Table S1: Formal and motivic analysis of *Anthèmes 1*

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| **Large-scale form**  **(duration in s)** | **Formal Procedures** | **Middle-scale form** | **Motivic structure\*** | **Timings for motives (in s)\*\*** |
| Introduction  mm. 1-2  (18 s)  [Section I in article] | Presentation of one motivic instance of some of the most important motivic families, separated by musical silence. | N/A | M1  T1  Batt1  S1  Batt1  L2 | 0.51  1.12  13.30  18.92 |
| Section I  mm. 3-14  (55 s)  [Section II in article] | Repetition of exactly the same motivic succession: S (*jeté*), T (single trill and two-line-texture trill), GrNotes  (The repeated pattern is considered to start with S—rather than with GrNotes—because of the continuity in terms of contour, articulation, and character between T and GrNotes—and the relative contrast in those respects between GrNotes and S—and because in the final statement, GrNotes is clearly the end of the pattern.) | I.1 | GrNotes3  S3  T4  T5  T6  GrNotes7 | 30.16  30.72  35.94  41.46 |
| I.2 | S7  T8  GrNotes8 | 49.67  50.28 |
| I.3 | S9  T10  GrNotes10 | 58.39  59.04 |
| I.4 | S10  T11  GrNotes11 | 63.80  64.34 |
| I.5 | S12  T13  GrNotes13  L14 | 69.95  70.47  77.93 |
| Section II  mm. 15-45  (57 s)  [Section III in article] | Successive statements of motives from the Pizzicato family. | N/A | P15  P19  P25  P30  P32  P34  P37  L45 | 85.29  88.40  93.20  96.95  99.79  101.50  104.51  117.14 |
| Section III  mm. 46-66  (49 s)  [Section IV in article] | Repetition of exactly the same motivic succession: Trem, S (*jeté*), T (single trill motives the first time, two-line-texture trill motives the second time), Stacc. | III.1 | Trem46  S46  T47  Stacc48 | 142.22  142.54 |
| III.2 | Trem56  S57  T58  T59  Stacc61  L66 | 156.13  156.48  161.34  175.98 |
| Section IV  mm. 67-89  (77 s)  [Section V in article] | Highly transformed motivic materials. Exclusive use of specific and relatively clear subcategories within each motivic family: trills in multiple-stops, slurred and longer scales, and complex and diverse melodic materials. | N/A | T67  T69  S72  T72  M72  Accent77  M77  S80  T80  T81  L89 | 190.74  196.66  203.58  205.09  210.63  218.19  221.64  222.57  227.07  250.93 |
| Section V  mm. 90-97  (36 s)  [Section VI in article] | Symmetrical (palindromic) distribution of motivic categories. | N/A | S90  T90  GrNotes91  Stacc92  GrNotes94  T94  T96  S96  L97 | 267.97  268.53  278.27  284.09  289.59  292.78 |
| **Large-scale form**  **(duration in s)** | **Formal Procedures** | **Middle-scale form** | **Motivic structure\*** | **Timings for motives (in s)\*\*** |
| Section VIa  mm. 98-112  (50 s)  [Section VII in article] | Alternation of motives from the Melodic and Trill groups. The alternation pattern is (unpredictably) segmented by the occasional appearance of BrArp followed by musical silence. | VIa.1 | S98  T98  M99  T99  M100  T100  M101  T101  M102  T102  BrArp103 | 303.70  304.44  306.37  306.94  308.51  309.53  311.55  312.37  313.74  314.42 |
| VIa.2 | M104  T104  M105  T105  BrArp106 | 321.01  322.95  325.88  326.43 |
| VIa.3 | M107  T107  M108  T108  M109  T109  BrArp110 | 332.09  333.02  334.91  335.57  337.20  338.36 |
| VIa.4 | M111  T111  M112  T112 | 344.13  345.18  348.02  349.72 |
| Section VIb  mm. 113-143  (84 s)  [Section VIII in article] | Random sequence of motives from subgroups/groups M with *brusque* character, P, S in double-stops with descending direction, and PlTri. | N/A | S113  P114  M115  P116  S117  P118  PlTri119  M120  PlTri121  P122  PlTri123  P124  S125  S125  M126  PlTri127  P128  S129  M130  PlTri130  P131  M133  S133  M134  S135  PlTri135  P136  S137  M137  P138  S139  Chord140  PlTri140  S141  Chord141  PlTri142  P142  S143 | 353.90  356.50  358.81  360.47  363.27  364.99  369.46  373.80  380.52  383.07  384.09  385.29  389.24  392.81  394.48  397.96  402.25  403.82  405.60  406.69  410.07  414.29  415.99  417.24  420.57  426.04  431.36  435.29 |

