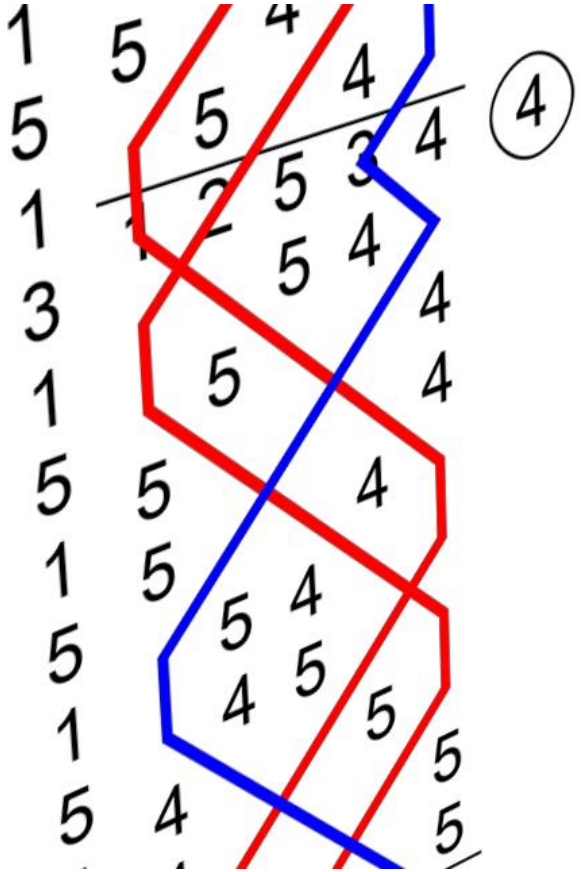
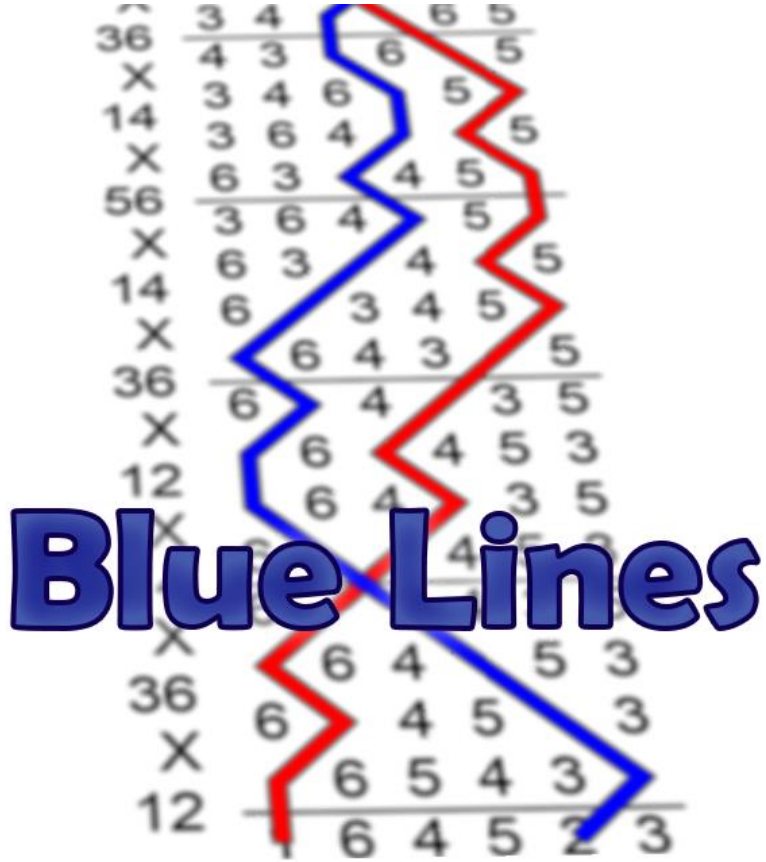




Stephen Burr

Cambridge District President

07.04.2020

Blue Lines

- Defining a Method
- How did Blue Lines Originate?
- The Anatomy of a Diagram
- Method Stages
- Place Notation
- Different Types of Method
- Method Naming and Extension
- How Can Blue Lines Help Us?

Disclaimers!

- I am not an expert
- My slides are not very fancy
- There will be typos and grammatical errors
- I have no idea if this will be remotely useful
- There’s a good chance you know more about this than me!

Resources Used for this Talk

- All excerpts from old publications are taken from The Whiting Society's old book collection https://www.whitingsociety.org.uk/old-ringing-books/old-books-menu.html
- Most method diagrams used have been generated by http://complib.org with one from http://www.vismeth.co.uk/
- Some graphics taken from http://www.ringbell.co.uk/
- This essay on Jasper Snowdon was very helpful http://cccbr.org.uk/wp-content/uploads/2016/05/fe10.pdf
- The CCCBR's Method Ringing Framework https://cccbr.github.io/method_ringing_framework/index.html
- Richard Pargeter kindly lent some slides from a similar talk he has given previously

What is a Method, Anyway?

