IANNIS XENAKIS

ST/4-1,080262

Quatuor à cordes · String Quartet
Streichquartett

Partition · Score
Partitur

12.572

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L'oeuvre fut créée à Paris en 1962 par le Quatuor Bernede.
Signification du titre: (qui est dans son intégralité: ST/4-1,080262) ST=(Musique) Stochastique. Stochastique signifie en mathématiques, aléatoire, au hasard, soumis aux probabilités, et a été introduit par Jacques Bernoulli; 4-1=première oeuvre pour quatre instruments, 080262 =le 8 Février 1962, date où cette oeuvre fut calculée par le cerveau électronique. ST/4 est une version pour 4 cordes de l'oeuvre ST/10 pour dix instruments qui a été calculée par le cerveau électronique 7090 IBM à Paris suivant un "programme" stochastique (=probabiliste), spécial, imaginé par Xenakis. Ce "programme" est un dérivé de la thèse du "Minimum de Règles de Composition", qui avait déjà été formulée dans *Achorripsis* pour 21 instruments mais de n'est que quatre ans plus tard qu'elle a pu être "mécanisée" chez IBM France. Le "programme" est un complexe de lois stochastiques (=du calcul des probabilités) que l'auteur a introduites en composition musicale depuis de nombreuses années. Il commande an cerveau électronique de définir tous les sons d'une séquence calculée préalablement, l'un aprés l'autre. D'abord sa date d'occurence ensuite sa classe de timbre (arco, pizzicato, glissando, etc . . .) son instrument, sa hauteur, la pente du glissando s'il y a lieu, la durée et la forme dynamique de l'émission du son. Ce quatuor utilise toutes les façons de jouer des instruments à cordes, notamment celles inaugurées par Xenakis dans ses oeuvres pour orchestre *Metastaseis* (1954) et *Pithoprakta* (1955), tels que la percussion sur les caisses des instruments, les glissandi systématiques avec l'archet, en pizzicati et en frappés avec le bois de l'archet.
Pour plus d'information, lire "A la recherche d'une Musique stochastique", article de Xenakis, dans la revue Gravesaner Blätter n° 11/12, 1958, ainsi que les chapîtres I et V du livre "Musiques formelles" également de Xenakis, édition Richard-Masse, 7 place St-Sulpice, Paris VI, 1963. Pour le programme en langage Fortran voir Gravesaner Blätter n° 26, édit. Hermann Scherchen, Gravesano, Tessin, Suisse.

First Performance: Paris, 1962, by the Bernede String Quartet.
Explanation of the title as shown by its components: ST/4-1,080262: ST= stochastic music. Stochastic in mathematics means aleatory, by chance, subject to probabilities, and was introduced by Jacques Bernoulli. 4-1=first work for 4 instruments. 080262=8th February 1962, the date when this work was calculated by the electronic brain.
ST/4 is a version for four strings of the work ST/10 for 10 instruments, which was calculated by the electronic brain 7090 IBM in Paris in obedience to a special stochastic (probabilist) "programme" devised by Xenakis. This "programme" was derived from the thesis of "Minimum of Rules of Composition," which had already been formulated in *Achorripsis*, but it was not until four years later that it became possible to have it "mechanised" at IBM-France.
The "programme" is a complex of stochastic laws which the composer had been introducing into musical composition for a number of years. He orders the electronic brain to define all the sounds of a sequence, previously calculated, one after the other. First, the time of its occurrence, next its kind of timbre (arco, pizzicato, glissando, etc.), its instrument, its pitch, the gradient of its glissando where that occurs, the duration and dynamic of the emission of sound. This Quartet makes use of every way of playing these stringed instruments, notably those introduced by Xenakis in his orchestral works *Metastaseis* (1954) and *Pithoprakta* (1955), such as tapping the backs of the instruments, glissandi, pizzicato and *col legno* taps on the strings.
For further information, see "In search of a stochastic music", Xenakis's article in the review Gravesaner Blätter Nos. 11/12 of 1958, also chapters I and V of the book "Musiques formelles", also by Xenakis, published by Richard-Masse, 7 place St-Sulpice, Paris VI, 1963. For the programme in Fortran code see Gravesaner Blätter No. 26, published by Hermann Scherchen, Gravesano, Tessin, Switzerland.

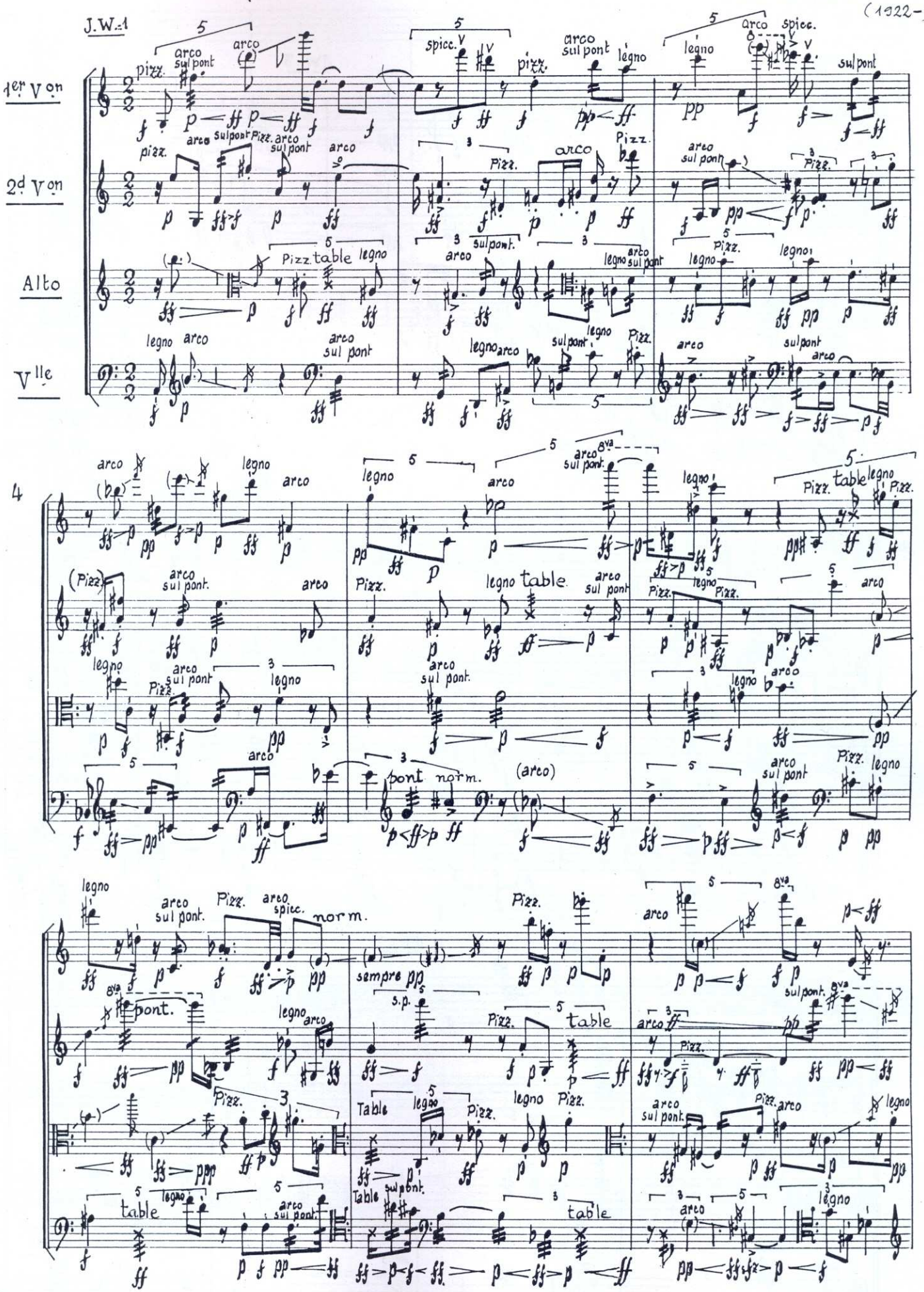
Das Werk wurde im Jahre 1962 in Paris vom Streichquartett Bernede uraufgeführt.
Titelerläuterung (vollständig: ST/4—1,080262): ST=stochastische Musik. Stochastisch bedeutet in der Mathematik „ungewiss", „zufällig", „der Wahrscheinlichkeit unterworfen" und ist von Jacques Bernoulli eingeführt worden; 4-1=erstes Werk für 4 Instrumente. 080262=8. Februar 1962, der Tag, an dem das Werk vom Elektronengehirn errechnet wurde.
ST/4 ist eine Version für 4 Streichinstrumente des Werkes ST/10 für 10 Instrumente, das vom Elektronengehirn 7090 der IBM in Paris nach einem vom Komponisten erdachten besonderen stochastischen (Wahrscheinlichkeits-) „Programm" errechnet wurde. Dieses „Programm" ist aus dem Grundsatz vom „Mindestmass von Kompositionsregeln" hergeleitet, der schon in *Achorripsis* für 21 Instrumente formuliert worden war, aber erst vier Jahre später von IBM-France „mechanisiert" werden konnte.
Das Programm ist ein Komplex von stochastischen Gesetzen (Wahrscheinlichkeitsrechnung), die der Komponist seit vielen Jahren in die musikalische Komposition eingeführt hat. Es gibt dem elektronischen Gehirn auf, alle Töne einer vorher errechneten Sequenz, einen nach dem anderen, zu definieren. Zuerst den Zeitpunkt des Eintritts, sodann die Klangfarbe (arco, pizzicato, glissando etc.), sein Instrument, seine Lage, die Steilheit des Glissandos soweit erforderlich, die Dauer und Dynamik. Dieses Streichquartett verwendet die Instrumente in jeder nur möglichen Weise, so wie es Xenakis bereits in seinen Orchesterwerken *Metastaseis* (1954) und *Pithoprakta* (1955) gezeigt hat, z.B. das Klopfen auf den Körper der Instrumente, die systematischen Glissandi mit dem Geigenbogen, die Pizzicati und das Schlagen mit dem Rücken des Bogens.
Weitere Information ist in Xenakis' Artikel „Auf der Suche nach einer stochastischen Musik" in den „Gravesaner Blättern", No. 11/12, 1958, Verlag Hermann Scherchen, Gravesano, Tessin, Schweiz, enthalten, ebenso wie in den Kapiteln I und V des Buches „Musiques formelles", gleichfalls von Xenakis, im Verlag von Richard-Masse, 7 place St. Sulpice, Paris VI, 1963. Das Programm in Fortran-Sprache siehe Gravesaner Blätter No. 26.

Durée d'exécution · Duration · Spieldauer

ca. 12 min.

♩ = 60 MM en moyenne

IANNIS XENAKIS
(1922-)



