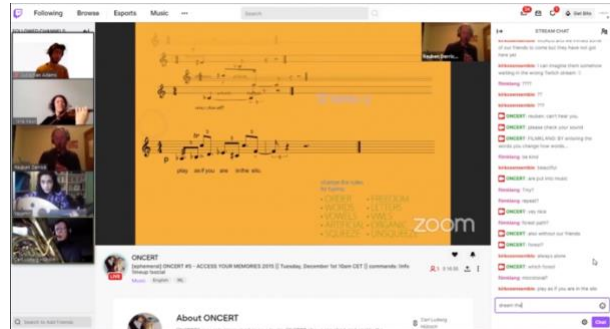CHATMUSIC: a system built in Max/Bach/Jitter which converts Twitch chat to notation during a live stream

ChatMusic

Concept: Sebastian Adams, Carl Ludwig Hübsch
Programming: Sebastian Adams

VIDEO CLIP 1: https://www.youtube.com/watch?v=E_wmmoTzKeY [Stream from Feb 2021] (choose any 5-minute window)

OPTIONAL VIDEO CLIP 2:
https://www.dropbox.com/s/tlku46452401kxe/1_EXCERPT_Stream%20and%20Chat%20Dec%201.mp4?dl=0
[Stream from 01/12/2020 - older version of software, but shows in a twitch.tv browser window, showing the immediacy of the chat conversion]

Link to Max project: as zip file   as folder [Dropbox links – version from Jan 2021; now quite out of date]

ChatMusic is a Max project built using the Bach package, which reads the chat from a Twitch stream using the Twitch API and Node.js or Python.

Basic concept:
The basic idea is instantaneous conversion of the text written into the chat by audience members into musical notation. This is presented as a real-time notation which blends text with traditional music notation, for use as an interactive improvisational framework.

There are several command words which the audience can use that have an impact on the music, for example ARTIFICIAL/ORGANIC turn the MIDI playback on and off, VWLS removes all the vowels from the text and WORDS/LETTERS decides whether a note is made for each word or each syllable of text. These commands are simple operations on either the symbolic transformation of the input or on Bach's extremely flexible representation settings, and so can be arbitrarily modified/extended to suit a particular performance context.

The version for presentation at TENOR would take the project to a live concert setting for the first time. Audience members in the room (+ other audience who are viewing remotely) will be invited to log on to a Twitch channel and make comments which will be interpreted live by the musicians in the room. We are open-minded about the choice of performers, but would be particularly excited to present a version including vocalists. Duration of the piece is open-ended.

Note: Twitch users can only make comments if their account is at least 24 hours old, so a message warning about this should be presented in the information about the performance.

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Technical requirements:

- We will provide our own computer (M1 Mac Mini)
- We will need a HDMI projector and HDMI cable
- We will need a good internet connection in the room, and ideally a WiFi connection which can be used by audience to connect to twitch.tv (not necessarily a fast connection)
- Amplification of the performers is at their own discretion
- There are three options for the performers watching the score:
    - Stand at an angle which allows them to see the projector screen easily while still facing the audience (most straightforward)
    - A second projector or large screen mirroring the first and screen facing the performers (most preferable)
    - Performers carry iPads or other portable devices, log on to twitch.tv and view the live stream themselves (least preferable due to more chance of instablity)

Audience becomes the composer:
The result becomes very interactive once a couple of audience members are engaged, and it also develops a multi-layered score where the players are forced not only to interpret the notated music, but also the meaning of the text created by the audience. Additional layers are added through randomisation of: the colour of the patcher window, dynamics, expressive markings, articulations and the appearance of faded out versions of old messages.

The results are highly different depending on the people using it and on the mood, subject matter etc. In past versions it has ranged from an almost traditional improvisation, with audience carefully shaping the mood and pace of the performance, to a chaotic and exciting mess more redolent of the chat box of a Twitch gamer.

The conversion:
There are multiple ways that the conversions are made, but each one is somewhat arbitrary.
The patch makes it possible to create a meaningful conversion of specific letters into specific pitches (e.g. all vowels could be a "tonic" pitch and all consonants a variety of other pitches), but this in itself would mostly be arbitrary. So I normally have it to work by simply dividing the summed ASCII values of the characters by the desired pitch-range and taking the remainder as the pitch. Rhythm can work a similar way, but when each letter is being converted into a note, the hierarchy of letters/words is maintained by making each word last a quarter note (i.e. a five letter word becomes five quintuplets on the relevant pitches).

