# Musical Dice Game Minuets and Trios I

Musicalische Cabala
by Franciscus Schola (1773)

compiled by I. T. Author





## Musical Dice Game - Minuets and Trios I

based on Musicalische Cabala by Franciscus Schola (1773)

Author:
I. T. Author

Supervisor: Dr. Communio Sanctorum

Wonders of the Musical World Series 10



## Contents

### Introduction<sup>1</sup> 1

"Musicalishe Cabala Vermitelst welcher man à Tre auf ein Travers. Violin. und Basso wie auch Menuets und Tria Vor das Clavicen as well as minuets and trio for the clavier, mit einem eintzigen würfel-Spiehl, ohne aller mihe und Khopfbrechen zu Componieren Vermag. Erfunden Von mir Francesu Schola Chirurgu. d. 10: Augustÿ 1773."

"Musical Cabala showing a method by which one, for three: a flute, violin, and basso, with a single die, without any effort and headache, to compose. Discovered by me Francesu Schola Surgeon d. 10: August 1773."

Thus run the German title and corresponding English translation of the Musical Dice Game (MDG) that was authored by Franciscus Schola in 1773 (Schola, 1773). Rightly and interestingly so, as the Rules provided in this work allow a non-professional musician to generate ("compose") nearly 17.3 decillions  $(17.3 \times 10^{33})$  of MDG minuet-trios. More precisely, the total number of minuet-trios that the rules of the *Musicalische Cabala*, as we would refer to this MDG from here onward, yield is:

$$6^{44} = 17,324,272,922,341,479,351,919,144,385,642,496.$$

A Musikalisches Würfelspiel (German for "musical dice game" or MDG) is a system for randomly "generating" (e.g., by using a die or two dice) musical compositions from precomposed options and was quite popular throughout Western Europe in the 18th century. The earliest known MDG is Johann Philipp Kirnberger's Der allezeit fertige Polonoisen- und Menuettencomponist (1st ed. 1757; rev. 2nd ed. 1783) (translated from German as "The Ever-Ready Minuet and Polonaise Composer"). Other well-known composers that are to known to have composed a MDG are C.P.E. Bach (Einfall, einen doppelten Contrapunct in der Octave von sechs Tacten zu machen, ohne die Regeln davon zu wissen (1758); translated from German as "A method for making six bars of double counterpoint at the octave without knowing the rules"), Abbé Maximillian Stadler (Table pour composer des minuets et des Trios à la infinie; avec deux dez à jouer (1780); translated from French as "A table for composing minuets and trios to infinity, by playing with two dice"), the latter MDG being also attributed to Franz Joseph Haydn.

Probably the most famous of MDGs is Musikalisches Würfelspiel K. 516f (1787). This MDG was first published by J.J. Hummel in 1793 in Berlin and was republished in 1796 by Nikolaus Simrock in Bonn (as K. 294d or K. Anh. C 30.01). Simrock attributed this work to Wolfgang Amadeus Mozart. It is also known under the title of Anleitung zum Componieren von Walzern so viele man will vermittelst zweier Würfel, ohne etwas von der Musik oder Composition zu verstehen (German for "Instructions for the composition of as many waltzes as one desires with two dice, without understanding anything about music or composition") and may have been based on Mozart's manuscript K. 516f, written in 1787, consisting of numerous two-bar fragments of music, that appear to be some kind of game or system for constructing music out of two-bar fragments, but contains no instructions nor hints as to the use of dice. An online article by Hideo Noguchi offers a possible explanation for this attribution.

For this book, we generate MDG minuet-trios based on the rules given in *Musicalische Cabala*. Twenty (20) such MDG minuet-trios are given toward the latter part of this book. The scores of these generated minuet-trios were initially written using the abc environment of Chris Walshaw, then converted to Scalar Vector Graphics (SVG) images (with corresponding MIDIs) using abcm2ps and abcmidi, and then preprocessed with Inkscape to be included in LATEX to produce this book.

<sup>&</sup>lt;sup>1</sup>The information contained in the introduction were culled from the following online resources: Schola (1773), Wikipedia: Musikalisches Würferspiel (2017), https://opus-infinity.org/, and Mozart's Melody Machine (Peterson, 2001)

### 2 Musicalische Cabala

### 2.1 Rules

The Rules provided in *Musicalische Cabala* generate minuet-trios consisting of 44 bars/measures that may be divided into three main parts: a first part (Part I) of 12 bars and two additional parts (Parts II and III) of 16 bars each. Each of Parts II and III are composed of an eight-bar minuet and an eight-bar trio. Each part or sub-part is played with a repeat. All told, a total of  $88 \times 2 = 44$  bars of music is expected to be played for each *Musicalische Cabala* minuet-trio. Parts I and II are composed for three instruments: a transverse flute, a violin, and a cello, while Part III is composed for a clavier (or harpsichord).