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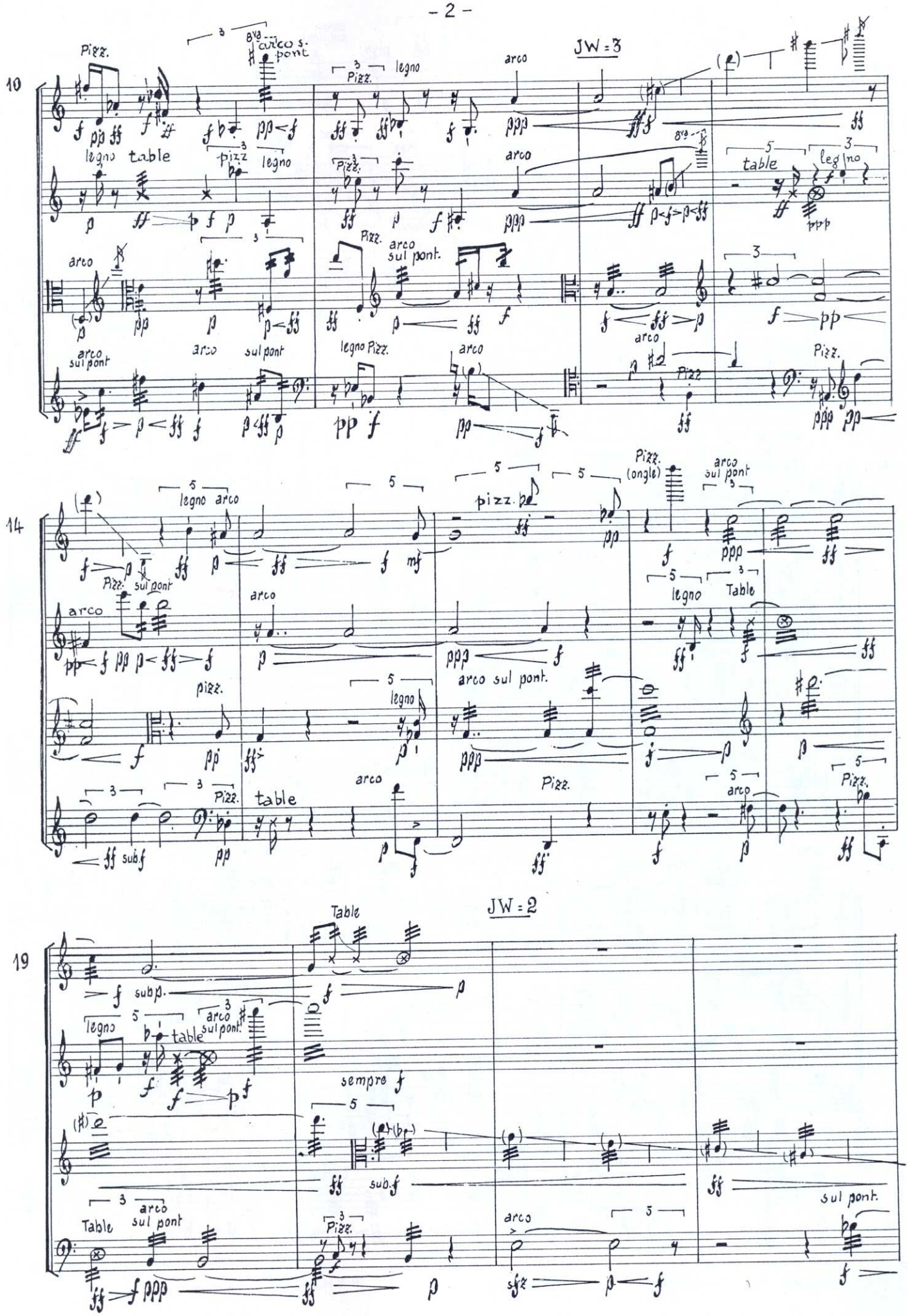
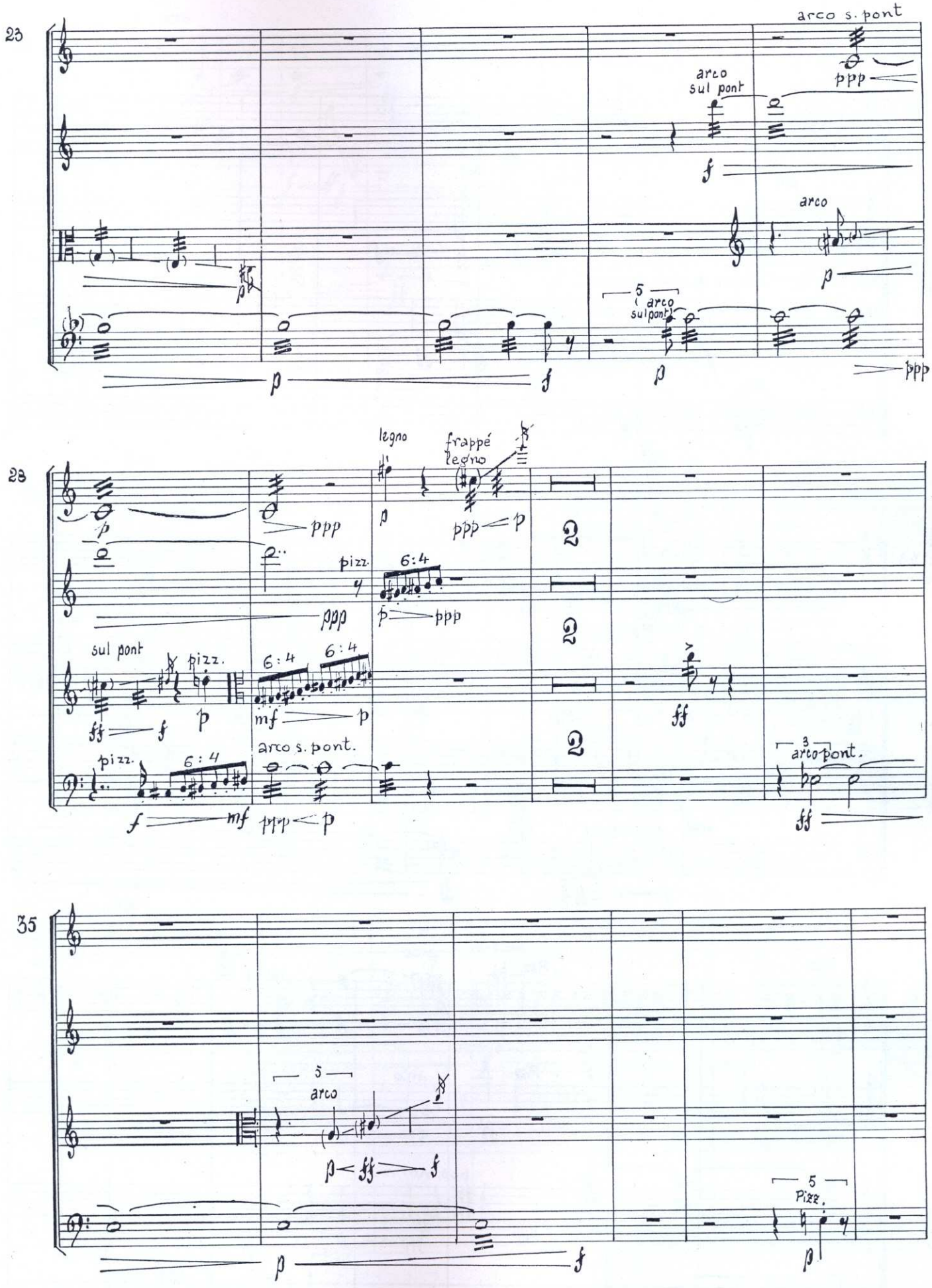
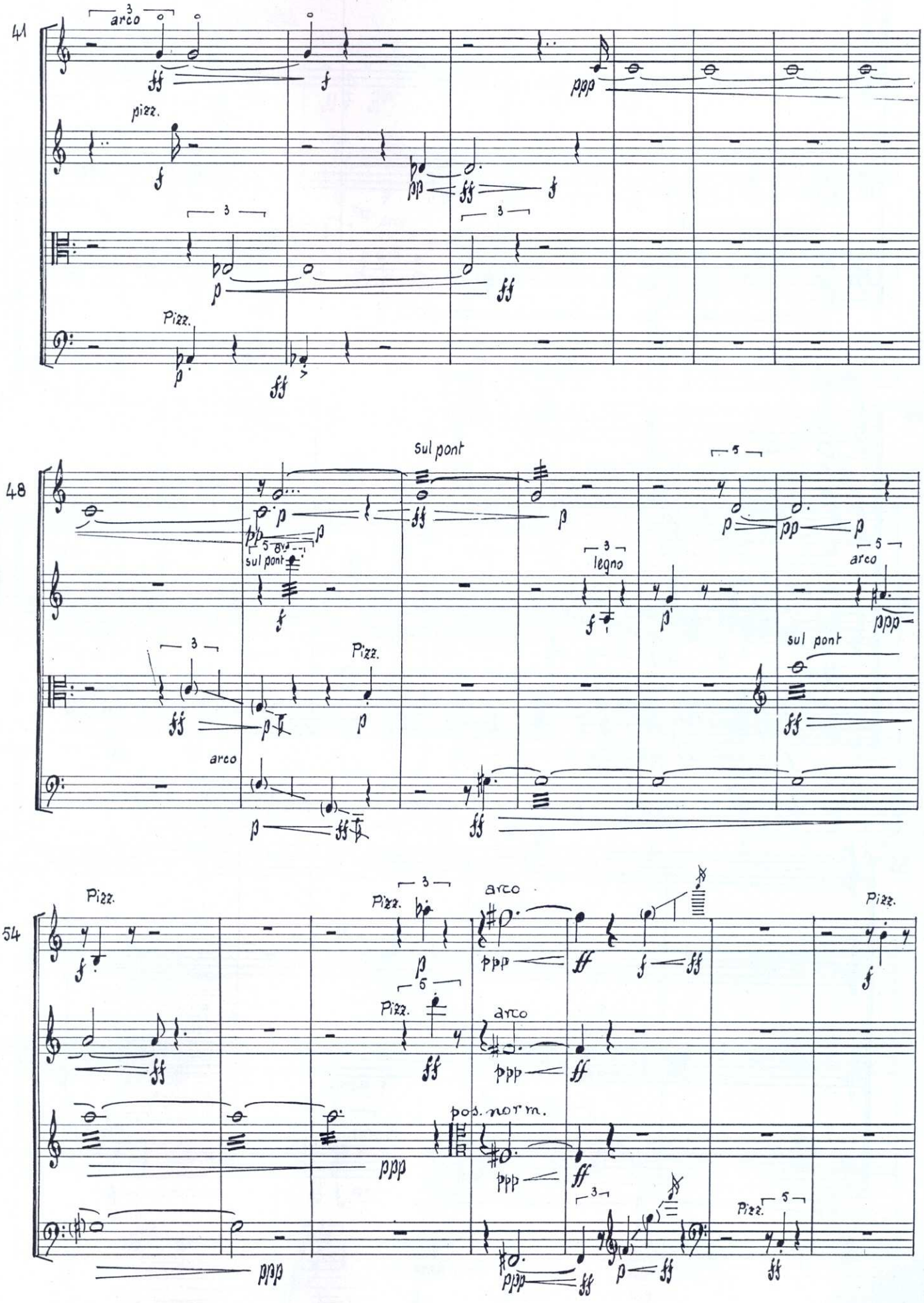
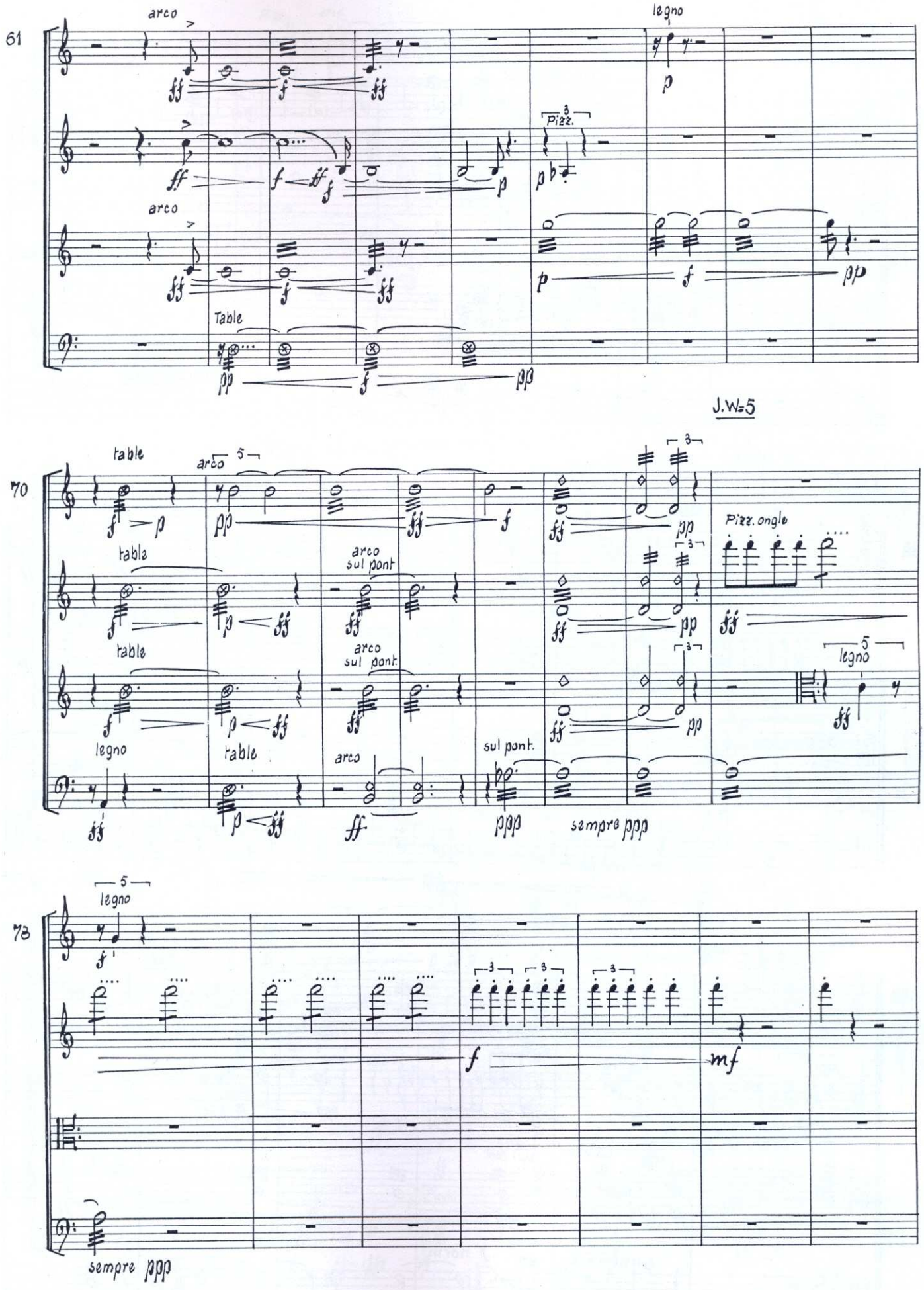
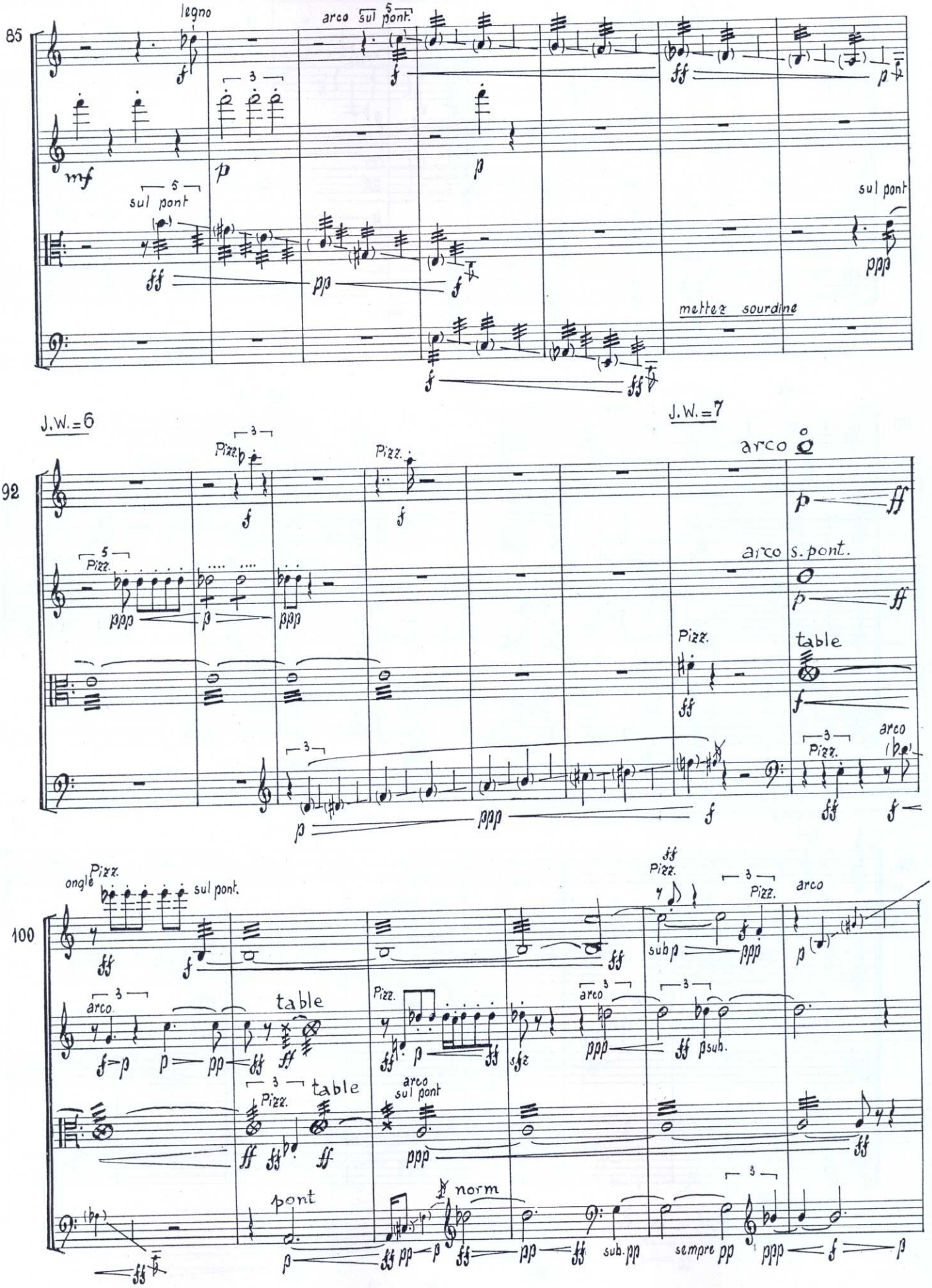
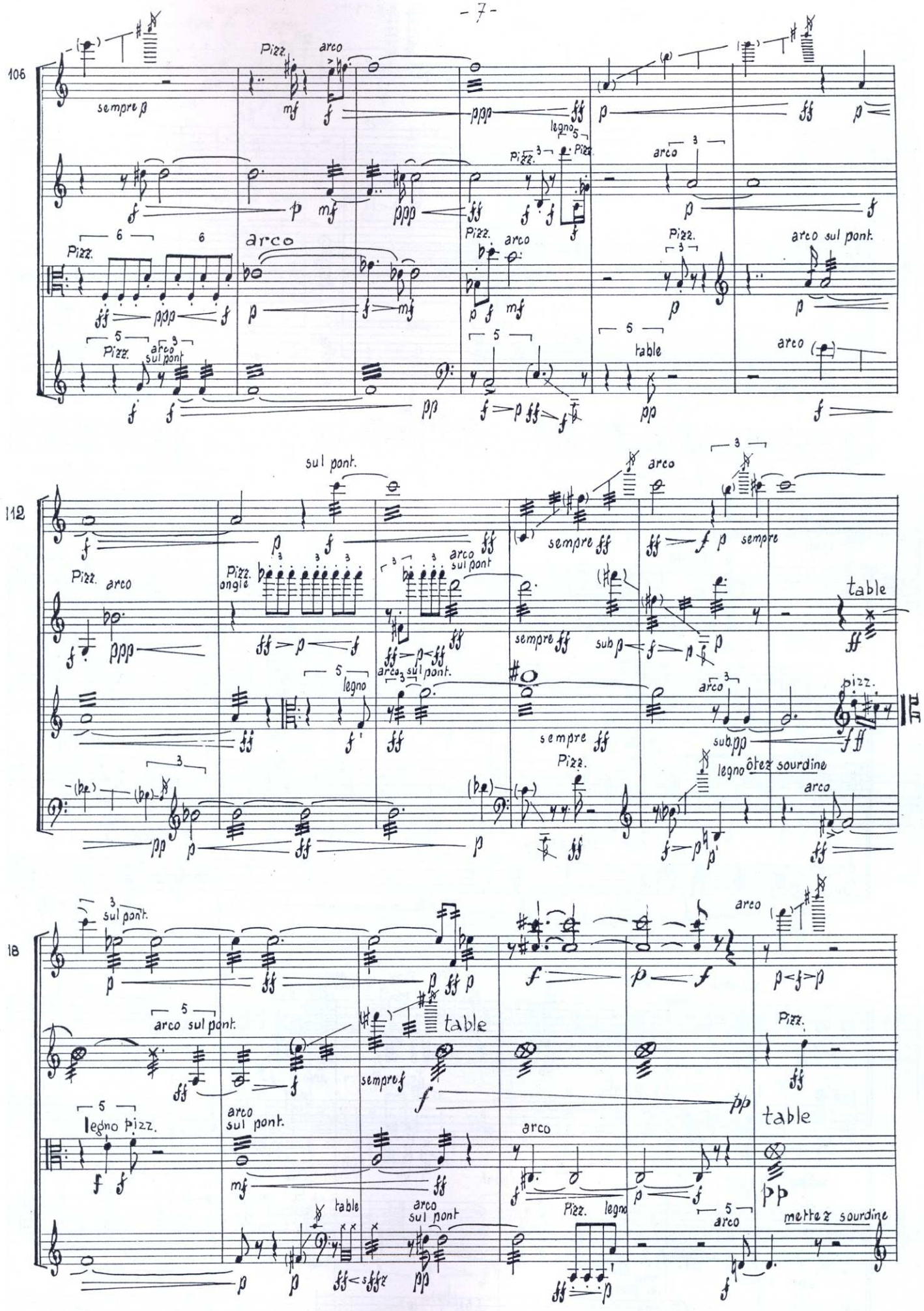

