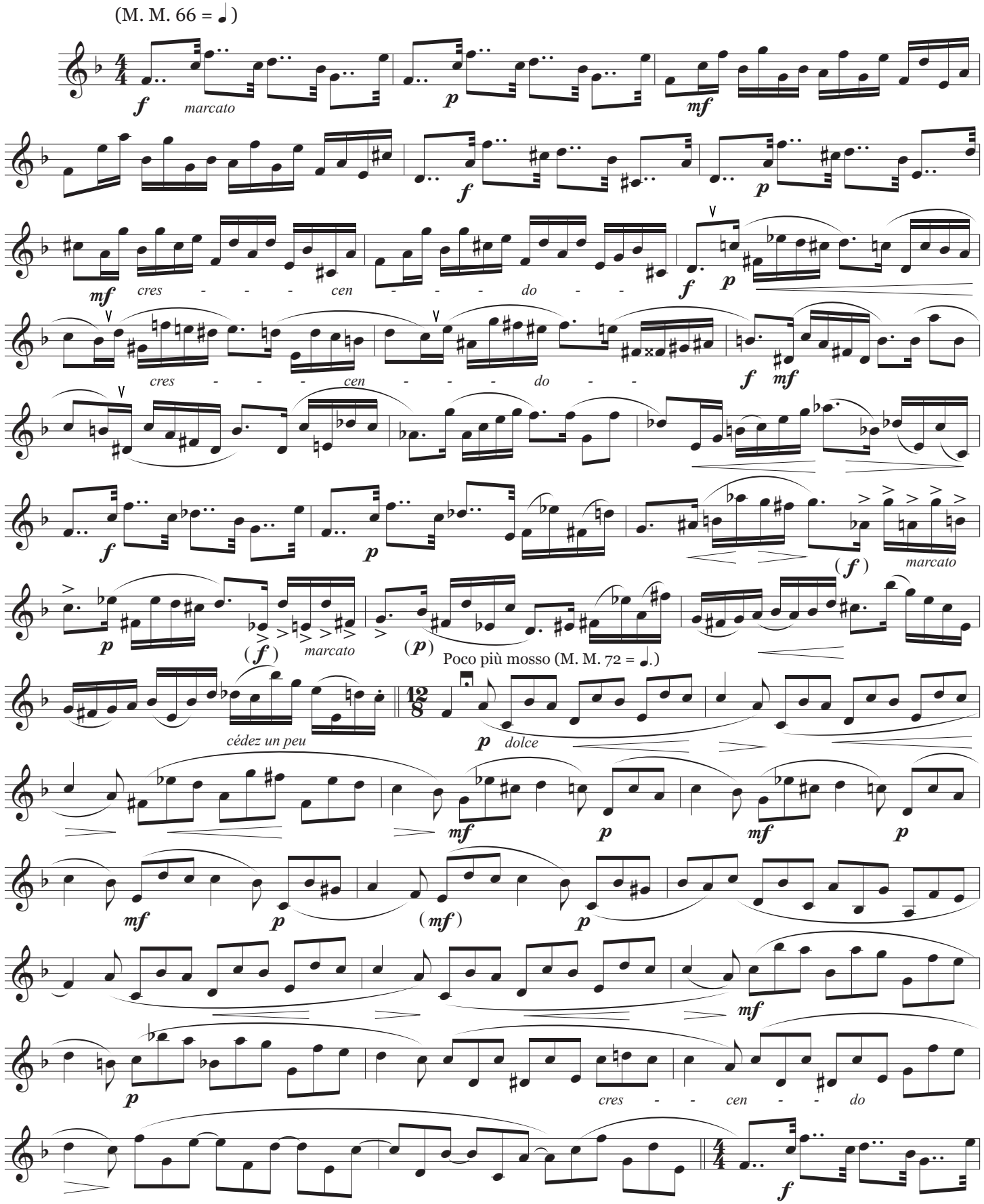


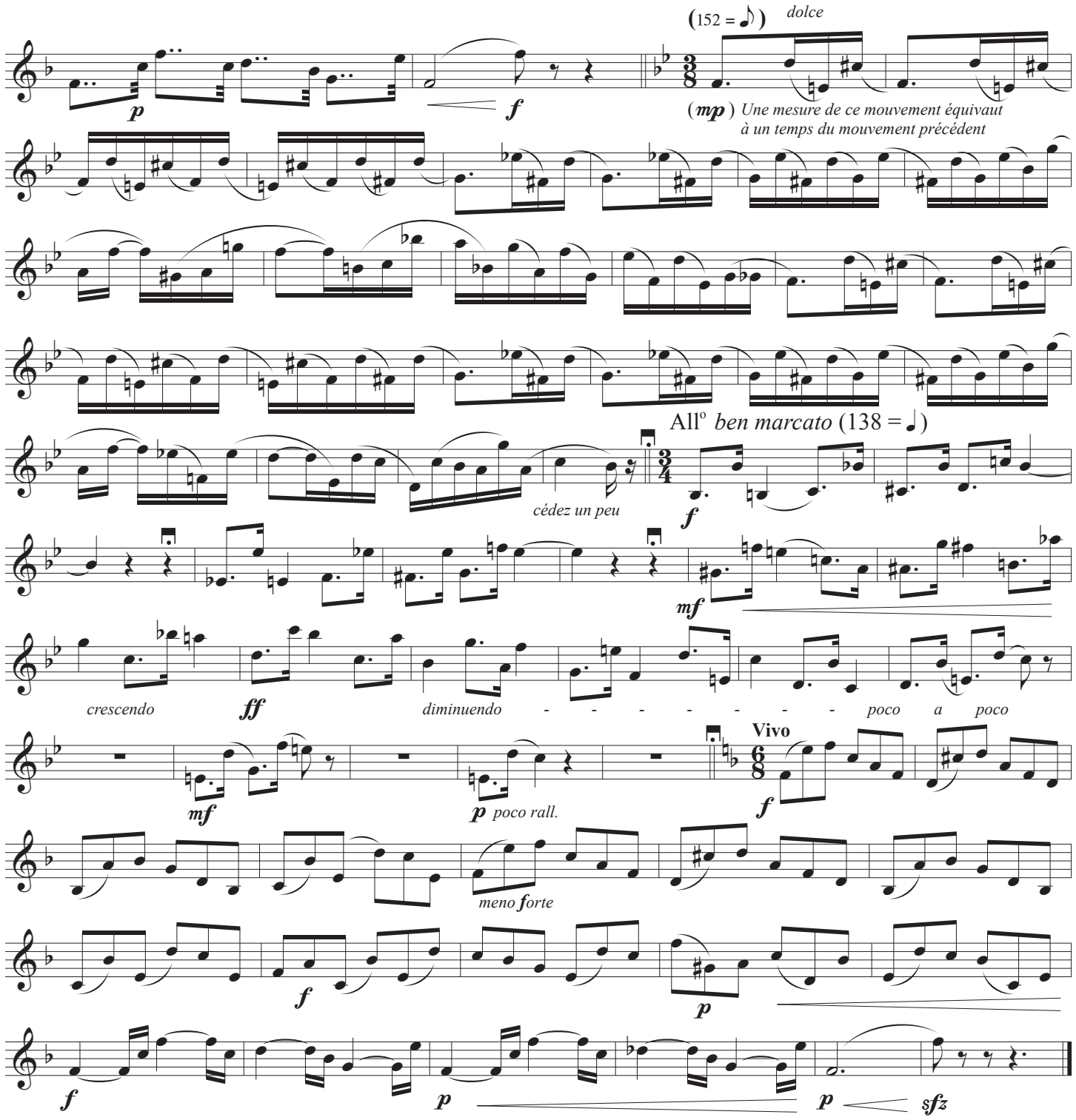
because they are one octave higher than the actual harmonics.

Théo Charlier
Conservatoire Royal de Musique de Liège

Intervals: Sevenths *(Intervalles: les septièmes)*

Théo Charlier, Study No.19





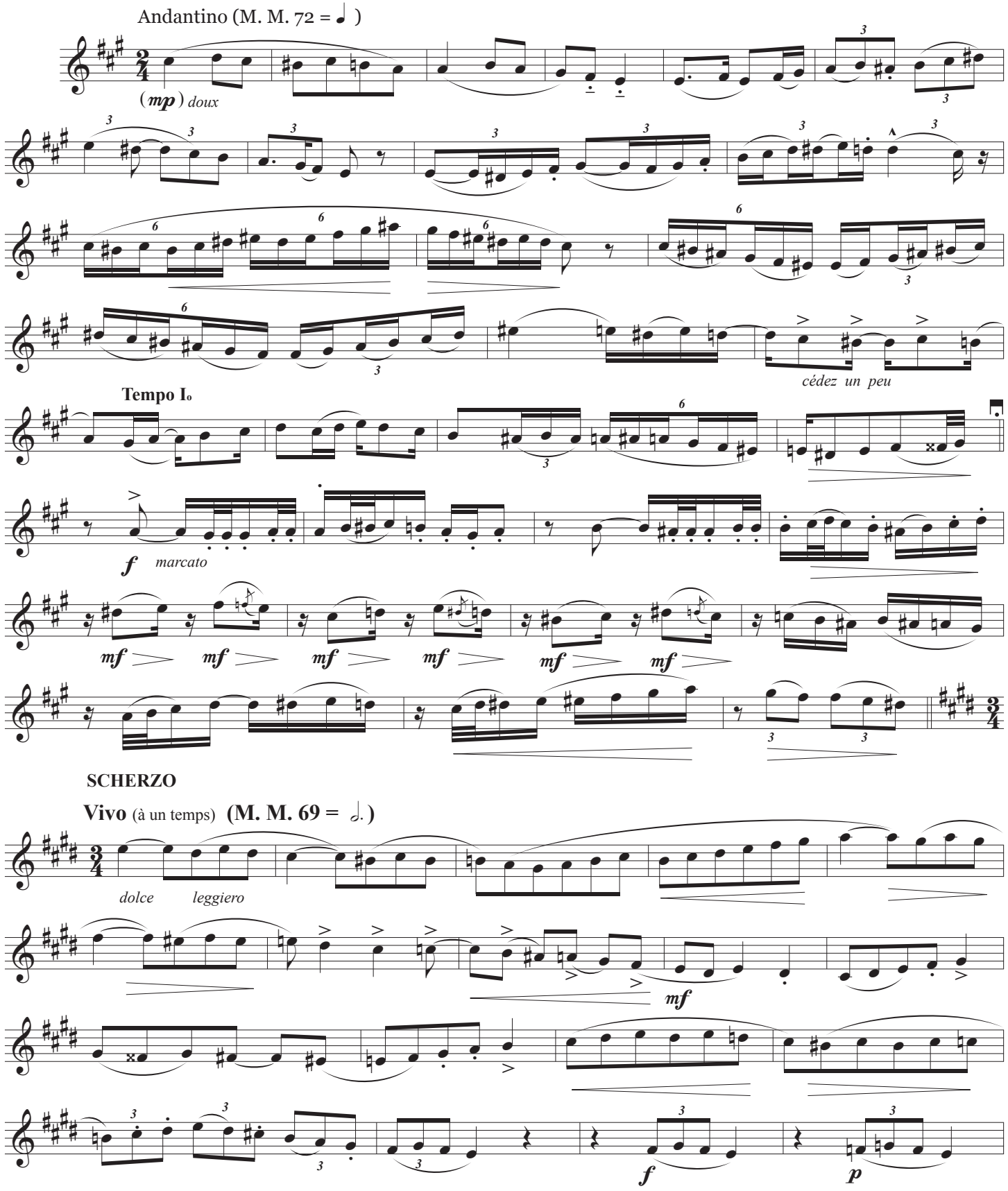
Translating the Keys

French	Ut	Ré ♭	Ré	Mi ♭	Mi	Fa	Sol	La ♭	La	Si ♭	Si ♮
Italian	Do	Re ♭	Re	Mi ♭	Mi	Fa	Sol	La ♭	La	Si ♭	Si ♮
German	C	Des	D	Es	E	F	G	As	A	B	H
English	C	D ♭	D	E ♭	E	F	G	A ♭	A	B ♭	B ♮

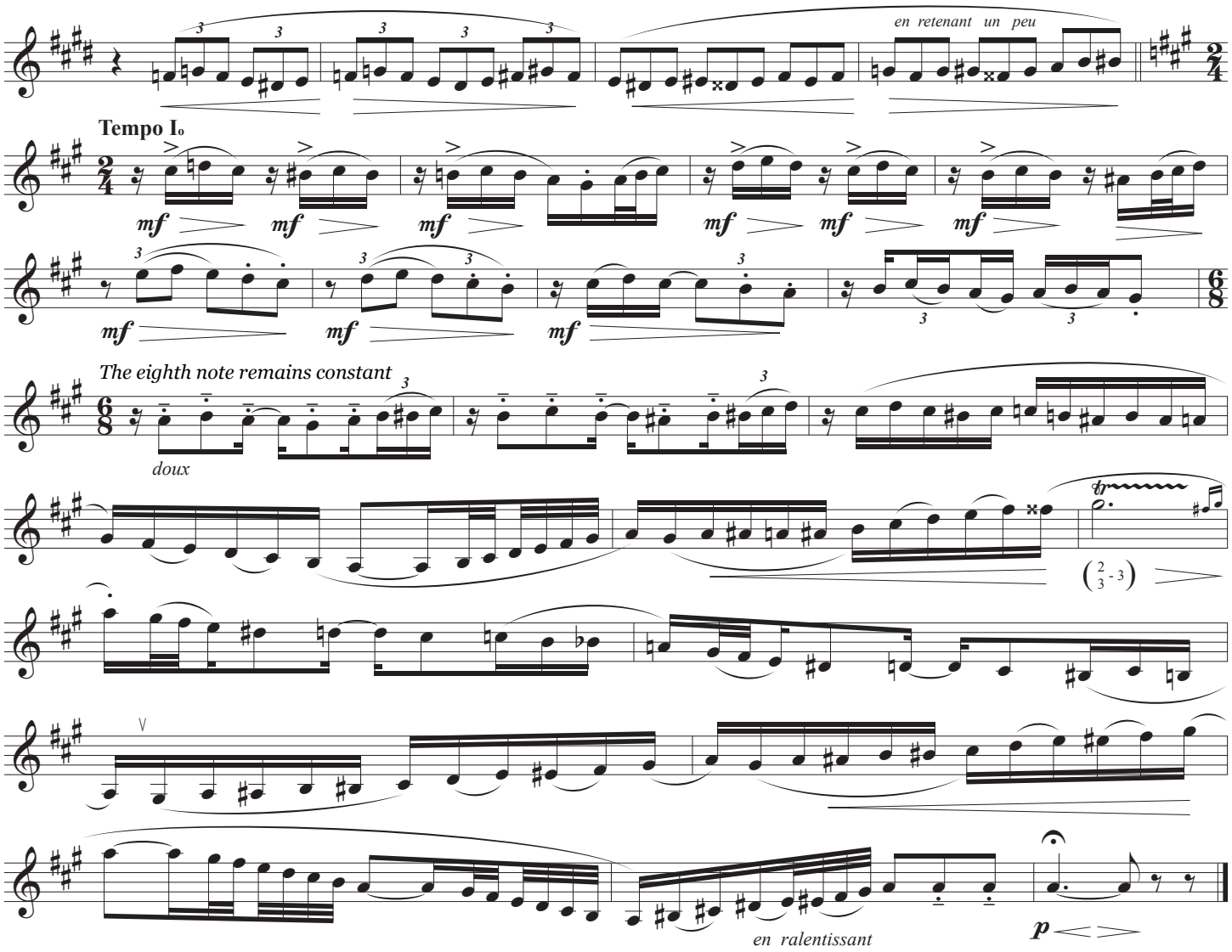
Connected Phrases in Varying Rhythms

(Par mouvements conjoints et aux rythmes variés)

Théo Charlier, Study No.20



This study can also be transposed a half tone lower.



