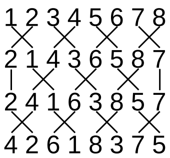
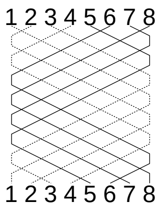
The music of changeringing – 2

The first article introduced some basic musical sequences, which are musical and are commonly rung. But the essence of change ringing is not on static sequences but on continual change. When ringing ‘methods’, the sequence changes continually, and generates a much more dynamic effect. So this article will explain the basics of how methods work, and the type of music they generate.

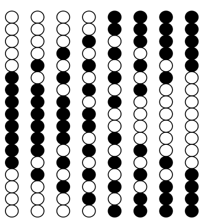
The order in which the bells strike changes continually, but the physical limitation of changing the speed of large masses of metal imposes a practical constraint, so bells are only allowed to move one place in the sequence at a time. That means that all changes consist of adjacent pairs swapping place. This is a defining characteristic of change ringing music, and as well as making it physically possible, it also helps the music. Some years ago, researchers trying to determine ‘what is music’ discovered that music relies on a balance between change (to provide interest) and predictability (to add coherence). In change ringing, the sense of coherence comes from the close relationship between successive sequences.



All ‘methods’ are made from strings of simple changes that transform each ‘row’ (individual sequence) into the next. The most basic ‘method’, called a plain hunt, consists of two alternating changes: first all pairs swap, then the first and last bell remain in place while the other pairs all swap, then the sequence repeats until eventually the order returns to Rounds (which on 8 bells takes 16 changes). The first few ‘rows’ of plain hunt on 8 bells are shown here.



Tracing the ‘path’ of each bell through the whole sequence shows a simple pattern, with each bell moving progressively from first to last position and back again. In fact the shape of the path is the same for all bells, but they start at a different position on the line. The diagram omits the intermediate numbers to show the pattern more clearly.



As the bells move back and forth through each other, they generate two characteristic type of music. The diagram here is simplified with the low notes shown as black blobs and the high notes as white blobs. At the start and end, and half way through, the high notes, and the low notes, are together (with a complete rising scale at exactly half way). In between the high notes and low notes are interleaved. This can be heard as an undulating effect, but the ear can also respond by hearing the ‘tune’ in either the high notes or (more often) in the low notes. This is the same effect as in Tittums (see article 1).

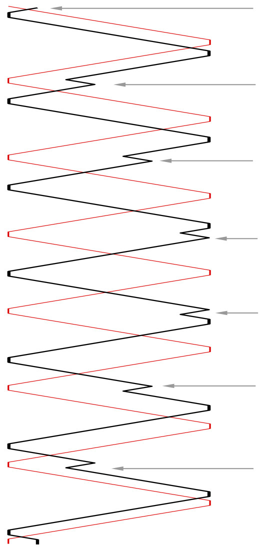
The effect of hearing alternate notes as a low tune punctuated by high notes is made even stronger because the ‘tune’ is preserved as it moves through the other notes, as shown in the fragment here,

42618375
46281735
64827153
68472513

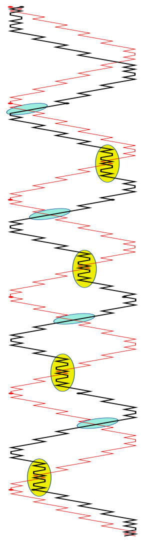
where both the low note tune (6875) and high note tune (4213) recur several times. They then dissolve and become replaced by music with the high and low notes together again.

Ringers don’t learn all the numbers of every sequence, but instead they learn the patterns, and very often patterns within patterns, of the bells’ paths, and the way they relate to each other. To see how this can tame the complexity of what would otherwise be a numerical jumble, we will look at another basic method called Plain Bob Major. (Plain is the specific name, Bob is the family name, and Major means it is rung on 8 bells.)

Plain Bob is formed by inserting a different change at the end of a plain hunt. Instead of the bells in first and last place staying there, the bells in first and second place stay put. Then everything is repeated (7 times in this case) before it returns to Rounds.



The pattern thus created is similar to the basic hunting pattern. The red line shows the path of the Treble (bell 1) which is identical to a plain hunt. The black line (bell 2) is very similar, but with periodic kinks (called dodges). All the other bells follow the same path as the 2, but starting at different points (shown by the arrows). The line is cyclic – the bottom continues at the top. There are two ways to know where the dodges come. One is to note that they occur when the Treble is in 1st place (leads). The other is to note that they form a progression, getting first later and then earlier (right and left on the diagram respectively). The final ‘kink’ (at the bottom of the diagram) is not a dodge like the others. Here the bell makes 2 blows in 2nd place. That is the defining place that disrupts the hunting and causes all the other kinks.



There are many more complex methods, but they are all amenable to the same approach of looking for the patterns, symmetries and repetitions. Shown here is half (to save space) of Cambridge Surprise Maximus (12 bells). Several features stand out. The Treble line (red) is continual dodging (kinks). The line for the other bells is also mostly dodging, so it is easier to learn the exceptions. The blue areas show where pairs of dodges are omitted and the yellow areas show where extra ‘work’ is inserted. Each insertion is identical (see small diagram). Notice that there is a pattern in the position of these exceptions – the omissions occur progressively later (right in the diagram) and the insertions progressively earlier.

The next article will look at composition, ie musical choice.