JW = 3
10
Pizz.
arco s. pont
legno
arco
table
pizz
arco sul pont.
arco sul pont
14
legno arco
pizz.
Pizz. (ongle)
arco sul pont
Pizz. sul pont
arco
legno
Table
pizz.
arco sul pont.
sub.f
JW = 2
19
Table
sub.p.
sempre f
sub.f
sul pont.

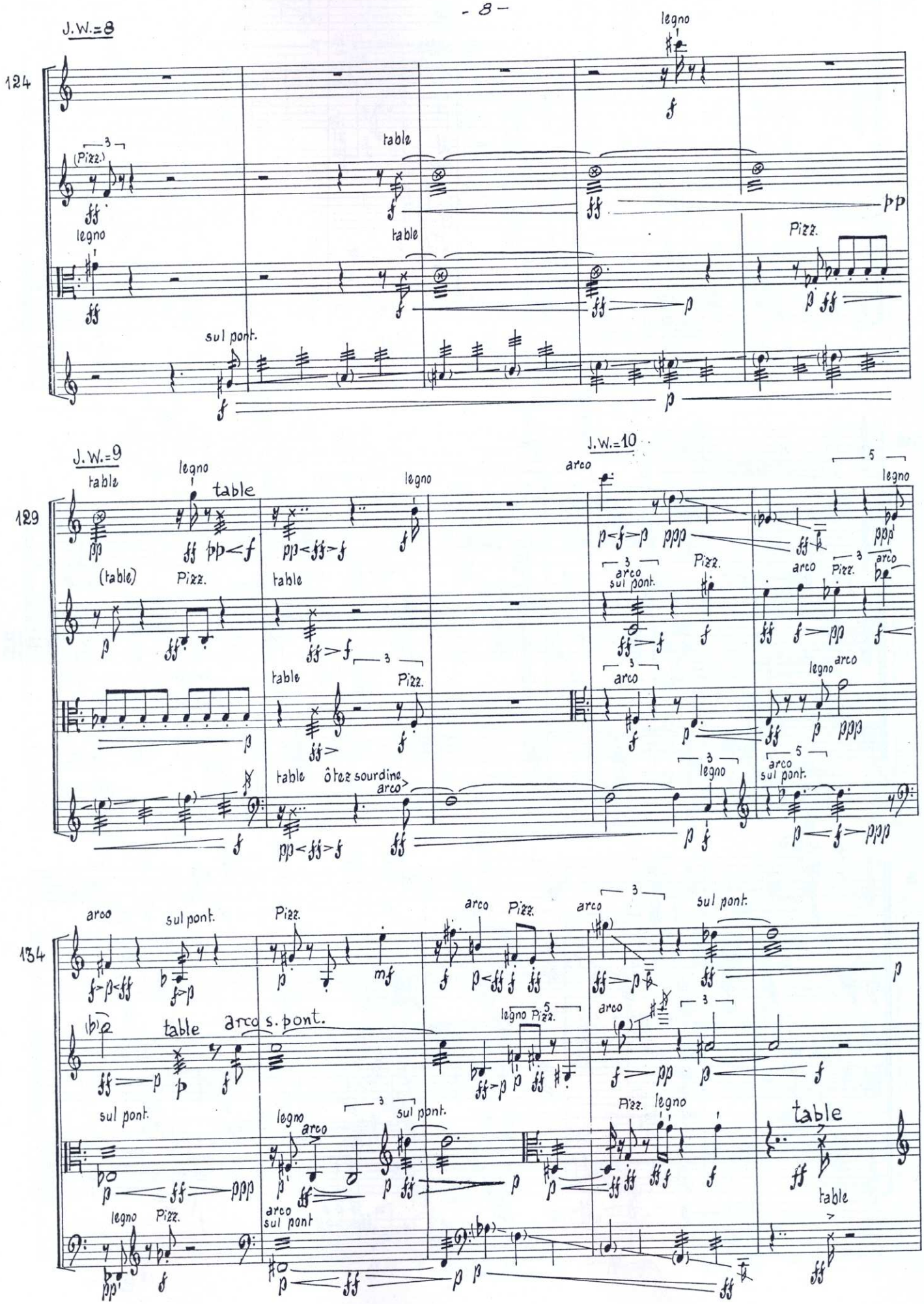

23
arco s. pont
arco
sul pont
ppp
arco
p
5
arco
sul pont
p
f
p
ppp
28
legno
frappé
legno
p
ppp
p
pizz.
6:4
ppp
p
ppp
sul pont
pizz.
6:4
6:4
fff
f
p
mf
p
arco s. pont.
pizz.
6:4
f
mf
ppp
p
3
arco pont.
fff
35
5
arco
p
fff
f
5
Pizz.
p
f
p

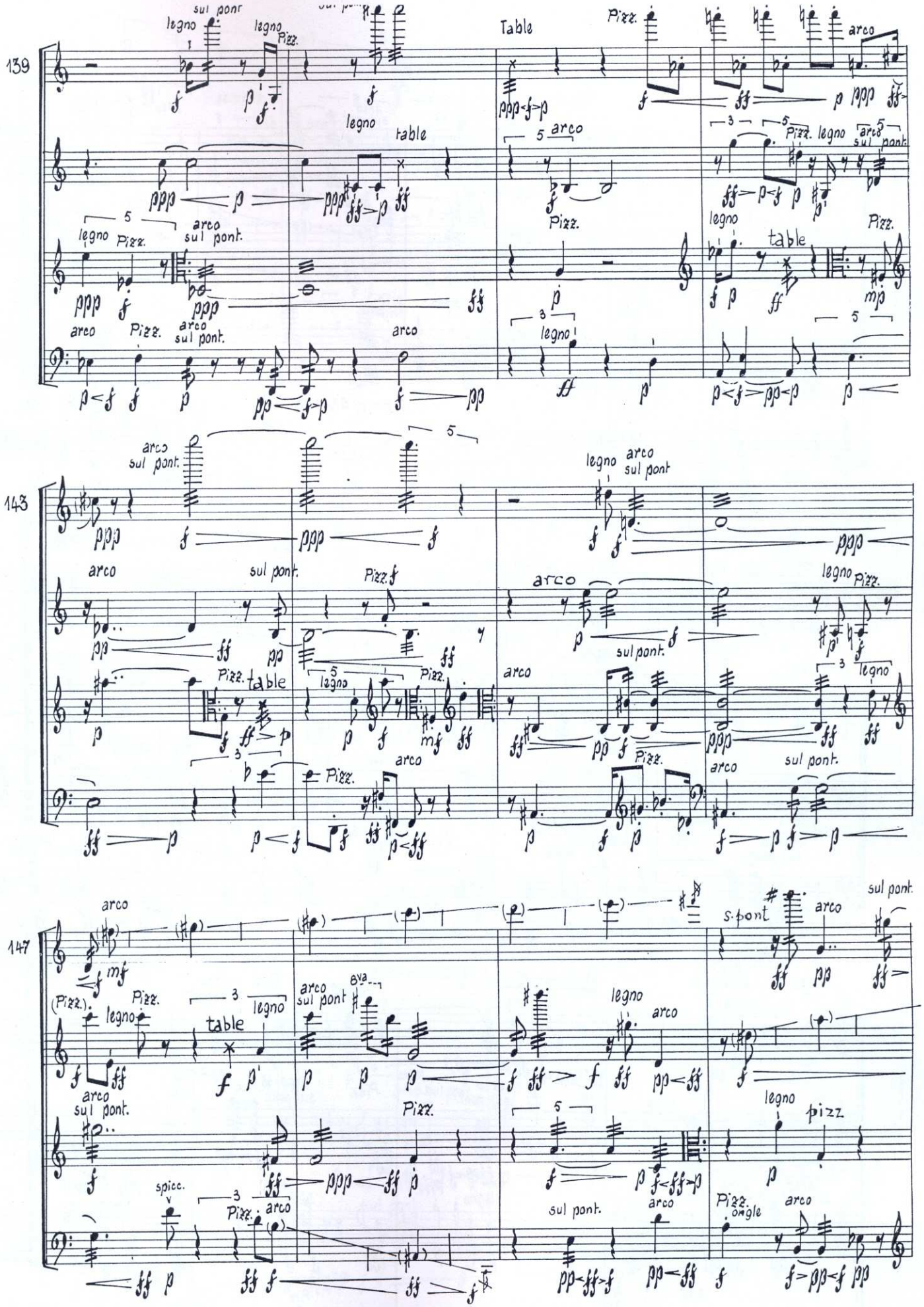

41
arco
pizz.
Pizz.
48
sul pont
legno
arco
Pizz.
sul pont
54
Pizz.
arco
pos. norm.