- For a complete answer:
  - https://cccbr.github.io/method_ringing_framework/index.html

- For the purposes of this talk:
  - A sequence of changes on a defined number of bells that satisfies the following rules:
    1. Starts and finishes with Rounds
    2. Only adjacent pairs of bells swap
    3. No changes are repeated in the plain course (i.e. True)

- Note – Whilst many people would consider the second definition to describe what a method is fairly well (perhaps even with further caveats), the two answers above are actually quite different. But… we don't have unlimited time!

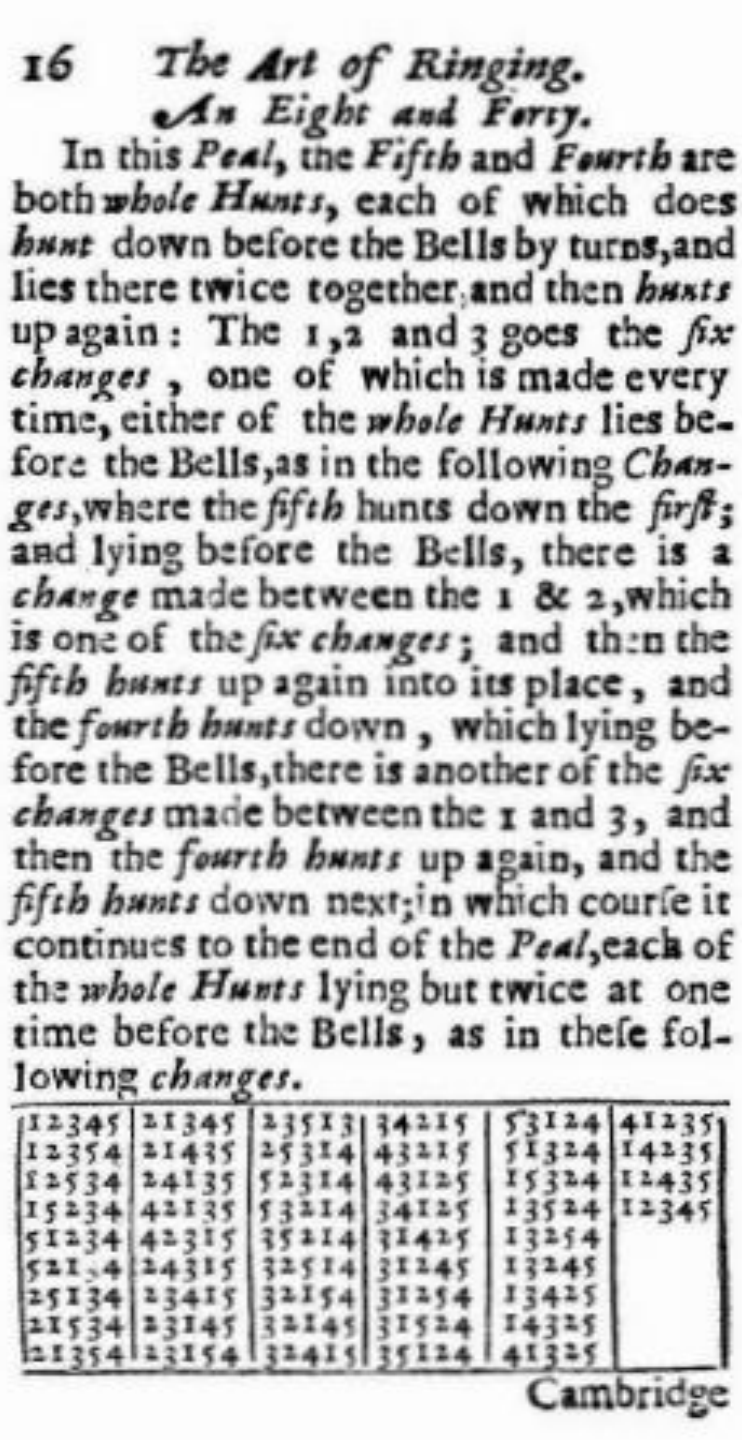
How did Blue Lines come about?

- From the very beginning of change ringing, bands around the country experimented with different ‘Methods’ of ringing ‘Peals’; sequences of changes with no repeated rows

- Soon, members of the ringing community began to publish books that described new methods that were in fashion in the various major ringing centres, so that others could learn and ring them

- These books consisted of a combination of ringing theory, descriptions of methods, and rows of changes (with no bell paths highlighted)

- The example here is from *Tintinnalogia*, 1667



16 *The Art of Ringing.*

An Eight and Forty.

In this *Peal*, the *Fifth* and *Fourth* are both *whole Hunts*, each of which does *hunt* down before the Bells by turns, and lies there twice together, and then *hunts* up again: The 1, 2 and 3 goes the *six changes*, one of which is made every time, either of the *whole Hunts* lies before the Bells, as in the following *Changes*, where the *fifth* hunts down the *first*; and lying before the Bells, there is a *change* made between the 1 & 2, which is one of the *six changes*; and then the *fifth hunts* up again into its place, and the *fourth hunts* down, which lying before the Bells, there is another of the *six changes* made between the 1 and 3, and then the *fourth hunts* up again, and the *fifth hunts* down next; in which course it continues to the end of the *Peal*, each of the *whole Hunts* lying but twice at one time before the Bells, as in these following *changes*.