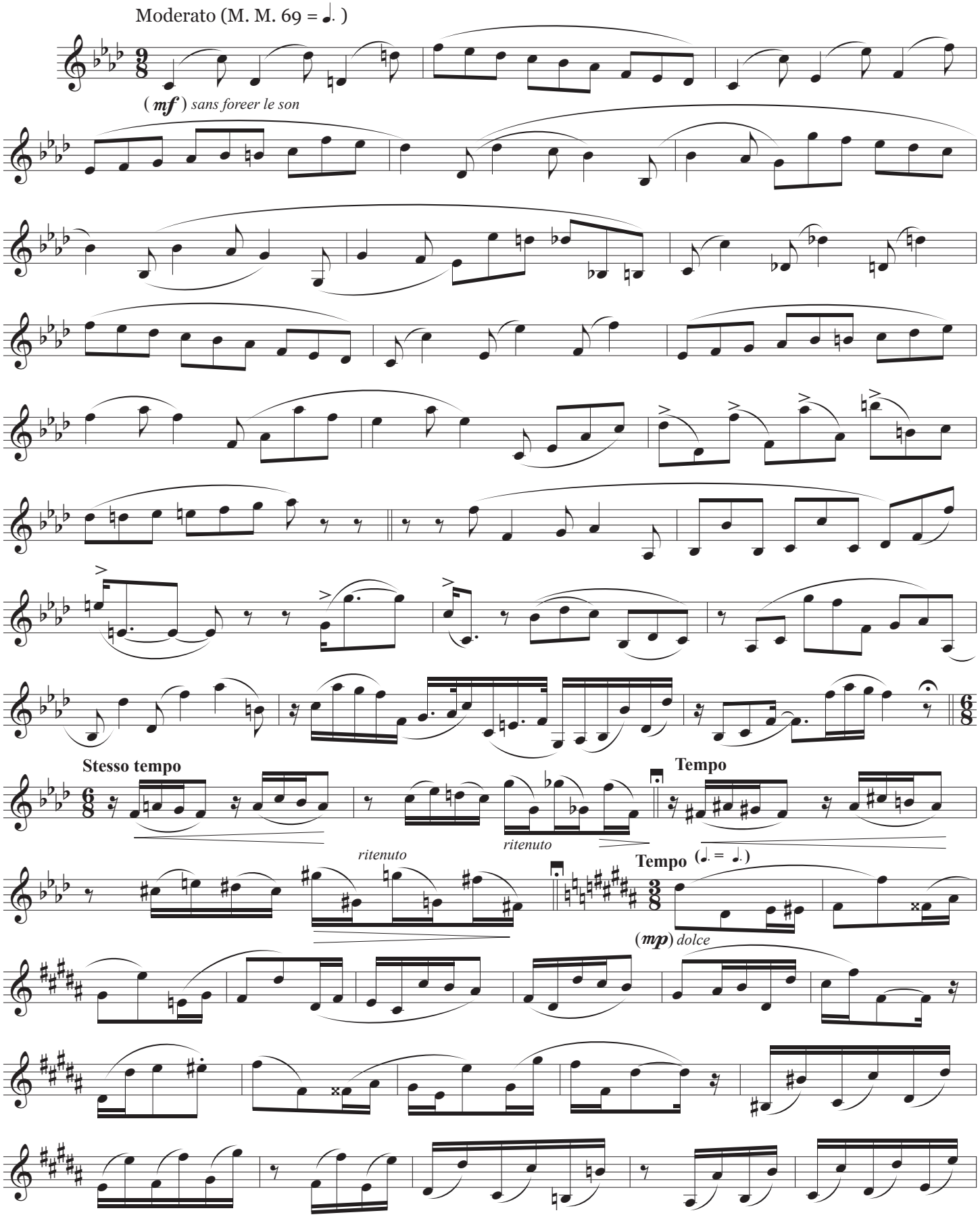
Foreign Terms

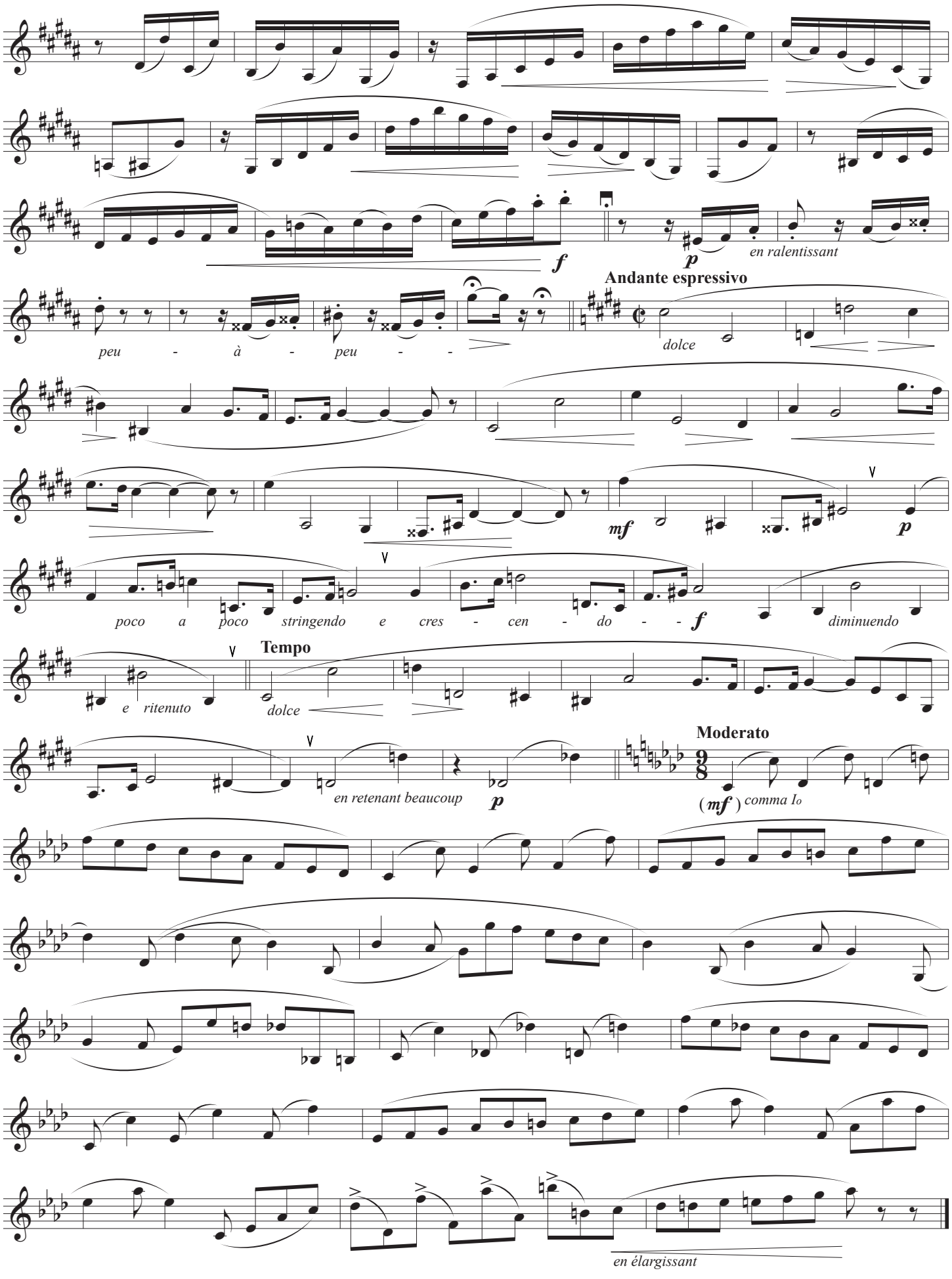
for the word "mute" and its uses

French	**Italian**	**German**	**English**
Sourdine	Sordina	Dämpfer	Mute
"	Sordino		
Avec Sourdine	Con Sordina	Mit Dämpfer	With Mute
Mettre la Sourdine	Mettere Sordina		
Enlevez la Sourdine	Via Sordina	Ohne Dämpfer	Put in Mute
Otez la Sourdine	Sordina Levata	Dampferweg	Remove the Mute
Sans Sourdine	Senza Sordina		Without Mute
Encore la Sourdine	Ancora Sordina	Noch Dämpfer	Mute Again
Bouché	Fermata	Gestopft	Muted
		Gedämpft	

Octaves *(Les octaves)*

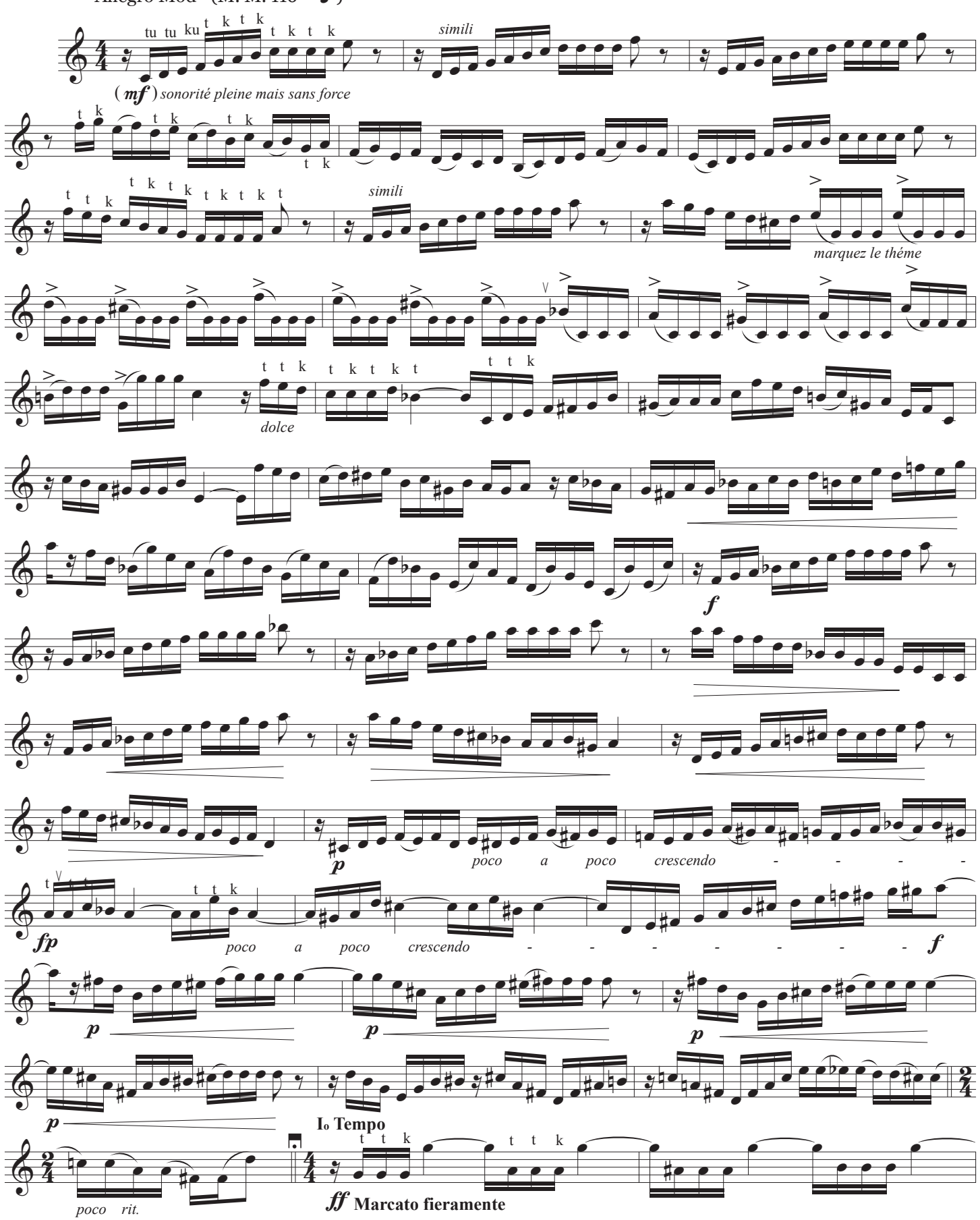
Théo Charlier, Study No.21

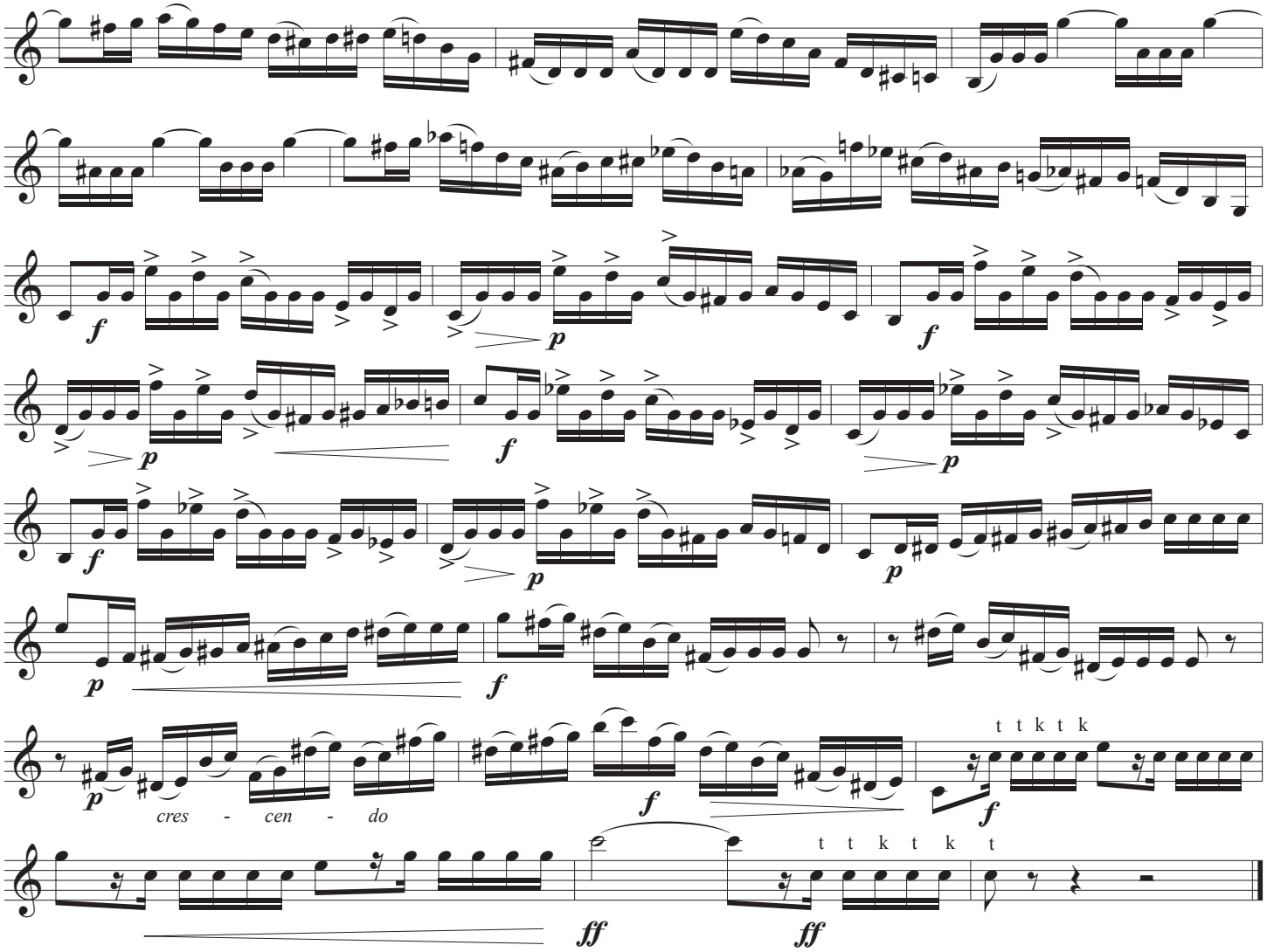



f
p
en ralentissant
Andante espressivo
peu - à - peu - -
dolce
mf
p
poco a poco stringendo e cres - cen - do - - f
diminuendo
Tempo
e ritenuto
dolce
en retenant beaucoup
p
Moderato
(mf) comma Io
en élargissant