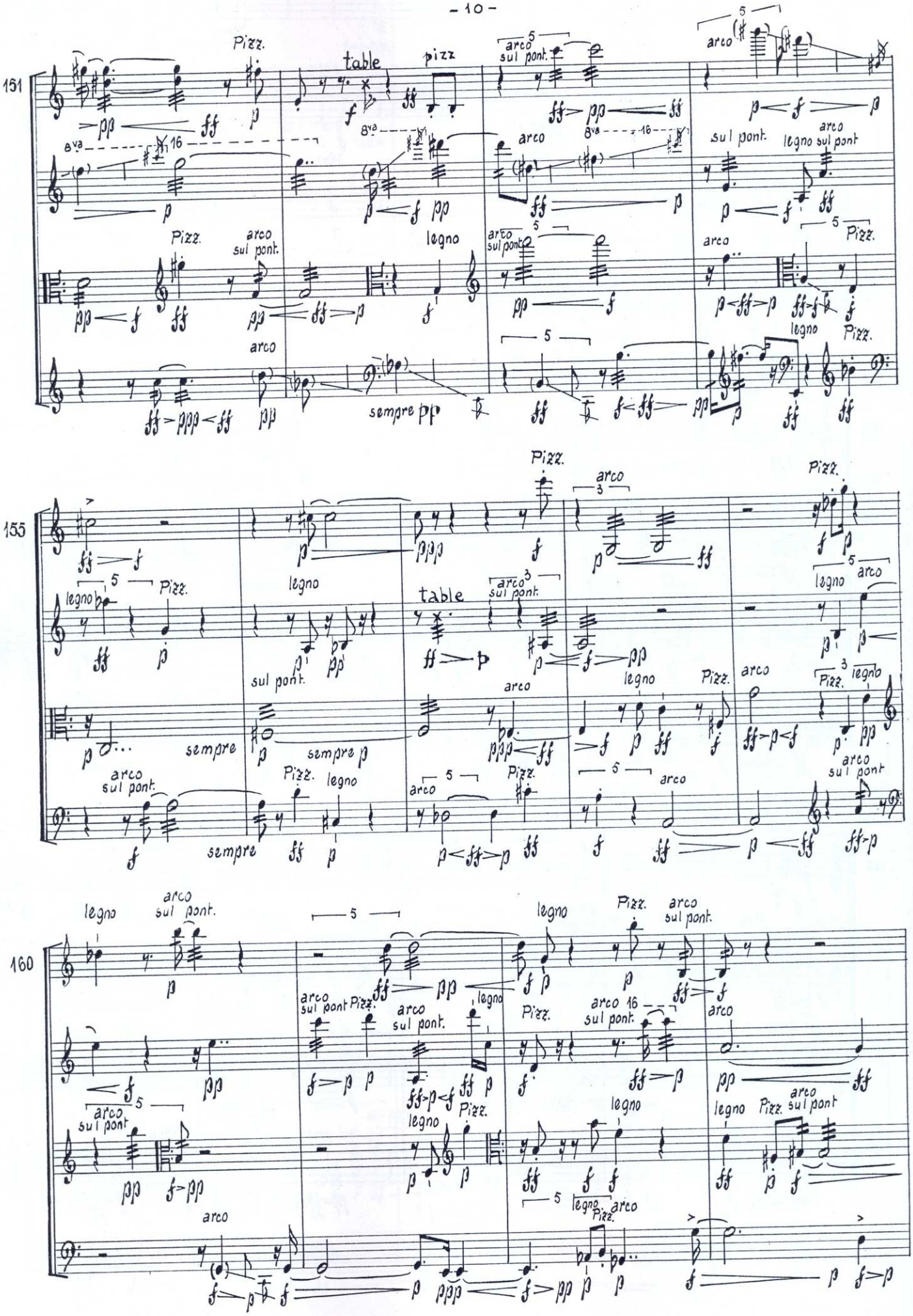

61
arco
legno
Pizz.
arco
Table
J.W=5
70
table
arco
table
arco sul pont
table
arco sul pont
legno
table
arco
sul pont.
Pizz. ongle
legno
sempre ppp
73
legno
sempre ppp

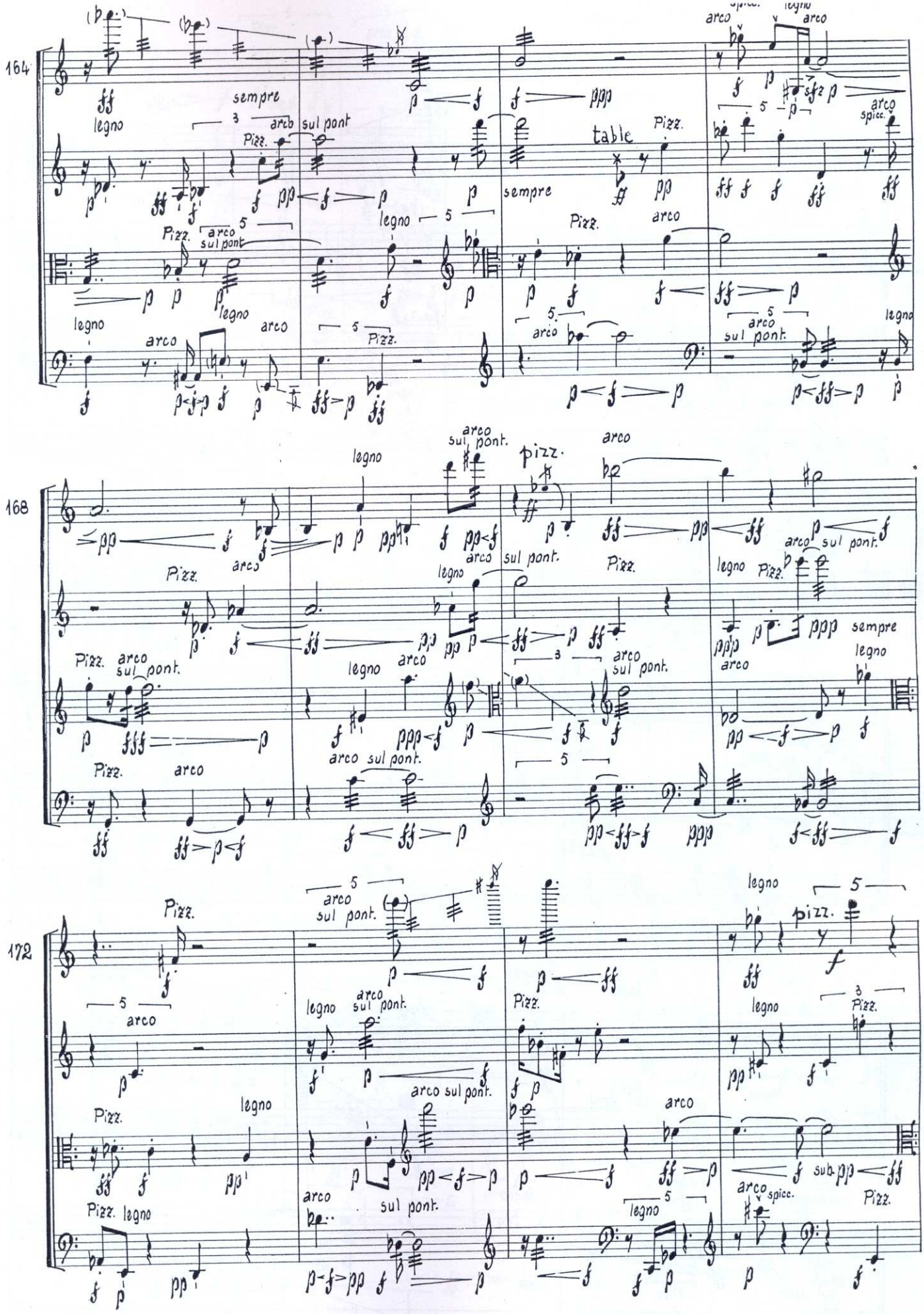

85
legno
arco sul pont.
sul pont
sul pont
mettez sourdine
J.W.=6
J.W.=7
92
Pizz.
arco
arco s. pont.
table
arco
100
ongle
Pizz.
sul pont.
arco
table
Pizz.
arco
sul pont
pont
norm
sub. pp
sempre pp

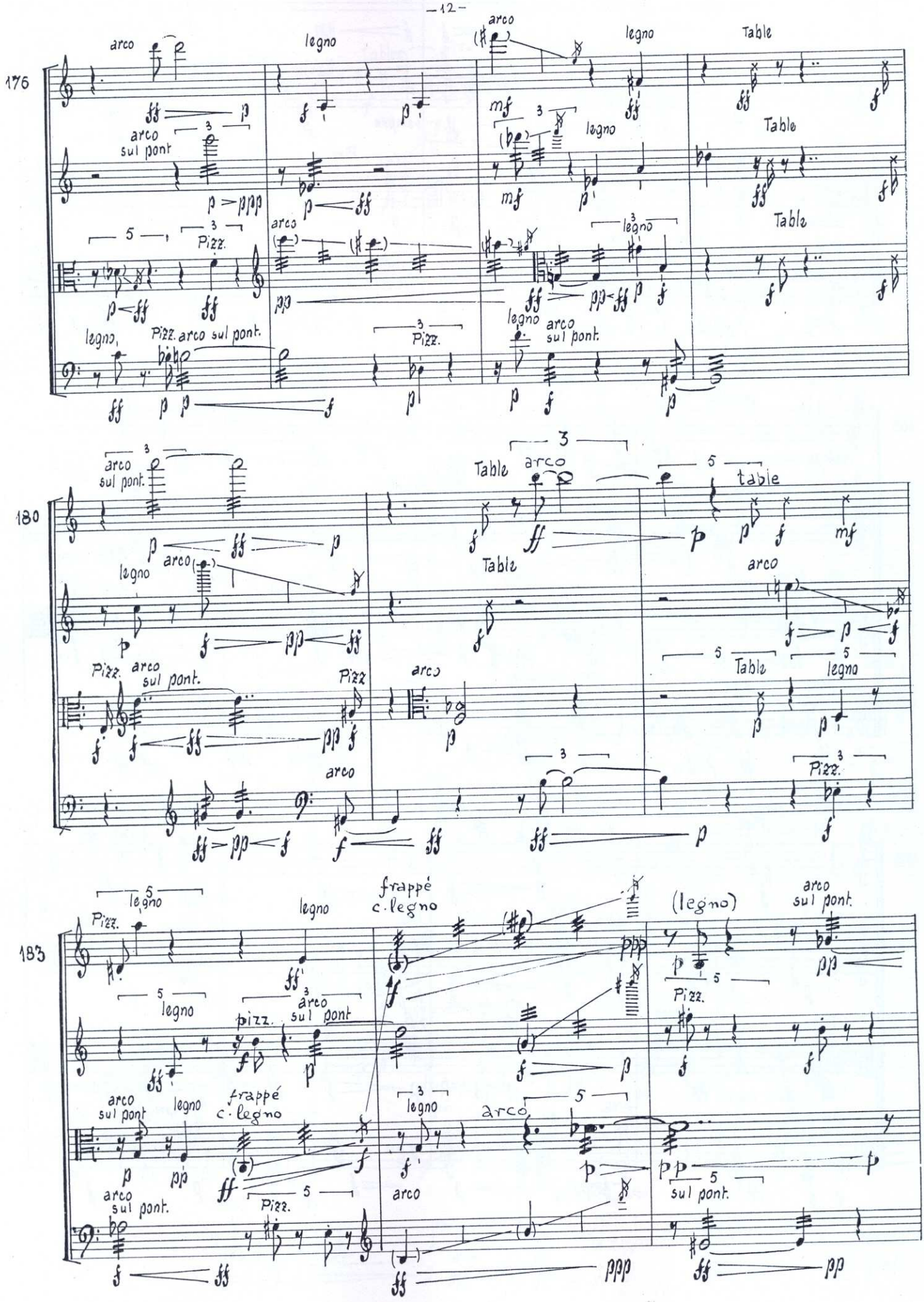

106
sempre p
Pizz.
arco
legno
arco sul pont.
table
112
sul pont.
sempre ff
sempre
Pizz. ongle
arco sul pont
sub p
legno
pizz.
ôtez sourdine
18
sul pont.
arco sul pont.
table
sempre f
legno pizz.
mettez sourdine

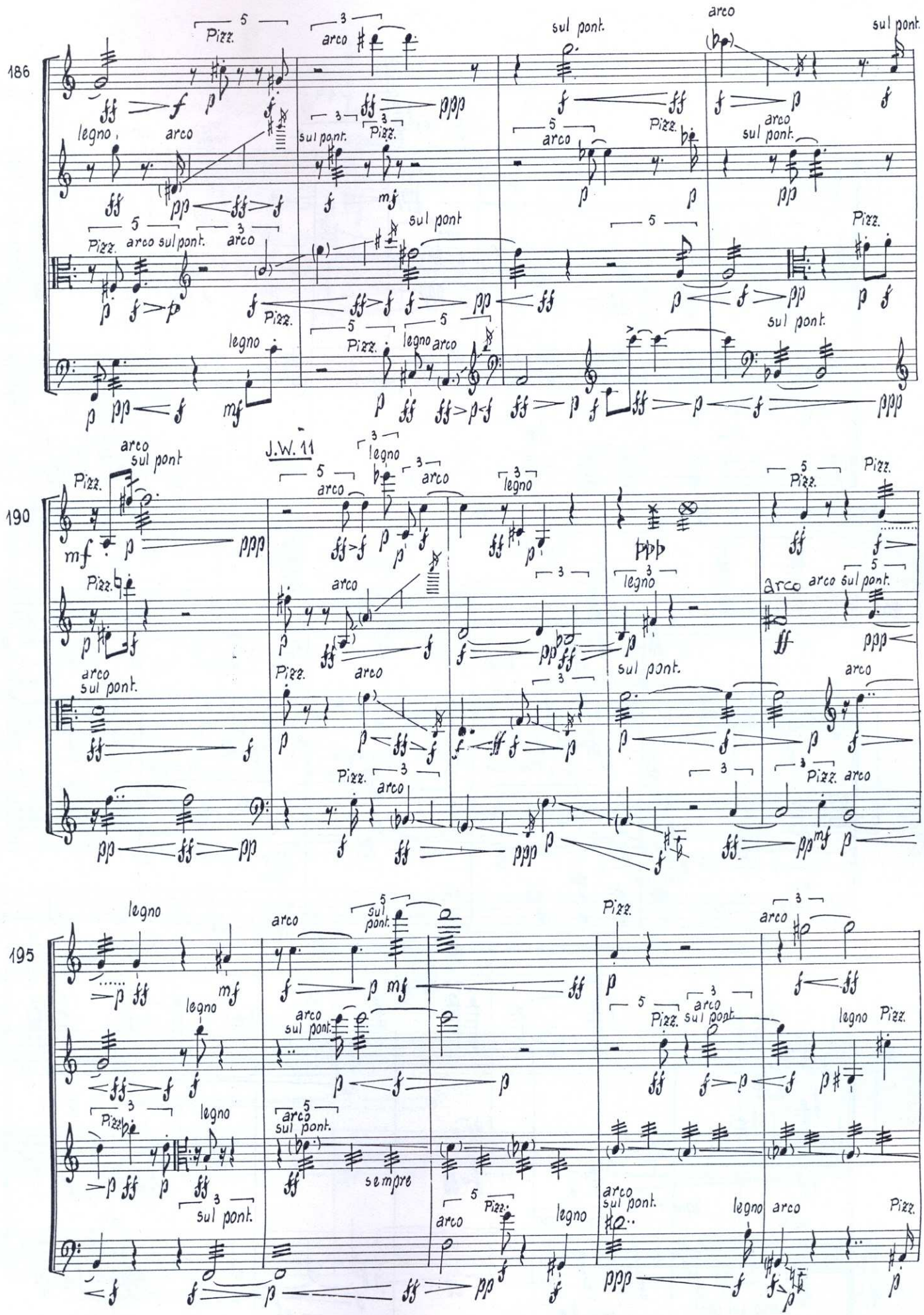

J.W.=8
124
legno
table
(Pizz.)
legno
table
sul pont.
Pizz.
J.W.=9
J.W.=10
129
table
legno
(table)
Pizz.
arco
sul pont.
ôtez sourdine
134
arco
sul pont.
Pizz.
table
arco s. pont.
legno
table

