

MUSHRA2.json: A guide to increasing or reducing the number of stimuli

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There are several parts of the patch that need to be altered in order to increase or decrease the number of stimuli and/or music tracks (banks). This document will list them, module by module. In most cases there is an obvious pattern to the labelling that can be followed. Buttons are provided for a maximum of 10 stimuli¹ (excluding the reference). For more information, please consult MUSHRA_UserGuide.pdf and MUSHRA_schematic.pdf.

The number of pages is calculated as the product of the number of banks you wish to use and the number of desired repeats.

1. Page Control

- Replace the two occurrences of “6” (in the message box and `<if>` object) with the desired number of pages.

2. Page Reset

- Replace one occurrence of “6” (in the `<if>` object) with the desired number of pages.

3. Random Number Generator and Audio File Assignment

- Adjust the numerical arguments of `<uzi>`, `<urn>`, `<cycle>` (both) and `<select>` to match the number of required stimuli.
- Add or remove: `<r Result...>` objects and their associated bang button, number box, `<r stimuli...>` objects, and `<s Scale...>` objects. Ensure labelling patterns remain.
- Do not adjust filenames in this module.
- Ensure the last stimulus sends a `<Sync>` bang.

4. Export Results

- Add or remove the `<receive>` objects at the top, continuing the pattern shown.
- Add or remove entries in the `<sprintf>` object. The left-most input is always connected to the message box. All other inputs correspond to the `%ld` entries.
- Each stimulus in the `<sprintf>` object (or row in the results file) occurs as the following string: `%s\\, %ld cr`. Simply remove or append these statements as necessary.
- Remember to keep everything in the correct (ascending) order.
- Replace one occurrence of “6” (in the `<if>` object) with the desired number of pages.

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¹More than this can be difficult for the listener

5. Stimulus Toggle

- Add or remove entries in the `<select>` object for keyboard inputs. The right-most output is unused.
- Add or remove `<pvar Button...>` entries and associated message boxes. Ensure numbers in message boxes ascend from 0 on the left.
- Use the inspector to change the number of rows in the `<matrixctrl>` object.
- Add or remove entries in, and connected outputs from, the `<route>` object. The numbers correspond to the integers in the message boxes above (and also to the columns in the `<matrixctrl>`). Each outlet of `<route>` is connected to three object: `<pvar Button...>` (via a “set \$1” message box), `<s Select...>`, and `<s Freeze...>` (via an `<expr 2-$il>` object).

6. Audio Bank Selector

- Change the argument of `<urn>` to be the number of pages.
- Increment or decrement `<select>` accordingly.
- Note that you have to gang outputs of `<select>` together; ganging them together in this way facilitates the repeats. Adjacent outputs of `<select>` do not necessarily have to be ganged, since pages are selected randomly.
- Connect or disconnect the subsequent bangs to additional filename message boxes.
- Add or remove subsequent `<s stimuli...>`.

7. Validation

- Add or remove `<r Result...>` to correspond with the scales
- Each `<r Result...>` must be connected to a `<bang>` and that `<bang>` connected to a `<onebang>` object. The right inlet of the `<onebang>` must be connected to the top-most bang of the module - the “ResetValidation” bang
- The left outlet of each `<onebang>` is connected to an adder. Adjust the argument of the subsequent `<if>` to read:

```
if \ $il==N then send NextStatus 1 else send NextStatus 0
```

where N is the number of stimuli per page

8. Scale Ouput

- The audio replay for each scale is abstracted in to the `slideraudio.json` patcher. It shouldn't be necessary to modify how audio is handled there.
- Add or remove `<slideraudio>` objects and connected objects.
- Change `<r Scale...>` and `<r Select...>` objects.

9. Scale Score Locking

- Add or remove the groups of objects centred on the `<locking>` object, changing the scale letter as necessary.

10. Other

- Obviously the actual number of scales needs to be increased or decreased to match. All of the GUI objects are referred to by scripting names, which you can change in the inspector (the `<pvar>` objects are used to interact with them).
- This will obviously require the associated buttons and number boxes.
- Scale buttons are `<pictctrl>` objects. They are set to "toggle" mode and include image masks.
- Buttons are included up to the letter J, permitting up to 10 scales. Note that 10 stimuli can make the listener's task very difficult, so using this many is discouraged.