Various Articulations *(Des différentes articulations du staccato)*

Théo Charlier, Study No.22





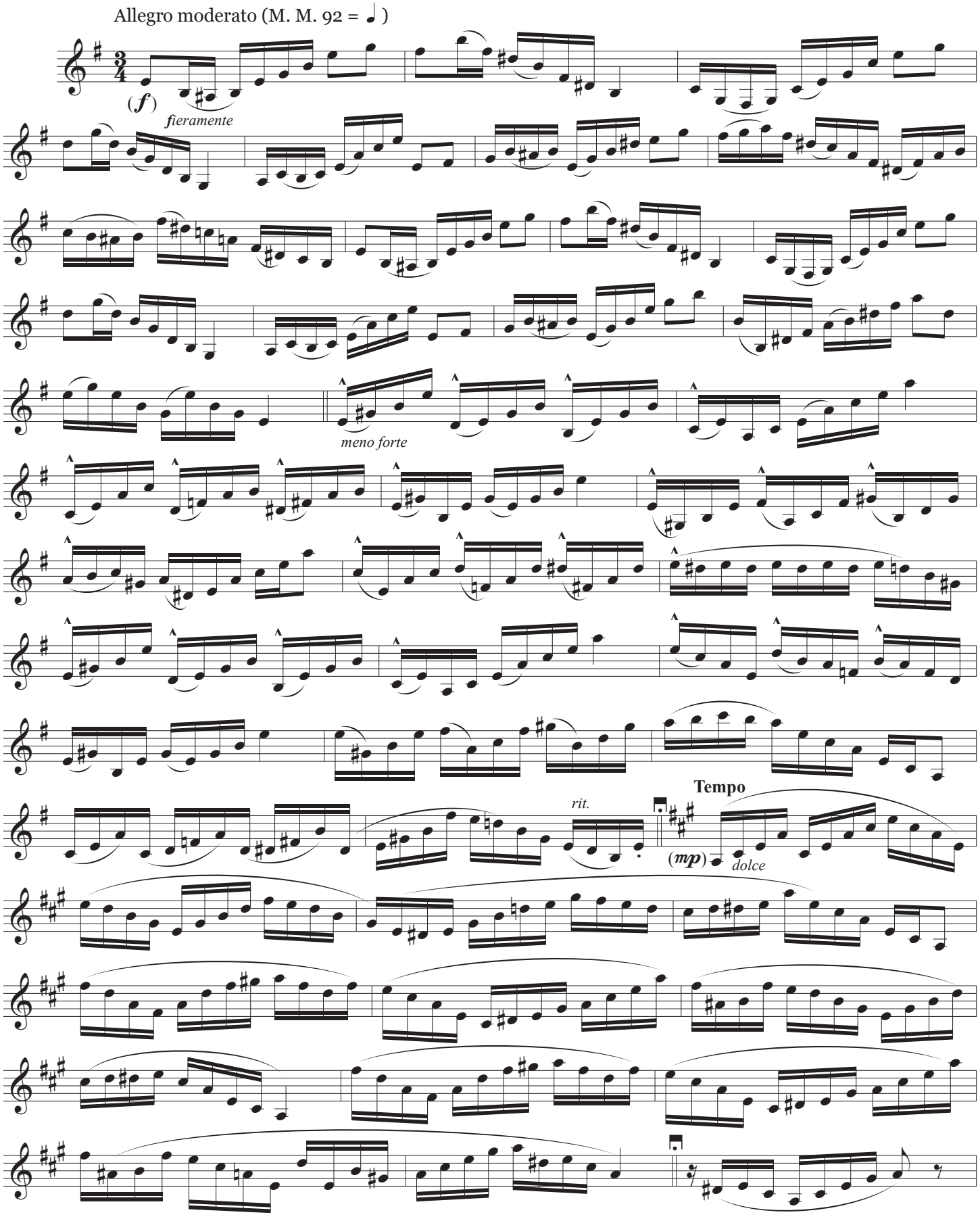
Foreign Terms

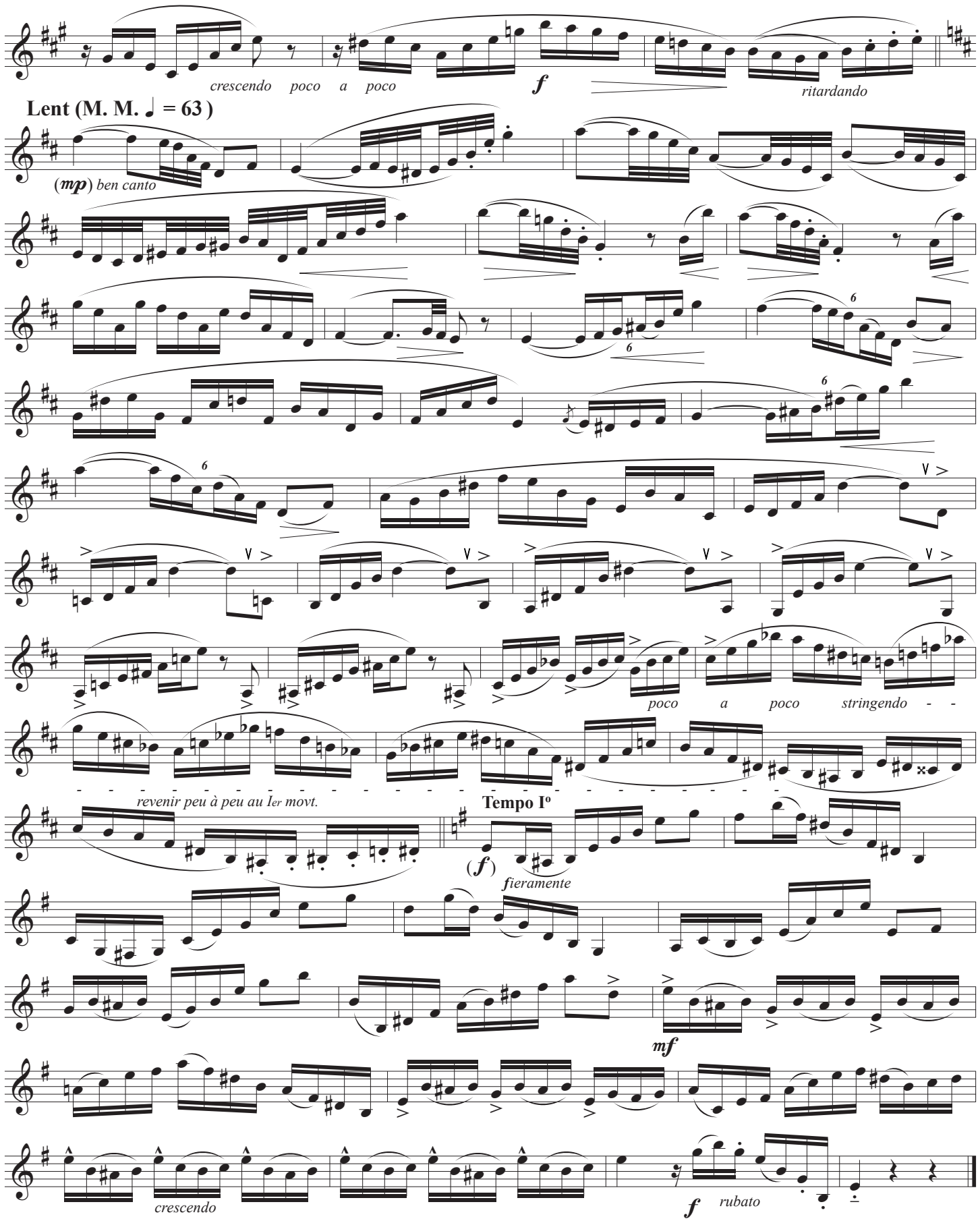
for the words Trumpet, Cornet, Flugelhorn, etc.

French	**Italian**	**German**	**English**
Trompette	Tromba-Clarino Trombetta	Trompete	Trumpet
Trompettes	Trombe-Clarini	Trompeten	Trumpets
Trompette à Clefs	Tromba a Chiavi Pistoner-Cornetto	Klapptrompete Tromba-Kornett	Keyed Trumpet
Cornet à Pistons	Cornetto a macchina Cornetto a pistoni	Ventil Kornett	Cornet
Bugle	Flicorno	Flügelhorn	Flugelhorn
Bugle à Clefs	Flicorno a Chiavi	Klappenhorn	Keyed Bugle
Trompette à Pistons	Tromba a Macchina	Ventil Trompete	Valve Trumpet
Trompette Basse	Tromba Bassa	Bass Trompete Kleine Trompete in D	Bass Trumpet
Petite Trompette en Ré	Piccola Tromba in D	Piccolo Trompete in D	Little Trumpet in D

Arpeggios *(L'arpège)*

Théo Charlier, Study No.23

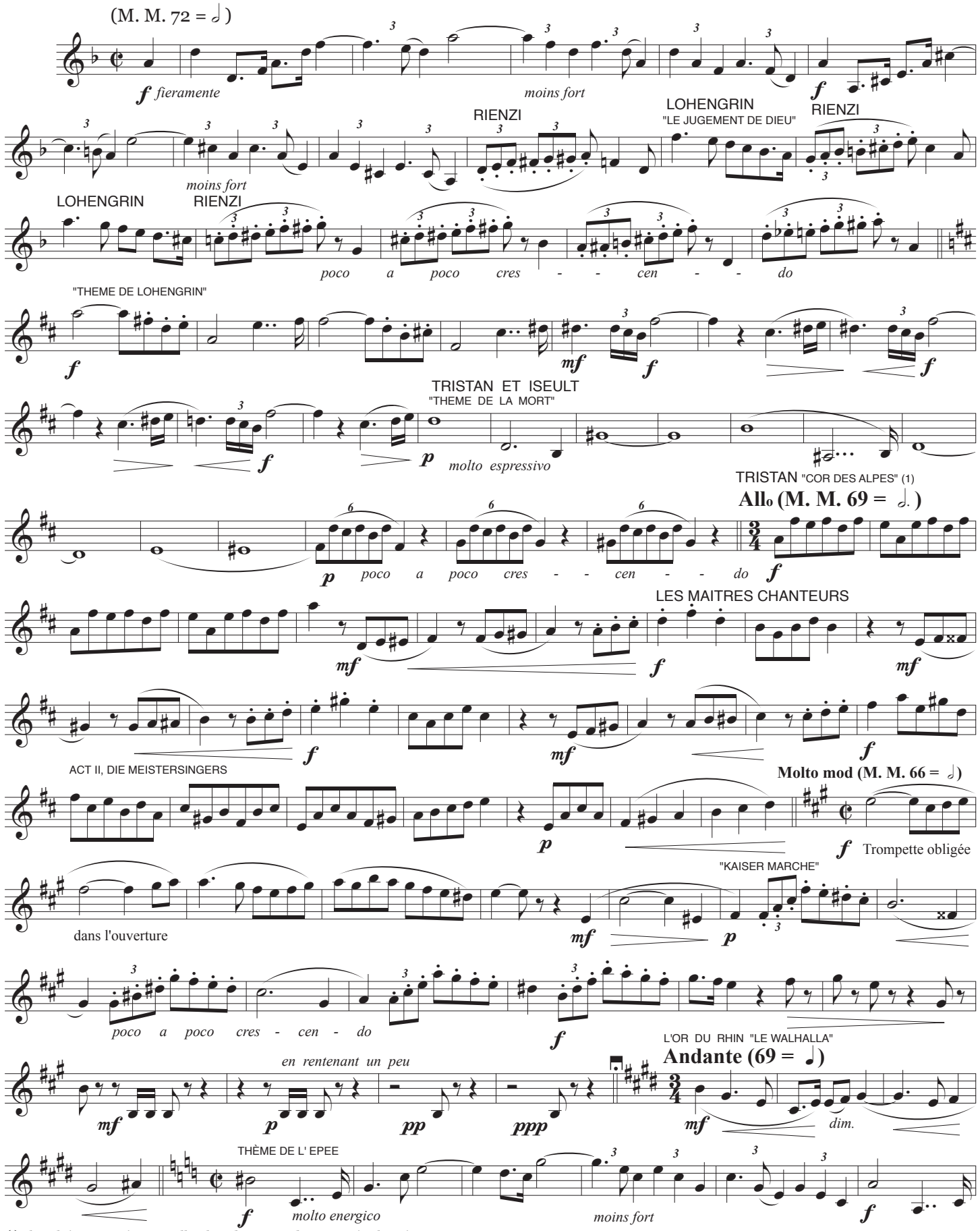



crescendo poco a poco
f
ritardando
Lent (M. M. ♩ = 63)
(mp) ben canto
poco a poco stringendo - -
revenir peu à peu au Ier movt.
Tempo Io
(f)
fieramente
mf
crescendo
f rubato

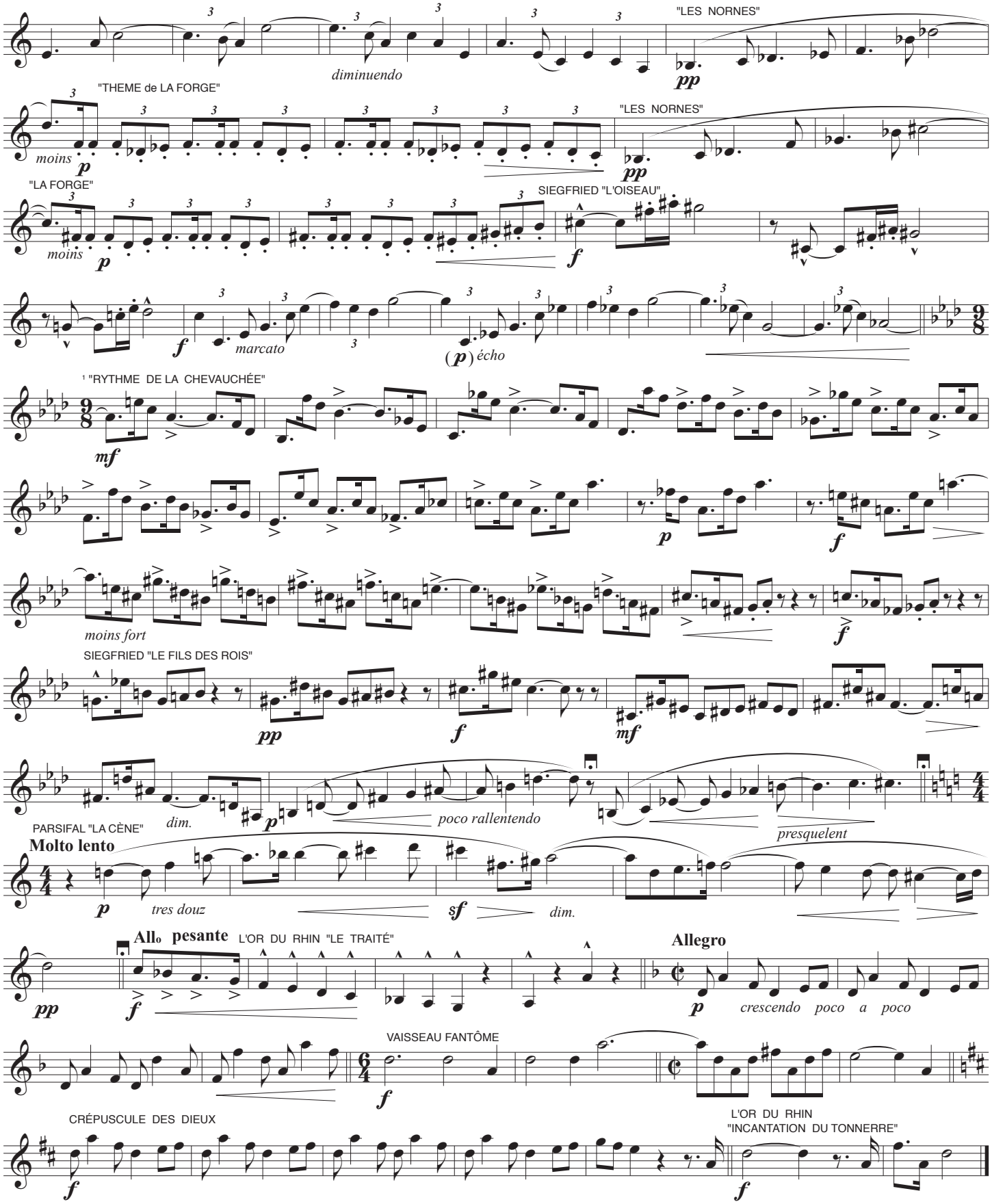
A Selection of Trumpet Parts from the Works of Richard Wagner

(À travers la partie de trompette de l'œuvre de Richard Wagner)

Théo Charlier, Study No.24



(1) The Alpine Horn is normally played on muted trumpet in the wings.



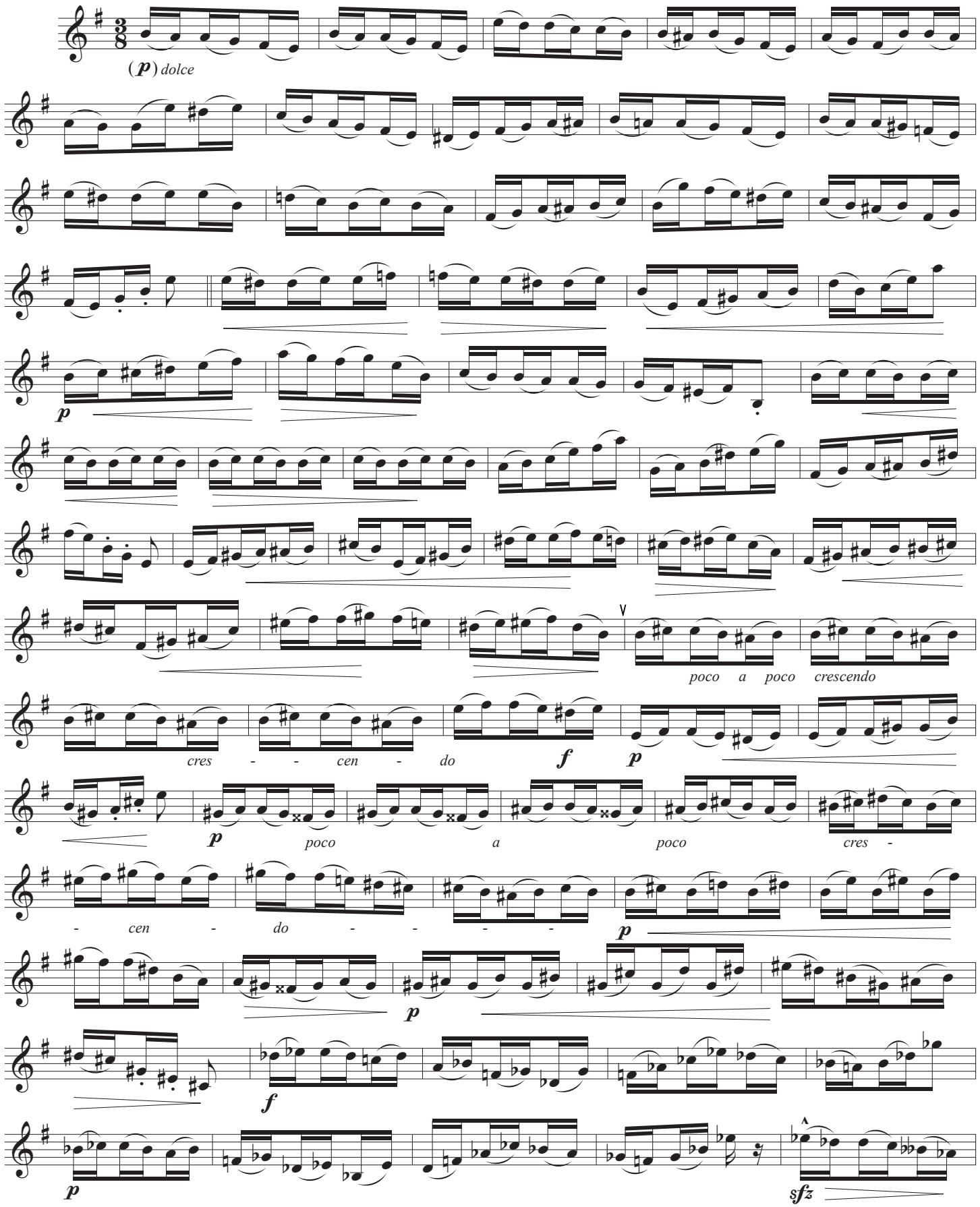
The bell determines the accuracy of the harmonics but it does not alter the timbre, nor the sonority.

