Fig A07

Text-based dataset of input neuron values for each chord

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Cmaj     1 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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```

Fig A08

Equation for getting the chord number (0-443) given the root note and chord type

Fig	A09
Code written during session on 24 Sep 18	

```
def chordmap_2_write(in_file = '../input_dataset_binaries_2.txt', out_file = "../input_dataset_output_binaries_2.txt"):
    with open(in_file, 'r') as fi:
        rawListChordFile = [i.strip().split() for i in fi]
        print(rawListChordFile[0])
        inputs = []
        for c in range(len(rawListChordFile)):
            inputs.append([])
            for k in range(1, len(rawListChordFile[c])):
                inputs[c].append(rawListChordFile[c][k])
        print(inputs[0])

def list_1_at_index(i, size = 444):
    l = []
    for k in range(size):
        if k == i:
            l.append(1)
        else:
            l.append(0)
    return l

def chord_number(chord_string):
    if chord_string[:2] in ['C#', 'D#', 'F#', 'G#', 'A#']:
        root_note_string = chord_string[:2]
        chord_type_string = chord_string[2:]
    else:
        root_note_string = chord_string[:1]
        chord_type_string = chord_string[1:]
    print(root_note_string)
    print(chord_type_string)
    root_notes = ['C', 'C#', 'D', 'D#', 'E', 'F', 'F#', 'G', 'G#', 'A', 'A#', 'B']
    chord_types = ['maj', 'min', 'aug', 'dim', 'sus2', 'sus4', 'M7', 'm7', '7', 'aug7', 'dim7', 'o7', 'M7sus2', 'M7sus4', '7sus2', '7sus4', 'M9', 'm9',
'9', 'aug9', 'dim9', 'M9sus2', 'M9sus4', '9sus2', '9sus4', 'M11', 'm11', '11', 'aug11', 'M11sus2', '11sus2', 'mM7', 'mM7(9)', 'M6', 'm6', 'M6(9)',
'm6(9)']
    root_note_index = root_notes.index(root_note_string)
    chord_type_index = chord_types.index(chord_type_string)

    return ((37 * root_note_index) + chord_type_index)
```