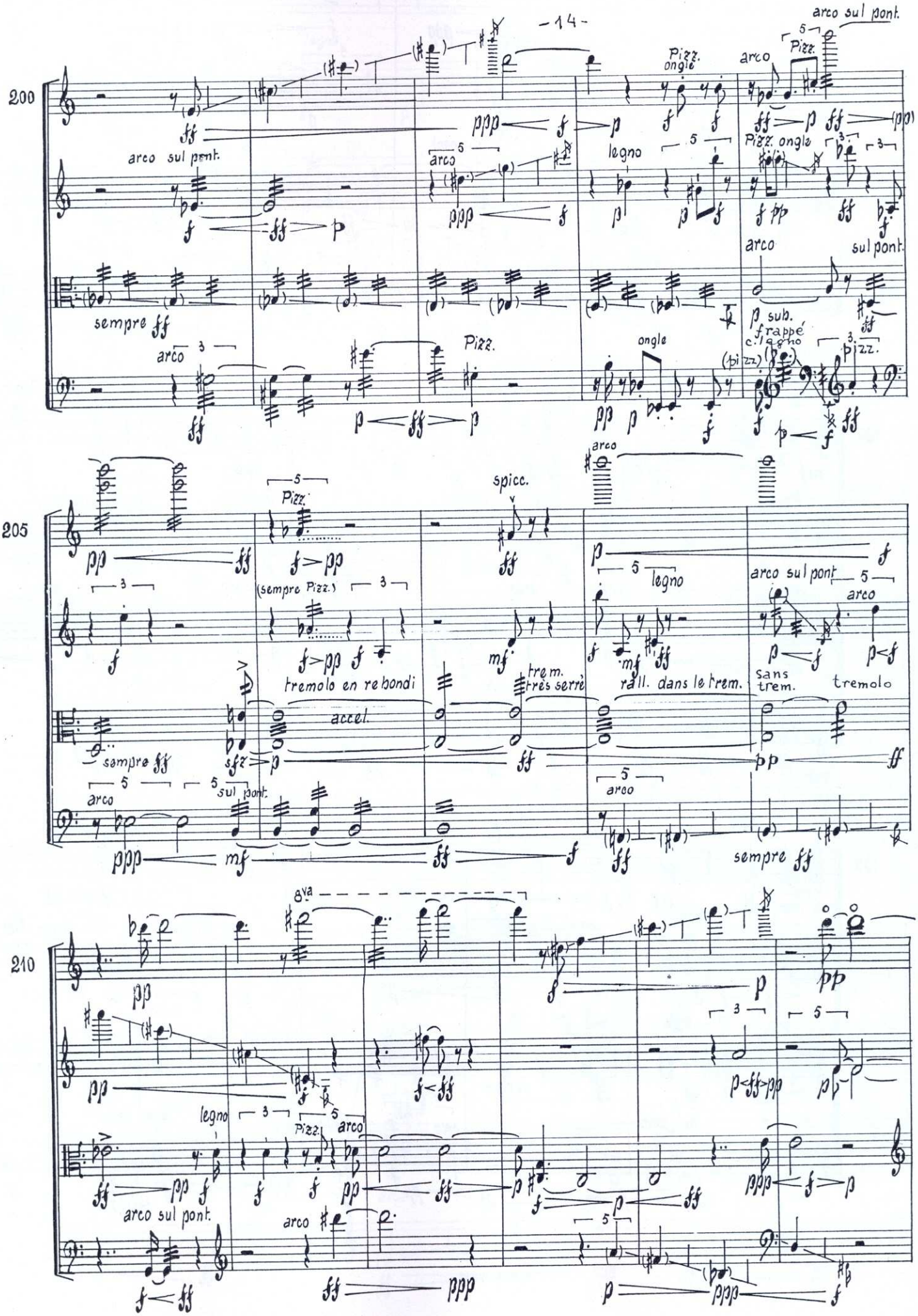

139
sul pont
legno
Pizz.
Table
arco
table
sul pont.
143
147
8va
s. pont
pizz
spicc.
ongle

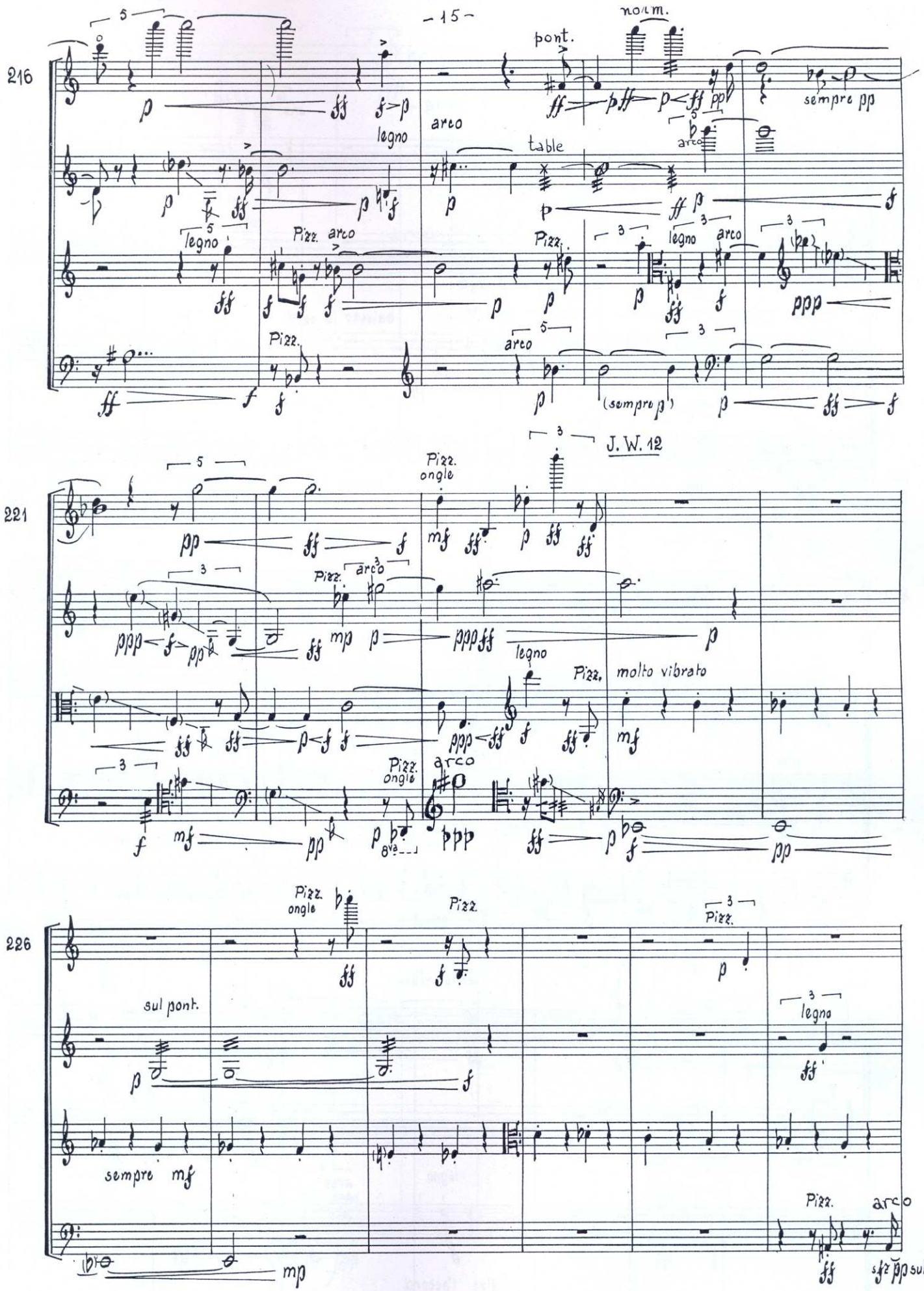

151
Pizz.
table
pizz
arco
sul pont.
8va
16
arco
sul pont.
legno
sul pont
arco
legno
sul pont
Pizz.
arco
sul pont.
legno
arco
sul pont
arco
Pizz.
arco
sempre pp
legno
Pizz.
155
Pizz.
arco
Pizz.
legno
Pizz.
legno
table
arco
sul pont.
legno
arco
sul pont.
sempre
sempre p
arco
legno
Pizz.
arco
Pizz.
legno
arco
sul pont.
Pizz.
legno
arco
Pizz.
arco
arco
sul pont
sempre
160
legno
arco
sul pont.
legno
Pizz.
arco
sul pont.
arco
sul pont
Pizz.
arco
sul pont.
legno
Pizz.
arco
sul pont.
arco
arco
sul pont
legno
Pizz.
legno
legno
Pizz.
arco
sul pont
arco
legno
Pizz.
arco


164
sempre
legno
arco
sul pont
Pizz.
table
spicc.
168
pizz.
172
sub.

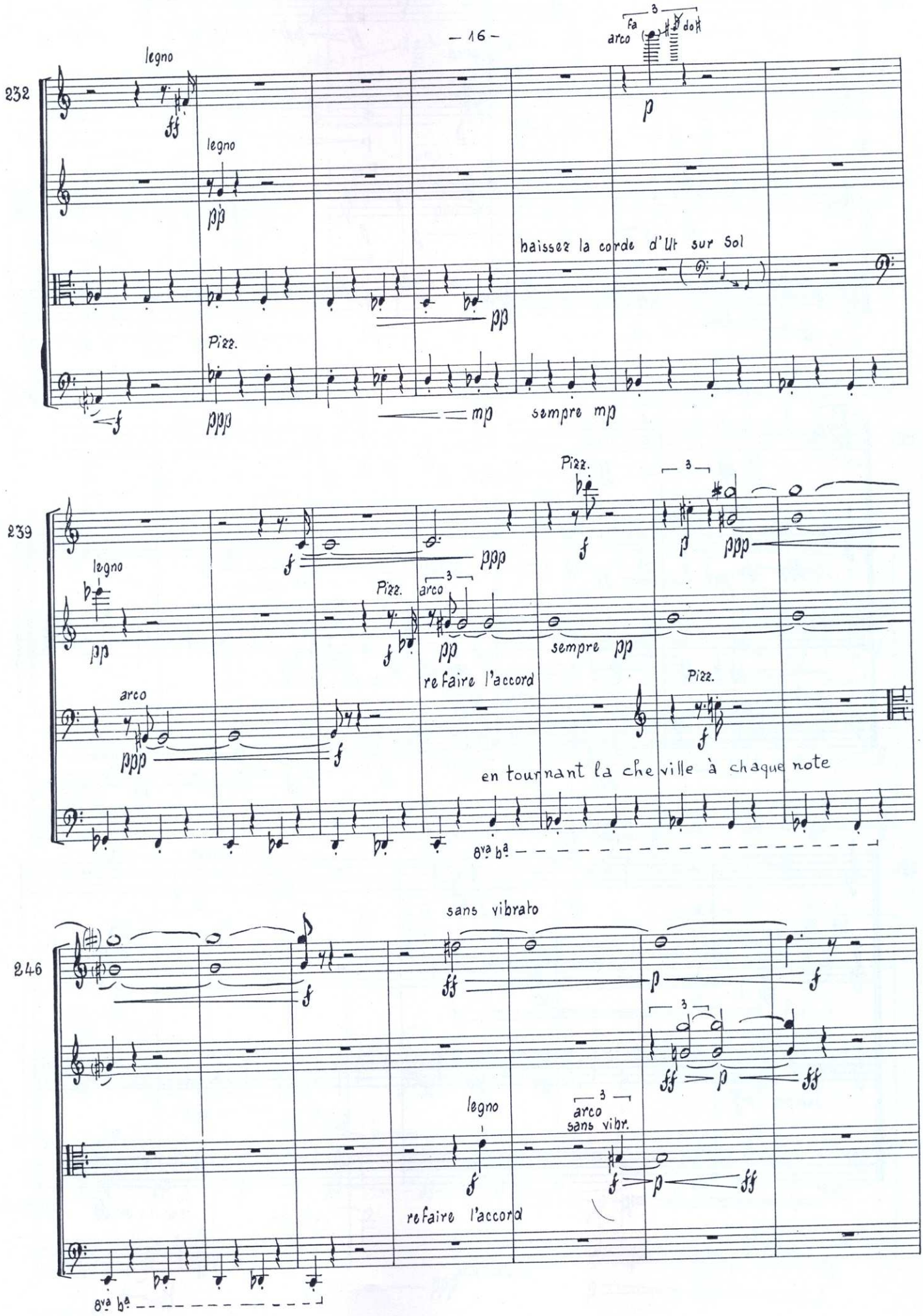

176
arco
legno
arco
legno
Table
arco sul pont
legno
Table
Pizz.
arco
legno
Table
legno
Pizz. arco sul pont.
Pizz.
legno
arco sul pont.
180
arco sul pont.
Table
arco
table
legno
arco
Table
arco
Pizz.
arco sul pont.
Pizz
arco
Table
legno
arco
Pizz.
183
legno
Pizz.
legno
frappé c. legno
(legno)
arco sul pont.
legno
pizz.
arco sul pont
Pizz.
arco sul pont
legno
frappé c. legno
legno
arco
arco sul pont.
Pizz.
arco
sul pont.

