LIVING AMONG THE PENTATONICS [PT. 2]

Again dedicated to Lou Harrison who reintroduced me back to pentatonics

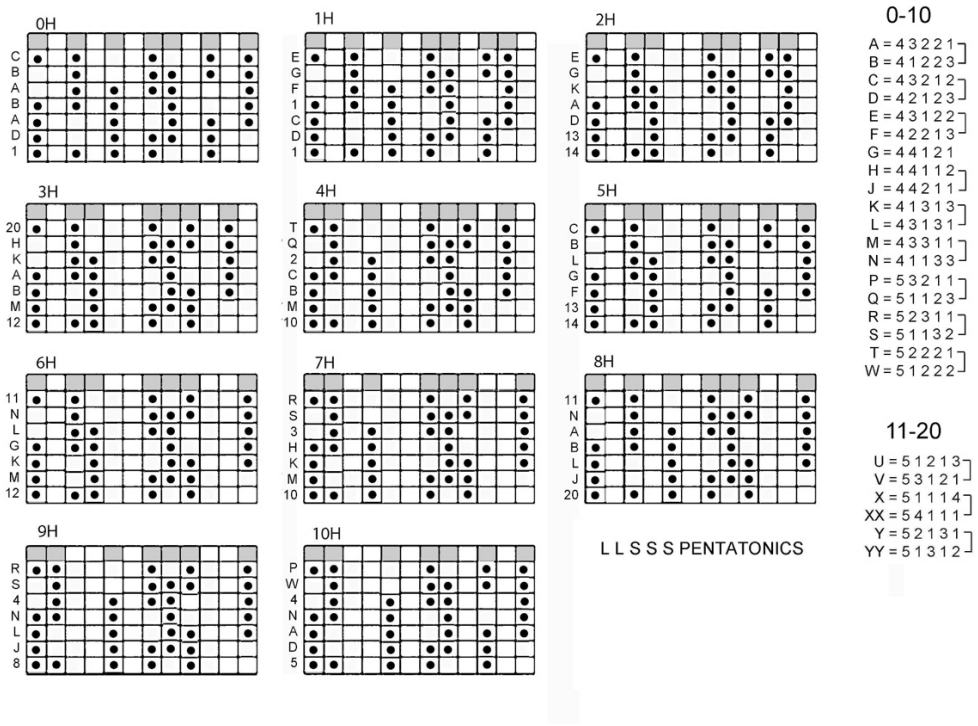
In part 1 the basic pentatonic subsets of the heptatonics were viewed as a 5+7 complement. Starting with the diatonic, using Wilson's Marwa permutations by adding additional closing interval, (in this case the tritone compensated by of a diminished 4^{th}) resulted in 10 additional heptatonics. Then the embedded pentatonics of each and their complementary heptatonics was repeated until the result was a closed set of 21heptatonics and pentatonics. The process is as much indebted to Indian music theory as the west

These methods can be applied to other scale systems and the purpose of limiting it to 12 to make the process simple by using commonly known material but is in no way the end or proposed use. It is easy to adopt to any constant structure scale system. Perhaps pt.3 will show an example of say mavila but that remains to be seen.