Architecture:
This patch is built on an architecture I made for some older patches: initially a system for controlled computer-generated live notation; then an earlier text conversion program which relied on input from an "author" who was controlling the patch. Some old methods for generating text are still in the patch and are fully functional (e.g. you can randomly choose one of Brian Eno's Oblique Strategies, or choose a number of random words from a dictionary, insert your own text files, type into a text box)
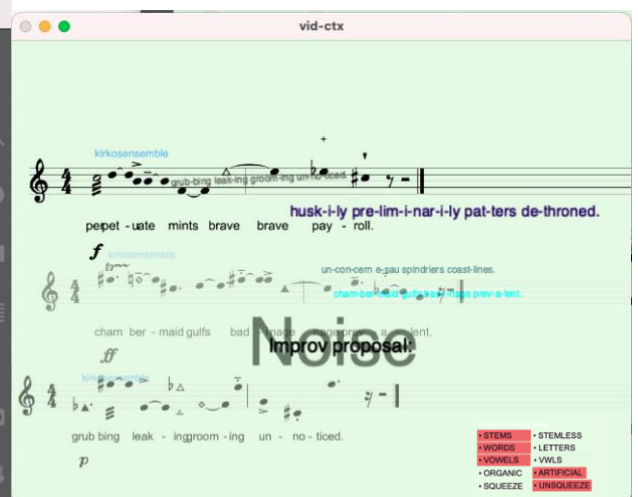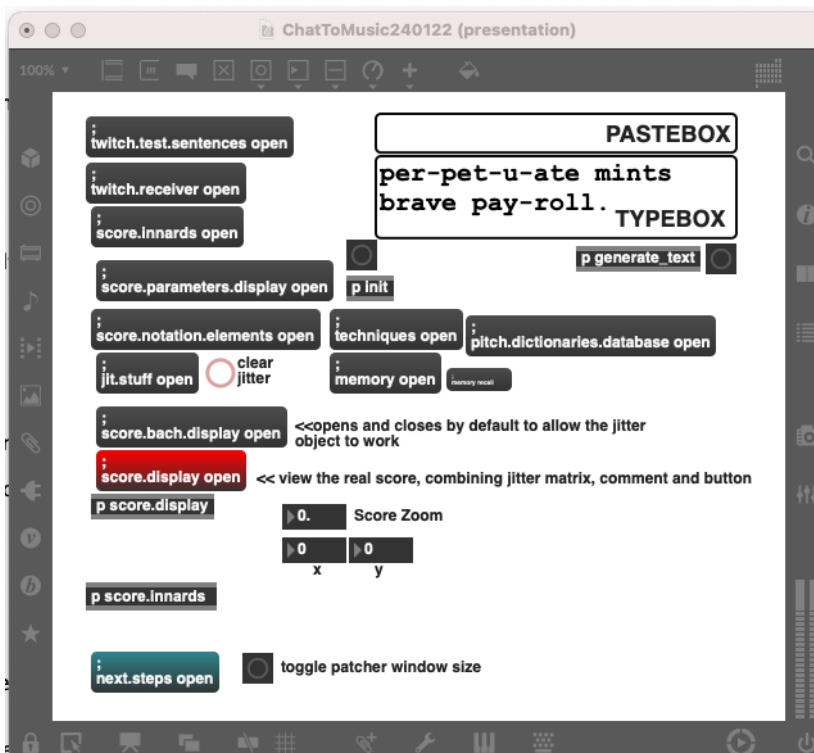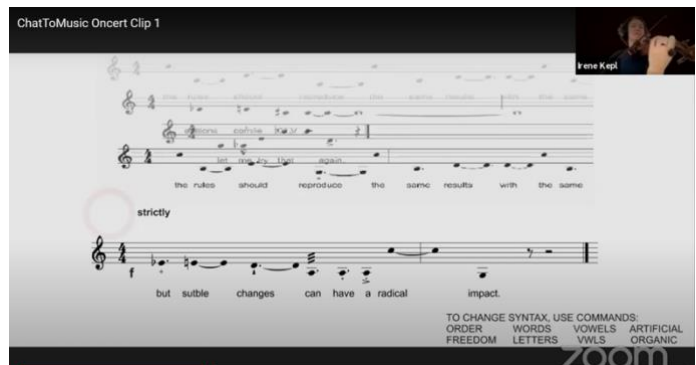
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Although the previous versions (without audience participation) were interesting to play