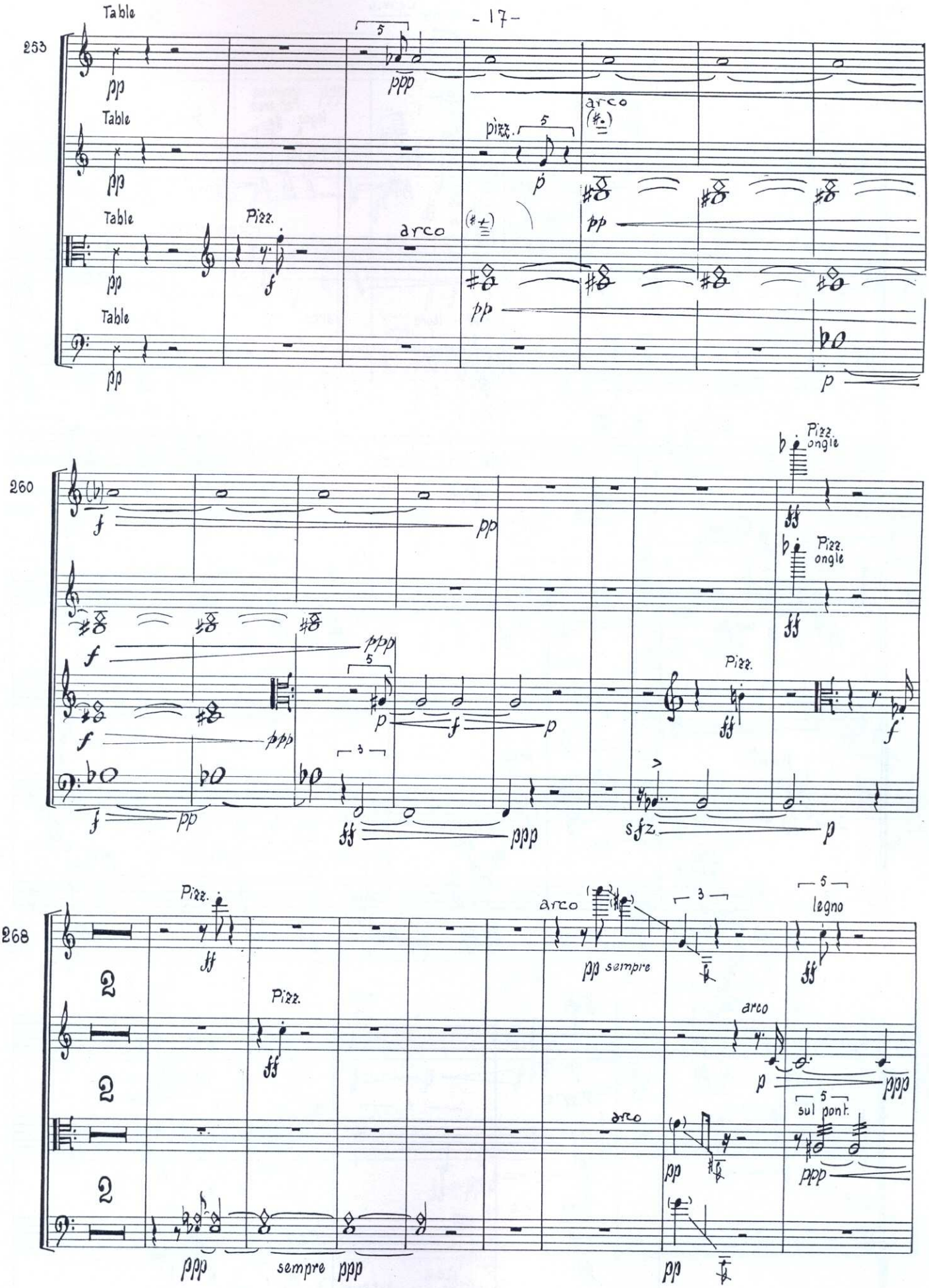

186
Pizz.
arco
sul pont.
legno
190
J.W. 11
195
sempre

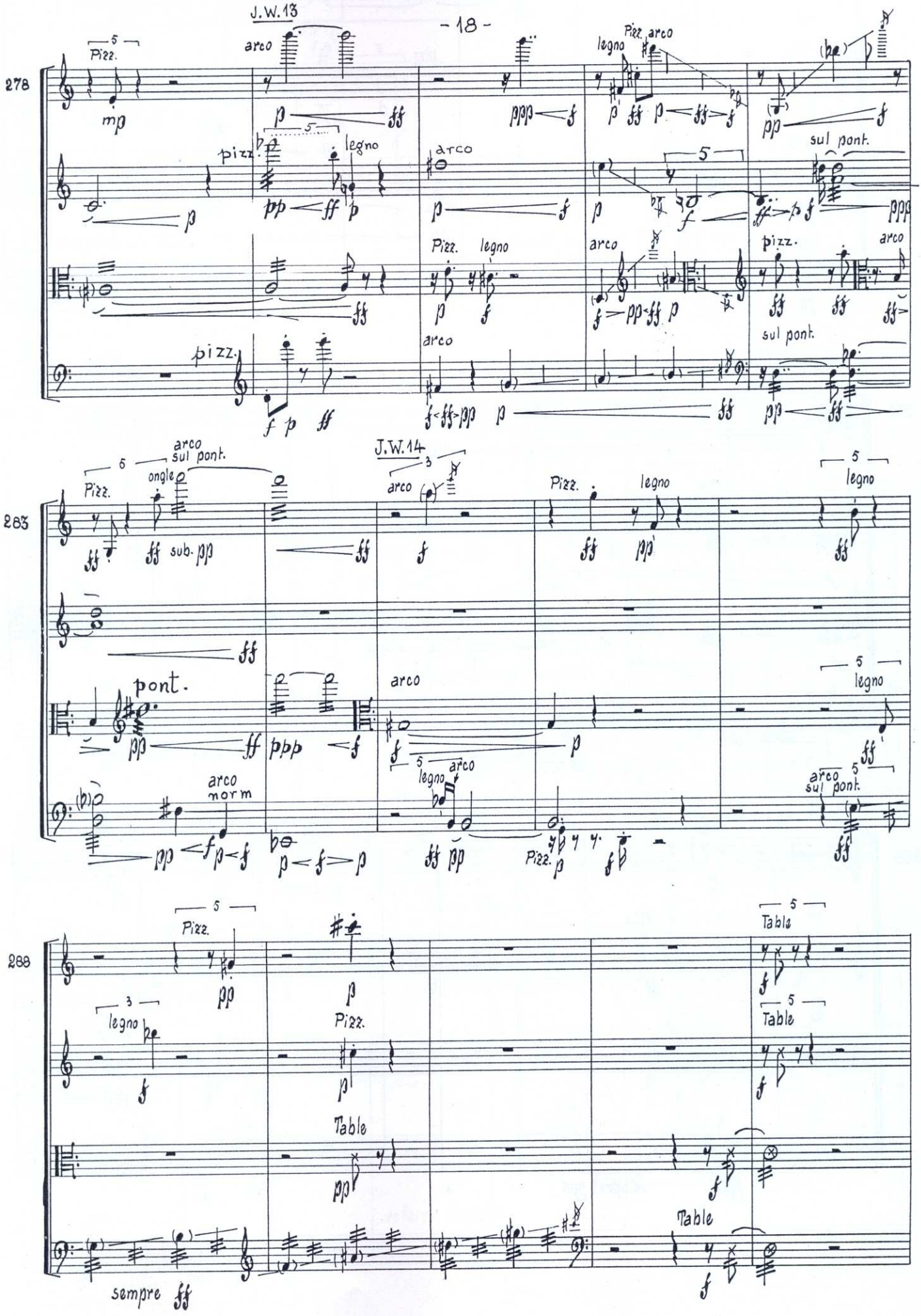

200
arco sul pont.
Pizz.
ongle
arco
Pizz.
arco sul pont.
sempre ff
arco
Pizz.
legno
Pizz. ongle
arco
sul pont.
p sub.
frappé
c. legno
ongle
205
Pizz.
spicc.
arco
(sempre Pizz.)
tremolo en rebondi
accel.
trem.
très serré
legno
arco sul pont
arco
sempre ff
sul pont.
ral. dans le trem.
Sans trem.
tremolo
arco
sempre ff
210
8va
legno
Pizz.
arco
arco sul pont.
arco

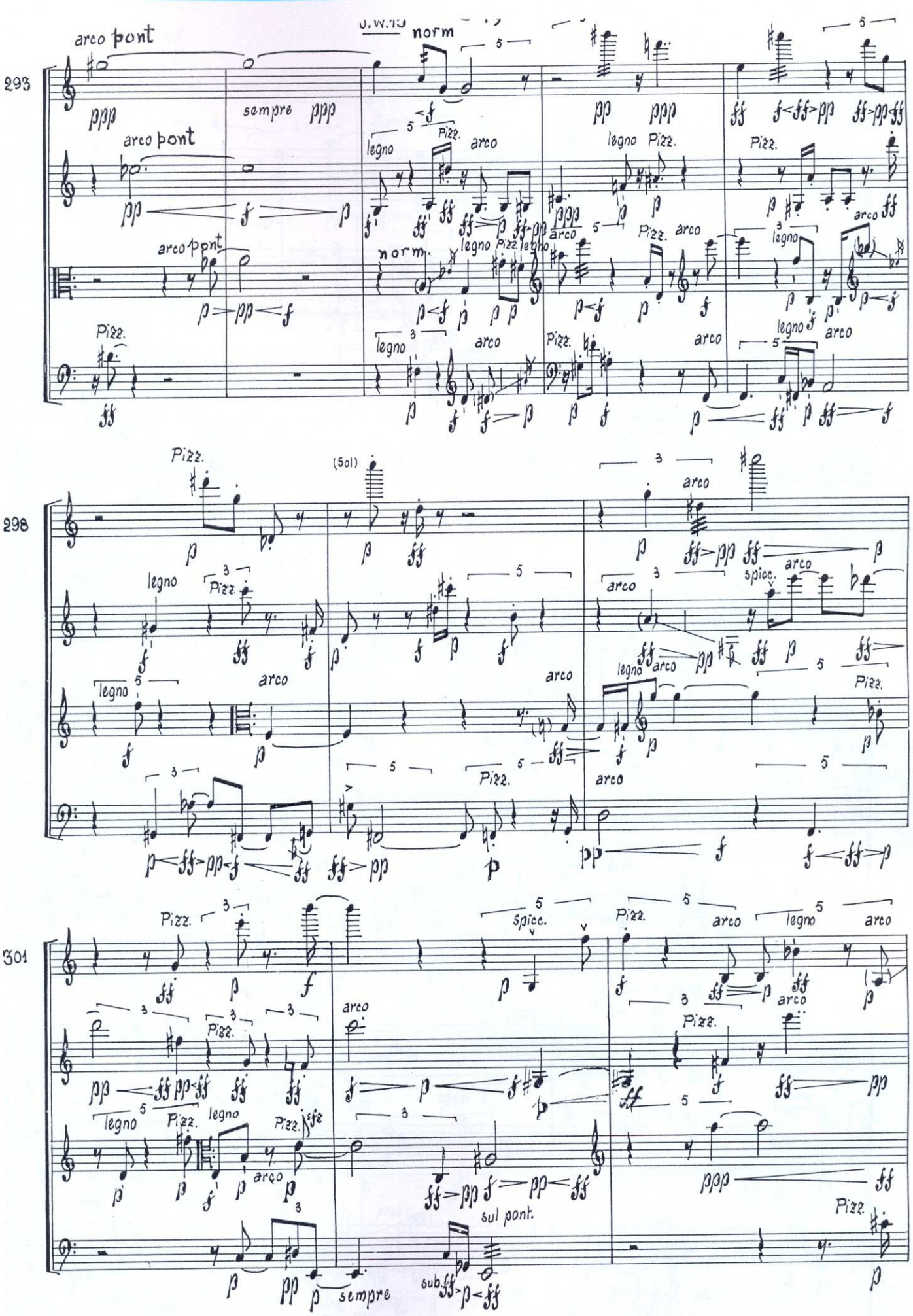

216
pont.
norm.
sempre pp
legno
arco
table
arco
legno
Pizz.
arco
Pizz.
legno
arco
Pizz.
arco
(sempre p)
J. W. 12
221
Pizz.
ongle
Pizz.
arco
legno
Pizz.
molto vibrato
Pizz.
ongle
arco
8va
226
Pizz.
ongle
Pizz.
Pizz.
sul pont.
legno
sempre mf
Pizz.
arco
sfz pp sub.