The notes for each bar of the minuet are determined by rolling an ordinary six-sided die 44 times to get a sequence of integers whose terms are elements of the set  $\{1, 2, 3, .4, 5, 6\}$ . The first 12 toss outcomes will be used to create the eight bars of Part I of the minuet-trio, the next 16 tosses for Part II (eight tosses each for the minuet and trio), and the last 16 tosses for Part III (eight tosses for the minuet, likewise for the trio). The notes for each measure are then obtained by consulting the Cabalas (inserts between pages 4 and 5; pages 7 (Part I), 9 (Part II), and 11 (Part III) of the PDF) *Musicalische Cabala*. The bar numbers corresponding to dice roll outcomes from these three Cabalas are summarized in Table 1 below.

	I – For Flute, Violin, and Cello															
		Part I (12 bars)														
1	269	279	274	6	10	5	272	276	12	3	270	2				
2	257	268	267	22	21	20	261	264	25	19	259	18				
3	227	238	232	126	125	132	235	230	127	129	233	128				
4	123	134	133	237	231	236	124	130	234	229	131	228				
5	13	17	14	278	262	266	16	23	260	265	24	258				
6	1	11	7	263	273	277	9	4	271	275	8	280				

	II – For Flute, Violin, and Cello																	
		Part II – Minuet (8bars)								Part II – Trio (8 bars)								
1	161	165	168	79	167	163	158	75	211	173	218	214	217	213	174	170		
2	153	157	160	89	159	155	166	84	203	178	210	206	209	205	180	179		
3	145	152	149	96	148	150	92	91	195	189	202	198	200	197	190	186		
4	90	97	94	151	93	95	147	146	185	199	192	188	191	187	201	196		
5	81	83	87	156	86	88	85	154	177	207	183	182	184	193	208	204		
6	74	82	80	164	77	76	92	162	169	215	176	172	175	171	216	212		

	III – For	Clavier																
		Part III – Minuet (8 bars)								Part III – Trio (8 bars)								
1	135	139	105	102	104	101	70	100	33	37	40	246	39	244	59	34		
2	143	69	111	113	110	109	30	108	41	48	44	223	45	35	241	42		
3	115	29	119	121	118	120	140	116	49	53	56	63	54	43	221	50		
4	107	122	32	28	141	137	117	136	57	64	61	52	222	144	55	58		
5	135	114	72	68	31	27	112	26	219	226	225	47	62	224	46	220		
6	99	106	142	138	71	67	103	66	239	245	243	36	242	73	38	240		

Table 1: Table of bar numbers (from the Cabalas) to be used to determine the particular bar (numbered 1 to 280) to be looked up from the Table of Measures (Figures 1 to 10).

To obtain the notes to be played the particular bar of each part (Parts I, II, or III) of the minuet-trio to be constructed, simply look up the notes in the Table of Measures (Figures 1 to 10) for that bar number (numbered 1 to 280) obtained from the appropriate Cabala based on the die roll outcome.

For example, if we are in the process of creating the fifth bar (Bar 5) of Part I of the minute and the dice outcome was a 3, then we would use the notes in bar number 125 of Figure 5: [V:1] ^de3/a/4c/4 b/a/g/f/ for the flute, [V:2] A3/c/4e/4 d/c/B/A/ for the violin, and [V:5] C,CDD, for the cello.

### Table of Measures 2.2

The Table of Measures for Part I, II, and III of the minuet-trios based on Musicalische Cabala (noted for Set 1 only; there is a Set 2 also but it is not included here) are given in Figures 1 to 10 that follow.

## $Musicalische\ Cabala\ Schola\ Franciscus\ -\ I\\ [from\ https://imslp.org/wiki/Musicalische_Cabala_(Schola%2C_Franciscus)]$

found by Franciscus Schola, 1773



Figure 1: Table of Measures - Set 1 (Page 1/10)



Figure 2: Table of Measures - Set 1 (Page 2/10)



Figure 3: Table of Measures - Set 1 (Page 3/10)



Figure 4: Table of Measures - Set 1 (Page 4/10)



Figure 5: Table of Measures - Set 1 (Page 5/10)



Figure 6: Table of Measures - Set 1 (Page 6/10)



Figure 7: Table of Measures - Set 1 (Page 7/10)



Figure 8: Table of Measures - Set I (Page 8/10)



Figure 9: Table of Measures - Set 1 (Page 9/10)