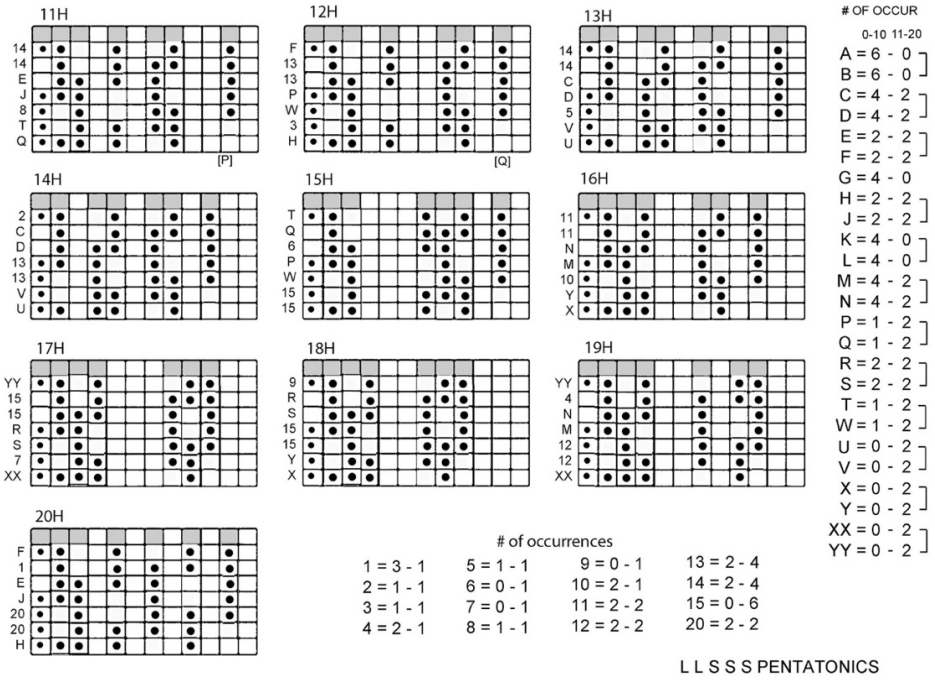
The LsLss (Large small Large small small) is the basic pattern of the diatonic LLsLLLs (its modes are assumed). In other scale systems LLsss is not uncommon and Lssss is also possible but it might resemble more a cluster inside the heptatonic and then there is the LLsLs but it does not fit within 7 notes. Our results of the process above can be seen to produce such scales. The omitted forms will often be of use in different scale systems that easily incorporates them. Various non-equal 12 tone scales

Here the following adds the LLsss as a pentatonic pattern sometimes found in Indonesian music where the 5 tone cycles embedded in the 7 tones of an implied 9 tone cycle In this case the supposed scale structure is less stable but musically sometimes it is just such areas that are desired and up to the artist to use them or not. While the preceding scales have been as far as I have personally gone so far, the following repeating process produces all but 5 of the mathematically possible pentatonics and heptatonics, and places them in an order based on quality as opposed to quantity.

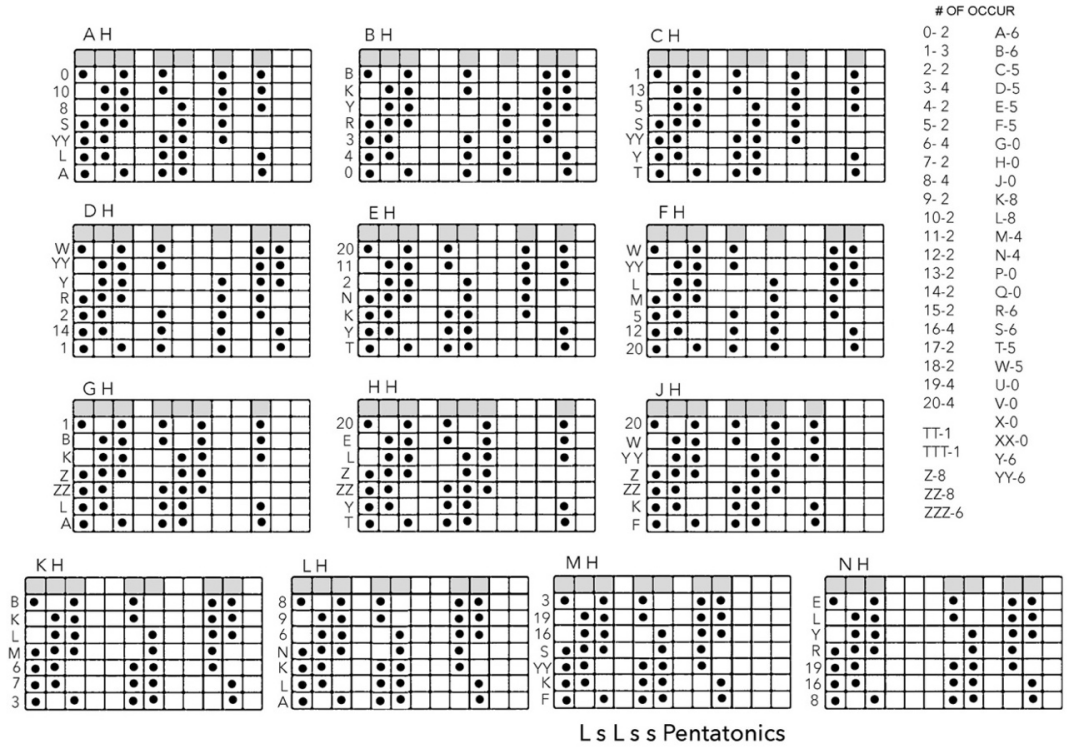
Starting with our original 11 heptatonics, the LLsss produces 25 new pentatonics.