with, the temptation was to focus on spotting patterns between the music and the text. With the addition of audience interaction, this link is disrupted and it becomes more about how the audience's decisions can impact on the performers' improvisations. It seems far more rich now.
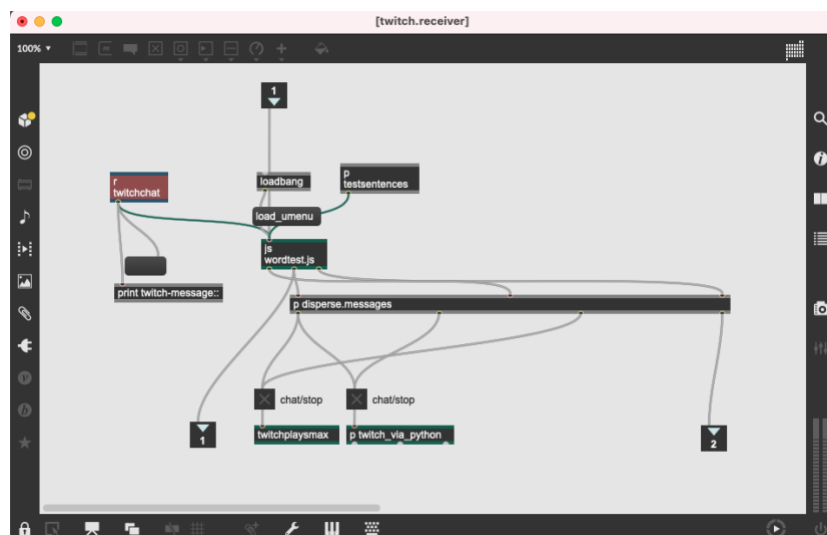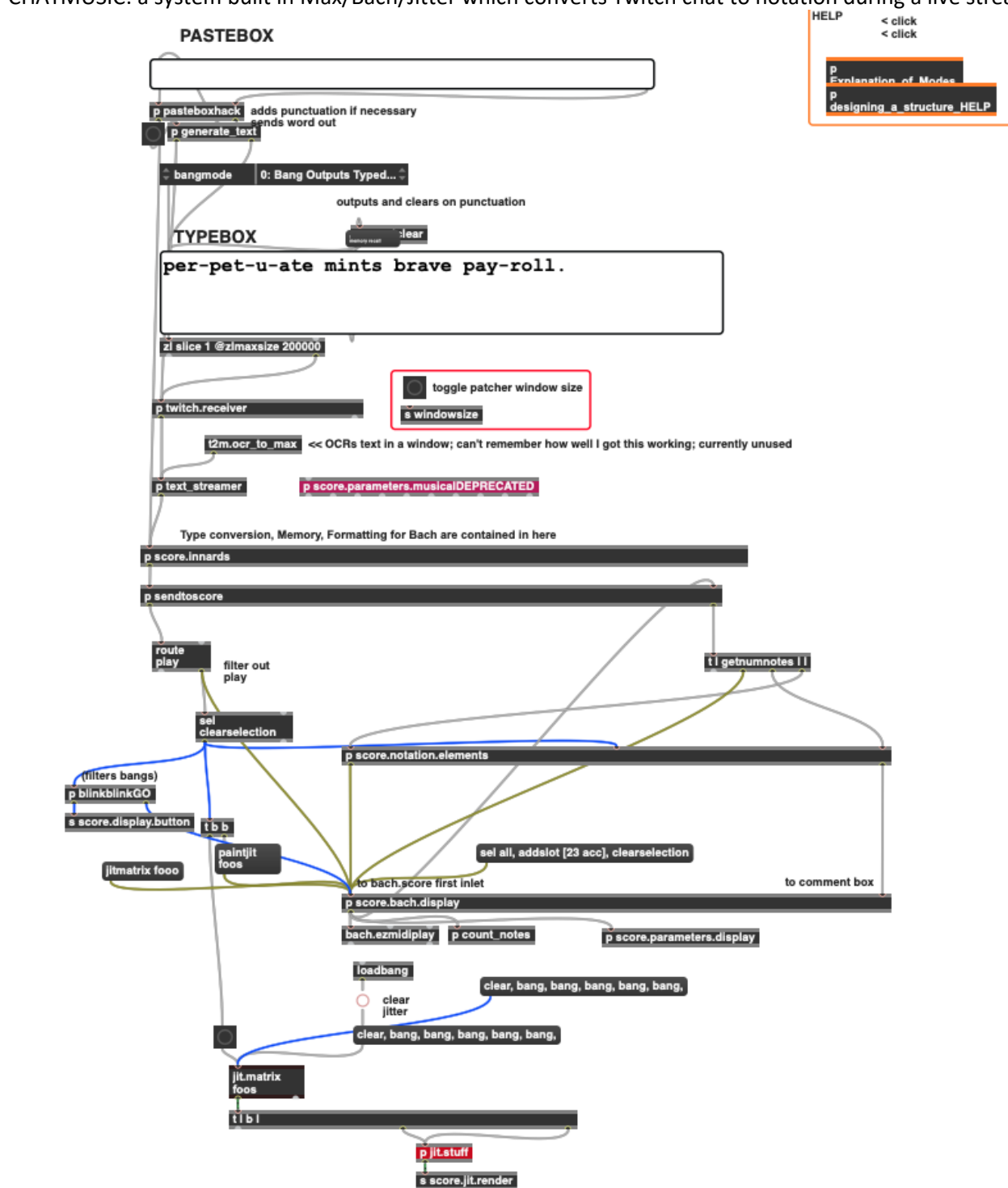
The bach.score object is sent to a jitter matrix, allowing it to multi-layered and combined with text. This creates an experience more like a graphic score, which means performers feel more comfortable improvising with the notation, rather than being bound to it. It opens up massive possibilities for building in animation processes with the scored material, but these have not been in explored in much depth yet.