Figure 10: Table of Measures - Set I (Page 10/10)

### 3 Related Links

The following are very interesting sites in that they allow the online rendering of MDGs:

- Opus Infinity Collaborative work of Robbert Harms, Hein Moors, and Suus van Petegem whose goal is to unravel the mystery behind the tables used for generating MDGs. Site visitors can generate MDGs based on works of Kirnberger, Mozart, Stadler/Haydn, Bach, Gerlach, and Callegari (1st Cahier). Corresponding audio files (mid, ogg, and/or mp3) and image files (pdf or png) are also made available for listening, viewing, or downloading.
- Mozart A site maintained by John Chuang that allows the site visitor to generate MDGs based on the work of Stadler/Haydn.
- Mozart A site maintained by Marian Aldenhövel allows the visitor to generate a MDG (user-specified or randomly-generated) and the corresponding audio (midi, wav) and image files (pdf, png) based on *Musikalisches Würferspiel*, K. 516f.
- mozart.zip This is a Windows software (© 1995 VisionSoft) by John Chuang and Stephen Goodwin that generates MDG based on input from user and is available for *free* from Amaranth Publishing.
- "Mozart Musical Game in C K. 516f," Mozart Studies Online The site of Hideo Noguchi that offers an explanation linking Musikalisches Würferspiel, K. 516f, and K. 294d (K. Anh. C 30.01).

### 4 Acknowledgments

Special thanks to International Music Score Library Project for Musicalische Cabala, ou Le Jeu de Dez Harmonique, 2nd ed. (1759), Opus Infinity for additional related information, and Amaranth Publishing for a copy of mozart.zip. My sincerest gratitude to Chris Walshaw et al. for the ABC music notation; Jean-Francois Moine for abcm2ps and the accompanying examples, templates, and pointers for the appropriate use of these resources; Guido Gonzato for the ABC Plus Project and the abcmidi resources available there, more especially for the ABC resource book Making Music with ABC 2; James R. Allwright and Seymour Shlien for abcmidi source and binaries; Artifex, Inc. for Ghostscript v.10.00.0 (includes the ps2pdf converter); Inkscape v.1.2.2 for the tool for converting SVGs to PDFs for inclusion into LATEX documents; William Schelter for Maxima v.5.47.0—used for computing the permutation number; Google Lens and Google Translate for aiding in producing the English versions of the text of Musicalische Cabala; Colomban Wendling et. al for Geany 2.0 IDE; and User: Martin H for his reply to a TFX / LATFX Stack Exchange question on including SVGs into LATFX documents. Thanks to Ditto to Machtelt Garrels for the book Bash Guide for Beginners, Vivek Gite for the book Linux Script Shell Tutorial, and Steve Parker for the Unix/Linux Shell Cheatsheet. John Fogarty's GitHub Site: Latex CreateSpace BookCover and Peter Wilson's reply in TFX / LATFX Stack Exchange on designing a book cover, were sources of ideas, information, and materials for creating the book cover and title page, thanks to both of them; LibreOffice Calc for its use in the image creation of the book cover. Many thanks, too, to the Debian Project for the Debian 12 (Bookworm) GNU/Linux OS, TeXLive for providing the TEX distribution, and GitHub for its generosity in providing space for the project.

### 5 Twenty (20) Selected Minuets based on Musicalische Cabala

This section contains an example of twenty (20) minuet-trios that were generated using the Rules in Section 2.1.



## $\begin{array}{c} 1\text{-}5\text{-}3\text{-}1\text{-}6\text{-}3\text{-}5\text{-}2\text{-}3\text{-}6\text{-}6\text{-}6\text{-}5\text{-}6\text{-}4\text{-}2\text{-}3\text{-}4\text{-}2\text{-}4\text{-}4\text{-}4\text{-}2\text{-}4\text{-}2\text{-}3\text{-}4\text{-}6\text{-}6\text{-}6\text{-}6\text{-}4\text{-}3\text{-}1\text{-}3\text{-}6\text{-}5\text{-}1\text{-}4}\\ \text{sf}::269::17::232::6::273::132::16::264::127::275::233::280:\\ :74::83::80::151::159::150::147::84:::185::189::192::188::191::205::201::179:\\ :143::29::32::138::71::67::103::136:::49::37::56::63::242::224::59::58:\\ \text{Perm. No.:} \quad 9055019777446634359065868292170993 \end{array}$



 $For\ audio\ (midi):\ sf-1-5-3-1-6-3-5-2-3-6-3-6-3-6-5-6-4-2-3-4-2-4-3-4-4-2-2-3-4-6-6-6-6-4-3-1-3-3-6-5-1-4.mid$ 

