# Appendix A

# Questionnaire used for Experiments I-IV

The information in this questionnaire is completely anonymous and confidential. It is required for data analysis purposes only.

1). Initials ___

2). Date of birth ___

3). Gender ___

4). Which is your preferred writing hand ___

5). Do you have any known hearing problems? ___

6). Do you have any skin problems which you feel might impair your sense of touch? ___

7). Do you have any known problems with your hands? ___

8). Which instrument do you play? ___

9). How many years of musical training do you have? ___

10). Approximately how many hours do you spend playing this instrument each

week? (Check the appropriate line below.) 1:10 10:20 20:30 40 or more

# Appendix B

# Sample Melodies Used as Stimuli for Experiments I and II

# Appendix C

# Table of MIDI Control Commands

Below is a table containing a list of MIDI control messages, their scope (global, common, voice or real-time categories) and their mode (Discrete or Continuous). They are divided into sections, according to the musical level to which they correspond. Those entries which are defined Controllers are preceded by their Control number. Control Parameters preceeded by an asterisk have a range of controller numbers that include the channel number to which the change is to be applied.

| Number | Control | Scope | Mode |
|--------|---------|-------|------|
| 70 | Sound Variation | Voice | Discrete/Continuous |
| 71 | Sound Timbre | Voice | Discrete/Continuous |
| 72 | Sound Release Time | Voice | Discrete |
| 73 | Sound Attack Time | Voice | Discrete |
| 74 | Sound Brightness | Voice | Discrete/Continuous |
| 75 | Sound Control 6 | Voice | (Assignable) |
| 76 | Sound Control 7 | Voice | (Assignable) |
| 77 | Sound Control 8 | Voice | (Assignable) |
| 78 | Sound Control 9 | Voice | (Assignable) |
| 79 | Sound Control 10 | Voice | (Assignable) |

**Table C.1.** Musically Relevant Parameters: Sub Note Level controls for sound production modules

| Number | Control | Scope | Mode |
|---|---|---|---|
| (*) | Note on | Voice | Discrete |
| (*) | Note off | Voice | Discrete |
| (*) | Allnote off | Global | Discrete |
| (*) | Aftertouch | Voice | Continuous |
| (*) | Channel pressure | Voice | Continuous |
| (*) | Pitch wheel | Voice | Continuous |

**Table C.2.** Musically Relevant Parameters: Note Level

| Number | Control | Scope | Mode |
|---|---|---|---|
| 1 | Modulation Wheel (coarse) | Voice | Continuous |
| 33 | Modulation Wheel (fine) | Voice | Continuous |
| 2 | Breath Controller (coarse) | Voice | Continuous |
| 34 | Breath Controller (fine) | Voice | Continuous |
| 4 | Foot Pedal (coarse) | Voice | Continuous |
| 36 | Foot Pedal (fine) | Voice | Continuous |
| 7 | Volume (coarse) | Voice | Continuous |
| 39 | Volume (fine) | Voice | Continuous |
| 8 | Balance (coarse) | Voice | Continuous |
| 40 | Balance (fine) | Voice | Continuous |
| 10 | Pan position (coarse) | Voice | Continuous |
| 42 | Pan position (fine) | Voice | Continuous |
| 11 | Expression (coarse) | Voice | Continuous (effects volume) |
| 43 | Expression (fine) | Voice | Continuous |
| 12 | Effect Control 1 (coarse) | Voice | Continuous |
| 44 | Effect Control 1 (fine) | Voice | Continuous |
| 13 | Effect Control 2 (coarse) | Voice | Continuous |
| 45 | Effect Control 2 (fine) | Voice | Continuous |
| 91 | Effects Level | Voice | Continuous |
| 92 | Tremulo Level | Voice | Continuous |
| 93 | Chorus Level | Voice | Continuous |
| 94 | Celeste Level | Voice | Continuous |
| 95 | Phaser Level | Voice | Continuous |

**Table C.3.** Musically Relevant Parameters: Phrase Level

| Number | Control | Scope | Mode |
|--------|---------|-------|------|
| (*) | MTC Quarter Frame | (*) | (*) |
| (*) | Message | Common | Continuous |
| (*) | Song position pointer | Common | Discrete |
| (*) | Song sel | Common | Discrete |
| (*) | Midi clock | RT | Continuous |
| (*) | Tick | RT | Continuous |
| (*) | Midi start | RT | Discrete |
| (*) | Midi continue | RT | Discrete |
| (*) | Midi stop | RT | Discrete |
| (*) | Reset | RT | Discrete |

**Table C.4.** Musically Relevant Parameters: Song Level

| Number | Control | Scope | Mode |
|--------|---------|-------|------|
| prog | change | Voice | Discrete |
| 0 | Bank Select | Voice | Discrete |
| 32 | Bank Select (fine) | Voice | Discrete |
| 5 | Portamento Time (coarse) | Voice | Discrete |
| 37 | Portamento Time (fine) | Voice | Discrete |
| 120 | All Sound Off | Voice | Discrete |
| 121 | All Controllers Off | Voice | Discrete |
| 123 | All Notes Off | Voice | Discrete |

**Table C.5.** Instrument Setup

| Number | Control | Scope | Mode |
|--------|---------|-------|------|
| (*) | Controller | Voice | Discrete |
| (*) | allctrloff | Global | Discrete |
| 16 | General Purpose Slider 1 | (*) | Continuous |
| 17 | General Purpose Slider 2 | (*) | Continuous |
| 18 | General Purpose Slider 3 | (*) | Continuous |
| 19 | General Purpose Slider 4 | (*) | Continuous |
| 64 | Hold Pedal (on/off) | Global | Discrete |
| 65 | Portamento (on/off) | Global | Discrete |
| 66 | Sustenuto Pedal (on/off) | Global | Discrete |
| 67 | Soft Pedal (on/off) | Global | Discrete |
| 68 | Legato Pedal (on/off) | Global | Discrete |
| 69 | Hold 2 Pedal (on/off) | Global | Discrete |
| 80 | General Purpose Button 1 (on/off) | (*) | Discrete |
| 81 | General Purpose Button 2 (on/off) | (*) | Discrete |
| 82 | General Purpose Button 3 (on/off) | (*) | Discrete |
| 83 | General Purpose Button 4 (on/off) | (*) | Discrete |
| 96 | Data Button increment | (*) | Discrete |
| 97 | Data Button decrement | (*) | Discrete |
| 122 | Local Keyboard (on/off) | (*) | Discrete |

**Table C.6.** Interface Controls

| Number | Control | Scope | Mode |
|--------|---------|-------|------|
| (*) | Sys exclusive | Common | Discrete/Continuous |
| (*) | realtime-id | Global | Discrete |
| (*) | non-realtime-id | Global | Discrete |
| (*) | gm-system enable/disable | Global | Discrete |
| (*) | Master volume | Global | Continuous |
| (*) | Educational use | (*) | (*) |
| (*) | Tune request | Common | Discrete |
| (*) | Active sense | RT | Continuous |
| 6 | Data Entry (coarse) | (*) | Discrete |
| 38 | Data Entry (fine) | (*) | Discrete |
| 98 | Non-registered Parameter (fine) | (*) | Continuous |
| 99 | Non-registered Parameter (coarse) | (*) | Continuous |
| 100 | Registered Parameter (fine) | (*) | Continuous |
| 101 | Registered Parameter (coarse) | (*) | Continuous |

**Table C.7.** Miscellaneous Controls