The project is still in progress, but works stably. Next steps are likely to be:

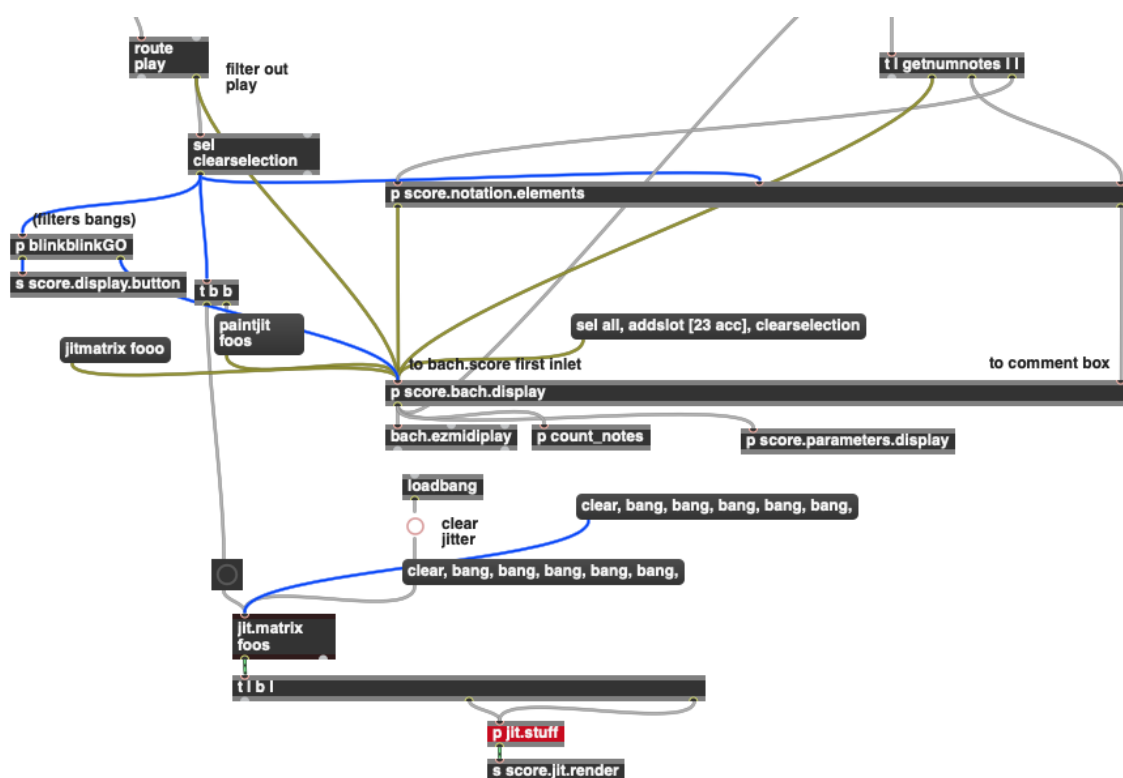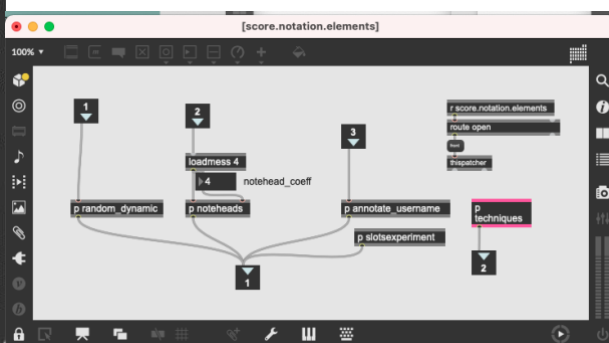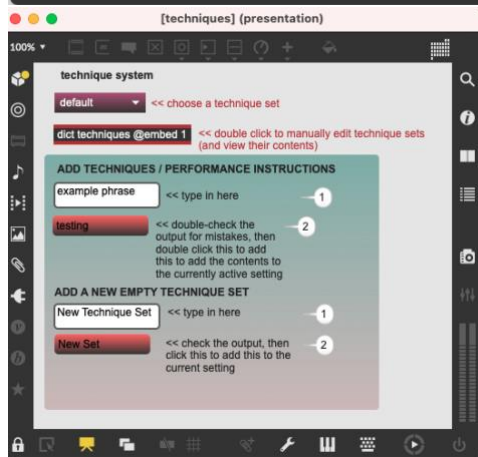