Simple DISSCO Project with LASSIE: Score Output

"Twinkle Twinkle Little Star"

https://cmp.ischool.illinois.edu/software/dissco/index.php By Aleksandra Grigortsuk

0. If you do not have DISSCO, check it out in Terminal using the command: git clone https://github.com/tipei/DISSCO-2.1.0.git (be patient, it might take a while - there are many files)

1. Enter the following, pressing Enter after each line:

cd DISSCO-2.1.0 premake4 clean premake4 make make (again, be patient, it will take a while to compile the program)

2. Create a new project in LASSIE (if you already downloaded and compiled DISSCO start here)

- Type ./lassie
- Click the Create a new project button in the toolbar
- Choose a folder, name your project *scoretutorial*, and click Open

(NOTE: Once you choose a folder for your project, do not change it later - DISSCO will not be able to find it at the changed location)

- A new window, Project Properties, will appear
 - only check the boxes Score Printing and Output Particel
 - set **Piece Duration** to 30 and click OK

| 😣 🖨 💷 Project Properties |
|------------------------------------|
| Project Title: tutorial |
| File Flag: THMLBsnv |
| Number Of Channels: 2 |
| Sample Rate: 44100 |
| Sample Size: 16 |
| Number Of Threads: 1 |
| Sound Synthesis |
| 🗹 Score Printing |
| Grand staff |
| Number Of Staff: 1 |
| 🧭 Output Particel |
| Top Event: T/ 0 |
| Piece Duration: 30 Insert Function |
| Cancel OK |

(the default name of the newly created Top object is 0)

- 3. Build a Top event this is your piece and the root node of the structure
 - Click the wedge next to Folder Top then double click Top 0
 - Set Number of Children to Create to 1
 - Enter *0* for **Child Start Time** and select **EDU** beneath it (NOTE: Refer to the manual for more information about EDU)
 - Set Child Type to 0
 - Set Child Duration to 180 EDU and Max Child Duration to 30

| | new project Open an | existing project Save the project Save As | | |
|----------|---|--|-----------------|--|
| C | Objects List | Attributes | | |
| Туре | Name | | | |
| ▼ Folder | Тор | IEvent Type: Top | | |
| Тор | 0 | Event Name: 0 | | |
| Folder | High | EDU Per Beat: 6 | Insert Function | |
| Folder | Mid | 4 | | |
| Folder | Low | Time Signature: | | |
| Folder | Bottom | 4 | | |
| Folder | Spectrum | Tempo: 🖲 as Note Value 🔿 Beats / Seconds | | |
| Folder | Note | | | |
| Folder | Envelope | | | |
| | Folder Sieve Folder Spatialization Number of Children: Density Image: Spatialization Spatialization | | | |
| | | | | |
| Folder | Pattern | Number Of Children To Create: 1 | Insert Function | |
| Folder | Reverb | | Insert Function | |
| Folder | Filter | | | |
| | | | Insert Function | |
| | | Children Events Definition: Continuum Sweep Discrete Child Start Time: | Insert Function | |
| | | Fraction EDUs Seconds | | |
| | | Child Type: 0 | Insert Function | |
| | | Child Duration: 180 | Insert Function | |
| | | ○ Fraction | | |
| Env | velope Library | | | |
| Marko | ov Model Library | Max Child Duration: 30 | Insert Function | |

(we will complete the Top event in step 7)

4. Create a Bottom event - this event creates start times, durations, pitches, and dynamics of notes

- Click Folder Bottom
- Click the Create a new Object button in the toolbar
- Name it *n1* and click OK

(NOTE: Bottom names must begin with a lower-case n !)

- Click the wedge next to the Folder Bottom and double-click Bottom n1
- Set Number of Children to Create to 7 -<u>these will be your sounds</u>
- Click Insert Function next to Child Start Time and choose Select we are selecting the starting times (EDUs) for our 7 children (notes)
 - Click Insert Function next to Choice Index and choose CURRENT_CHILD_NUM, hit OK
 - Click Add New Node 7 times and put the individual node values as 0, 3, 6, 9,
 - 12, 15, and 18
 - Hit OK
- Select EDU beneath Child Start Time
- Click Insert Function next to Child Type and choose RandInt
 - <u>allows us to randomly choose between 2 note types</u> which we create in the next step
 - keep Lower Bound at 0
 - set **Higher Bound** to 1, hit OK
- Set Child Duration to 3 EDUs
- Set Max Child Duration to 30