2-1-6-1-2-4-4-2-3-2-4-1-5-4-6-3-2-6-1-3-1-6-6-5-4-4-6-4-3-2-2-5-2-1-2-3-6-1-2-6-5-1-2-1 sf::257:279:7:6:21:236:124:264:127:19:131:2: :81:97:80:96:159:76:158:91:::211:215:176:182:191:187:216:196: :115:69:111:68:110:101:30:116:::239:37:44:36:62:244:241:34: Perm. No.: 546265989944920162434833688059174



 $For \ audio \ (midi): \ sf-2-1-6-1-2-4-4-2-3-2-4-1-5-4-6-3-2-6-1-3-1-6-6-5-4-4-6-4-3-2-2-5-2-1-2-3-6-1-2-6-5-1-2-1.mid$ 

# $\begin{array}{c} 2\text{-}4\text{-}4\text{-}3\text{-}3\text{-}1\text{-}4\text{-}1\text{-}5\text{-}1\text{-}1\text{-}3\text{-}1\text{-}4\text{-}5\text{-}1\text{-}1\text{-}3\text{-}4\text{-}1\text{-}2\text{-}6\text{-}4\text{-}4\text{-}4\text{-}3\text{-}2\text{-}5\text{-}1\text{-}2\text{-}1\text{-}5\text{-}2\text{-}1\text{-}4\text{-}5\text{-}1\text{-}6\text{-}1\text{-}4\text{-}2\text{-}5\text{-}2}\\ \text{sf}::257::134::133::237::125::132::272::130::12::265::270::2\\ :145::165::94::156::167::163::92::146:::211::178::176::188::191::187::190::179:\\ :135::139::111::102::31::109::70::136:::219::37::243::246::222::35::46::42:\\ \text{Perm. No.:} \quad 4934508576042375373986404106441320 \end{array}$



 $For\ audio\ (midi):\ sf-2-4-4-4-3-3-1-4-1-5-1-1-3-1-4-5-1-1-3-4-1-2-6-4-4-4-3-2-5-1-2-1-5-2-1-4-5-1-6-1-4-2-5-2.mid$ 

 $\begin{array}{c} 2\text{-}6\text{-}4\text{-}1\text{-}5\text{-}2\text{-}4\text{-}6\text{-}6\text{-}5\text{-}1\text{-}5\text{-}6\text{-}2\text{-}6\text{-}4\text{-}5\text{-}6\text{-}4\text{-}5\text{-}3\text{-}4\text{-}1\text{-}5\text{-}6\text{-}2\text{-}2\text{-}1\text{-}1\text{-}6\text{-}1\text{-}4\text{-}3\text{-}4\text{-}3\text{-}2\text{-}6\text{-}4\text{-}2\text{-}6\text{-}6\text{-}2}\\ \text{sf}::257:11:133:6:262:20:124:4:271:265:270:258:\\ :74:157:80:151:86:88:92:146:::177:189:192:214:184:171:201:179:\\ :143:139:105:138:104:137:140:136:::49:48:243:52:45:73:38:42:\\ \text{Perm. No.:} \quad 5716548907349767005263568824417900 \end{array}$ 



 $For \ audio \ (midi): \ sf-2-6-4-1-5-2-4-6-6-5-1-5-6-2-6-4-5-5-6-4-5-3-4-1-5-6-4-2-2-1-1-6-1-4-3-4-3-2-6-4-2-6-6-2.mid$ 

 $\begin{array}{c} 3\text{-}1\text{-}5\text{-}2\text{-}1\text{-}3\text{-}4\text{-}2\text{-}4\text{-}4\text{-}3\text{-}2\text{-}2\text{-}1\text{-}3\text{-}4\text{-}6\text{-}2\text{-}4\text{-}2\text{-}5\text{-}3\text{-}1\text{-}3\text{-}4\text{-}2\text{-}2\text{-}3\text{-}2\text{-}6\text{-}2\text{-}6\text{-}3\text{-}6\text{-}4\text{-}6\text{-}1\text{-}4\text{-}1\text{-}4\text{-}3\text{-}2\text{-}2\text{-}6}\\ \text{sf} \colon :227 \colon 279 \colon 14 \colon 22 \colon 10 \colon 132 \colon 124 \colon 264 \colon 234 \colon 229 \colon 233 \colon 18 \colon \\ \colon :153 \colon 165 \colon 149 \colon 151 \colon 77 \colon 155 \colon 147 \colon 84 \colon \colon :177 \colon 189 \colon 218 \colon 198 \colon 191 \colon 205 \colon 180 \colon 186 \colon \\ \colon :143 \colon 106 \colon 111 \colon 138 \colon 118 \colon 67 \colon 117 \colon 66 \colon \colon :33 \colon 64 \colon 40 \colon 52 \colon 54 \colon 35 \colon 241 \colon 240 \colon \\ \text{Perm. No.:} \quad 15031942985188628490328838087183211 \end{array}$ 