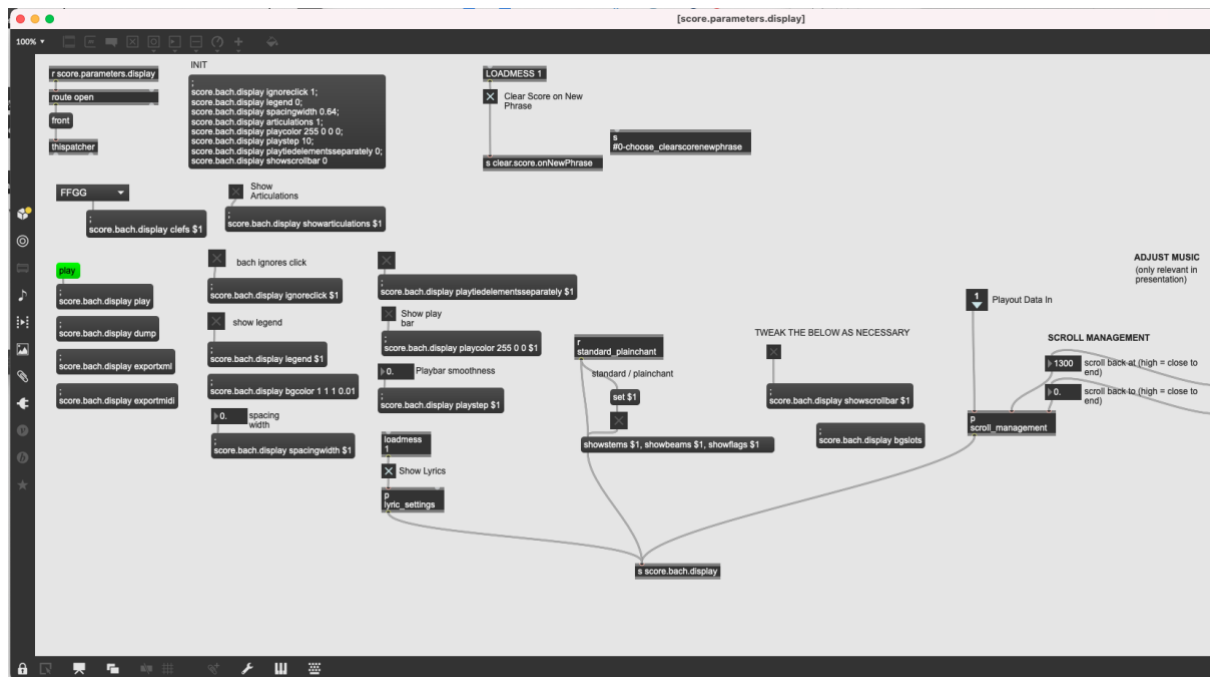- add in an interval-based pitch system (currently it is an absolute pitch system where "A" is always pitch 0 or whatever); this is an easy implementation as it exists in some of my previous patches already