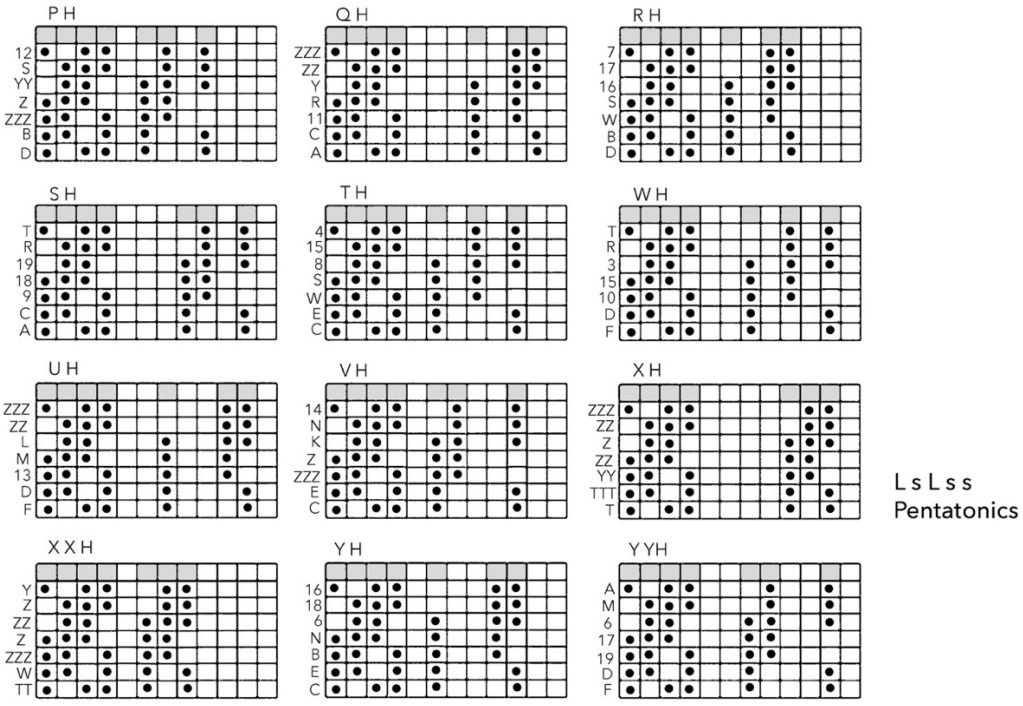
Surprisingly the further 10 heptatonics, 11-20 produce only 6 new possible scales .