 $For \ audio \ (midi): \ sf-3-1-5-2-1-3-4-2-4-4-3-2-2-1-3-4-6-2-4-2-5-3-1-3-4-2-2-3-2-6-2-6-3-6-4-6-1-4-1-4-3-2-2-6.mid$ 

## 



 $For\ audio\ (midi):\ sf-3-3-1-4-5-5-1-2-5-2-4-1-3-2-5-4-5-2-5-6-5-4-3-5-5-1-4-3-3-1-5-5-6-1-2-6-3-3-4-6-5-2-1-6.mid$ 

 $\begin{array}{c} 3\text{-}3\text{-}6\text{-}4\text{-}1\text{-}4\text{-}2\text{-}4\text{-}1\text{-}3\text{-}1\text{-}1\text{-}6\text{-}1\text{-}2\text{-}6\text{-}6\text{-}6\text{-}5\text{-}1\text{-}5\text{-}4\text{-}1\text{-}3\text{-}3\text{-}4\text{-}4\text{-}3\text{-}5\text{-}2\text{-}6\text{-}1\text{-}5\text{-}5\text{-}1\text{-}2\text{-}2\text{-}6\text{-}1\text{-}1\text{-}3\text{-}1\text{-}3\text{-}2}\\ \text{sf}::227:238:7:237:10:236:261:130:12:129:270:2:\\ :74:165:160:164:77:76:85:75:::177:199:218:198:200:187:201:186:\\ :135:69:142:102:31:27:70:108:::41:245:40:246:54:244:221:42:\\ \text{Perm. No.:} \quad 3876895106516181087898138161283371 \end{array}$ 



 $For\ audio\ (midi):\ sf-3-3-6-4-1-4-2-4-1-3-1-1-6-1-2-6-6-6-5-1-5-4-1-3-3-4-4-3-5-2-6-1-5-5-1-2-2-6-1-1-3-1-3-2.mid$ 

 $\begin{array}{c} 3\text{-}5\text{-}3\text{-}2\text{-}5\text{-}3\text{-}4\text{-}4\text{-}6\text{-}6\text{-}1\text{-}1\text{-}3\text{-}1\text{-}6\text{-}6\text{-}3\text{-}1\text{-}5\text{-}5\text{-}3\text{-}1\text{-}1\text{-}5\text{-}2\text{-}6\text{-}3\text{-}3\text{-}5\text{-}6\text{-}2\text{-}1\text{-}6\text{-}1\text{-}3\text{-}3\text{-}4\text{-}3\text{-}2\text{-}1\text{-}3\text{-}1}\\ \text{sf}::227:17:232:22:262:132:124:130:234:275:8:2:\\ :161:165:149:79:77:76:92:75:::177:207:202:214:217:193:180:212:\\ :115:29:72:138:110:101:103:100:::49:53:61:63:45:244:221:34:\\ \text{Perm. No.:} \quad 981542740799505826094363173304955 \end{array}$ 



 $For\ audio\ (midi):\ sf-3-5-3-2-5-3-4-4-4-6-6-1-1-3-1-6-6-3-1-5-5-3-1-1-5-2-6-3-3-5-6-2-1-6-1-3-3-4-3-2-1-3-1.mid$ 

## $\begin{array}{c} 4\text{-}1\text{-}2\text{-}4\text{-}5\text{-}1\text{-}2\text{-}5\text{-}2\text{-}4\text{-}6\text{-}2\text{-}5\text{-}2\text{-}2\text{-}6\text{-}2\text{-}3\text{-}3\text{-}5\text{-}5\text{-}4\text{-}4\text{-}3\text{-}5\text{-}1\text{-}5\text{-}3\text{-}2\text{-}4\text{-}1\text{-}2\text{-}6\text{-}5\text{-}3\text{-}4\text{-}5\text{-}5\text{-}4\text{-}4\text{-}3\text{-}3}\\ \text{sf}::123:279:267:237:262:5:261:23:25:19:131:280:\\ :153:83:160:89:77:155:92:91:::177:207:183:188:191:197:208:170:\\ :135:29:111:28:104:109:103:26:::49:64:225:47:222:144:221:50:\\ \text{Perm. No.:} \quad 7028546222479390052139348929003056 \end{array}$