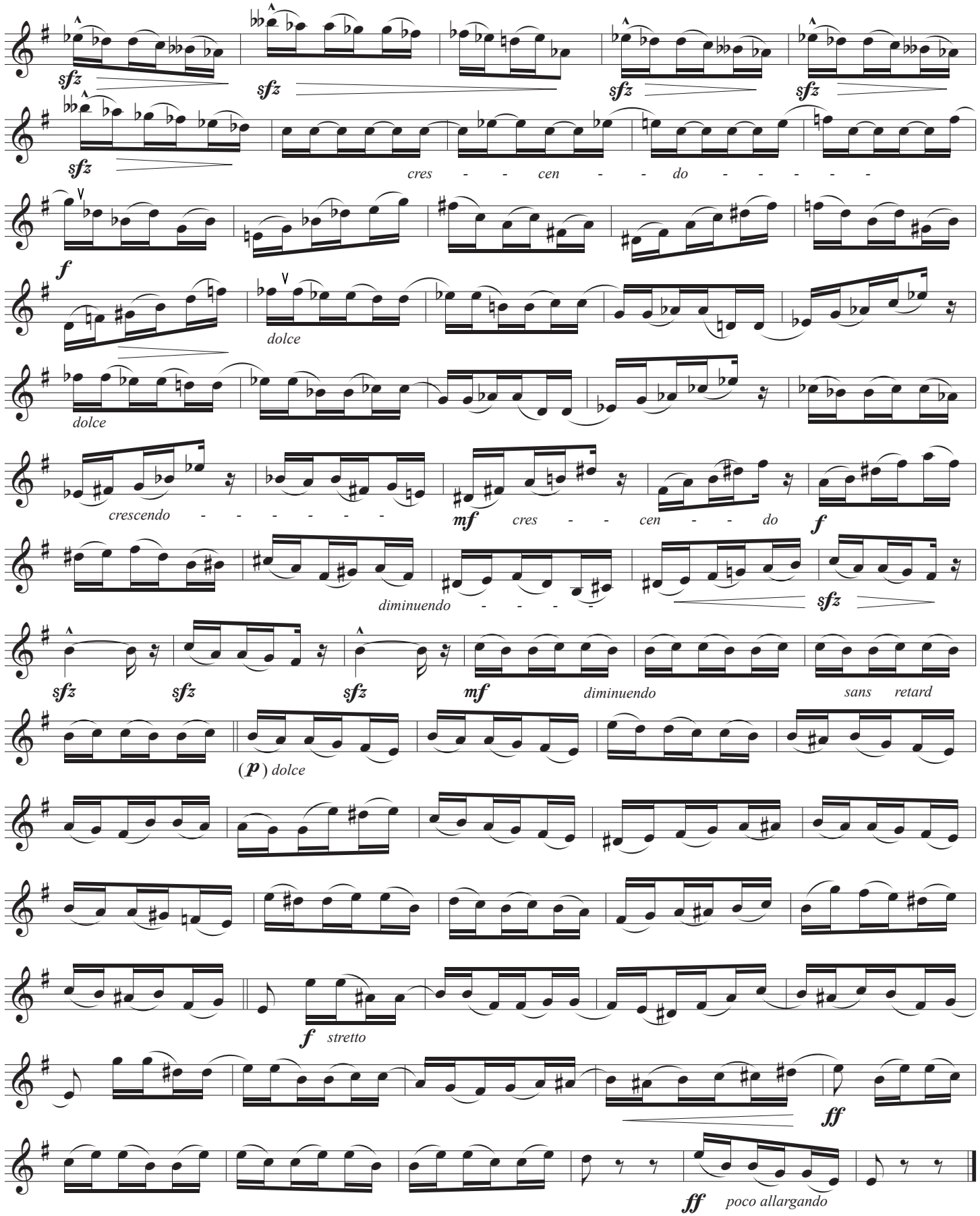
[1]"The rhythm is order and proportion in space and time."
Vincent d'Indy

Slurs *(Du coulé)*

Théo Charlier, Study No.25

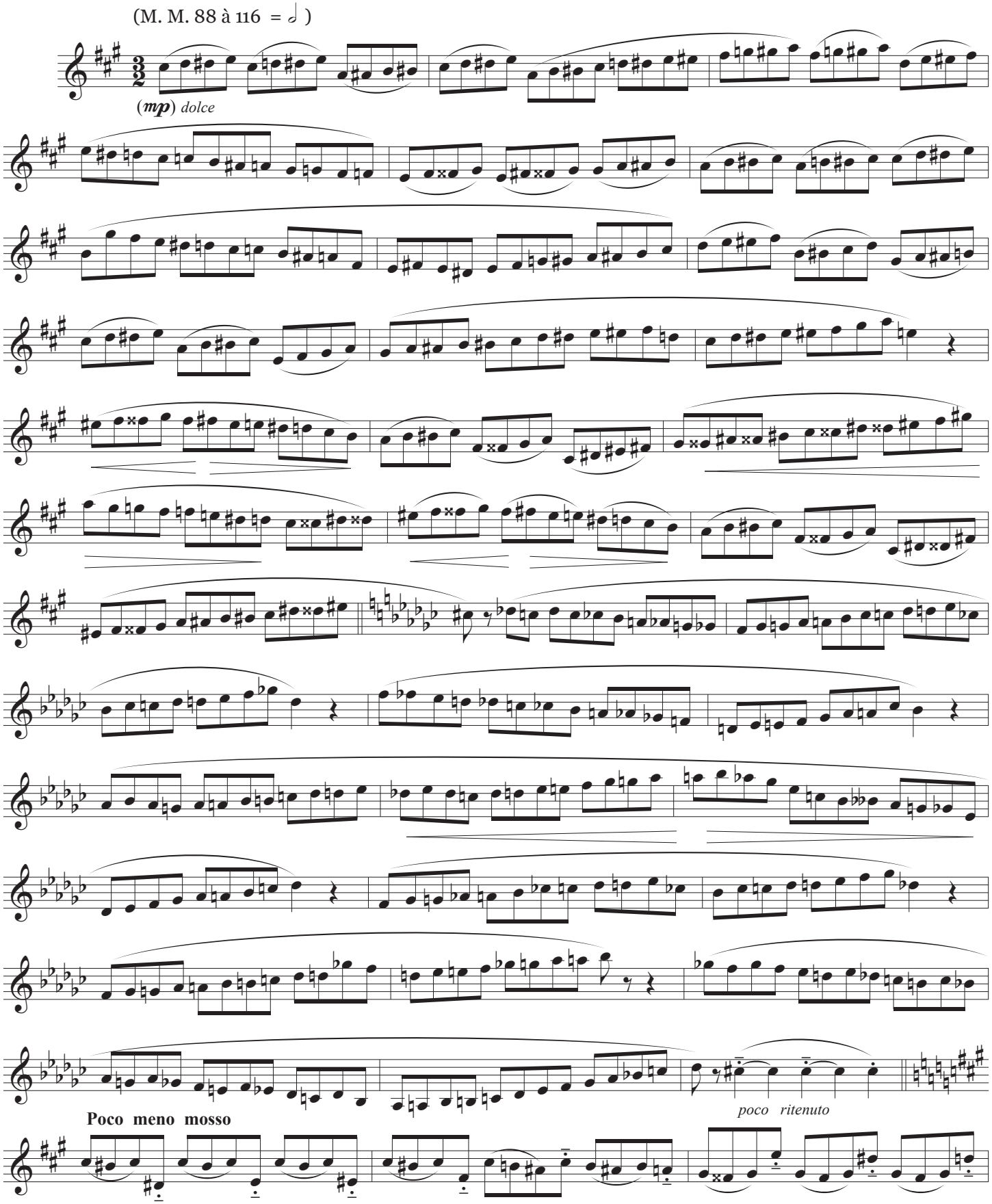
Scherzo (M. M. de 76 à 80 = ♩.)

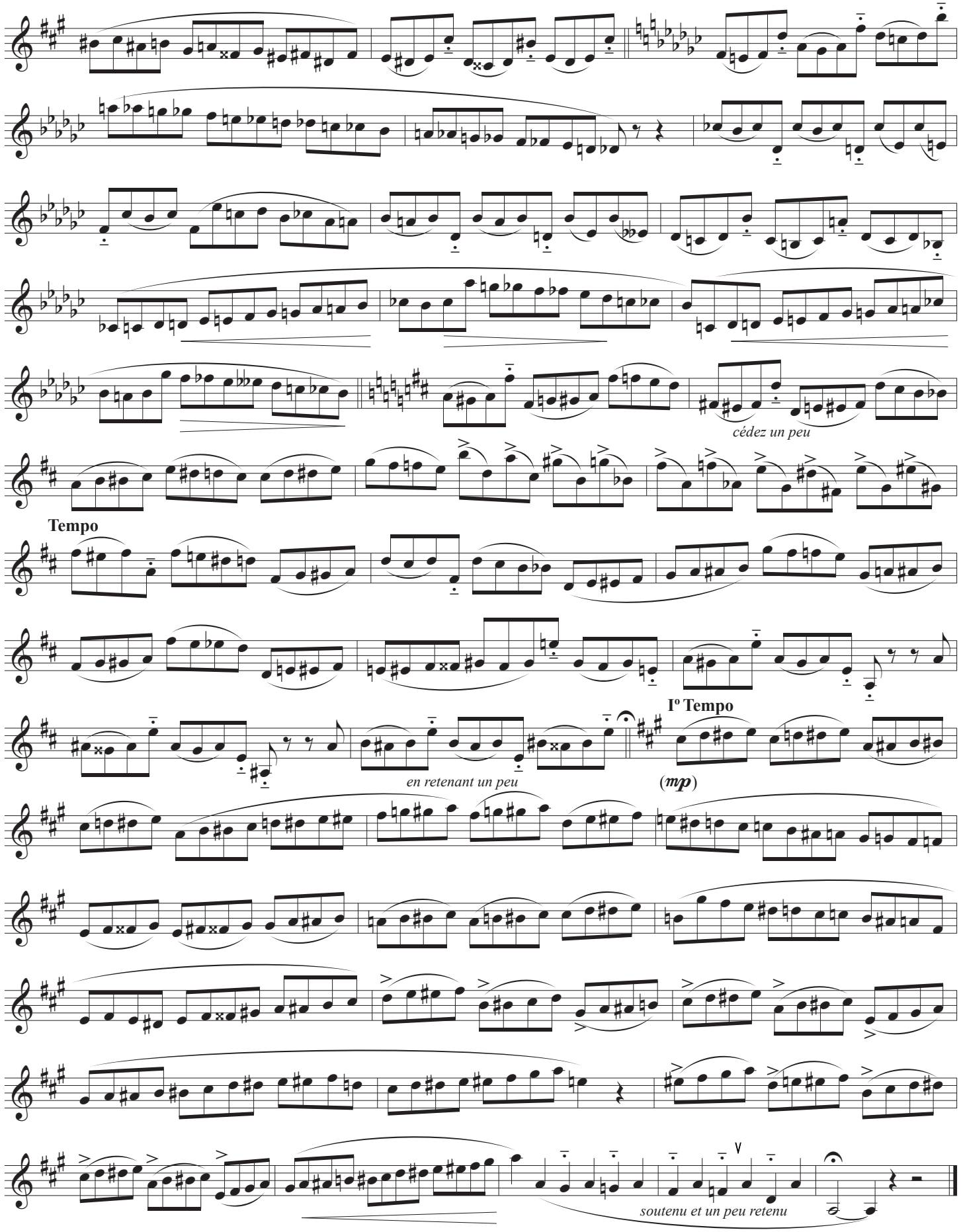



sfz
cres - - cen - - do - - - - -
f
dolce
dolce
crescendo - - - - - - -
mf cres - - cen - - do
f
diminuendo - - - -
sfz
sfz sfz sfz
mf diminuendo
sans retard
(p) dolce
f stretto
ff
ff poco allargando