| Choice Index : < Fun> <name>CURRE Insert Function</name> | | | Insert Function | |
|---|--|-------|-----------------|--|
| Value : | 0 | | Remove Node | |
| Value : | 3 | | Remove Node | |
| Value : | 6 | | Remove Node | |
| Value : | 9 | | Remove Node | |
| Value : | 12 | | Remove Node | |
| Value : | 15 | | Remove Node | |
| Value : | 18 | | Remove Node | |
| Add New Node Insert Function Result String <fun><name>Select</name><list>0, 3, 6, 9, 12, 15, 18<!--</td--></list></fun> | | | | |
| | List> <index><fun><name>CURRENT_CHILD_NUM<!--<br-->Name></name></fun></index> | | | |
| ist> <ind< td=""><td></td><td>ndex></td><td></td></ind<> | | ndex> | | |

(we will complete the Bottom event in step 6)

5. Create Note events - we are creating the types of notes we randomly want to appear

| | | n existing project Save the project Save As Create a new Object Contents | | | |
|----------|--------------------|--|-----------------|--|--|
| Туре | jects List Name | | | | |
| ▼ Folder | Тор | IEvent Type: Bottom | | | |
| Тор | 0 | Event Name: n1 | | | |
| Folder | High | EDU Per Beat: 6 | Insert Function | | |
| Folder | Mid | 4 | | | |
| Folder | Low | Time Signature: | | | |
| ▼ Folder | Bottom | 4 | | | |
| Bottom | | | | | |
| Folder | Spectrum | Tempo: 💿 as Note Value 🔿 Beats / Seconds | | | |
| Folder | Note | | | | |
| Folder | Envelope | | | | |
| Folder | Sieve | Number of Children: 🔘 Density 🔞 Fixed 🗌 By Layer | | | |
| Folder | Spatialization | Number Of Children To Create: 7 | | | |
| Folder | Pattern | | | | |
| Folder | Reverb | | | | |
| Folder | Filter | | Insert Function | | |
| | | Children Events Definition: Continuum Sweep Discrete | | | |
| | | Child Start Time: <pre><fun><name>Select</name><list>0, 3, 6, 9, 12, 15, 18</list><index><fun><nam< pre=""></nam<></fun></index></fun></pre> | Insert Function | | |
| | | Fraction | | | |
| | | Child Type: <- Fun> <name>RandomInt</name> <lowbound>0</lowbound> <highbound>1</highbound> 1 | Insert Function | | |
| | | Child Duration: 3 | Insert Function | | |
| | | ○ Fraction | | | |
| Enve | lope Library | | | | |
| Markov | Model Library | Max Child Duration: 30 | Insert Function | | |

- Click Folder Note
- Click the Create a new Object button in the toolbar
- Name it *no1* and click OK
- Click the Create a new Object button in the toolbar
- Name it *no2* and click OK
- Click the wedge next to the Folder Note and double-click Note note1
- Set Staff Number to 0
- Check the **null** box (Note: this is a note with no notation)
- Click the wedge next to the Folder Note and double-click Note note2
- Set Staff Number to 0
- Check the **accent** box

| 4 | | | 2 | 2 | |
|----------------------|------------------|-------------------------------------|-----------------------------|-------------------|-----------------|
| | | n existing project Save the project | Save As Create a new Object | Contents | |
| Obj | ects List | | | | |
| Туре | Name | Name: no1 | | | |
| Folder | Тор | Type: Note | | | |
| Folder | High | Staff Number: 0 | | | Insert Function |
| Folder | Mid | | -8va | accent | |
| Folder | Low | □ coda | | downmordent | |
| ▼ Folder | Bottom | □ downprall | espressivo | 🗌 fermata | |
| Bottom Folder | | □ flageolet | halfopen | □ lheel | |
| ▼ Folder | Spectrum Note | | longfermata | 🗌 ltoe | |
| Note | no1 | marcato | mordent | M null | |
| Note | no2 | 🗌 open | portato | prall | |
| Folder | Envelope | pralldown | prallmordent | prallprall | |
| Folder | Sieve | 🗆 prallup | reverseturn | 🗌 rheel | |
| Folder | Spatialization | 🗆 rtoe | segno | shortfermata | |
| Folder | Pattern | snappizzicato | staccatissimo | staccato | |
| Folder | Reverb | stopped | 🗌 tenuto | 🗌 trill | |
| Folder | Filter | 🗆 turn | upbow | upmordent | |
| | | 🗌 upprall | 🗌 varcoda | 🗌 verylongfermata | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Envelope Library | | | | | |
| Markov Model Library | | | | | |