The next step takes the complementary heptatonics of these new LLsss pentatonics they produce and first look at the LsLss pentatonics within them . Only 5 more pentatonics are found TT-ZZZ

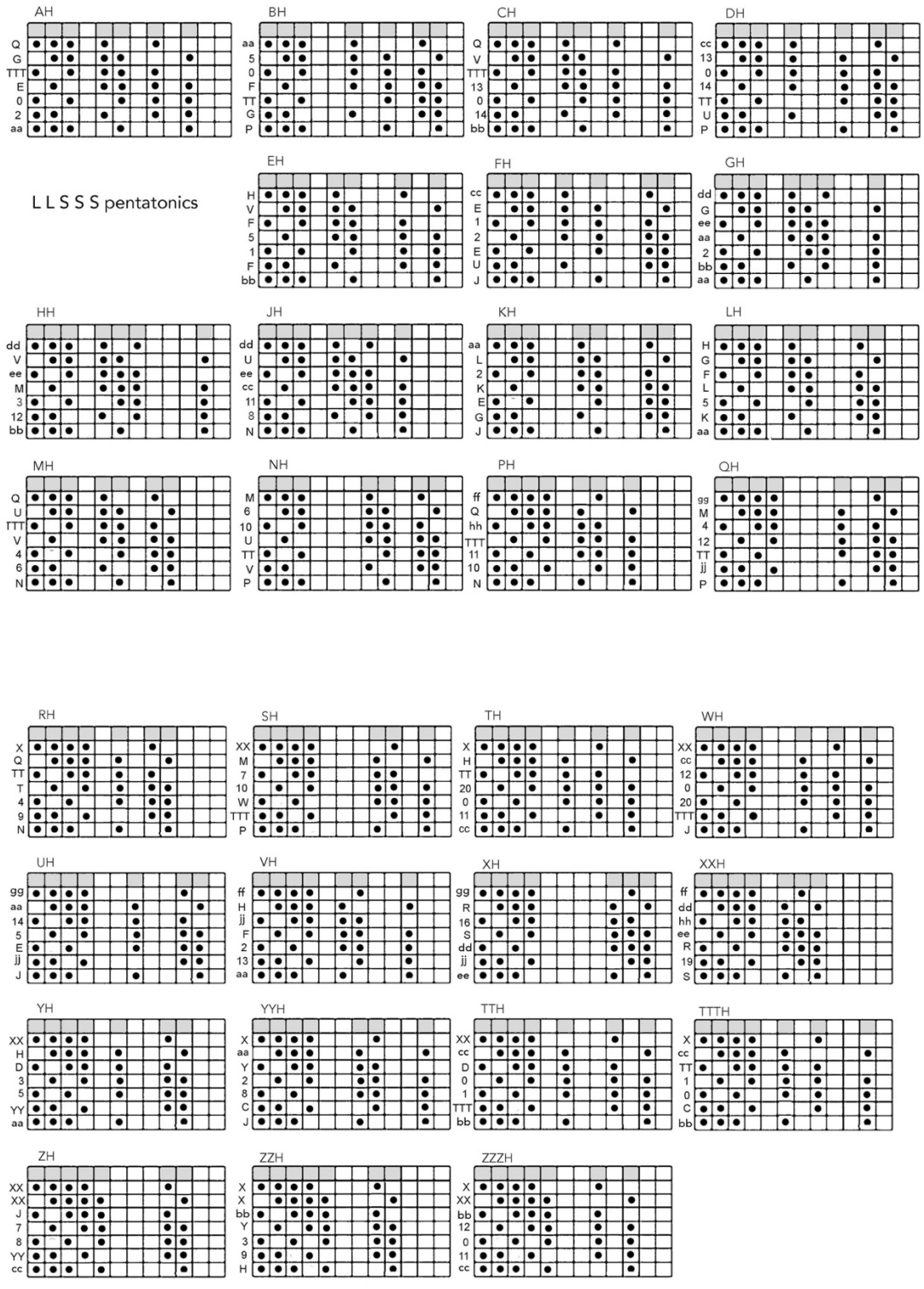


L s L s s Pentatonics

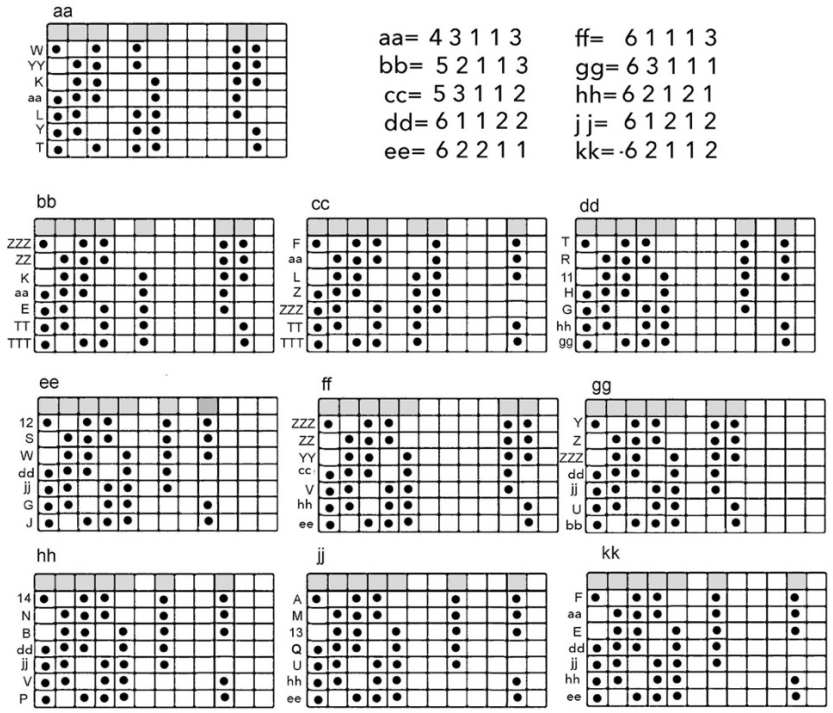