Chromaticism *(Chromatisme)*

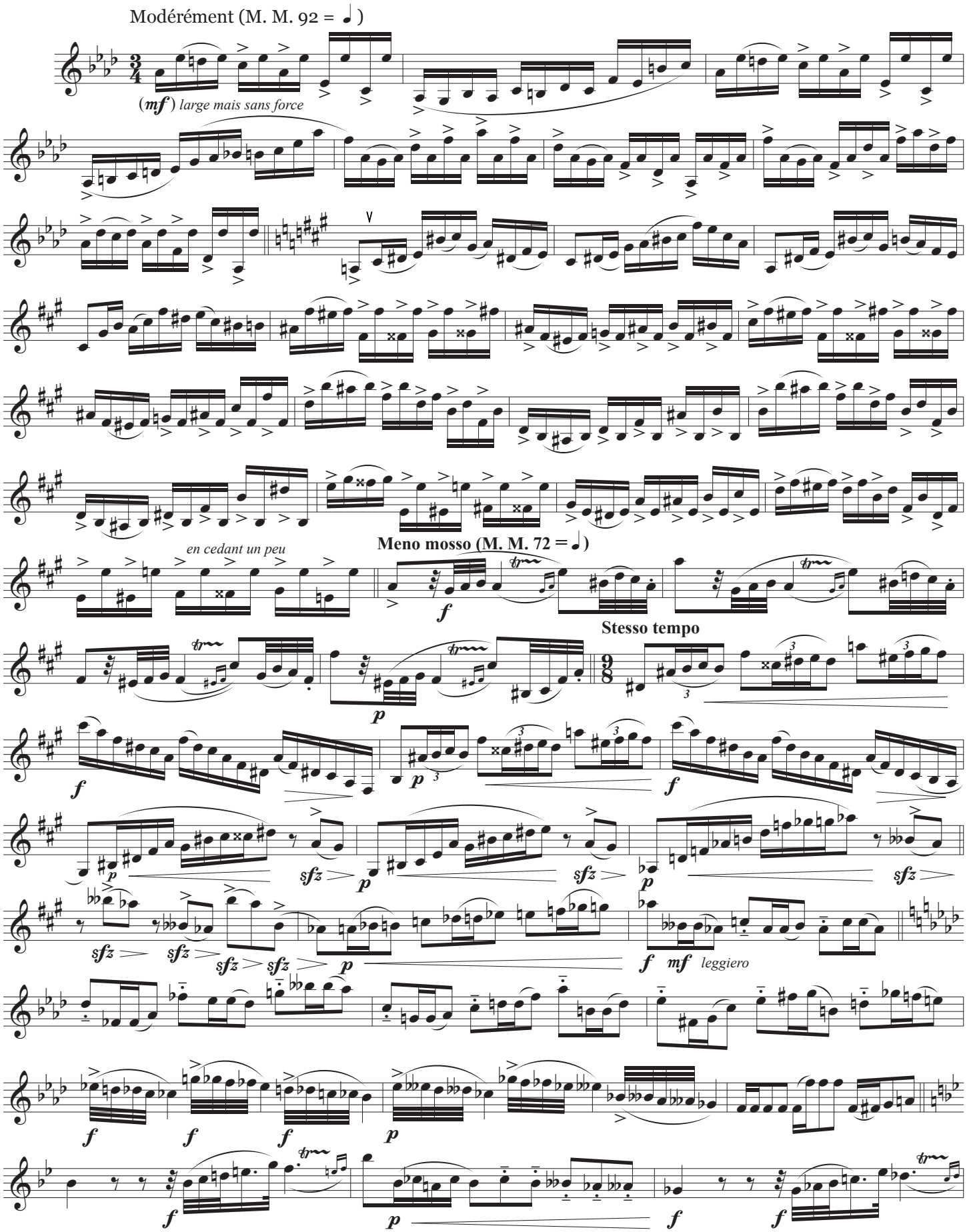
Théo Charlier, Study No.26

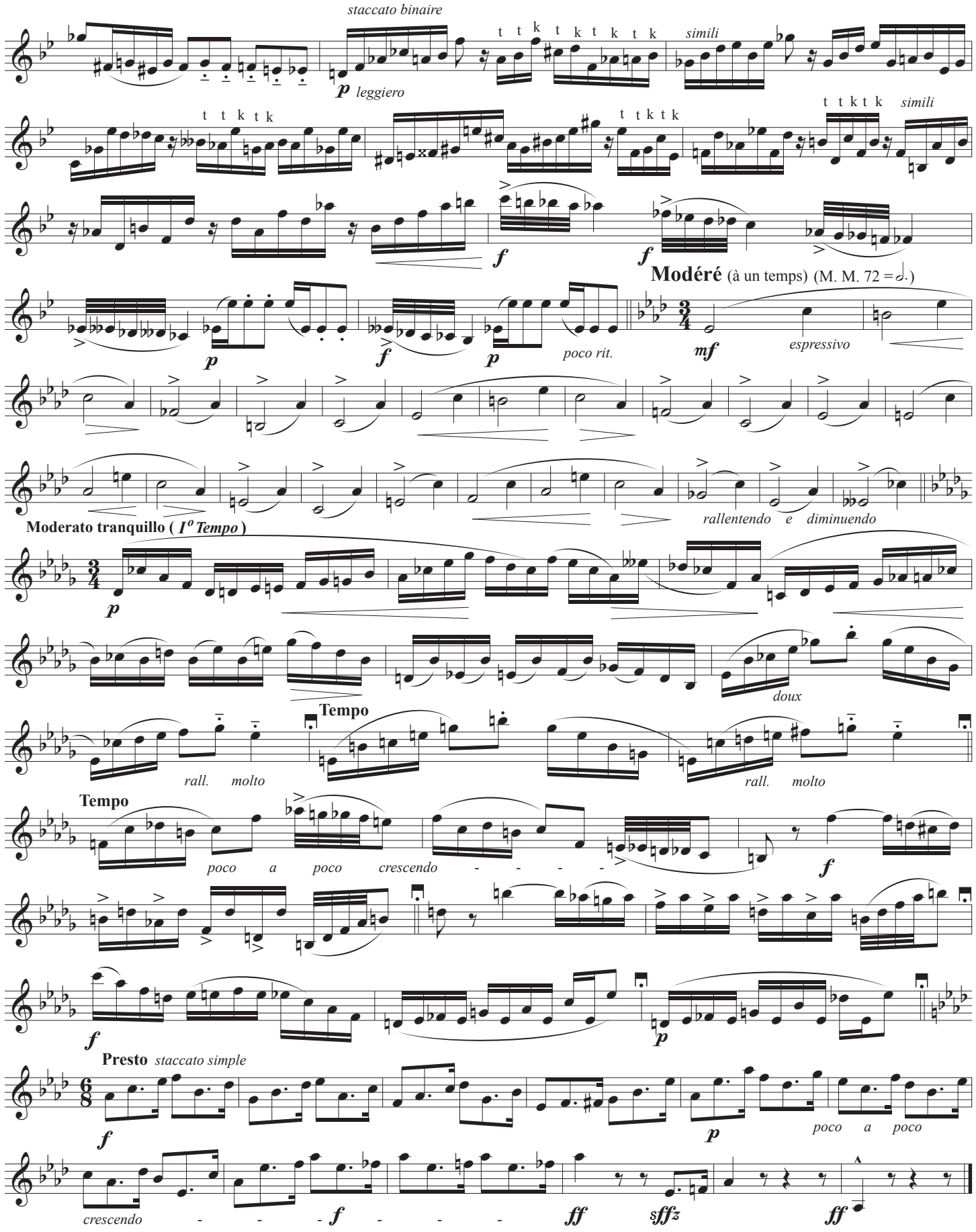



cédez un peu
Tempo
en retenant un peu
Iº Tempo
(mp)
soutenu et un peu retenu

Fantasia *(Fantaisie)*

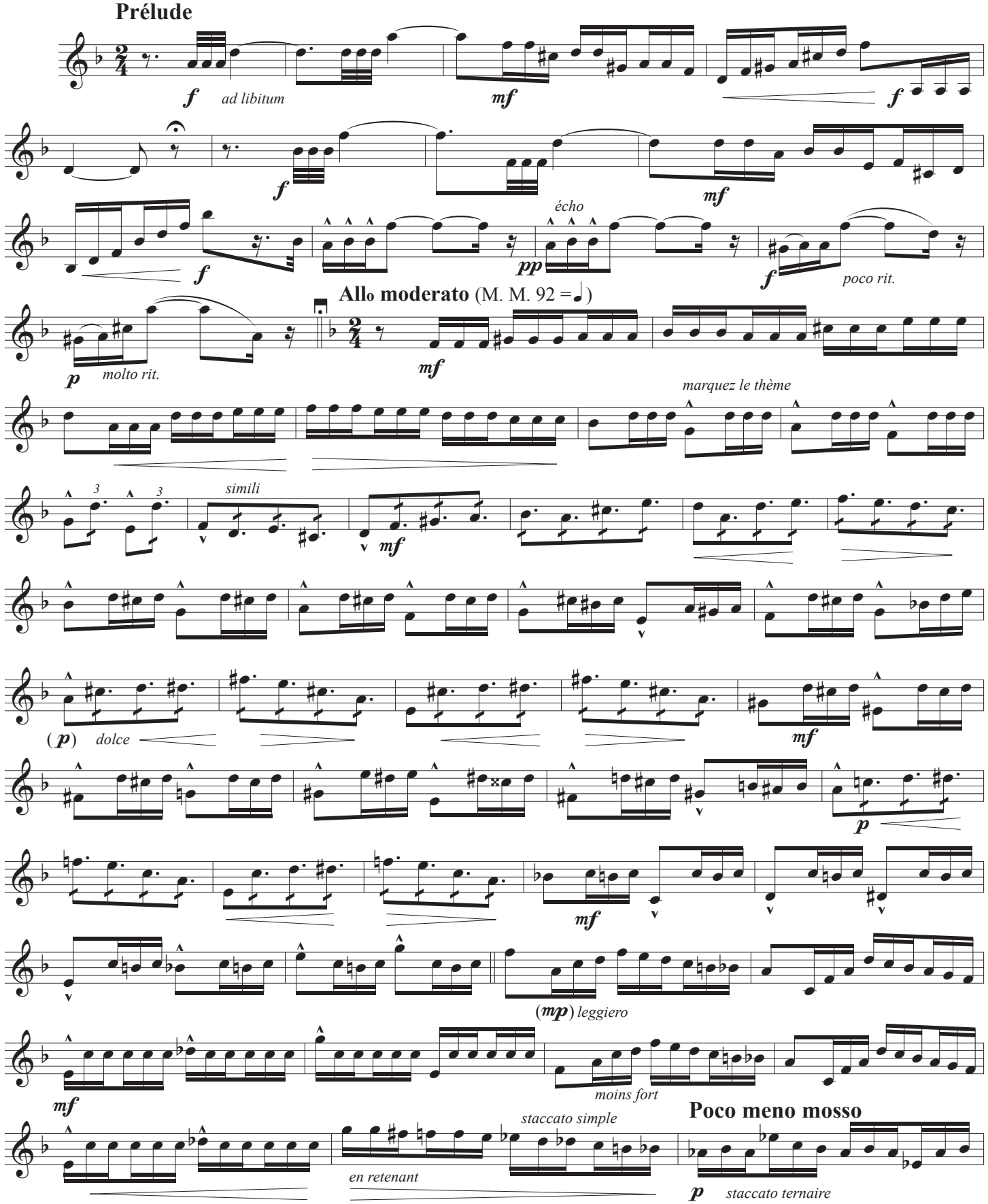
Théo Charlier, Study No.27

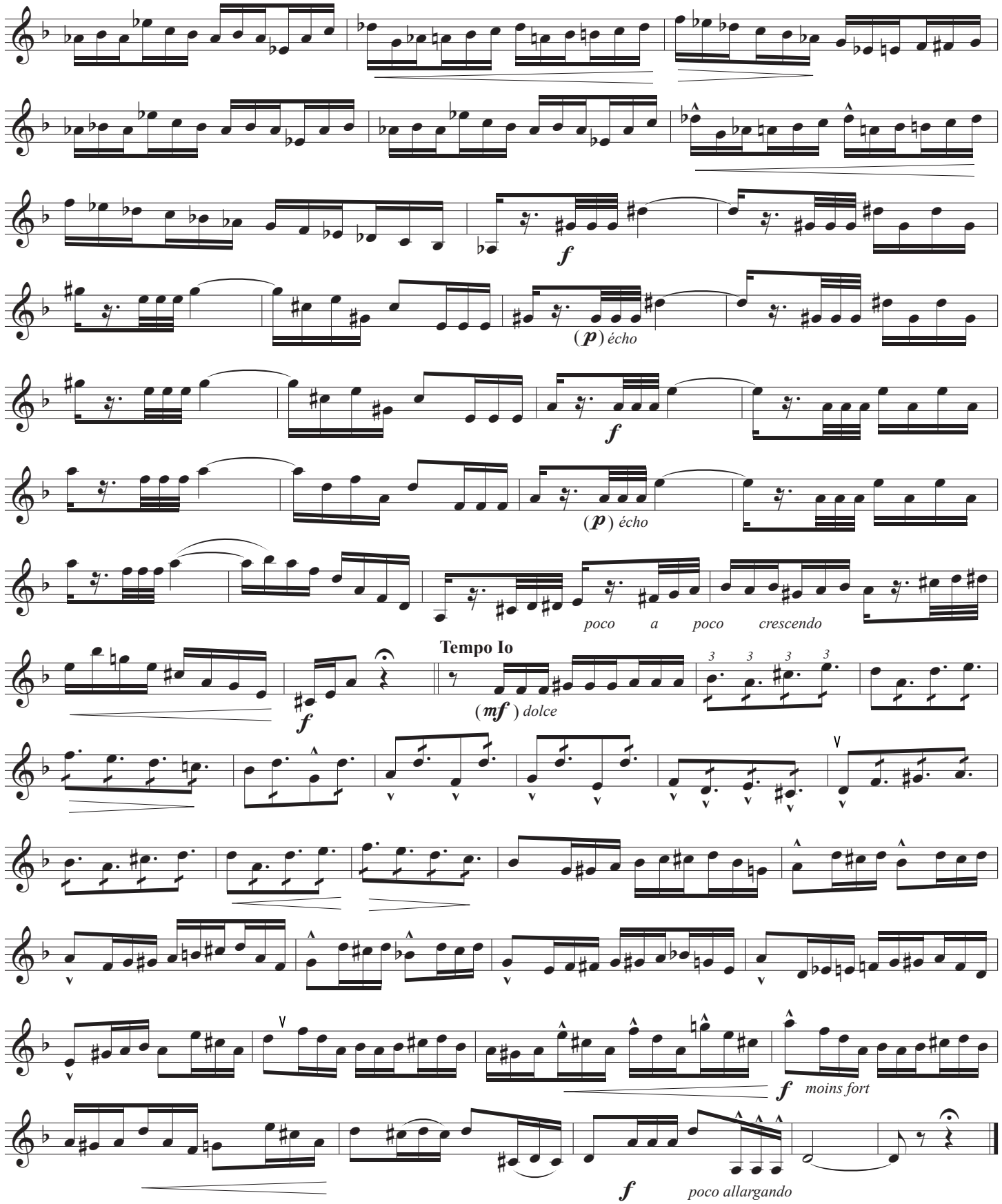



staccato binaire
t t k t k t k t k
simili
p leggiero
t t k t k
t t k t k
simili
f
f
Modéré (à un temps) (M. M. 72 = 𝅗𝅥.)
p
f
p
poco rit.
mf
espressivo
rallentendo e diminuendo
Moderato tranquillo (1º Tempo)
p
doux
Tempo
rall. molto
rall. molto
Tempo
poco a poco crescendo
f
f
p
Presto staccato simple
f
p
poco a poco
crescendo
f
ff
sffz
ff

Triple Tonguing *(Du staccato ternaire)*

Théo Charlier, Study No.28

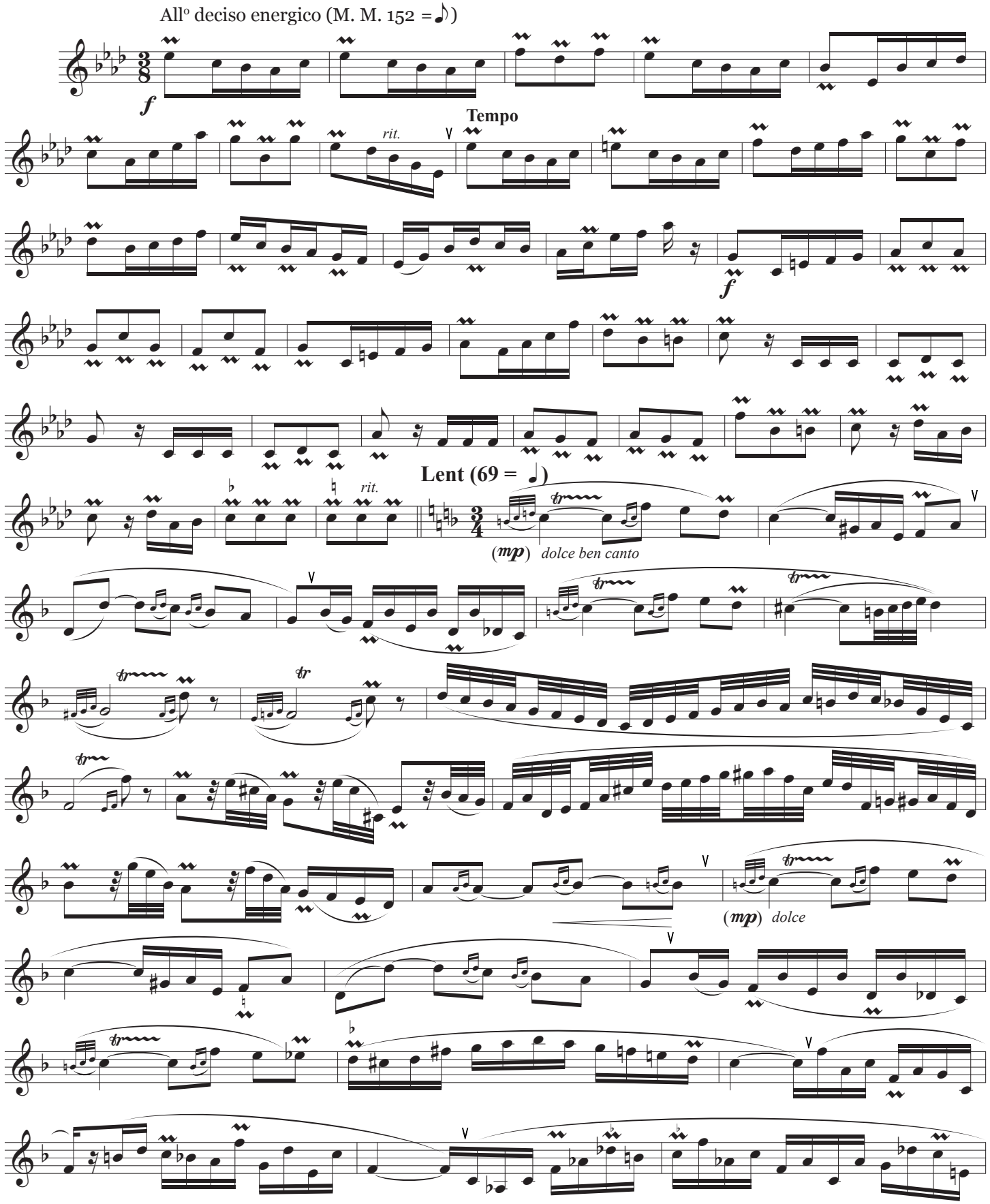


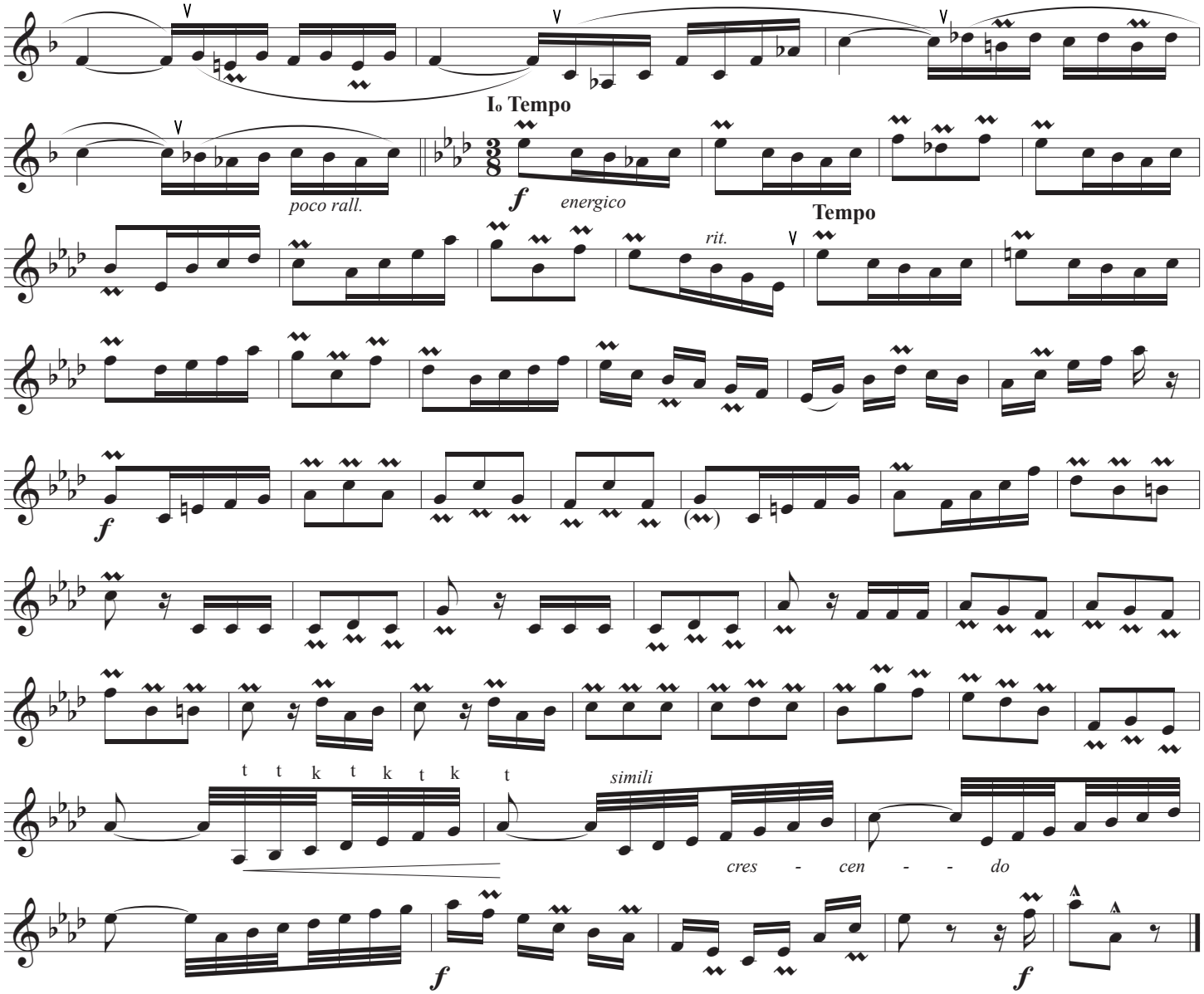


"Well executed practice, even for a short time, is more profitable than long hours of poorly directed study."
J.B. Arban