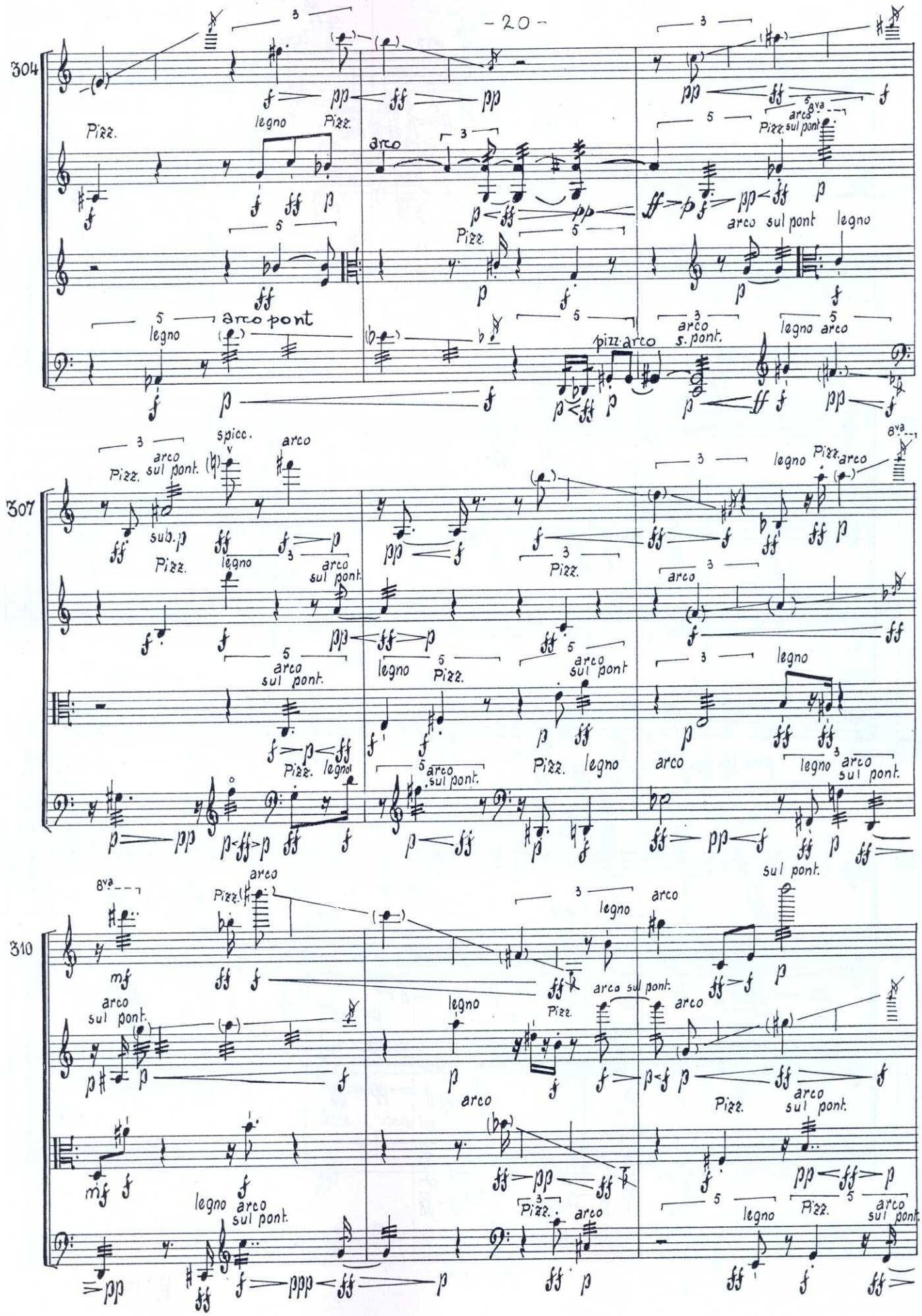
12.572

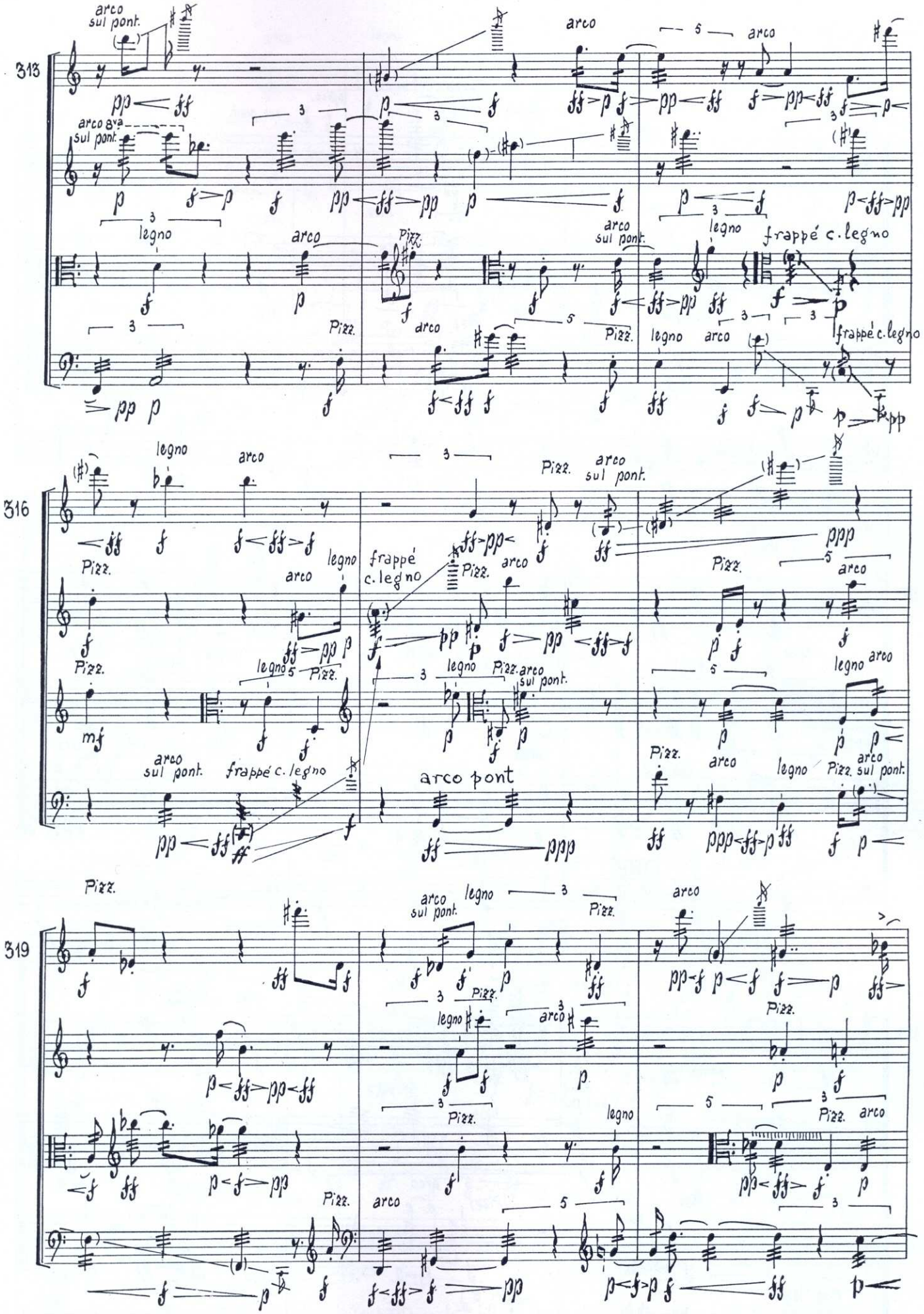

232
legno
arco
fa
do
p
legno
pp
baissez la corde d'Ut sur Sol
Pizz.
pp
f
ppp
mp
sempre mp
239
Pizz.
3
f
p
ppp
legno
pp
Pizz.
arco
3
f
pp
refaire l'accord
sempre pp
arco
ppp
f
Pizz.
f
en tournant la cheville à chaque note
8va ba
246
sans vibrato
f
ff
p
f
3
ff
p
ff
legno
arco
sans vibr.
3
f
p
ff
refaire l'accord
8va ba

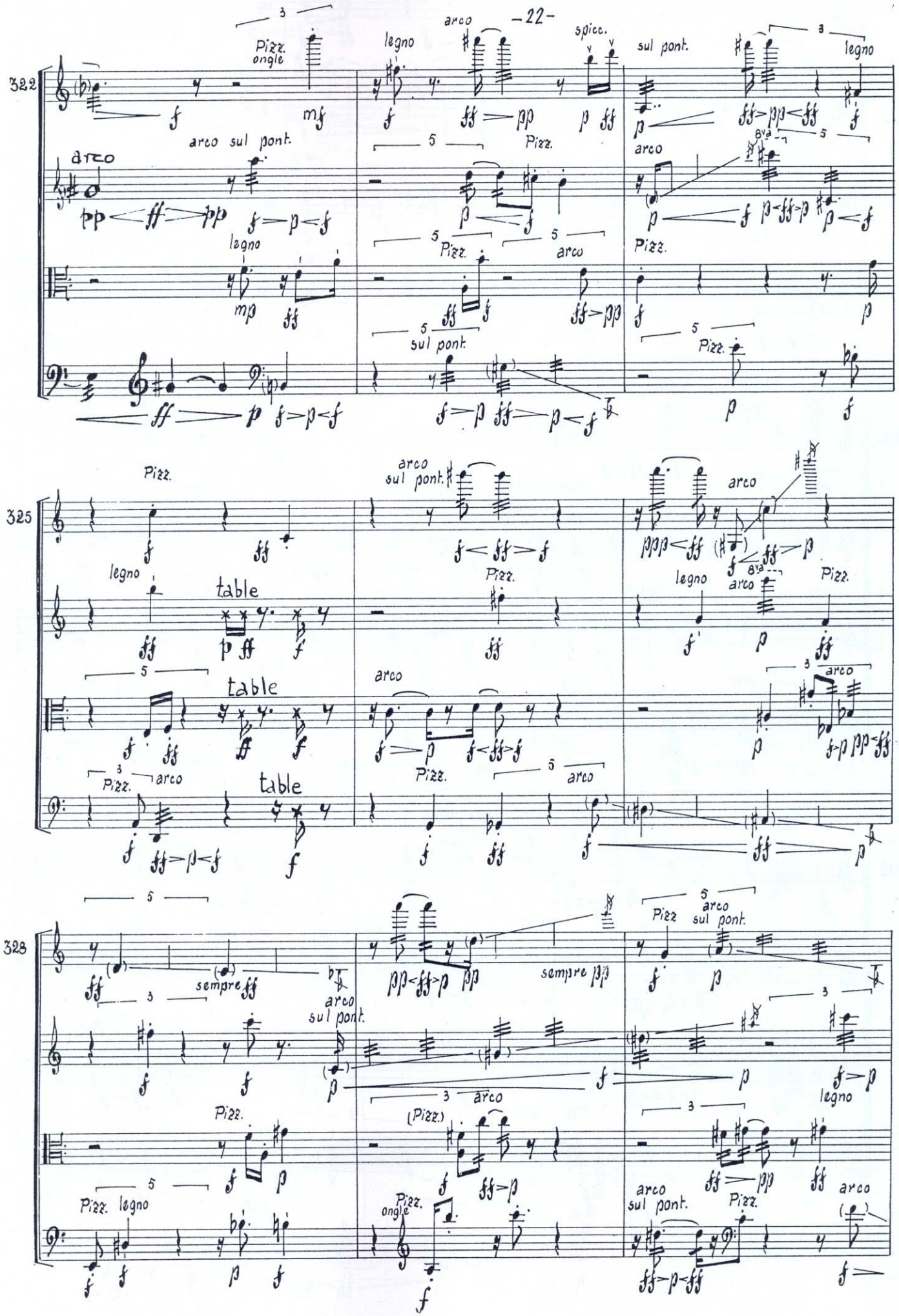

253
Table
pp
ppp
pizz.
arco
Pizz.
f
260
Pizz. ongle
ff
ppp
sfz
268
Pizz.
arco
pp sempre
legno
sul pont.
sempre

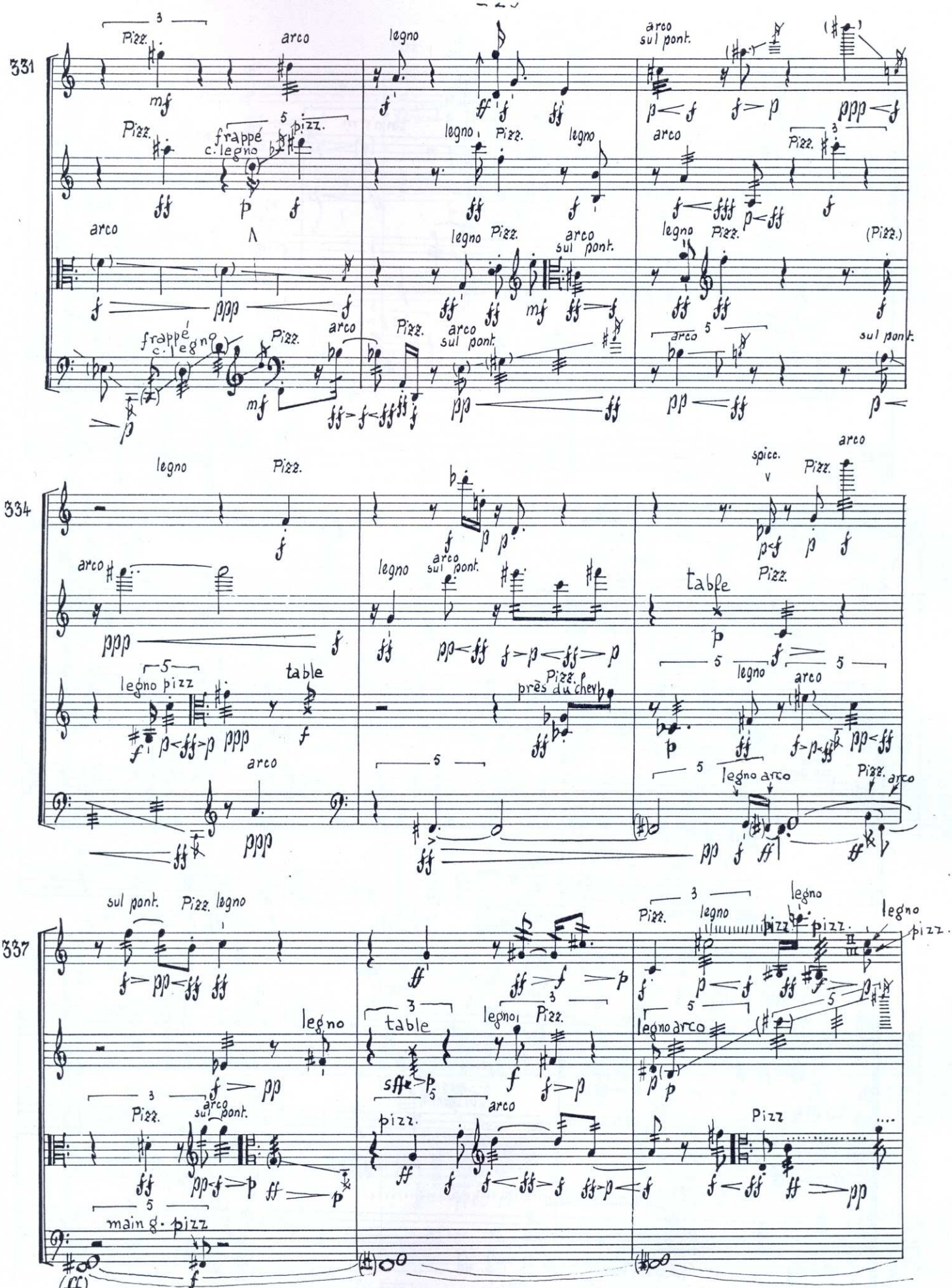

J.W.13
278
Pizz.
arco
legno
Pizz. arco
sul pont.
pizz.
Pizz. legno
arco
sul pont.
J.W.14
283
arco sul pont.
ongle
sub. pp
pont.
arco norm
legno
288
Table
sempre ff


293
arco pont
sempre ppp
norm.
legno
Pizz.
arco
298
(Sol)
spicc.
301
sempre
sub.
sul pont.