- enhance the jitter elements: adding in warping of the older text, and possibly a virus that eats part of the old score. This will make the canvas work more as a graphic score as well as literal notation
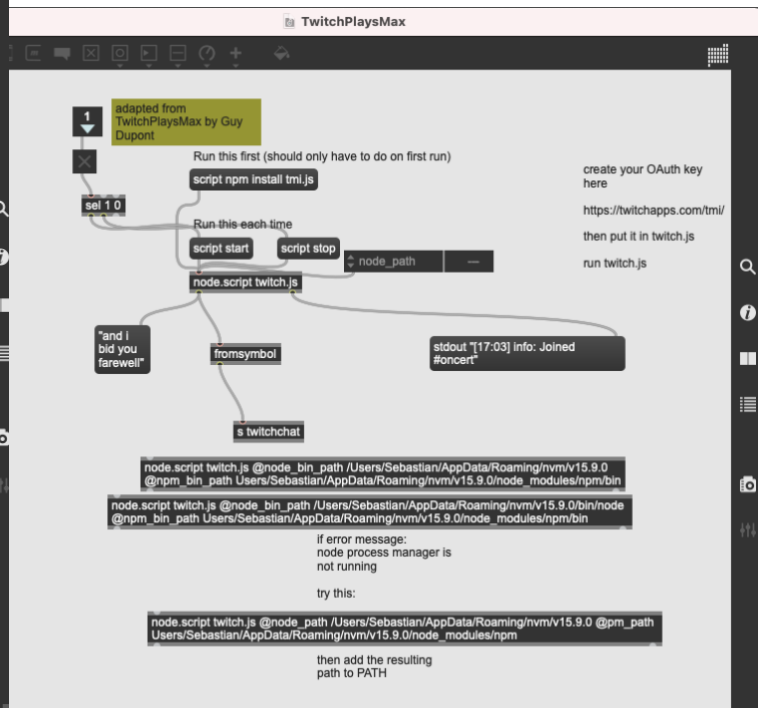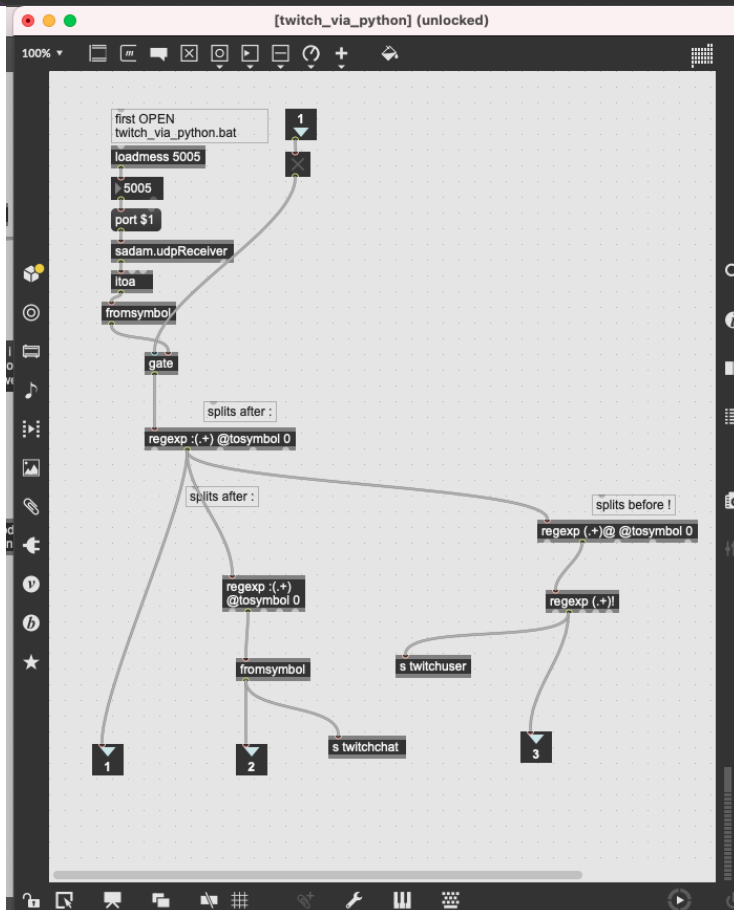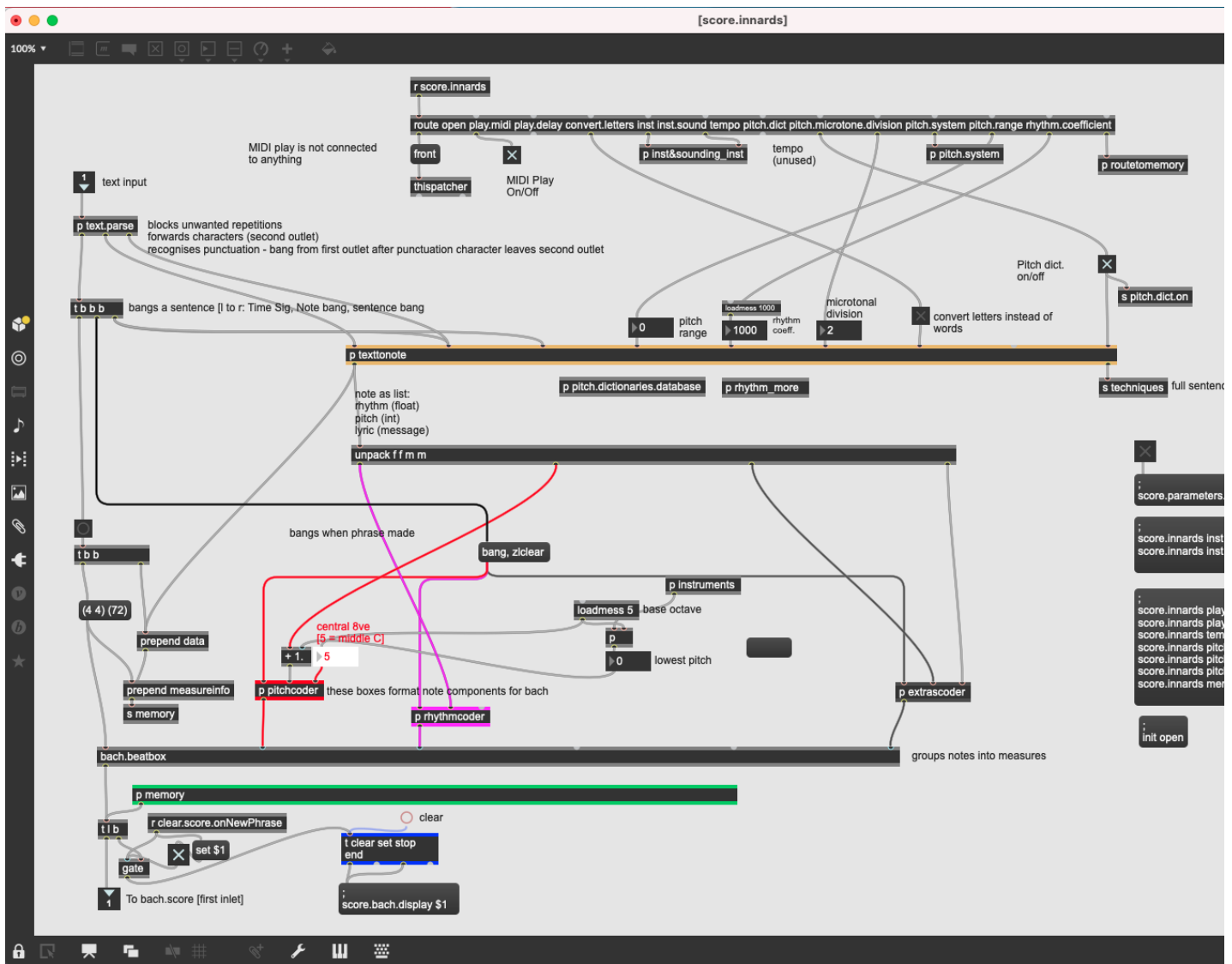
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PASTEBOX