The Mordent *(Le mordant)*

Théo Charlier, Study No.29



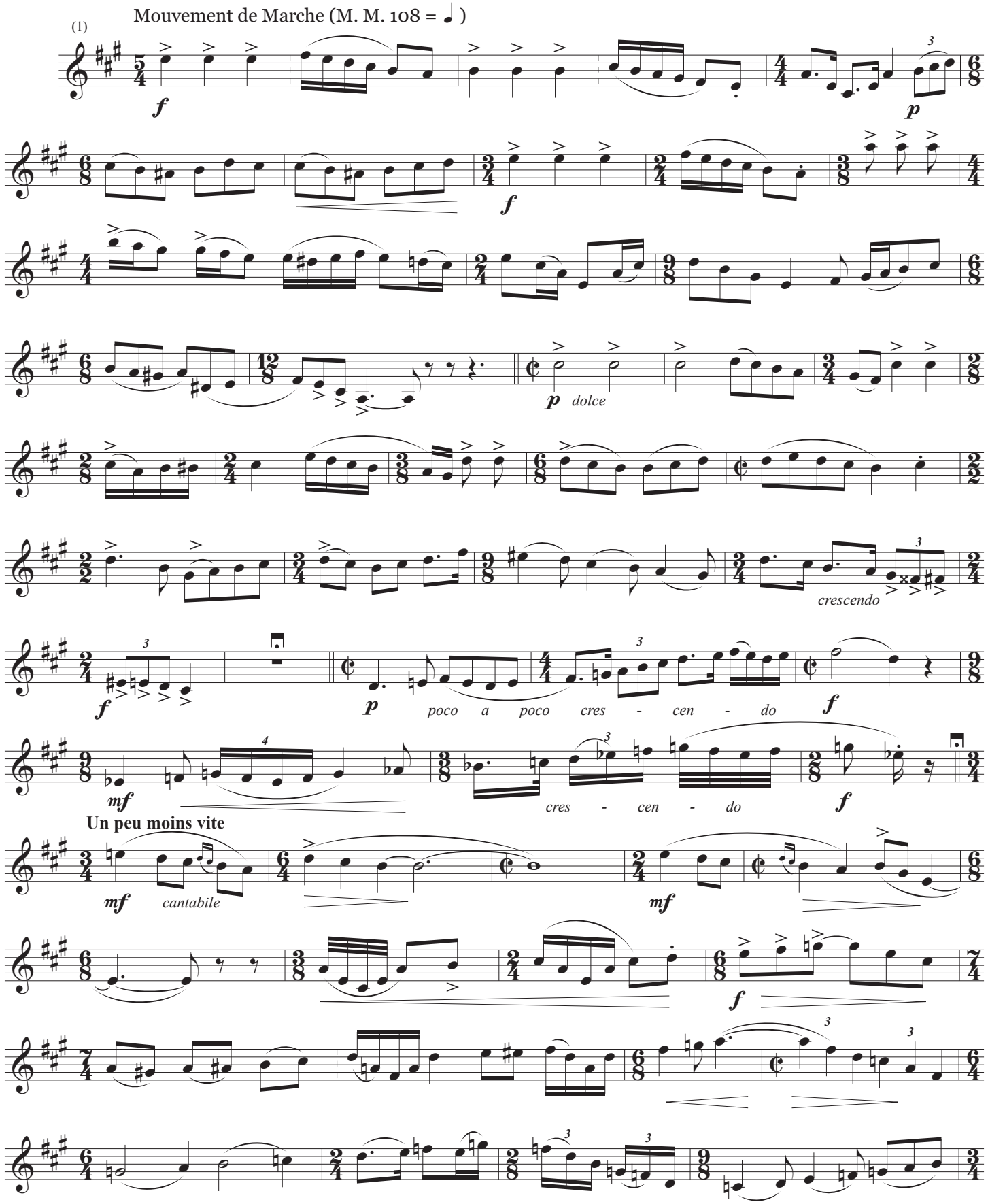


Instrument Lengths

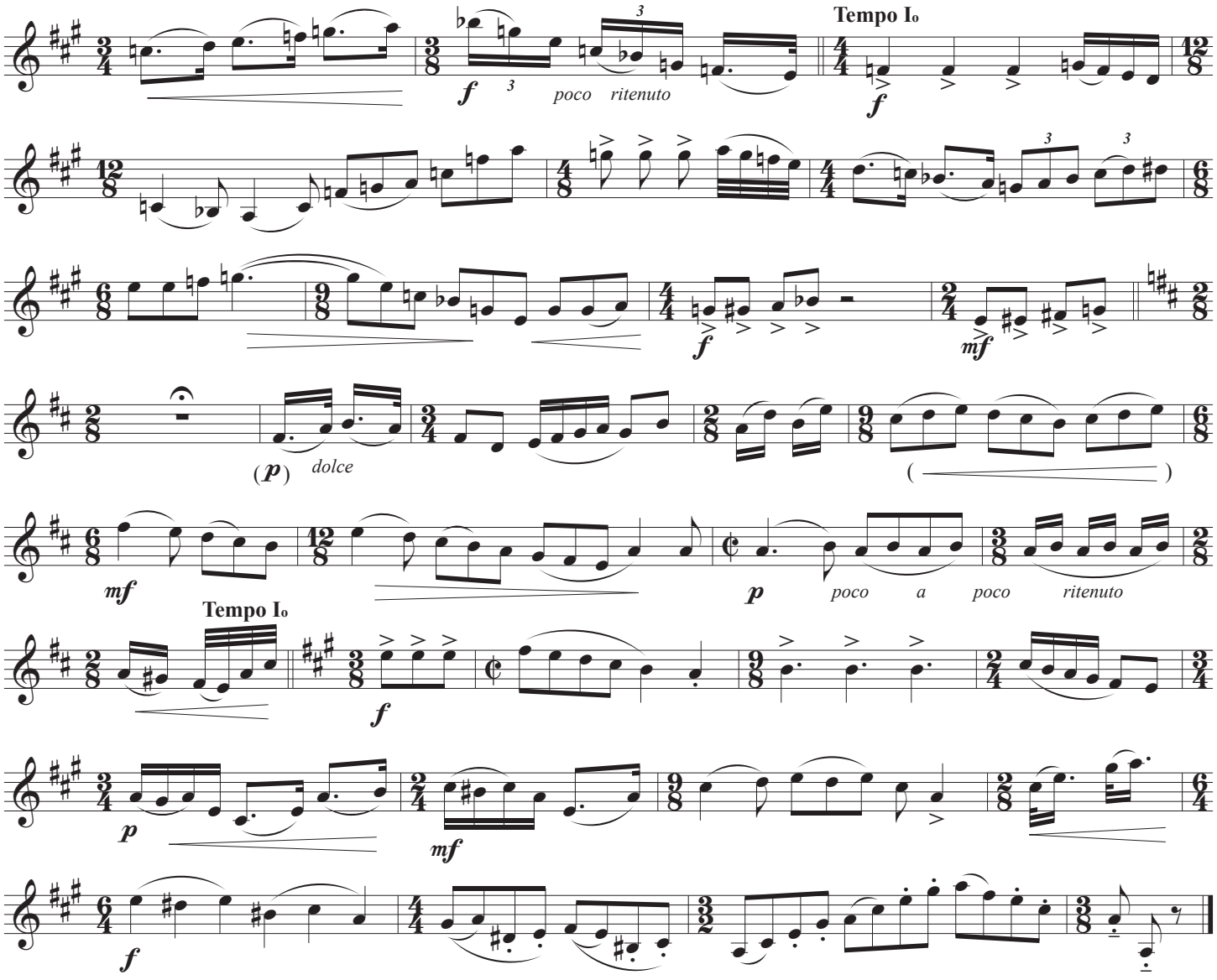
Trumpet in B-flat	=	1.475 m.
Cornet	=	Same
Flugelhorn in B-flat	=	Same
Bugle	=	Same
Cavalry Trumpet in E-flat	=	2.211 m.
Cavalry Bass Trumpet	=	4.422 m.

March *(Marche)*

Théo Charlier, Study No.30



(1) In this study the beat remains the same, even though it employs simple, double, and compound meters.



Classification of Instruments with Small Mouthpieces

(According to Victor Mahillon)

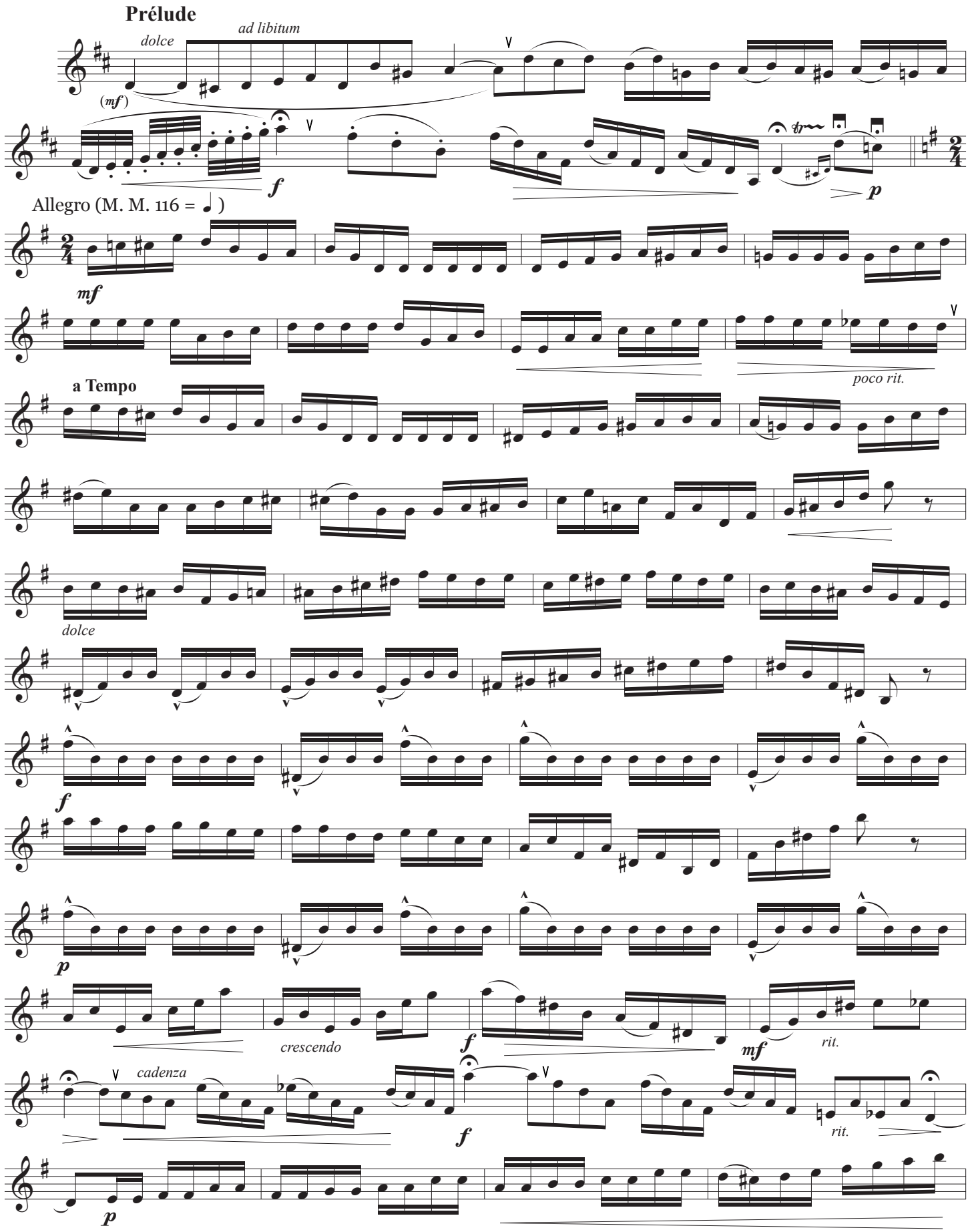
The timbre is due to the shape of the air column and the proportions of the tubing.
Horn: narrow tubing and conical bore. Smooth timbre.
Cornet: narrow tubing, less conical than that of the horn. Smooth timbre, but more biting than the horn.
Trumpet: narrow tubing and cylindrical bore for the majority of its length. Bright timbre.
Trombone: which means long trumpet. Same shape of tuning and timbre.

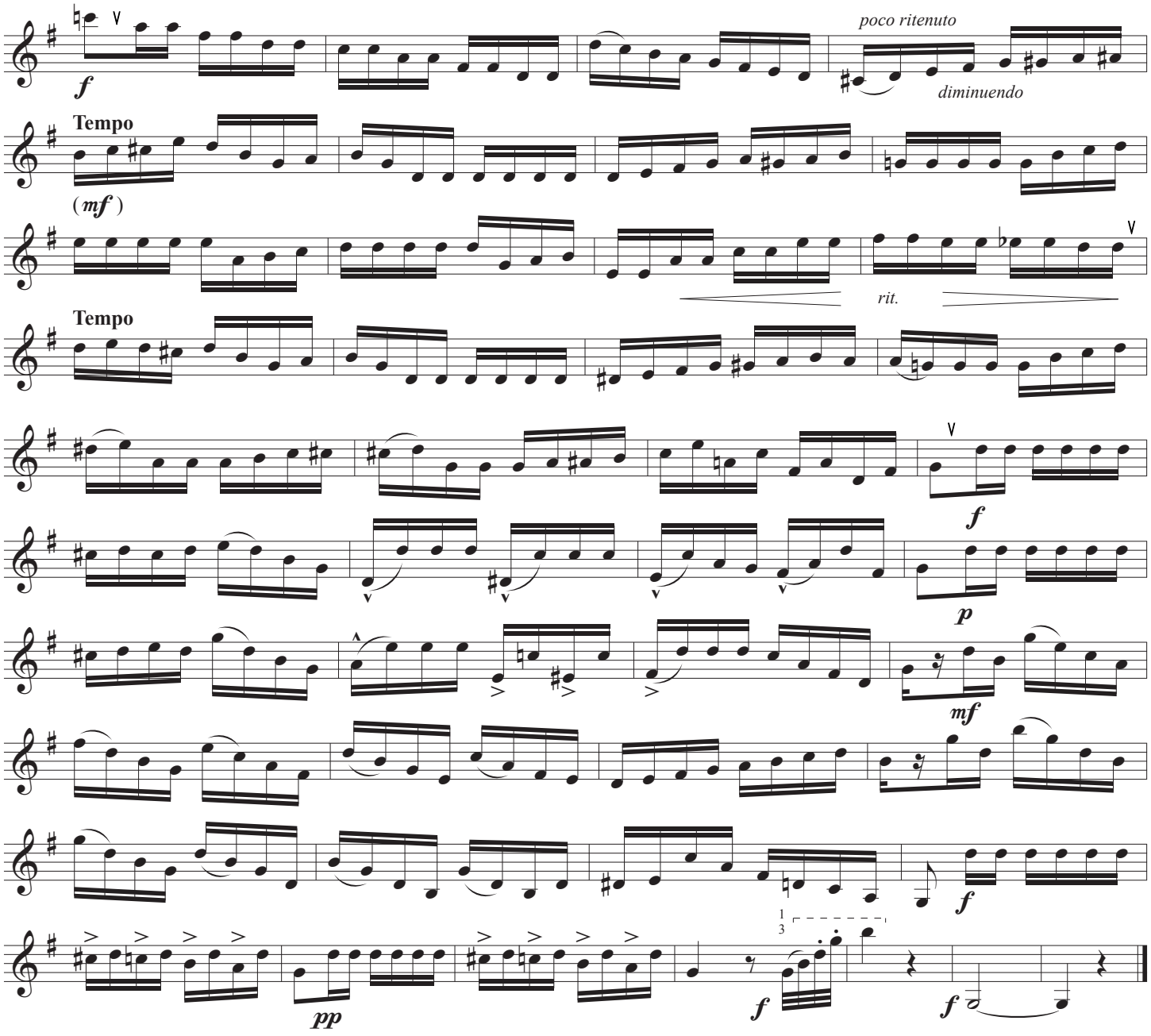
{ Flugelhorn: large and conical tubing. Mellow timbre.
Alto Flugelhorn
Baritone
Tuba
Bombadon } Saxhorn Instrument Family

Théo Charlier

Double Tonguing *(En staccato binaire)*

Théo Charlier, Study No.31





The Trumpet in E Sharp

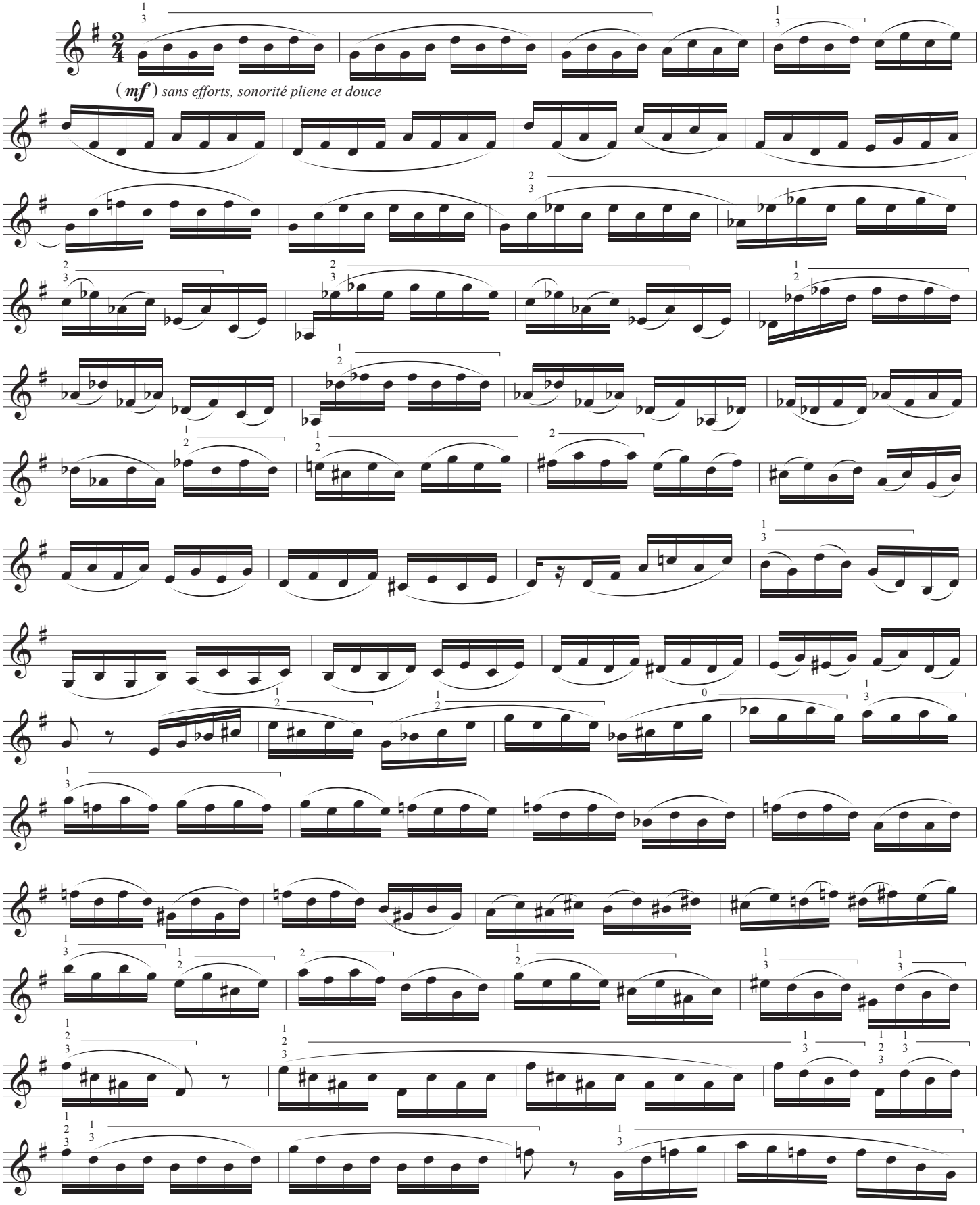
Sometimes, in opera music, the parts call for: “trumpet in B-sharp” or “trumpet in E-sharp.” The composer (Auber in *Fra Diavolo*, Meyebeer in *The Huguenots*, Rossini in *William Tell*) expects you to use the trumpet in E or B natural. The “sharp” only indicates that the key of the piece is full of sharps. The indications are only encountered very rarely and amount to anomaly.