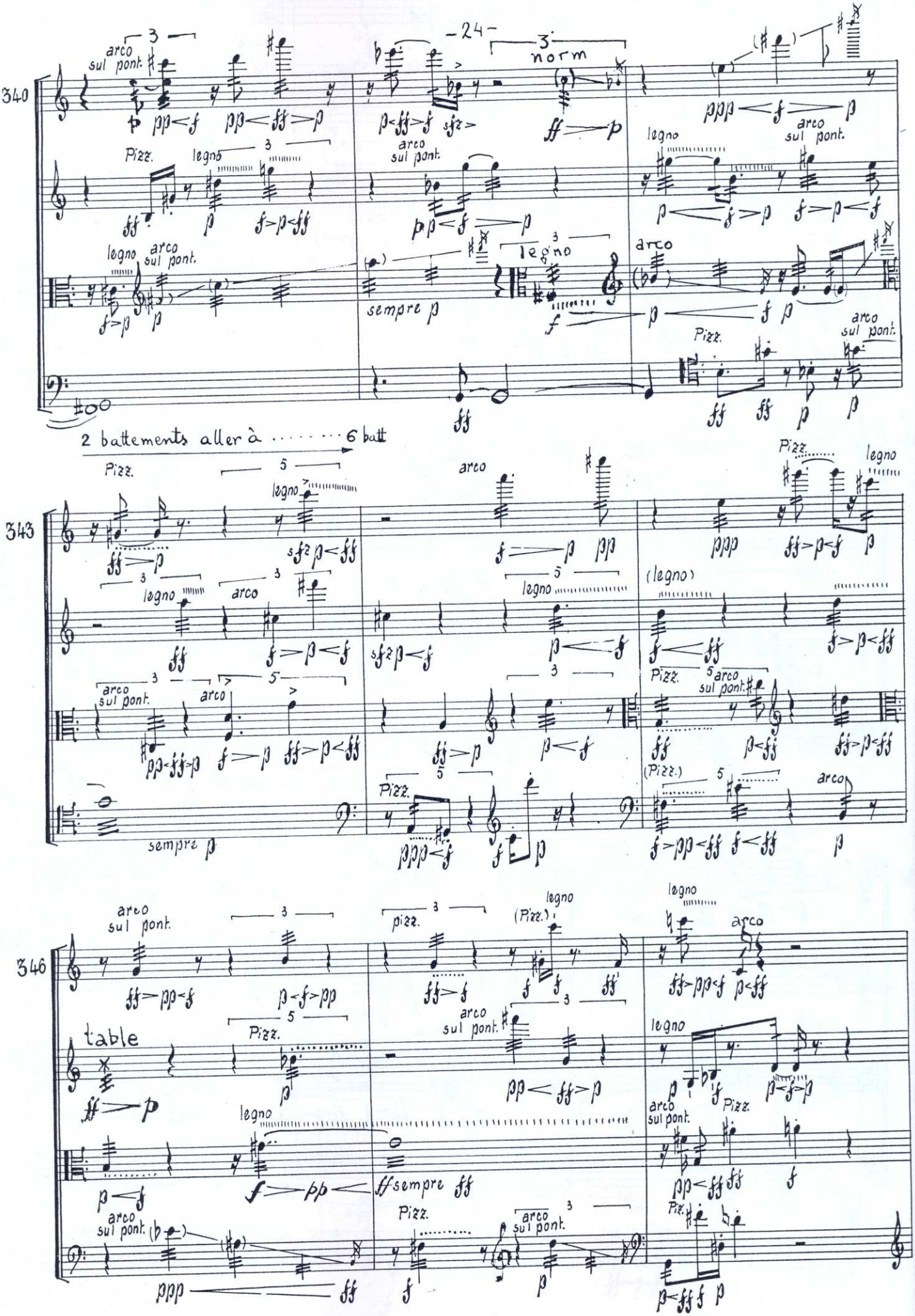

304
Pizz.
legno
Pizz.
arco
arco sul pont
legno
arco pont
pizz. arco
arco s. pont.
legno arco
307
spicc.
arco
sub. p
legno
Pizz.
arco sul pont.
legno
Pizz.
arco
sul pont
legno
Pizz.
legno
arco sul pont.
legno
arco
sul pont.
310
arco
Pizz.
legno
arco
sul pont.
arco sul pont.
arco
Pizz.
arco sul pont.
legno
arco sul pont.
Pizz.
arco
legno
Pizz.
arco sul pont.

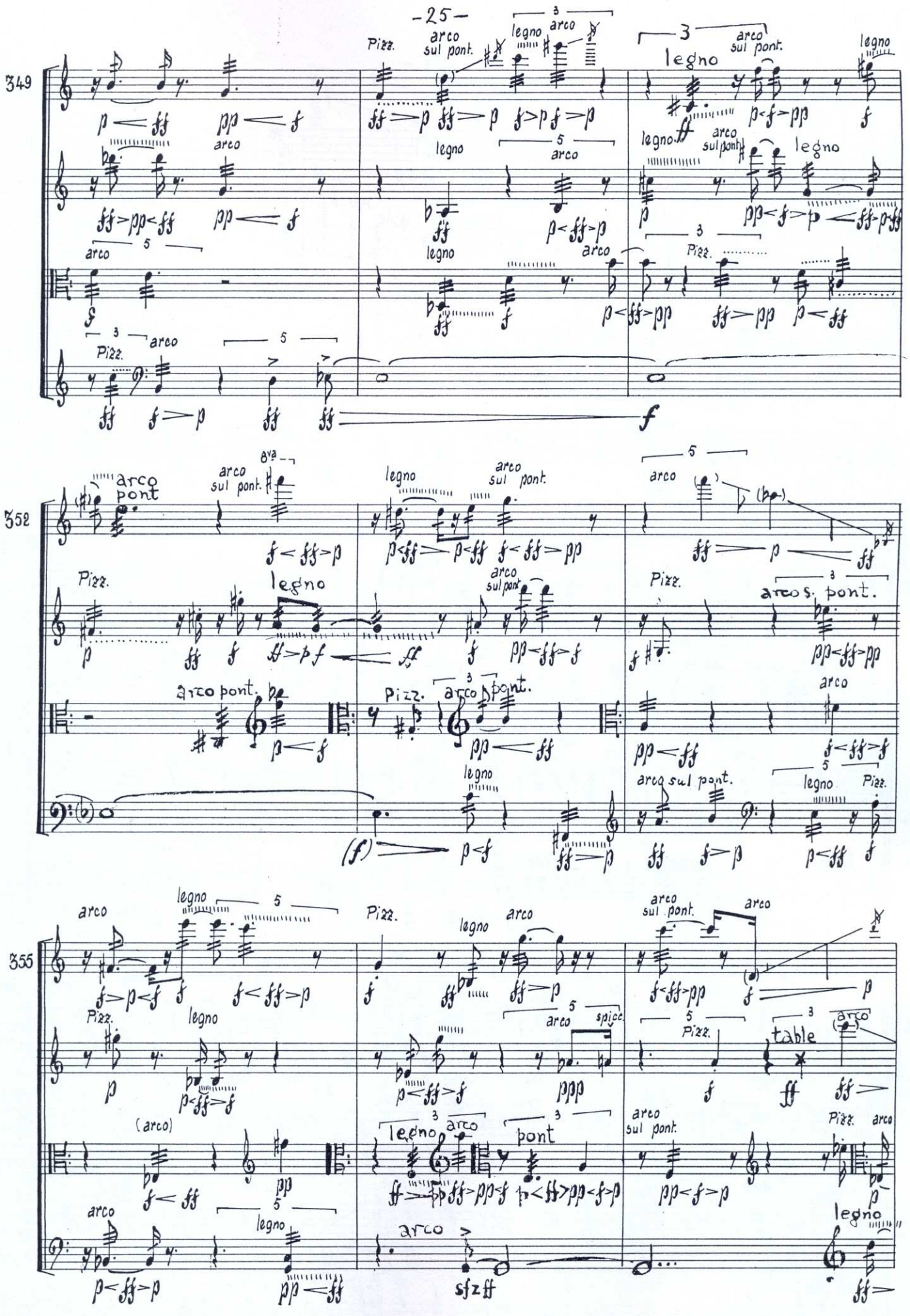

313
arco sul pont.
arco 8va sul pont.
legno
arco
Pizz.
frappé c. legno
316
frappé c. legno
arco pont
319

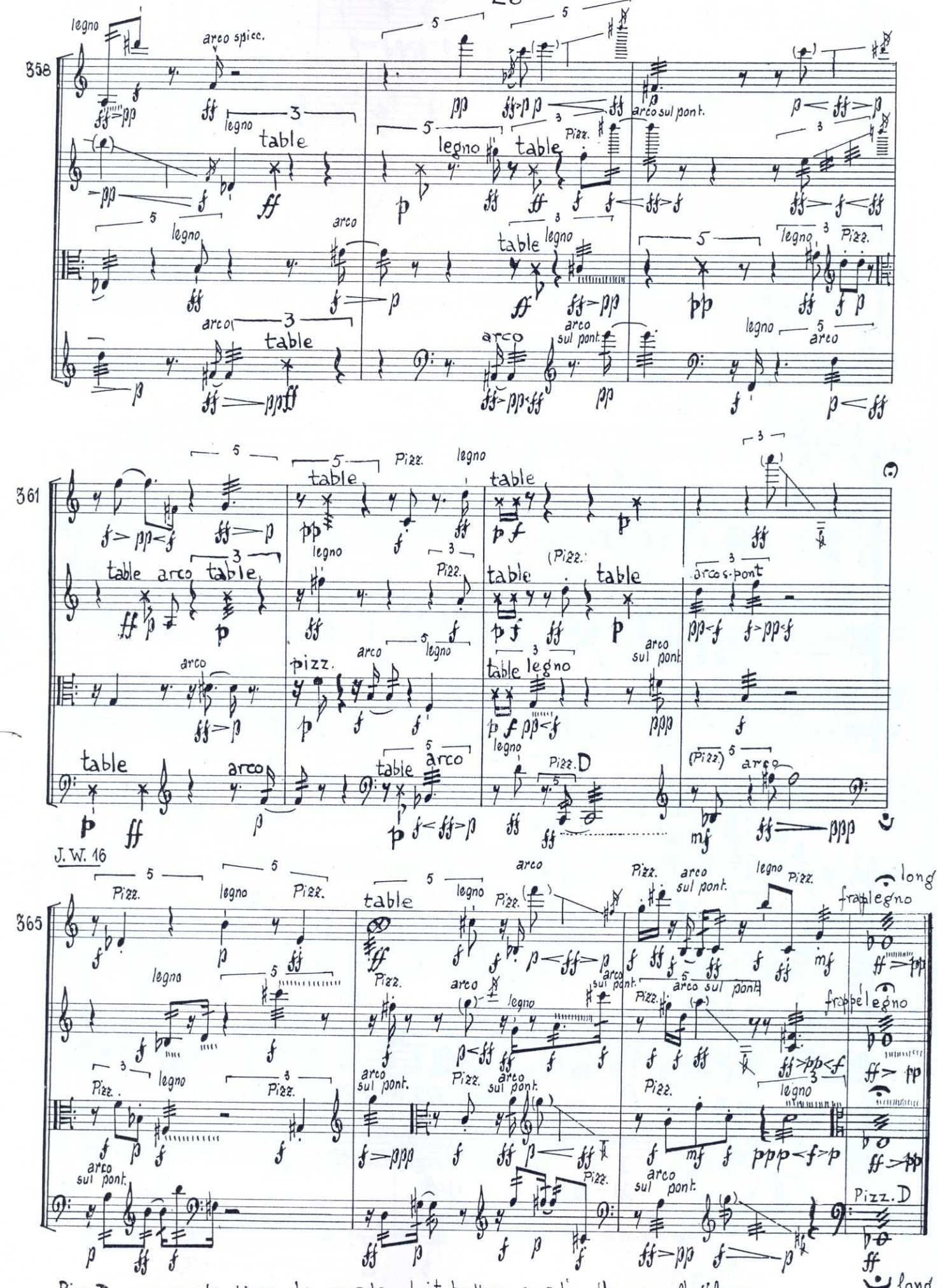

322
Pizz. ongle
legno
arco
spicc.
sul pont.
legno
arco sul pont.
arco
Pizz.
arco
legno
Pizz.
arco
Pizz.
sul pont.
Pizz.
325
Pizz.
arco sul pont.
arco
legno
table
Pizz.
legno
arco
Pizz.
table
arco
arco
Pizz.
arco
table
Pizz.
arco
328
sempre
arco sul pont.
sempre
Pizz
arco sul pont.
Pizz.
arco
(Pizz.)
legno
Pizz. legno
Pizz. ongle
arco sul pont.
Pizz.
arco



6 battements allera à 3 batt. aller à .... 10 battements aller à ..... 2 battements les maintenir
(battements entre fa# et sol, le fa# IV corde se rapprochant ou s'éloignant du sol.)


340
arco sul pont.
Pizz.
legno
norm
sempre p
343
2 battements aller à ..... 6 batt
sempre p
346
table
sempre ff
(legno)
(Pizz.)


349
352
355
Pizz.
arco
sul pont.
legno
arco
arco pont
8va
arco s. pont.
arco pont.
arco sul pont.
spicc.
table
pont
sfz ff



PizzD = apres le pizz. la corde doit battre sur l'ongle qui l'effleure