p
Explanation_of_Modes

p
designing_a_structure_HELP

p pasteboxhack   adds punctuation if necessary
p generate_text   sends word out

bangmode   0: Bang Outputs Typed...

outputs and clears on punctuation

TYPEBOX   clear

per-pet-u-ate mints brave pay-roll.

zl slice 1 @zlmaxsize 200000

toggle patcher window size
s windowsize

p twitch.receiver

t2m.ocr_to_max   << OCRs text in a window; can't remember how well I got this working; currently unused

p text_streamer   p score.parameters.musicalDEPRECATED

Type conversion, Memory, Formatting for Bach are contained in here
p score.innards

p sendtoscore

route
play   filter out
              play   t l getnumnotes l l

sel
clearselection
                p score.notation.elements

(filters bangs)
p blinkblinkGO
s score.display.button   t b b

paintjit   sel all, addslot [23 acc], clearselection
foos
jitmatrix fooo
                to bach.score first inlet   to comment box
                p score.bach.display

bach.ezmidiplay   p count_notes   p score.parameters.display

loadbang

clear   clear, bang, bang, bang, bang, bang,
jitter

clear, bang, bang, bang, bang, bang,

jit.matrix
foos

t l b l

p jit.stuff
s score.jit.render

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BIOS:

Sebastian Adams

Sebastian Adams (b. 1991) is an Irish composer, improviser and artistic director who writes notated instrumental music and experimental/conceptual pieces.
His instrumental music is commissioned and performed regularly by top Irish artists and ensembles as well as abroad.
Besides this, Sebastian produces installations and computer programs, aiming to find new, fun, thought-provoking media to create music in.
In 2012, Sebastian founded and runs the new music ensemble Kirkos, which is Dublin's main experimental music group and focuses on ambitious multi-sensory experiences and on giving emerging composers carte blanche with their wildest ideas.
As a viola player, Sebastian has premiered many solo and chamber works, and enjoys working closely with composers on their new music. He is also active as an improviser, including in live theatre, and as an early music performer on viola and gamba.
He studied in Dublin and Vienna, and is currently based in Paris, taking part in IRCAM's Cursus program, an advanced computer music course for composers.

Carl Ludwig Hübsch

Born in Freiburg, Carl Ludwig Hübsch grew up playing clarinet in the local brass band and drums in punk- and rock bands. Around 83 he exchanged the clarinet for a tuba. Mostly self teached, he explored all kinds of music including a wonderful mediocre dance music trio. Musical roots to be mentioned are Frank Zappa, King Sunny Ade, The Dead Kennedys …

The discovery of Jazz and Improvisation led to studies in Improvisation with *M.A.Fataah*. Hübsch received certification at the Pedagogic College in Freiburg in singing, theory, drums. He studied electronic music with Klaus Weinhold. In Cologne he studied as guest in the composition class with Johannes Fritsch. Since 1990 Carl Ludwig Hübsch has lived in Cologne where he finally awarded a livelong stipendium at his own university.

Hübsch's work focusses on **Improvised Music** and **Conteporary Music**. He composes and performs in concert halls, studios and theatres lending his talents to ensembles and orchestras. He`s well known for his unique solo concerts. He leads **Workshops** for tuba or improvisation. Another most important focus on Hübsch's work is **Composition**.

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