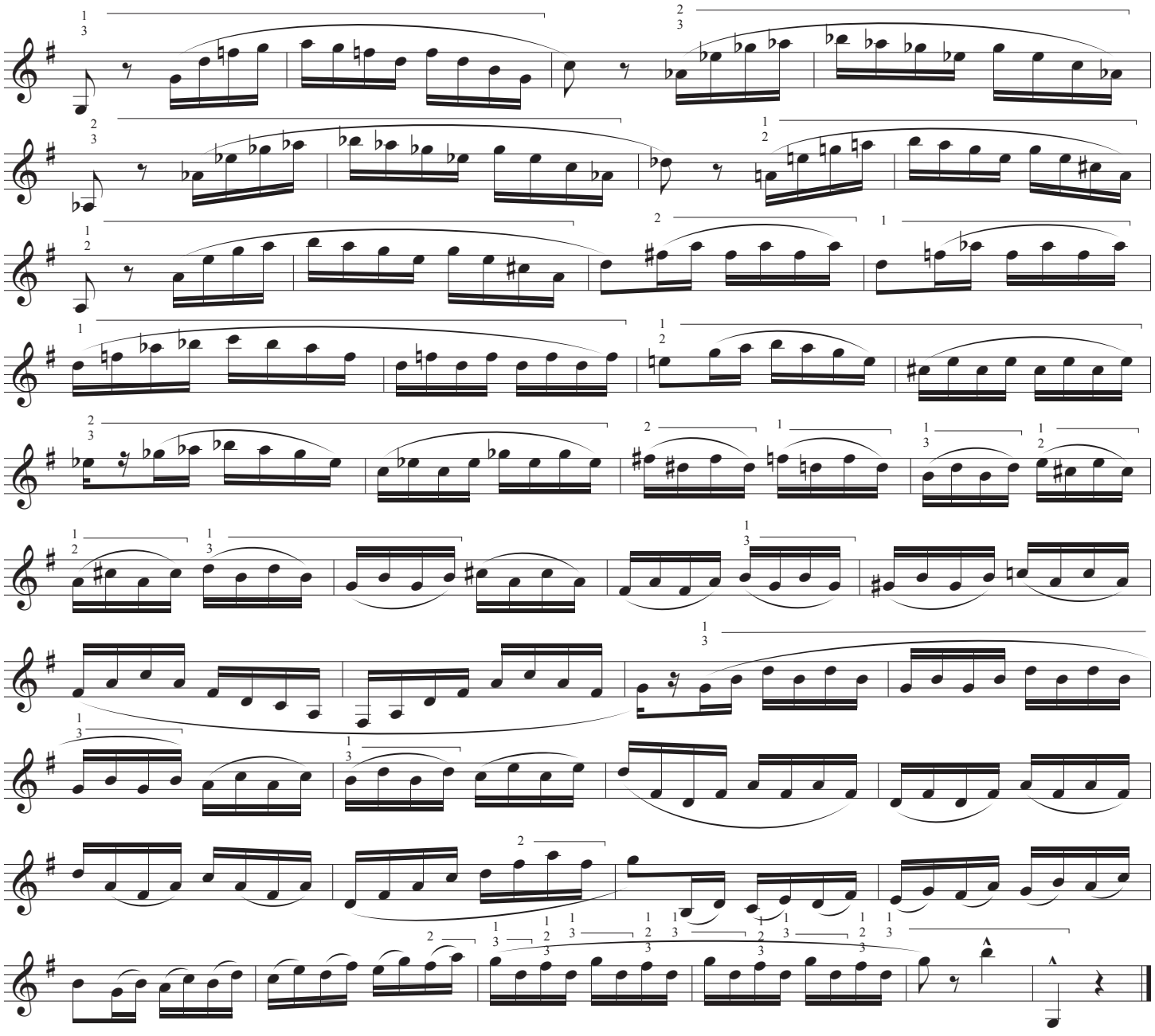
Théo Charlier

Lip Slurs *(De la liaison des harmoniques)*

Théo Charlier, Study No.32

Moderato (M. M. 104 = ♩)





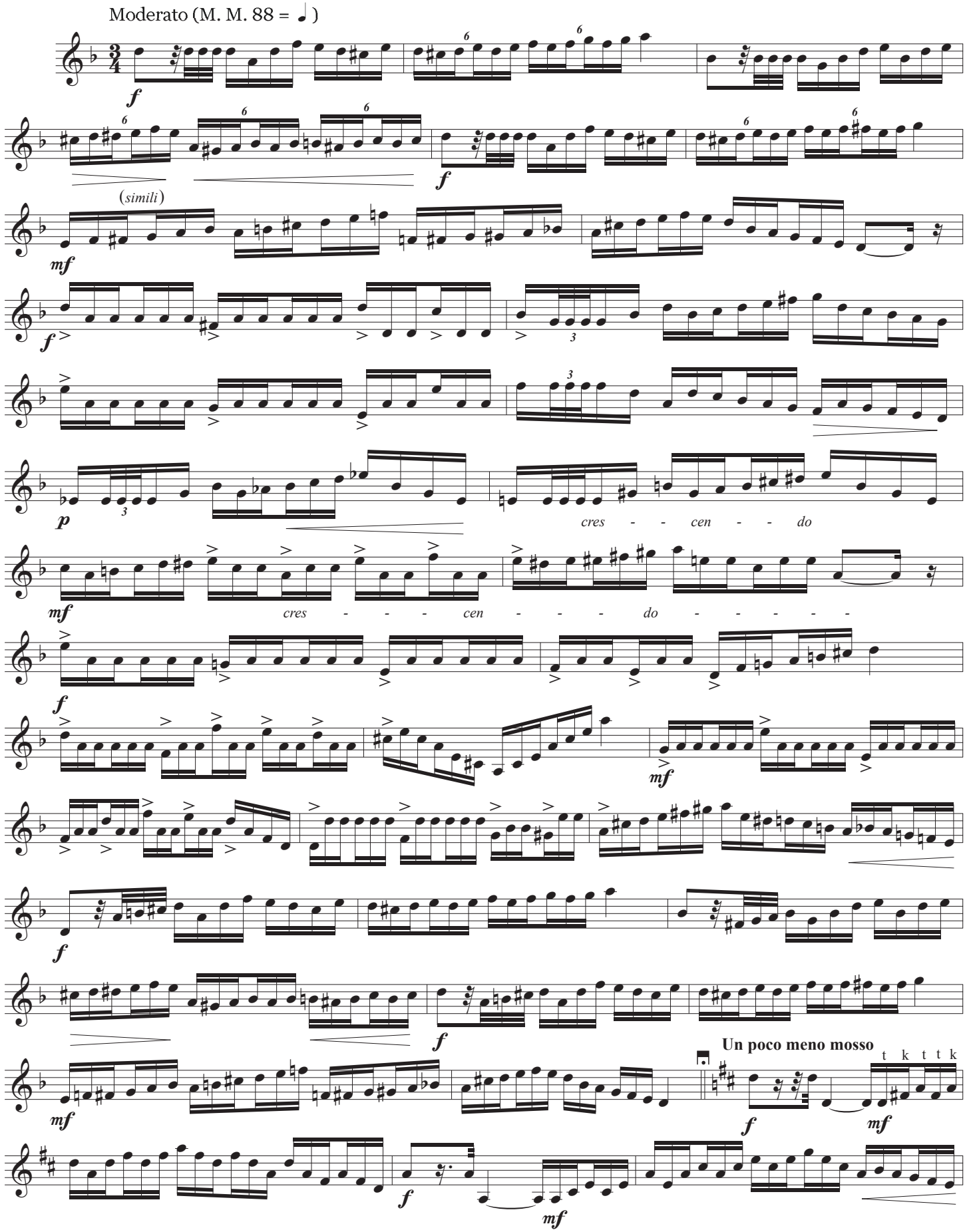
Transposition

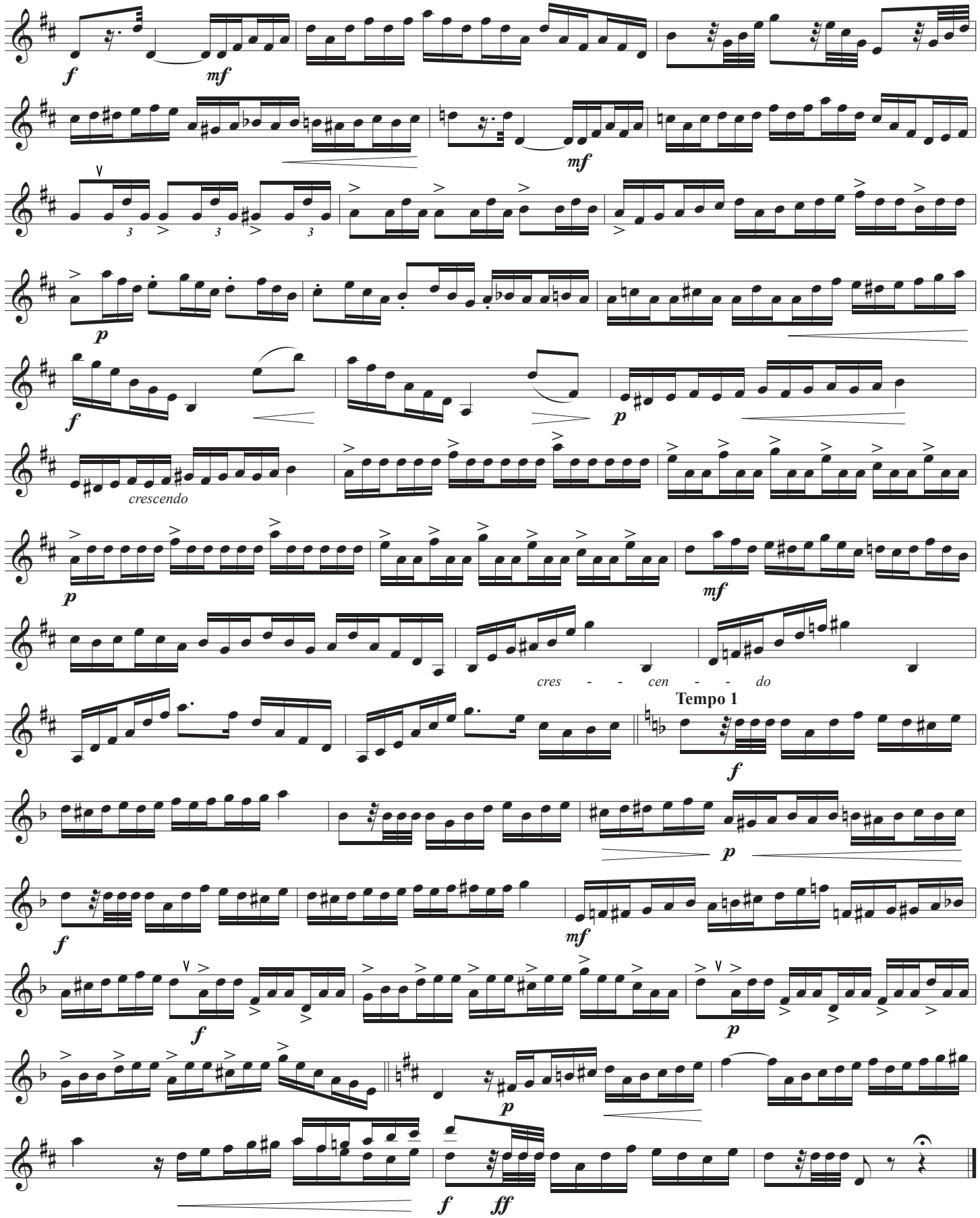
Transposition is a trumpeter's speciality, and it is of great necessity that he gets used to it as soon as his musical education will allow. He must practice it daily. I recommend reviewing certain easier lessons and practicing them transposed up a tone and then down a tone, etc. The perfect fourth, tritone, and perfect fifth are very important to master, especially for those who play in orchestra on B-flat trumpet. Naturally, the student must become familiar with all of the transpositions.