12345	21345	23513	34215	53124	41235
12354	21435	25314	43215	51324	14235
12534	24135	52314	43125	15324	12435
15234	42135	53214	34125	13524	12345
51234	42315	35214	31425	13254	
52134	24315	32514	31245	13245	
25134	23415	32154	31254	13425	
21534	23145	32145	31524	14325	
21354	23154	32415	35124	41325	

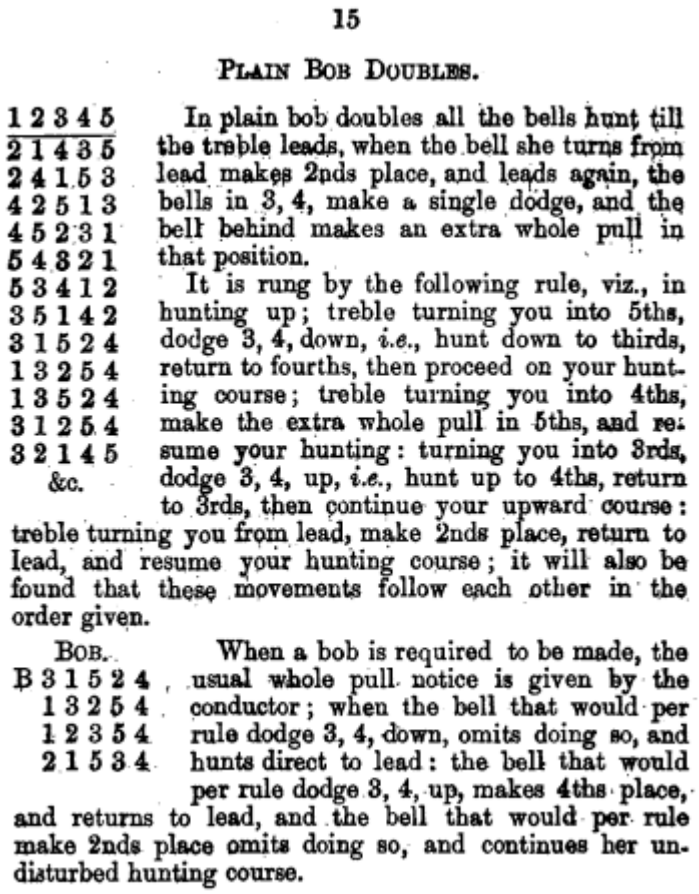
Cambridge

Ringing Publications in the 18th & 19th Centuries

- Most publications continued to focus mainly on descriptions of methods, with one or more leads written out as rows ‘in-line’ with the text
- Some books covered everything from parts of a bell, and bell handling, through to peal composition and proving
- Some focussed in more detail on one particular method
- There do not appear to be any publications aimed solely at displaying methods in a visual format until the late 19th century

Learning methods the 19th Century way!

- Excerpts from *The Art and Science of Change Ringing* by William Bannister, First published 1874 (these examples from the 1879 edition)



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PLAIN BOB DOUBLES.

1 2 3 4 5
2 1 4 3 5
2 4 1 5 3
4 2 5 1 3
4 5 2 3 1
5 4 3 2 1
5 3 4 1 2
3 5 1 4 2
3 1 5 2 4
1 3 2 5 4
1 3 5 2 4
3 1 2 5 4
3 2 1 4 5
&c.

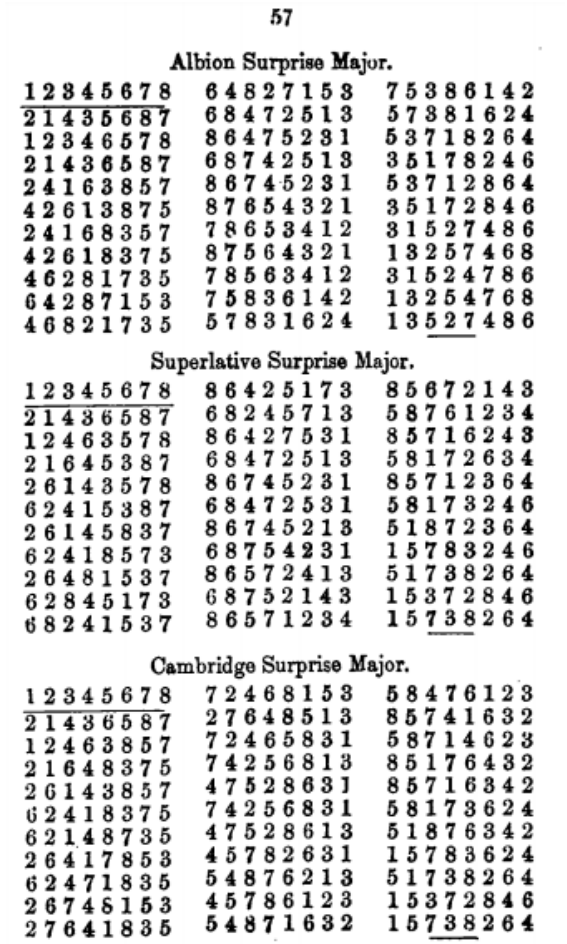
In plain bob doubles all the bells hunt till the treble leads, when the bell she turns from lead makes 2nds place, and leads again, the bells in 3, 4, make a single dodge, and the bell behind makes an extra whole pull in that position.