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| **Large-scale form**  **(duration in s)** | **Formal Procedures** | **Middle-scale form** | **Motivic structure\*** | **Timings for motives (in s)\*\*** |
| VIc  mm. 144-165  (81 s)  [Section IX in article] | Formal-unit blend: boundaries in terms of both musical features and formal segmentation between motives from S, M, T, and TM are blurred. | VIc.1 | M144  TM145  BrArp146 | 437.53 |
| VIc.2 | M148  TM149  M150  TM 150  M152  TM 152  M153  TM153  M154  TM154  S154  M155  TM155  S156  M157  TM159  BrArp160 | 448.16  464.57  465.53  468.03  469.01 |
| VIc.3 | S161  M162  TM163  T164  T165  LongNoH165  L165  Batt165 | 478.17  480.66  485.32  495.03  507.32 |

NOTES:

\* The letter portion of the motivic labels corresponds to the motivic families as described below. The number that follows corresponds to the measure number that corresponds to the onset of the motives in the score published by Universal Edition (Boulez, P., 1992: *Anthèmes 1*. Vienna: Universal Edition). Motivic categories labeled with a single letter (rather than a multiletter abbreviation) were used in the experiments.

M: Melodic, singable style, slurred articulation, isochronous rhythm, relatively clear yet multidirectional pitch directionality

T: Trill or trilling figure

S: Scalar, mostly stepwise and unidirectional

L: Long tone(s) in harmonics, most frequently with a glissando

P: pizzicato articulation, rhythmic

Batt: Clearly separated notes with *spiccato* articulation produced beating the strings with the bow (*battimento*)

GrNotes: Slurred pattern in triplets ornamented with emphatic grace notes.

Trem: *Tremolando* pattern *sul ponticello* ornamented with quick grace notes.

Stacc: Pointillistic texture in *staccatissimo* with sudden and rapid dynamic contrasts.

Accent: A gesture of 2 accented notes that sounds like an emphasized quasi-repetition of the end of M2. Because of the surrounding silences and the contrasting character with respect to M2 and M/77, these 2 notes are here interpreted as a separated, contrasting material.

BrArp: Broken arpeggios with a regular rhythm and diminuendo dynamic profile, in staccato.

PlTri: Rapidly arpeggiated plucked (guitar-style) trichords.

Chord: A trichord in multiple stops and loud dynamic level with *brusque* indication. This material can be seen as related to the Melodic subgroup with *brusque* character. Nevertheless, since it is only one musical event, it does not have any of the characteristics of the Melodic group.

LongNoH: Long tone on open string and not in harmonics.

\*\* Timings are based on the recording by J. M. Conquer at IRCAM in 2002 (Boulez, 2013). Only timings for motives used in the experiments are indicated.