 $For\ audio\ (midi):\ sf-4-1-2-4-5-1-2-5-2-2-4-6-2-5-2-2-6-2-3-3-5-5-4-4-3-5-1-5-3-2-4-1-2-6-5-3-4-5-5-4-4-3-3.mid$ 

 $\begin{array}{c} 4\text{-}5\text{-}6\text{-}6\text{-}4\text{-}5\text{-}5\text{-}6\text{-}6\text{-}5\text{-}4\text{-}5\text{-}4\text{-}2\text{-}2\text{-}5\text{-}5\text{-}2\text{-}6\text{-}4\text{-}5\text{-}2\text{-}5\text{-}4\text{-}6\text{-}1\text{-}2\text{-}6\text{-}1\text{-}6\text{-}1\text{-}4\text{-}5\text{-}4\text{-}6\text{-}1\text{-}3\text{-}2\text{-}1\text{-}5\text{-}3}\\ \text{sf}\text{::}123\text{:}17\text{:}7\text{:}263\text{:}231\text{:}277\text{:}124\text{:}23\text{:}260\text{:}275\text{:}8\text{:}258\text{:}}\\ \text{:}90\text{:}83\text{:}94\text{:}89\text{:}159\text{:}88\text{:}88\text{:}84\text{:}:169\text{:}199\text{:}183\text{:}206\text{:}184\text{:}187\text{:}216\text{:}196\text{:}}\\ \text{:}135\text{:}69\text{:}142\text{:}102\text{:}71\text{:}101\text{:}117\text{:}26\text{:}::57\text{:}245\text{:}40\text{:}63\text{:}45\text{:}244\text{:}46\text{:}50\text{:}}\\ \text{Perm. No.:} \quad 7717848333202281351229252913580760 \end{array}$ 



 $For\ audio\ (midi):\ sf-4-5-6-6-4-6-4-5-5-6-6-5-4-5-4-5-2-5-2-6-4-5-2-5-4-6-4-1-2-6-1-6-1-4-5-4-6-1-3-2-1-5-3.mid$ 

 $\begin{array}{c} 4\text{-}6\text{-}2\text{-}1\text{-}5\text{-}4\text{-}2\text{-}3\text{-}2\text{-}6\text{-}2\text{-}6\text{-}5\text{-}5\text{-}4\text{-}3\text{-}4\text{-}4\text{-}6\text{-}5\text{-}6\text{-}5\text{-}3\text{-}6\text{-}4\text{-}4\text{-}1\text{-}2\text{-}6\text{-}5\text{-}3\text{-}1\text{-}6\text{-}1\text{-}5\text{-}3\text{-}2\text{-}4\text{-}5\text{-}1\text{-}1\text{-}2\text{-}6}\\ \text{sf}\text{:}:123\text{:}11:267:6:262:236:261:230:25:275:259:280:}\\ :81:83:94:96:93:95:92:154:::169:207:202:172:191:187:174:179:\\ :99:114:119:102:71:101:112:116:::49:48:61:47:39:244:241:240:\\ \text{Perm. No.:} \quad 14928236666255595304369281145408486 \end{array}$ 



 $For \ audio \ (midi): \ sf-4-6-2-1-5-4-2-3-2-6-2-6-5-5-4-3-4-4-6-5-6-5-3-6-4-4-1-2-6-5-3-1-6-1-5-3-3-2-4-5-1-1-2-6.mid$ 

 $\begin{array}{c} 5\text{-}1\text{-}6\text{-}4\text{-}6\text{-}3\text{-}3\text{-}5\text{-}6\text{-}1\text{-}3\text{-}1\text{-}1\text{-}6\text{-}2\text{-}3\text{-}5\text{-}6\text{-}4\text{-}4\text{-}1\text{-}2\text{-}1\text{-}5\text{-}2\text{-}1\text{-}3\text{-}4\text{-}6\text{-}5\text{-}1\text{-}3\text{-}4\text{-}4\text{-}3\text{-}3\text{-}4\text{-}1\text{-}1\text{-}6\text{-}4\text{-}4\text{-}5}\\ \text{sf}::13:279:7:237:273:132:235:23:271:3:233:2:\\ :161:82:160:96:86:76:147:146:::211:178:218:182:209:213:174:186:\\ :107:106:72:102:118:137:117:116:::49:64:40:246:242:144:55:220:\\ \text{Perm. No.:} \quad 13300867812584708452362439898130641 \end{array}$ 



 $For\ audio\ (midi):\ sf-5-1-6-4-6-3-3-5-6-1-3-1-1-6-2-3-5-6-4-4-1-2-1-5-2-1-1-3-4-6-5-1-3-4-4-3-3-4-1-1-6-4-4-5.mid$ 