It is rung by the following rule, viz., in hunting up; treble turning you into 5ths, dodge 3, 4, down, *i.e.*, hunt down to thirds, return to fourths, then proceed on your hunting course; treble turning you into 4ths, make the extra whole pull in 5ths, and resume your hunting: turning you into 3rds, dodge 3, 4, up, *i.e.*, hunt up to 4ths, return to 3rds, then continue your upward course: treble turning you from lead, make 2nds place, return to lead, and resume your hunting course; it will also be found that these movements follow each other in the order given.

BOB.

B 3 1 5 2 4
1 3 2 5 4
1 2 3 5 4
2 1 5 3 4

When a bob is required to be made, the usual whole pull notice is given by the conductor; when the bell that would per rule dodge 3, 4, down, omits doing so, and hunts direct to lead: the bell that would per rule dodge 3, 4, up, makes 4ths place, and returns to lead, and the bell that would per rule make 2nds place omits doing so, and continues her undisturbed hunting course.



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Albion Surprise Major.

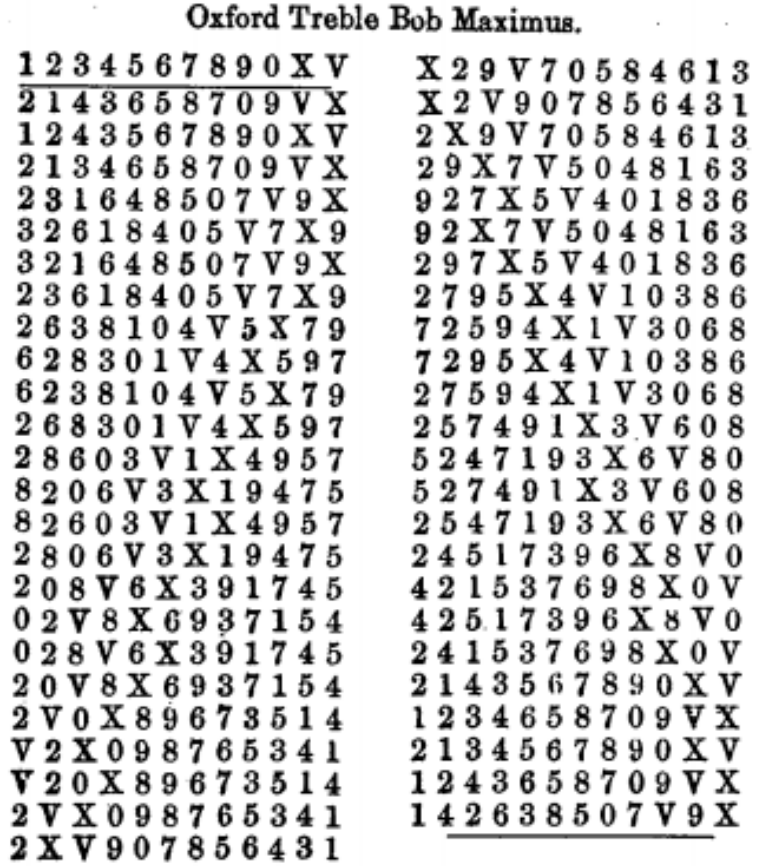
1 2 3 4 5 6 7 8	6 4 8 2 7 1 5 3	7 5 3 8 6 1 4 2
2 1 4 3 5 6 8 7	6 8 4 7 2 5 1 3	5 7 3 8 1 6 2 4
1 2 3 4 6 5 7 8	8 6 4 7 5 2 3 1	5 3 7 1 8 2 6 4
2 1 4 3 6 5 8 7	6 8 7 4 2 5 1 3	3 5 1 7 8 2 4 6
2 4 1 6 3 8 5 7	8 6 7 4 5 2 3 1	5 3 7 1 2 8 6 4
4 2 6 1 3 8 7 5	8 7 6 5 4 3 2 1	3 5 1 7 2 8 4 6
2 4 1 6 8 3 5 7	7 8 6 5 3 4 1 2	3 1 5 2 7 4 8 6
4 2 6 1 8 3 7 5	8 7 5 6 4 3 2 1	1 3 2 5 7 4 6 8
4 6 2 8 1 7 3 5	7 8 5 6 3 4 1 2	3 1 5 2 4 7 8 6
6 4 2 8 7 1 5 3	7 5 8 3 6 1 4 2	1 3 2 5 4 7 6 8
4 6 8 2 1 7 3 5	5 7 8 3 1 6 2 4	1 3 5 2 7 4 8 6

Superlative Surprise Major.