Table S2: Formal and motivic analysis of *Anthèmes 2*

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| **Large-scale form**  **(duration in s)** | **Formal enlargement** | **Middle-scale form** | **Motivic structure\*** | **Timings for motives (in s)\*\*** |
| Introduction  (36 s) | Type-1 (IME) extension (M1) | N/A | M1(intro1)  T1(intro1)  Batt  S1(intro3)  Batt  L2(/I) | 0.32  1.99  16.13  23.24 |
| Section I  (69 s) | Type-1(IME) expansion (T2 and T/6) | I.1 | GrNotes  S3(I1)  T4(I2)  GrNotes | 36.01  36.64 |
| I.2 | S7(I10)  T8(I11)  GrNotes | 65.52  66.18 |
| I.3 | S9(I12)  T10(I13)  GrNotes | 75.34  76.03 |
| I.4 | S10(I13)  T11(I14)  GrNotes | 80.74  81.37 |
| I.5 | S12(I15)  T13(I16)  GrNotes  L14(I/II) | 86.76  87.38  95 |
| Section II  (150 s) | Type-1 (IME) interpolation (P3, P/34, P/37, L3)  Type-2 (ILE) extension (P2, P/37) | N/A | P15(II1)  L45(I/II) | 105.10  214.97 |
| Section III  (131 s) | Type-1 (IME) extension (Trem, S5)  Type-1 (IME) interpolation (Stacc)  Type-2 (ILE) extension (Stacc) | III.1 | Trem  S46(III3)  T47(III4)  Stacc | 255.35  256.09 |
| Type-1 (IME) extension (Trem, S6)  Type-1 (IME) expansion (T/58 and T4)  Type-1 (IME) interpolation (Stacc)  Type-2 (ILE) extension (Stacc) | III.2 | Trem  S57(III35)  T58(III36)  Stacc  L66(III/IV) | 319.57  320.30  371.78 |
| Section IV  (118 s) | Type-1 (IME) interpolation (M/77)  Type-2 (ILE) extension (T5, T/80, Accent) | N/A | T67(IV1)  S72(IV12)  T73(IV12)  M73(IV12)  Accent  M77(IV19)  S80(IV23)  T80(IV24)  L89(IV/V) | 386.67  411.99  413.70  419.25  431.01  435.72  437.08  484.12 |
| Section V  (92 s) | Type-1 (IME) extension (GrNotes)  Type-1 (IME) expansion (T8)  Type-2 (ILE) extension and interpolation (Stacc)  Type-2 (ILE) extension (L6) | N/A | S90(V1)  T90(V1)  GrNotes  Stacc  GrNotes  T8\94(V23)  S96(V29)  L97(V/VI) | 504.68  505.34  546.80  565.27  569.78 |

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| **Large-scale form**  **(duration in s)** | **Formal enlargement** | **Middle-scale form** | **Motivic structure\*** | **Timings for motives (in s)\*\*** |
| Section VIa  (149 s) | Type-3 (UAE) interpolation (sections alternating M and T, with S occasionally substituting for M and ending with BrArp are added). | VIa.1 | S98(VI1)  T98(VI1)  M99(VI2)  T99(VI2)  M100(VI3)  T100(VI3)  M101(VI4)  T101(VI4)  M102(VI5)  T102(VI5)  BrArp | 596.25  596.97  599.14  599.77  601.63  602.82  604.85  605.81  607.01  607.82 |
| VIa.2 | MVI7  TVI7  MVI8  TVI8  MVI9  TVI9  MVI10  TVI10  SVI11  TVI11  BrArp | 612.71  613.76  615.45  616.43  618.10  619.06  620.84  621.46  623.49  624.59 |
| VIa.3 | MVI13  TVI13  MVI14  TVI14  MVI15  TVI15  TVI16  BrArp | 627.26  627.91  629.34  630.34  632.93  634.54  636.55 |
| VIa.4 | MVI18  TVI18  MVI19  TVI19  SVI20  TVI20  MVI22  TVI22  TVI23  BrArp | 642.24  643.47  645.99  647.17  648.73  649.25  654.16  655.41  658.40 |
| VIa.5 | SVI25  TVI25  BrArp | 661.62  662.72 |
| VIa.6 | MVI28  TVI28  BrArp | 671.86  673.60 |
| VIa.7 | MVI30  TVI30  MVI31  TVI31  MVI32  TVI32  BrArp | 677.10  678.08  679.27  681.63  682.62  683.73 |
| VIa.8 | M104(VI34)  T104(VI34)  M105(VI35)  T105(VI35)  BrArp | 687.93  689.93  692.06  692.66 |
| VIa.9 | MVI37  TVI37  BrArp | 695.63  696.87 |
| VIa.10 | MVI39  TVI39  BrArp | 701.12  701.66 |
| VIa.11 | MVI41  TVI41  MVI42  TVI42  BrArp | 704.49  705.62  706.51  707.91 |
| VIa.12 | M107(VI44)  T107(VI44)  M108(VI45)  T108(VI45)  M109(VI46)  T109(VI46)  BrArp | 712.04  713.08  714.78  715.46  716.82  718.11 |
| VIa.13 | MVI48  TVI48  BrArp | 722.42  724.24 |
| VIa.14 | MVI50  TVI50  BrArp | 728.28  729.34 |
| VIa.15 | M111(VI52)  T111(VI52)  M112(VI53)  T112(VI53) | 733.94  735.12  737.71  739.53 |