L s L s s Pentatonics

Here are the LLsss pentatonics of these heptatonics. These result in 10 new pentatonics aa-kk

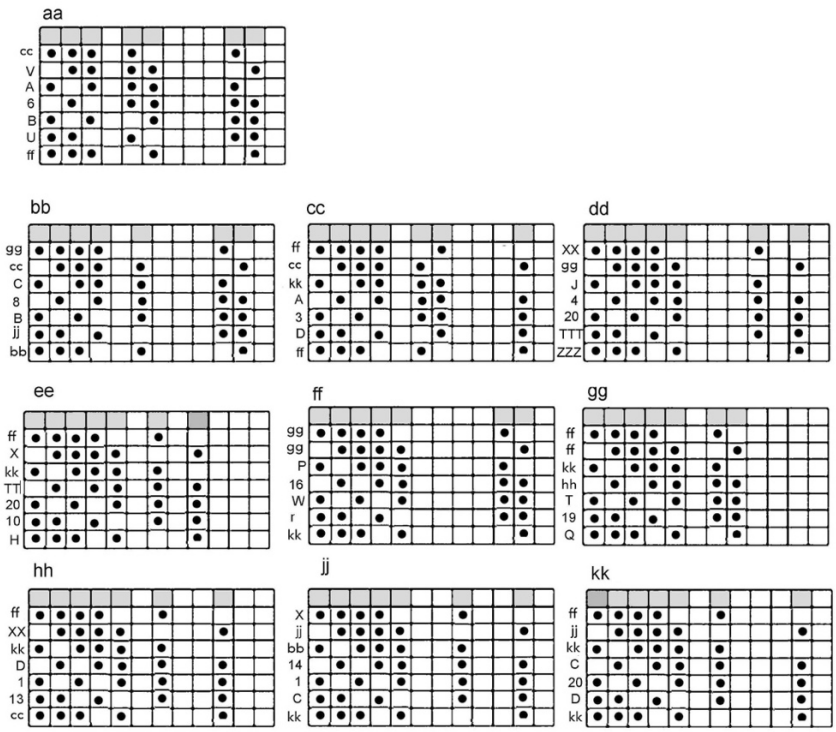


Threating these as heptatonics neither the LsLss or the LLsss of aa-kk produce any new pentatonics and thus we arrive at another closed set.