1 2 3 4 5 6 7 8	8 6 4 2 5 1 7 3	8 5 6 7 2 1 4 3
2 1 4 3 6 5 8 7	6 8 2 4 5 7 1 3	5 8 7 6 1 2 3 4
1 2 4 6 3 5 7 8	8 6 4 2 7 5 3 1	8 5 7 1 6 2 4 3
2 1 6 4 5 3 8 7	6 8 4 7 2 5 1 3	5 8 1 7 2 6 3 4
2 6 1 4 3 5 7 8	8 6 7 4 5 2 3 1	8 5 7 1 2 3 6 4
6 2 4 1 5 3 8 7	6 8 4 7 2 5 3 1	5 8 1 7 3 2 4 6
2 6 1 4 5 8 3 7	8 6 7 4 5 2 1 3	5 1 8 7 2 3 6 4
6 2 4 1 8 5 7 3	6 8 7 5 4 2 3 1	1 5 7 8 3 2 4 6
2 6 4 8 1 5 3 7	8 6 5 7 2 4 1 3	5 1 7 3 8 2 6 4
6 2 8 4 5 1 7 3	6 8 7 5 2 1 4 3	1 5 3 7 2 8 4 6
6 8 2 4 1 5 3 7	8 6 5 7 1 2 3 4	1 5 7 3 8 2 6 4

Cambridge Surprise Major.

1 2 3 4 5 6 7 8	7 2 4 6 8 1 5 3	5 8 4 7 6 1 2 3
2 1 4 3 6 5 8 7	2 7 6 4 8 5 1 3	8 5 7 4 1 6 3 2
1 2 4 6 3 8 5 7	7 2 4 6 5 8 3 1	5 8 7 1 4 6 2 3
2 1 6 4 8 3 7 5	7 4 2 5 6 8 1 3	8 5 1 7 6 4 3 2
2 6 1 4 3 8 5 7	4 7 5 2 8 6 3 1	8 5 7 1 6 3 4 2
6 2 4 1 8 3 7 5	7 4 2 5 6 8 3 1	5 8 1 7 3 6 2 4
6 2 1 4 8 7 3 5	4 7 5 2 8 6 1 3	5 1 8 7 6 3 4 2
2 6 4 1 7 8 5 3	4 5 7 8 2 6 3 1	1 5 7 8 3 6 2 4
6 2 4 7 1 8 3 5	5 4 8 7 6 2 1 3	5 1 7 3 8 2 6 4
2 6 7 4 8 5 1 3	4 5 7 8 6 1 2 3	1 5 3 7 2 8 4 6
2 7 6 4 1 8 3 5	5 4 8 7 1 6 3 2	1 5 7 3 8 2 6 4



Oxford Treble Bob Maximus.

1 2 3 4 5 6 7 8 9 0 X V	X 2 9 V 7 0 5 8 4 6 1 3
2 1 4 3 6 5 8 7 0 9 V X	X 2 V 9 0 7 8 5 6 4 3 1
1 2 4 3 5 6 7 8 9 0 X V	2 X 9 V 7 0 5 8 4 6 1 3
2 1 3 4 6 5 8 7 0 9 V X	2 9 X 7 V 5 0 4 8 1 6 3
2 3 1 6 4 8 5 0 7 V 9 X	9 2 7 X 5 V 4 0 1 8 3 6
3 2 6 1 8 4 0 5 V 7 X 9	9 2 X 7 V 5 0 4 8 1 6 3
3 2 1 6 4 8 5 0 7 V 9 X	2 9 7 X 5 V 4 0 1 8 3 6
2 3 6 1 8 4 0 5 V 7 X 9	2 7 9 5 X 4 V 1 0 3 8 6
2 6 3 8 1 0 4 V 5 X 7 9	7 2 5 9 4 X 1 V 3 0 6 8
6 2 8 3 0 1 V 4 X 5 9 7	7 2 9 5 X 4 V 1 0 3 8 6
6 2 3 8 1 0 4 V 5 X 7 9	2 7 5 9 4 X 1 V 3 0 6 8
2 6 8 3 0 1 V 4 X 5 9 7	2 5 7 4 9 1 X 3 V 6 0 8
2 8 6 0 3 V 1 X 4 9 5 7	5 2 4 7 1 9 3 X 6 V 8 0
8 2 0 6 V 3 X 1 9 4 7 5	5 2 7 4 9 1 X 3 V 6 0 8
8 2 6 0 3 V 1 X 4 9 5 7	2 5 4 7 1 9 3 X 6 V 8 0
2 8 0 6 V 3 X 1 9 4 7 5	2 4 5 1 7 3 9 6 X 8 V 0
2 0 8 V 6 X 3 9 1 7 4 5	4 2 1 5 3 7 6 9 8 X 0 V
0 2 V 8 X 6 9 3 7 1 5 4	4 2 5 1 7 3 9 6 X 8 V 0
0 2 8 V 6 X 3 9 1 7 4 5	2 4 1 5 3 7 6 9 8 X 0 V
2 0 V 8 X 6 9 3 7 1 5 4	2 1 4 3 5 6 7 8 9 0 X V
2 V 0 X 8 9 6 7 3 5 1 4	1 2 3 4 6 5 8 7 0 9 V X
V 2 X 0 9 8 7 6 5 3 4 1	2 1 3 4 5 6 7 8 9 0 X V
V 2 0 X 8 9 6 7 3 5 1 4	1 2 4 3 6 5 8 7 0 9 V X
2 V X 0 9 8 7 6 5 3 4 1	1 4 2 6 3 8 5 0 7 V 9 X
2 X V 9 0 7 8 5 6 4 3 1	

Jasper Snowdon to the Rescue!