6. Complete the Bottom event - <u>we are setting the bottom event's children (note types)</u>, <u>pitches, and dynamic</u>

- Double click on the **Bottom n1** event to bring it back
- Scrolling down, drag your Note no1 and Note no2 into the white box underneath where it says Child Type | Class | Name
- Click Insert Function in the Value field below Frequency and choose Select

- Click Insert Function next to Choice Index and choose CURRENT_CHILD_NUM, hit OK
- Click Add New Node 7 times and put the individual node values as 48, 48, 55, 55, 57, 57, and 55

| 800 | Functi | ion Generator | |
|---|---|---|-----------------|
| Function | : Sele | ect | ÷ |
| Choice Ir | ndex : | <pre><fun><name>CURREN1</name></fun></pre> | Insert Function |
| Value : | 48 | | Remove Node |
| Value : | 48 | | Remove Node |
| Value : | 55 | | Remove Node |
| Value : | 55 | | Remove Node |
| Value : | 57 | | Remove Node |
| Value : | 57 | | Remove Node |
| Value : | 55 | | Remove Node |
| Add New | Node | Insert Function | |
| Add New Hode Inseler directory | | | |
| | | Result String | |
| List> <inde< td=""><td>ex><fu< td=""><td>elect<list>48, 48, n><name>CURRENT_CHIL Index></name></list></td><td></td></fu<></td></inde<> | ex> <fu< td=""><td>elect<list>48, 48, n><name>CURRENT_CHIL Index></name></list></td><td></td></fu<> | elect <list>48, 48, n><name>CURRENT_CHIL Index></name></list> | |
| | | OK | Cancel |

- \circ Hit OK
- Set Loudness to 100

7. Return to the Top event and add Bottom as child of Top

- Double click on the **Top 0** event
- Drag Bottom n1 into the white box underneath where it says Child Type |Class |Name
- 8. Save Project and Synthesize
 - Click the Save the project button in the toolbar
 - From the **Project** menu in the toolbar, select **run**
 - Type 123 (or any sequence of letters and/or numbers) into the **Random Seed** window and click OK

| Create a new project Open an | existing project Save the project Save As Create a new Object Contents | | |
|------------------------------|--|-----------------------------|--|
| Objects List | Child Type: <pre></pre> <pre></pre> <pre>Child Type: </pre> <pre></pre> <pre></pre> <pre>Child Type: </pre> <pre></pre> <pre>/</pre> <pre>/ <pre>/</pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre> | ound>1 | |
| Type Name Folder Top | Child Duration: 3 | | |
| ▼ Folder Top Top 0 | Fraction EDUs Seconds | Insert Function | |
| Folder High | | | |
| Folder Mid | Max Child Durableau | Insert Function | |
| Folder Low | Max Child Duration: 30 | | |
| ▼ Folder Bottom | | | |
| Bottom n1 | Number of children in this layer: | Function Delete This Layer | |
| Folder Spectrum | | Punction Delete This Layer | |
| ▼ Folder Note | Child Type Class Name | | |
| Note no1 | 0 Note no1 1 Note no2 | | |
| Note no2 | 1 Note no2 | | |
| Folder Envelope | | | |
| Folder Sieve | | | |
| Folder Spatialization | | | |
| Folder Pattern | Add New Layer | | |
| Folder Reverb | Modifiers: | | |
| Folder Filter | Add Modifier | | |
| | Frequency: Equal Tempered Fundamental Continuum Value: <fun><name>Select</name><list>48, 48, 55, 55, 57, 57, 55</list><index><fun><t< td=""><td>Name>CURREI Insert Function</td></t<></fun></index></fun> | Name>CURREI Insert Function | |
| | Loudness: 100 | Insert Function | |
| | Spatialization: | Insert Function | |
| Envelope Library | Reverb: | Insert Function | |
| Markov Model Library | Filter: | Insert Function | |

• The pdf sheet music output is in the folder **ScoreFiles**, in the same folder as the

project

This tutorial only used randomness placing notation on notes. Through

experimentation, it's possible to randomize pitches, start times, and durations to have unique variations of our theme and whole new pieces!