Théo Charlier

Triple Tonguing *(En staccato ternaire)*

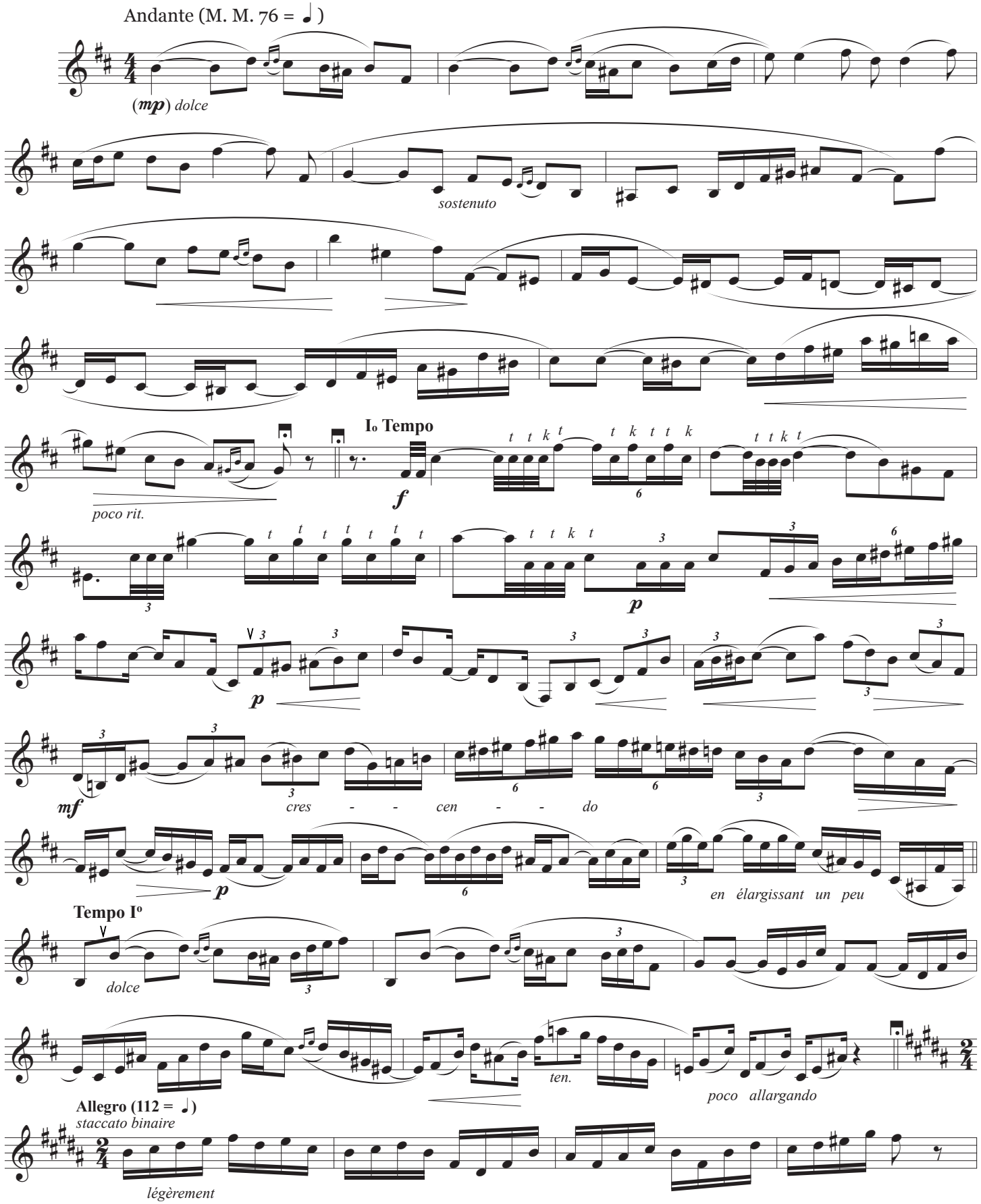
Théo Charlier, Study No.33

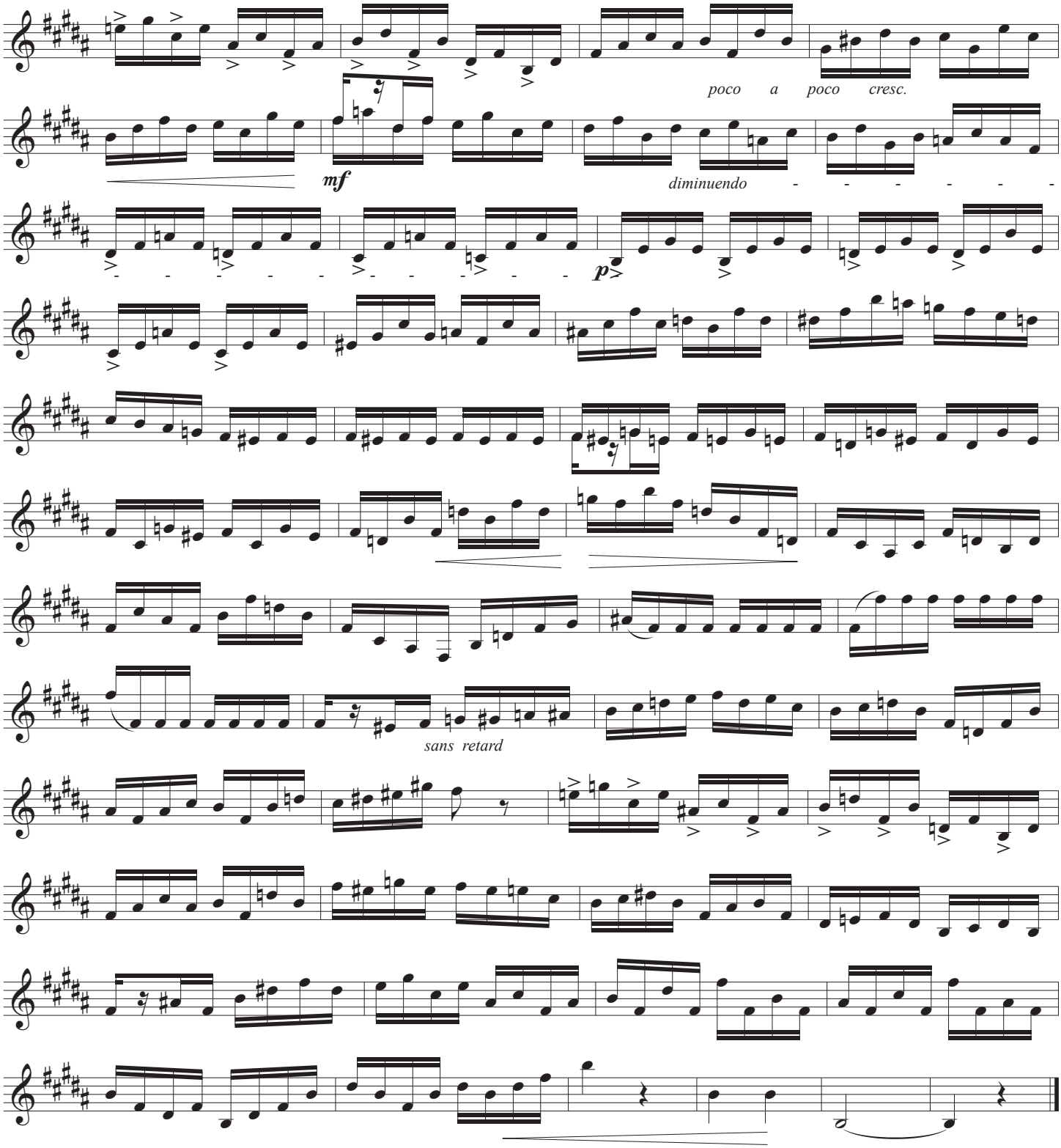



f
mf
mf
p
f
p
crescendo
p
mf
cres - - cen - - do
Tempo 1
f
p
f
mf
f
p
p
f
ff

Rhythmic Fantasia *(Fantaisie rythmique)*

Théo Charlier, Study No.34



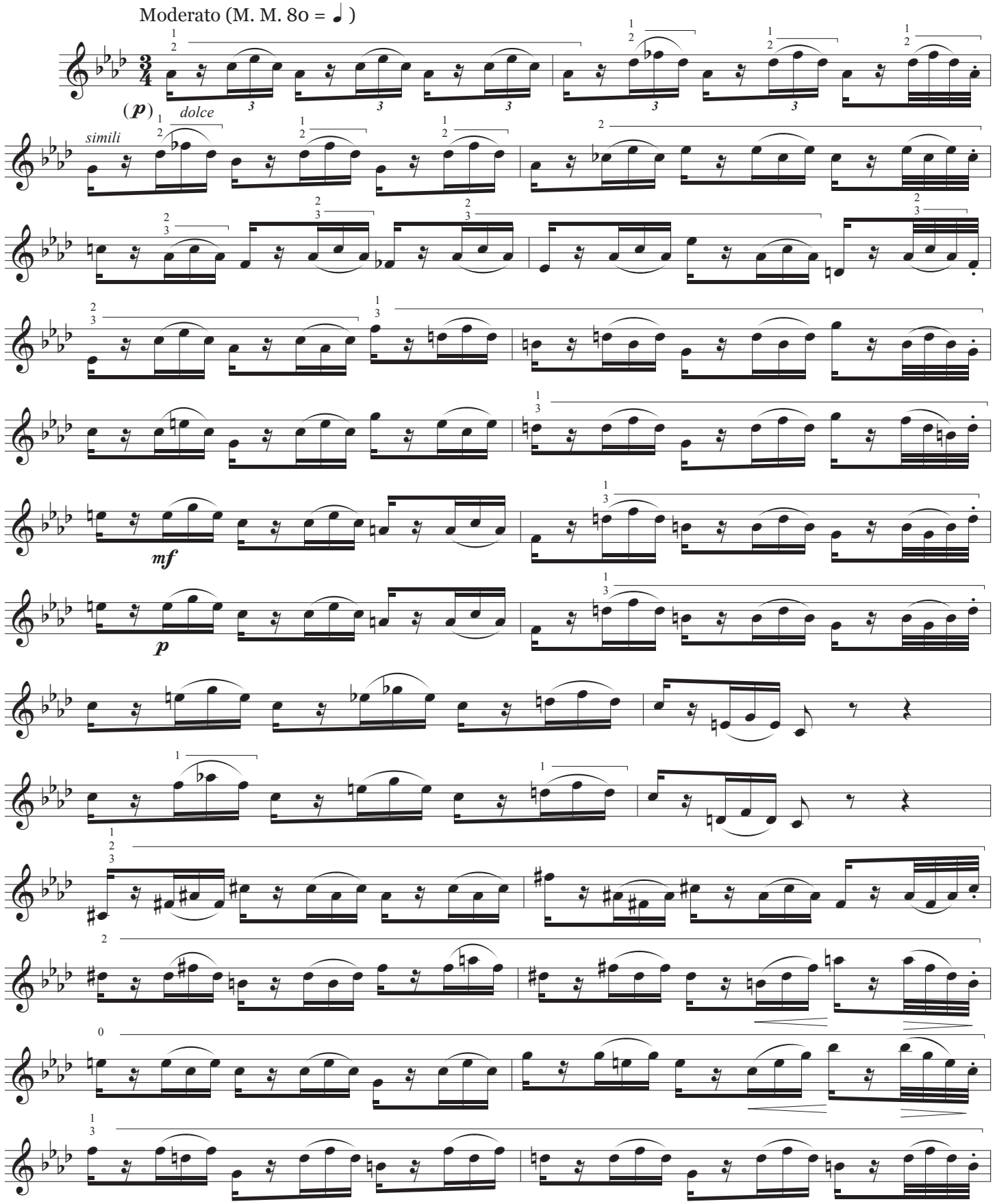


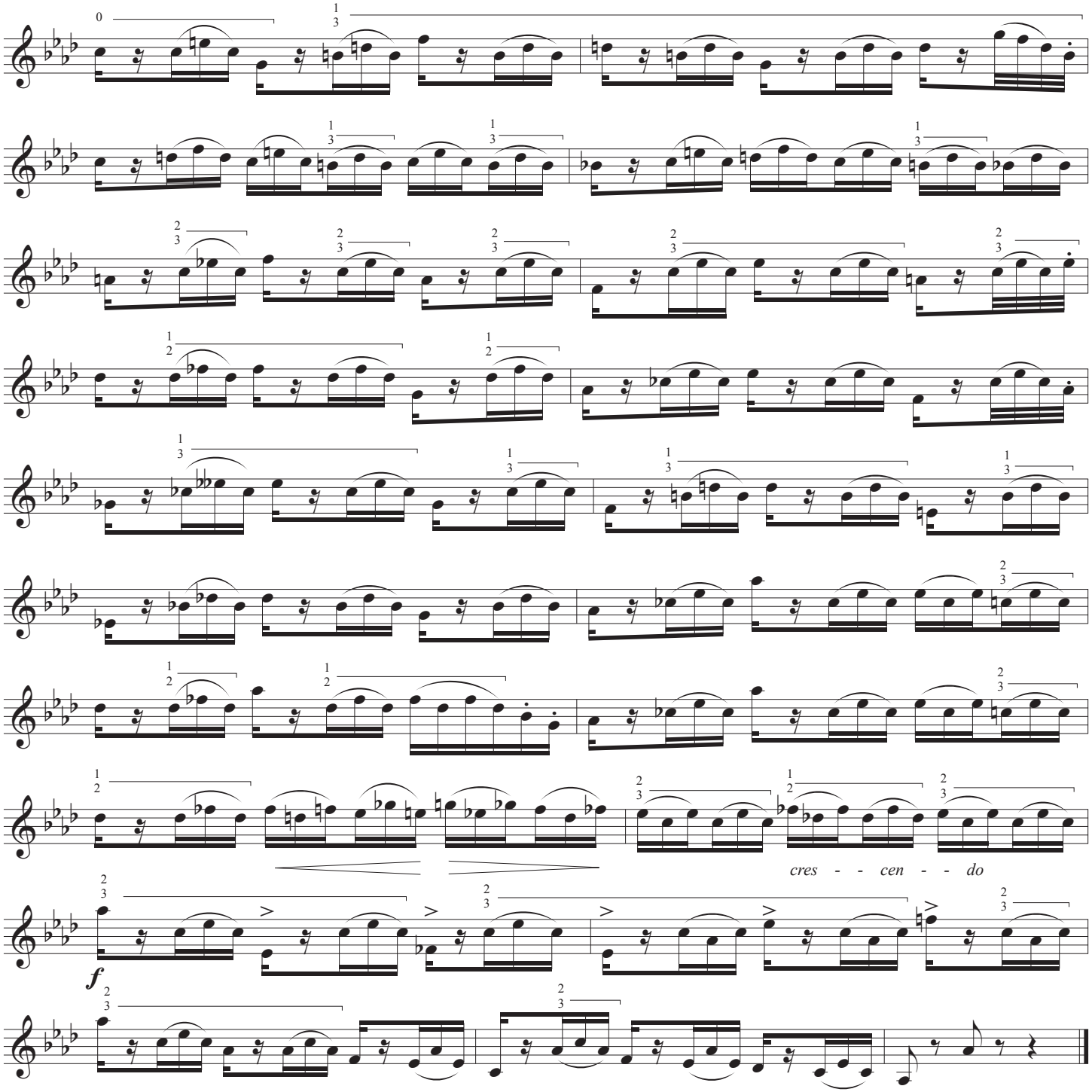
Timbre

The bright timbre of the trumpet is due to its entirely cylindrical air column;
the cup shaped mouthpiece increases this effect.

Study of the Slur *(Etude sur le coule)*

Théo Charlier, Study No.35





The Slide

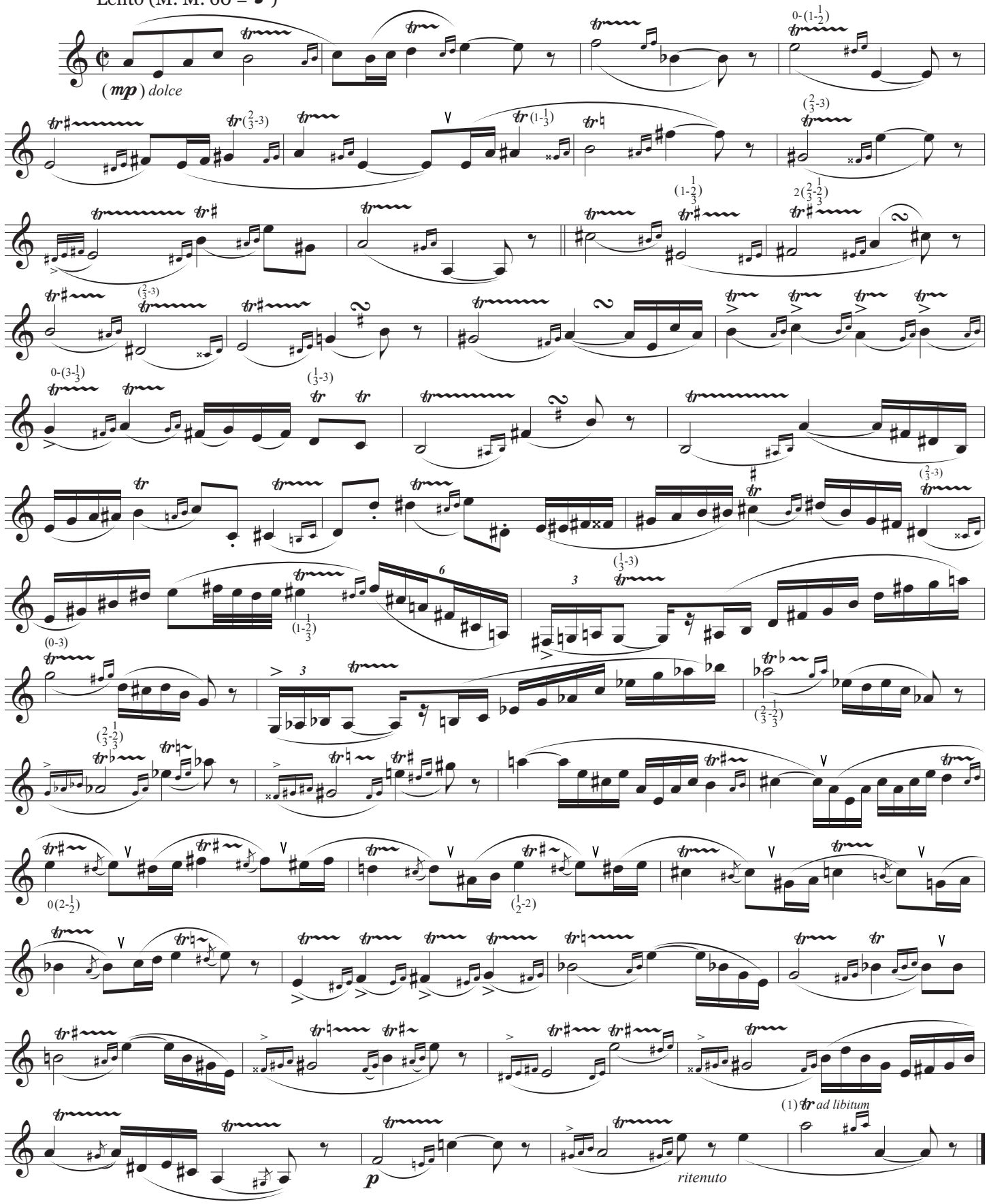
Originally, the supplemental tubing of the valves was of a fixed length. Instruments built like this could not support crooks without becoming insurmountably out of tune.

Toward 1830, Meifred, horn teacher at the Paris Conservatory, created movable tubes, called slides, which made it possible to proportionally adjust the slides of each crook used.

Théo Charlier

Trills *(Les trilles)*

Théo Charlier, Study No.36



(1) We must play this trill with the lips, while keeping the first two valves lowered.

The Mute

Today the mute is an indispensable accessory which the player must always have with him, just like his mouthpiece. It is a cone shaped stopper that you put into the bell of the instrument in order to decrease the forcefulness of the sound and give it a shimmering softness.

In the orchestra, the mute can create a unique sound as well as strange and unexpected timbres.

According to Fetis “it was Lebrun (who lived at the end of the 18th century), a french horn player in the service of the King of Prussia, who came up with the idea to use a conical box made of cardboard, pierced with a hole, to create an echo effect.” This statement is known to be incorrect, as the mute was well known before this time. Father Mersenne already made mention of it in his book on musical instruments which first appeared in 1636.

To the best of my knowledge, the first composition that required the use of a trumpet mute is the opera *Orfeo* by Claudio Monteverdi, performed at the Court of Mantoue in 1607, which included an overture (Toccata for five muted trumpets) whose included parts were called “Clarino, Quinto, Alto e basso, Vulgano, and Basso”. These five parts were written for natural instruments using only the harmonic scale. It is worth noting that Monteverdi wrote these trumpet parts a tone lower than the key of the piece because the mutes of the time raised the pitch a full tone. In the original part we can clearly read “*Un Clarino con tre trombe sordini.*”

We see the mute again later in the works of Mozart, where it is explicitly used. With Wagner the mute reappeared and became a regular accessory for all brass instruments. In the past, the mute was used in the opera and funeral services, as it is very much used today, and produces a striking effect.

The mutes we use today are made of brass, wood, cardboard, and other materials. Many different variations have been invented and constructed. The best mute is obviously one that does not alter the tuning across the full range of the instrument, but one like this is very difficult to find. We should demand this of instrument makers.

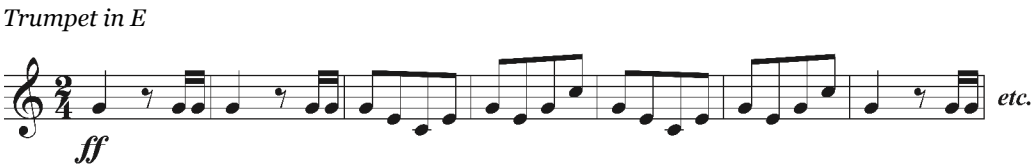
The accessory must be perfect.

Théo Charlier
Brussels, December 1940

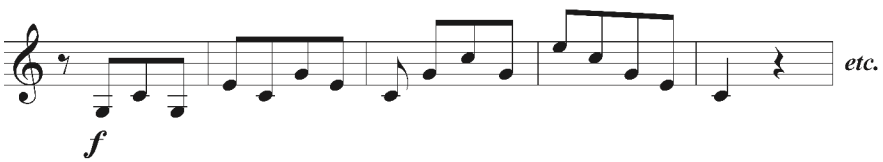
Rules & Exceptions

If the trumpeter must use an instrument in a single key, it goes without saying that he will, occasionally, hit some stumbling blocks.

Take for example this excerpt from the *Allegro* of the Overture to William Tell:



and this excerpt from the end:



as well as other excerpts of this kind, common to parts for trumpet in E (also refer to the note *The Trumpet in E-Sharp*). While playing these excerpts on the trumpet in B-flat, one must play an augmented fourth higher, which is rather difficult to execute in a lively tempo. It would be much easier to execute these passages with all three valves lowered, after having moved the 1st or 3rd slide in order to make the instrument in tune with the trumpet in E (resulting in the lowering of the pitch by a diminished fifth with the three valves). One would then play the notes as like an open trumpet in E, with no need for other fingerings, the instrument would essentially become a natural trumpet in E while keeping its original character; you can be the judge of this.

The same effect is produced by playing the parts written for trumpet in F by lowering the 1st and 3rd valves and pulling out the movable slide on the 1st or 3rd piston.

For players using crooks, the same effect can be produced. If you use a crook in A, playing with three valves depressed and pulling the slides appropriately you get a natural trumpet in E-flat.

I don't recommend this except for when playing military calls or other music with special requirements.

Théo Charlier
Conservatoire Royal de Musique de Liège