5-2-3-2-1-3-2-5-1-1-4-6-4-6-2-4-2-5-4-3-6-3-1-5-1-5-3-2-1-4-4-2-1-5-6-4-3-6-3-6-4-1-4-2 sf::13:268:232:22:10:132:261:23:12:3:131:280: :90:82:160:151:159:88:147:91::169:189:218:182:217:193:190:179: :135:122:32:113:104:27:103:136:::49:245:56:36:222:244:55:42: Perm. No.: 4383389776044263343599122511167019



 $For\ audio\ (midi):\ sf-5-2-3-2-1-3-2-5-1-1-4-6-4-6-2-4-2-5-4-3-6-3-1-5-1-5-3-2-1-4-4-2-1-5-6-4-3-6-3-6-4-1-4-2.mid$ 

 $\begin{array}{c} 5\text{-}3\text{-}4\text{-}2\text{-}5\text{-}4\text{-}6\text{-}6\text{-}5\text{-}6\text{-}1\text{-}3\text{-}6\text{-}2\text{-}6\text{-}2\text{-}5\text{-}4\text{-}5\text{-}1\text{-}5\text{-}3\text{-}4\text{-}4\text{-}4\text{-}1\text{-}6\text{-}3\text{-}1\text{-}2\text{-}4\text{-}3\text{-}5\text{-}4\text{-}2\text{-}3\text{-}1\text{-}2\text{-}6\text{-}4\text{-}1\text{-}6\text{-}3}\\ &\text{sf}::13:238:133:22:262:236:9:4:260:275:270:128:\\ :74:157:80:89:86:88:147:154:::211:207:202:188:191:187:174:212:\\ :115:139:111:28:118:27:117:108:::49:37:44:36:222:244:38:50:\\ &\text{Perm. No.:} \quad 8232543458062903391682051632192885 \end{array}$ 



 $For \ audio \ (midi): \ sf-5-3-4-2-5-4-6-6-5-6-1-3-6-2-6-2-5-5-4-5-1-5-3-4-4-4-1-6-3-1-2-4-3-5-4-2-3-1-2-6-4-1-6-3.mid$ 

## $\begin{array}{c} 6\text{-}1\text{-}4\text{-}5\text{-}6\text{-}2\text{-}5\text{-}6\text{-}3\text{-}3\text{-}3\text{-}1\text{-}3\text{-}2\text{-}3\text{-}5\text{-}5\text{-}2\text{-}1\text{-}4\text{-}4\text{-}5\text{-}5\text{-}1\text{-}4\text{-}6\text{-}5\text{-}3\text{-}2\text{-}1\text{-}5\text{-}5\text{-}5\text{-}5\text{-}1\text{-}2\text{-}6\text{-}3\text{-}4\text{-}5\text{-}3\text{-}2\text{-}3}\\ \text{sf}::1:279::133::278::273::20::16::4::127::129::233::2:\\ :145::157::149::156::86::155::158::146:::185::207::183::214::191::193::201::212:\\ :135::29::111::102::31::27::112::100:::41::245::56::52::62::43::241::50:\\ \text{Perm. No.:} \quad 6477614859038831347349798470649346 \end{array}$



 $For\ audio\ (midi):\ sf-6-1-4-5-6-2-5-6-3-3-1-3-2-3-5-5-2-1-4-4-5-5-1-4-5-4-6-5-3-2-1-5-5-5-1-2-6-3-4-5-3-2-3.mid$ 

 $\begin{array}{c} 6\text{-}3\text{-}6\text{-}3\text{-}5\text{-}4\text{-}5\text{-}2\text{-}1\text{-}4\text{-}6\text{-}4\text{-}2\text{-}1\text{-}4\text{-}2\text{-}3\text{-}3\text{-}1\text{-}1\text{-}6\text{-}4\text{-}4\text{-}2\text{-}1\text{-}2\text{-}1\text{-}3\text{-}4\text{-}4\text{-}2\text{-}6\text{-}4\text{-}3\text{-}6\text{-}6\text{-}3\text{-}4\text{-}3\text{-}5\text{-}3\text{-}5\text{-}1\text{-}6}\\ \text{sf}::1:238:7:126:262:236:16:264:12:229:8:228:\\ :153:165:94:89:148:150:158:75:::169:199:192:206:217:205:174:186:\\ :107:122:111:138:141:120:103:66:::49:64:56:47:54:224:59:240:\\ \text{Perm. No.:} \quad 14794319704345769990272894837911126 \end{array}$ 