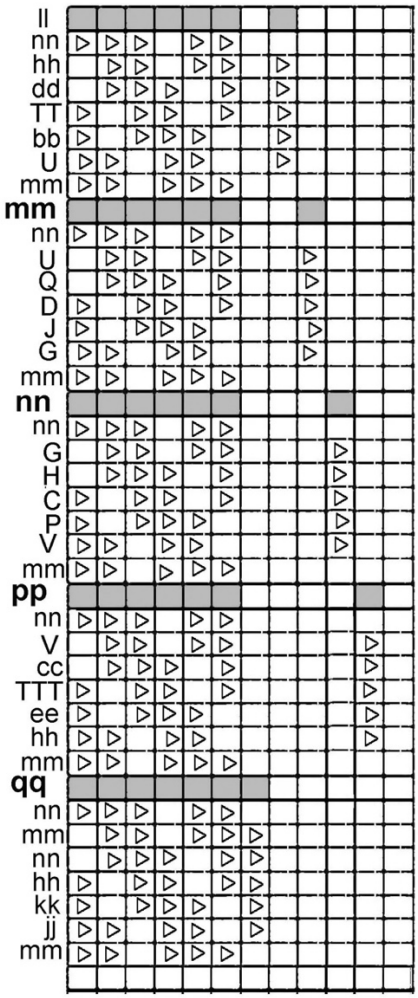
aa= 4 3 1 1 3
bb= 5 2 1 1 3
cc= 5 3 1 1 2
dd= 6 1 1 2 2
ee= 6 2 2 1 1
ff= 6 1 1 1 3
gg= 6 3 1 1 1
hh= 6 2 1 2 1
j j= 6 1 2 1 2
kk= 6 2 1 1 2

L s L s s
Pentatonics

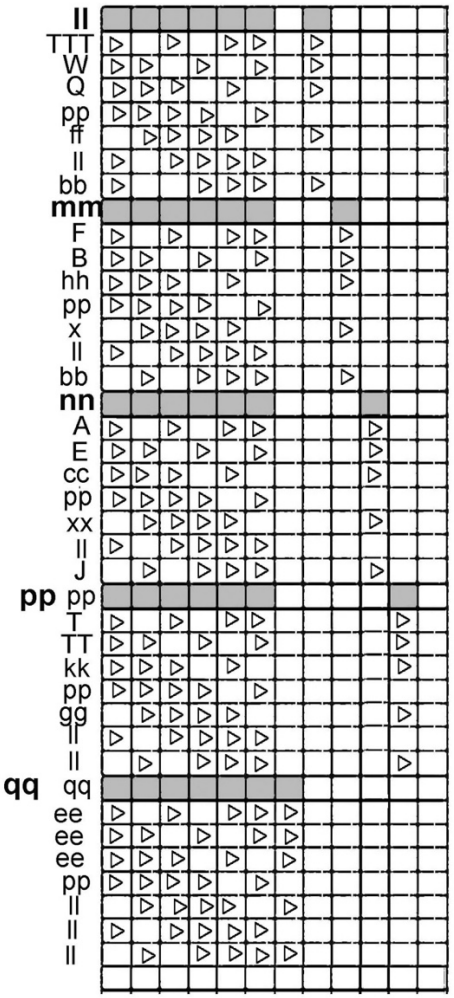


L L s s s
Pentatonics

Here are the undiscovered 5 heptatonics which is included to complete our investigation



LsLss



LLsss

ll= 7 2 1 1 1
mm= 7 1 2 1 1
nn= 7 1 1 2 1
pp= 7 1 1 1 2
qq= 8 1 1 1 1

We end with this chart showing the summary of our process resulting in what can be thought of as a clue to the quality and sustainability of the complete list of possible pentatonics (heptatonics too!)