- Published *Standard Methods in the Art of Change-Ringing* in 1881
- It was a follow up to *Ropesight: An Introduction to the Art of Change Ringing*, published in 1879
- Unlike *Ropesight*, which was similar in style to other publications of the time, *Standard Methods* was in two parts, the *Letterpress* which contained the theory and description, and the *Diagrams* which contained the full plain courses of all the methods discussed.
- Both *Ropesight* and *Diagrams* (14th edition) are still in print!

THE LATE JASPER WHITFIELD SNOWDON.

'In these pages I have laid down such rules as I have found most suitable in learning these methods, and as great advantages may be derived from the study of the path of a bell and its relation to that of the treble, when facilitated by some distinguishing marks, I have added, in full, a plain course of each of these methods, in which the path of the treble is made more apparent by a red line running through it, and the work of another bell, generally the second, is distinguished by a corresponding blue line ...'

Jasper Snowdon's
Standard Methods in the Art of Change-Ringing

BOB DOUBLES; *Diagram page* 1.

Duty of each bell, after making second's place.

1.—Turn the treble from behind ..Dodge in 3-4 down.
2.—Pass the treble in 3-4 .....Lie four blows behind.
3.—Pass the treble in 2-3 .....Dodge in 3-4 up.
4.—Treble turns you from the lead, Make second's place, and lead again.

The following example shows how a bob is made; fourth's place being made instead of second's place:

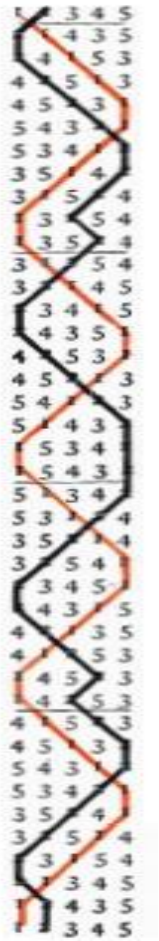
35241
32514
23154
21345
Bob { 12435 / 14235 }
41325
43152

As a bob causes an alteration in the work of the bells in front only, the following table of these alterations will serve for this and any other number of bells:

A bob alters the work of the bells thus:

A bell, that would have made second's place, runs out quick.
A bell, that would have dodged in 3-4 down, runs in quick.
A bell, that would have dodged in 3-4 up, makes fourth's place and goes down to lead again, and is said to "make the bob."

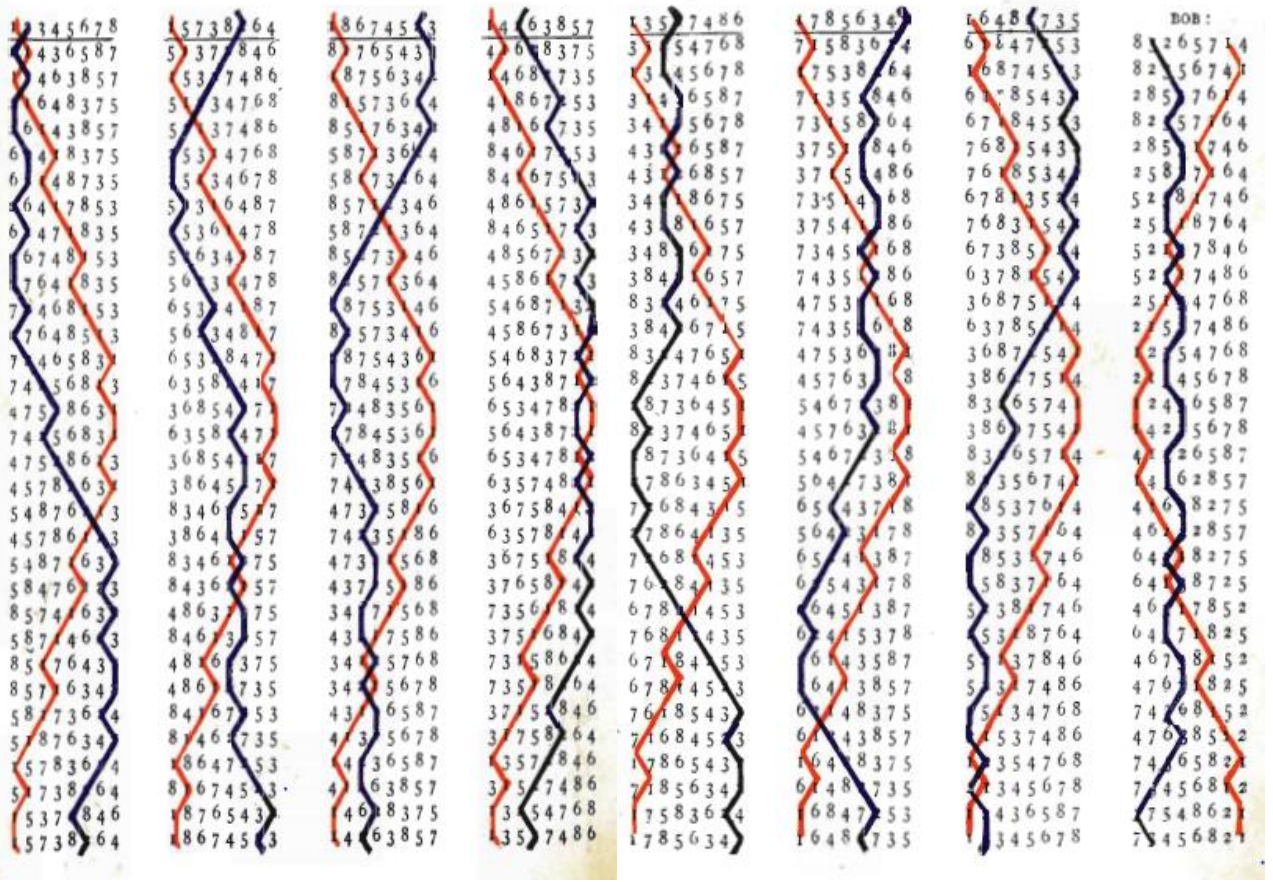
PLAIN BOB.