 $For\ audio\ (midi):\ sf-6-3-6-3-5-4-5-2-1-4-6-4-2-1-4-2-3-3-1-1-6-4-4-2-1-2-1-3-4-4-2-6-4-3-6-6-3-4-3-5-3-5-1-6.mid$ 

 $\begin{array}{c} 6\text{-}4\text{-}3\text{-}2\text{-}6\text{-}5\text{-}5\text{-}6\text{-}4\text{-}4\text{-}4\text{-}3\text{-}2\text{-}1\text{-}2\text{-}2\text{-}1\text{-}1\text{-}4\text{-}2\text{-}5\text{-}6\text{-}4\text{-}5\text{-}5\text{-}6\text{-}1\text{-}6\text{-}1\text{-}3\text{-}4\text{-}4\text{-}5\text{-}6\text{-}3\text{-}5\text{-}2\text{-}5\text{-}4\text{-}1\text{-}6}\\ \text{sf}::1:134:232:22:273:266:16:4:260:229:131:228:}\\ :145:157:168:89:159:163:158:146:::203:207:176:172:191:193:208:212:}\\ :135:106:105:102:118:137:117:26:::239:53:225:223:62:144:59:240:}\\ \text{Perm. No.:} \quad 14734875415136807622972161933906568} \end{array}$ 



 $For\ audio\ (midi):\ sf-6-4-3-2-6-5-5-6-5-4-4-4-3-2-1-2-2-1-1-4-2-5-6-6-4-5-5-6-1-6-1-1-3-4-4-5-6-3-5-2-5-4-1-6.mid$ 

## $\begin{array}{c} 6\text{-}4\text{-}6\text{-}5\text{-}1\text{-}4\text{-}6\text{-}1\text{-}6\text{-}1\text{-}4\text{-}3\text{-}1\text{-}2\text{-}4\text{-}1\text{-}6\text{-}1\text{-}4\text{-}6\text{-}3\text{-}6\text{-}1\text{-}1\text{-}1\text{-}2\text{-}4\text{-}1\text{-}4\text{-}2\text{-}1\text{-}6\text{-}3\text{-}2\text{-}6\text{-}3\text{-}4\text{-}1\text{-}1\text{-}1\text{-}2\text{-}5\text{-}6}\\ \text{sf}\text{:}:1\text{:}134\text{:}7\text{:}278\text{:}10\text{:}236\text{:}9\text{:}276\text{:}271\text{:}3\text{:}131\text{:}128\text{:}}\\ \text{:}161\text{:}157\text{:}94\text{:}79\text{:}167\text{:}76\text{:}158\text{:}146\text{:}::169\text{:}189\text{:}176\text{:}214\text{:}217\text{:}213\text{:}180\text{:}196\text{:}}\\ \text{:}135\text{:}122\text{:}111\text{:}102\text{:}71\text{:}120\text{:}30\text{:}66\text{:}::49\text{:}64\text{:}40\text{:}246\text{:}39\text{:}35\text{:}46\text{:}240\text{:}}\\ \text{Perm. No.:} \quad 16442233588771652938017592307535756 \end{array}$



 $For\ audio\ (midi):\ sf-6-4-6-5-1-4-6-1-6-1-4-3-1-2-4-1-1-6-1-4-6-3-6-1-1-1-2-4-1-4-2-1-6-3-2-6-3-4-1-1-1-2-5-6.mid$ 



 $For\ audio\ (midi):\ sf-6-5-4-5-1-4-5-3-1-6-4-2-6-6-3-2-6-1-6-2-2-5-1-2-6-5-1-5-5-4-4-4-6-2-5-6-6-1-4-1-6-3-5-2.mid$ 

### 6 License

Clavier

This work by I Am The Author, based on work of J.L.A. Uro at https://github.com/justineuro/mdgBookSVG10Kit, is licensed under a Creative Commons Public Domain International License.

### References

Ivars Peterson. Mozart's Melody Machine, 2001. URL https://www.sciencenews.org/article/mozarts-melody-machine-0. Retrieved Tuesday, 08 August, 2017 11:36:00 AM +08. 3

Franciscus Schola. Musicalische Cabala, 1773. URL https://imslp.org/wiki/Musicalische\_Cabala\_(Schola%2C\_Franciscus). Retrieved Saturday, 18 May, 2025. 3

Wikipedia: Musikalisches Würferspiel. Wikipedia, The Free Encyclopedia, 2017. URL https://en.wikipedia.org/w/index.php?title=Musikalisches\_W%C3%BCrfelspiel&oldid=787418377. Retrieved Tuesday, 08 August, 2017 12:56:17 AM +08. 3