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| **Large-scale form**  **(duration in s)** | **Formal enlargement** | **Middle-scale form** | **Motivic structure\*** | **Timings for motives (in s)\*\*** |
| Section VIb  (320 s) | Type-1 (IME) interpolation (S9, S10, S/133, S/137, S/139, S/141)  Type-2 (ILE) extension (all P, M, PlTri) | N/A | S113(VI54)  P114(VI55)  M115(VI59)  P116(VI61)  S117(VI66)  P118(VI67)  PlTri  M120(VI74)  PlTri  P122(VI81)  PlTri  P124(VI88)  S125(VI53)  M126(VI94)  PlTri  P128(VI100)  S129(VI105)  M130>(VI106)  PlTri  P131(VI113)  M133>(VI119)  S133(VI124)  M134>(VI125)  S135(VI129)  PlTri  P136(VI135)  S137(VI140)  M137(VI141)  P138(VI144)  S139(VI149)  Chord  PlTri  MVI150  S141(VI154)  Chord  PlTri  MVI155  P142(VI159) | 745.13  748.27  760.10  764.21  774.34  776.71  795.93  816.41  840.21  858.02  860.78  878.59  893.97  896.40  917.16  938.79  947.78  949.61  956.96  972.42  989.45  992.05  999.09  1015.16  1017.66  1027.50  1029.69  1046.64 |
| Section VIc  (159 s) | Type-1 (IME) interpolation (M12/TM)  Type-2 (ILE) interpolation (BrArp) | VIc.1 | M144(VI164)  BrArp | 1065.46 |
| Type-1 (IME) interpolation (M/148, S/154, M/155, S/156, M13, BrArp) | VIc.2 | M148(VI173)  S154(VI191)  M155(VI192)  S156(VI194)  M157(VI195)  BrArp | 1088.42  1133.01  1134.16  1139.33  1140.45 |
| Type-1 (IME) interpolation (S11, M14) | VIc.3 | S161(VI201)  M162(VI202)  T164(VI208)  L165(VI209)  Batt | 1160.24  1162.96  1176.09  1199.67 |

NOTES:

\* The letter portion of the motivic labels corresponds to the motivic families as described in the notes of Table S1. Two numbering systems are used depending on whether the motives are literally taken from *Anthèmes 1* or unique to *Anthèmes 2:*

* In cases in which two numbers are indicated after the letter portion, the first number corresponds to the measure number of the onset of the motives in the score of *Anthèmes 1* published by Universal Edition (Boulez, P., 1992: *Anthèmes 1*. Vienna: Universal Edition), and the second number (indicated in parentheses) corresponds to the measure number of the onset of the motives in the score of *Anthèmes 2* by the same publisher (Boulez, P., 1997: *Anthèmes 2: Pour violon et dispositif électronique*. Vienna: Universal Edition). For the numbers in parentheses: Roman numerals indicate sections (marked on the score as well), and Arabic numbers indicate measure numbers within those sections.
* In cases in which only one number is indicated after the letter portion, that number corresponds to the measure number of the onset of the motives in the score of *Anthèmes 2* by the same publisher (Boulez, P., 1997: *Anthèmes 2: Pour violon et dispositif électronique*. Vienna: Universal Edition). For the numbers in parentheses: Roman numerals indicate sections (marked on the score as well), and Arabic numbers indicate measure numbers within those sections.

For simplification purposes, in cases in which motives from the same family are stated consecutively, only the measure number corresponding to the onset of the first motive is indicated. In addition, only the motivic families used in the experiments have measure numbers.

\*\* Timings are based on the recording by J. M. Conquer at IRCAM in 2008 (Boulez, 2014). Only timings for motives used in the experiments are indicated.

Table S3: Instructions given to participants of the Main Experiment

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| **Steps** | | **What to do?** |
| 1 | LISTEN to a musical MOTIVE SEVERAL TIMES. | MEMORIZE this motive the best you can. You will need to remember it in order to perform step 2.  You can take notes that will help you remember the motive on the paper provided. |
| 2 | LISTEN to a musical PIECE in which the MOTIVE that you heard in step 1 might appear in MANY DIFFERENT VARIATIONS (including small portions of it). | AS YOU LISTEN to the piece, PRESS THE SPACE BAR every time you HEAR SOMETHING that REMINDS you of the MOTIVE you memorized in step 1. |