CAMBRIDGE SURPRISE.

CAMBRIDGE SURPRISE (*Continued*).

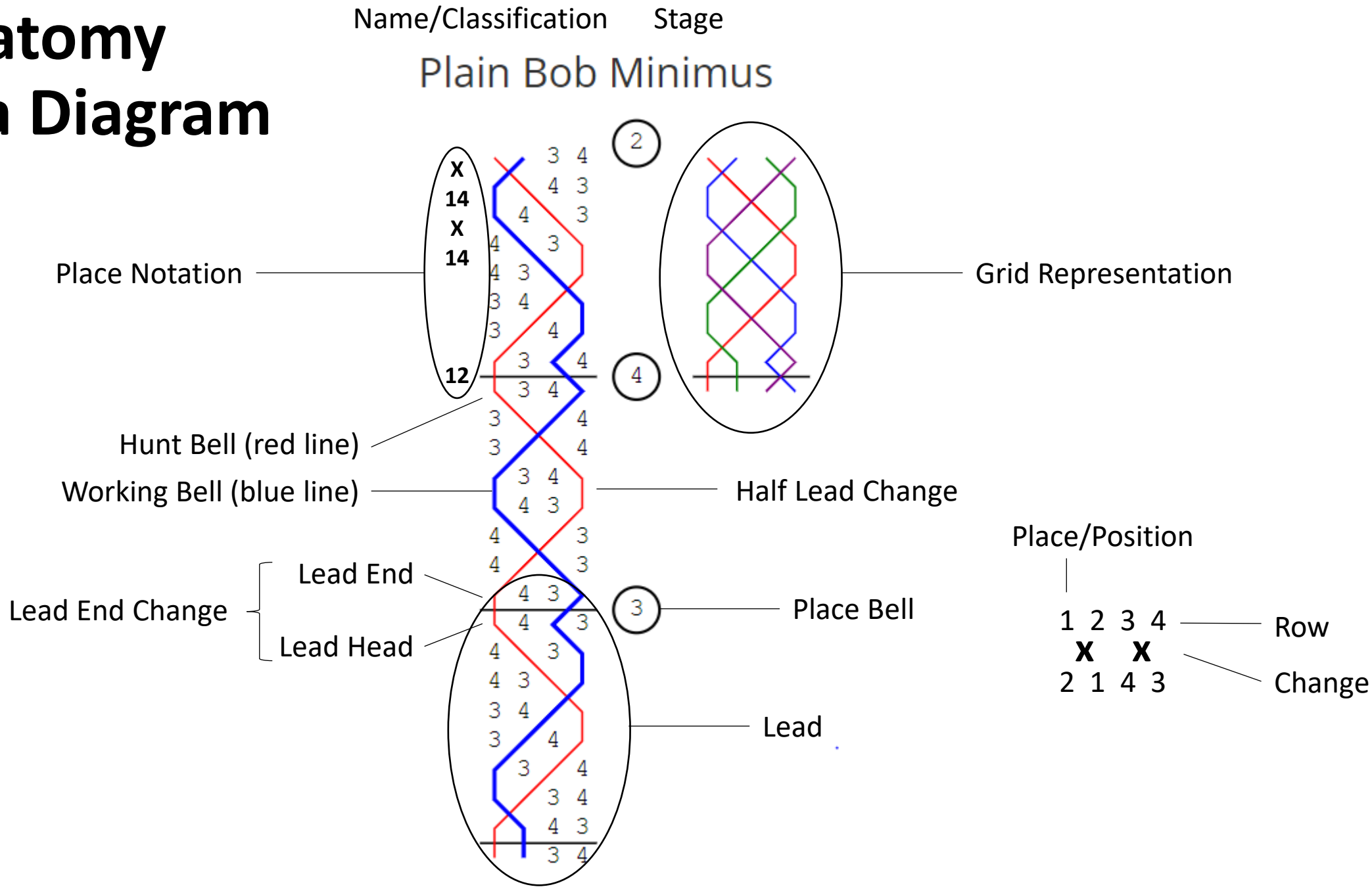
BOB:



Letterpress (1908 Edition)

Diagrams (1908 Edition)

Anatomy of a Diagram



Method Stages

- The stage indicates the number bells taking part in a given method
- Odd stages are:
  - 3 bells - Singles
  - 5 bells - Doubles
  - 7 bells - Triples
  - 9 bells - Caters
  - 11 bells - Cinques
  - 13 bells - Sextuples
  - 15 bells - Septuples

Even stages are:

4 bells - Minimus
6 bells - Minor
8 bells - Major
10 bells - Royal
12 bells - Maximus
14 bells - Fourteen
16 bells - Sixteen

- Odd-stage methods are often rung on an even number of bells have a stationary ‘cover’ bell(s) ringing at the end of each change, but this is not a requirement

Place Notation: The Code Behind The Diagram

- Place notation is a shorthand code containing all of the information required to construct a method diagram

- If you know the stage and place notation of a method then you have all you need to write out its diagram, even if you have no idea at all what the blue line looks like

- Let’s first consider how place notation works, and then use it to write out a lead of a less common method.

Place Notation

- To construct a method diagram we need instructions that tell us what each bell does at every change of the plain course. What is the most concise way of doing this? Let's consider a possible change:

1 2 3 4
X X
2 1 4 3

- Some possible instructions that could describe this change are:
  - 2 moves to 1st place, 1 moves to 2nd place, 3 moves to 4th place, 4 moves to 3rd place
  - 1 and 2 swap, 3 and 4 swap
  - Bell in 2nd place moves to 1st place, bell in lead moves to 2nd place….
  - All bells swap (or, alternatively, no bells stay in the same place)

Place Notation

- What if we keep the movement the same, but alter the order of the bells?

1 3 4 2
X X
3 1 2 4

- Do our previous instructions still work for the new change?
  - 2 moves to 1st place, 1 moves to 2nd place, 3 moves to 4th place, 4 moves to 3rd place
  - 1 and 2 swap, 3 and 4 swap
  - Bell in 2nd place moves to 1st place, bell in lead moves to 2nd place….
  - All bells swap (or, alternatively, no bells stay in the same place)
- The fourth definition works, and is the most concise, so we will use this one
- NB: This sort of change can only happen at even stages, since the bells need to be in pairs to be able to all swap at the same time

Place Notation

- Now, how about if some of the bells stay in the same place?

1 3 2 4
| | X
1 3 4 2

- From the previous example, we know that describing the position of the bells, rather than the specific bell numbers, is more helpful.
- A good instruction for this change would be:
  - The bells in 1st and 2nd place stay the same (or ‘make a place’), the bells in 3rd and 4th place swap
- Since we specify all of the places where bells are not moving we can drop the second half of the statement, as it is implied by the first half.
- So our instruction becomes:
  - The bells 1st and 2nd make a place

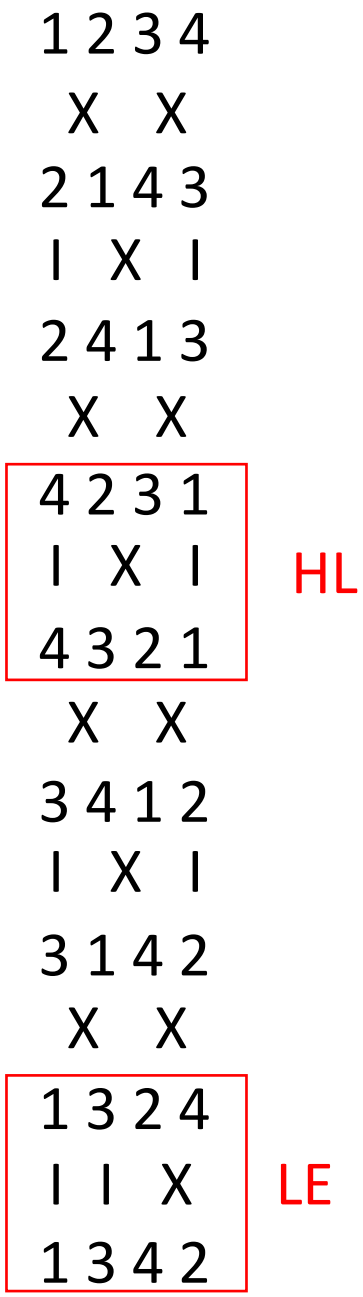
Place Notation

- Now let's write a set of instructions for the first lead of Plain Bob Minimus:
  1. All bells swap
  2. 1st & 4th bells make a place
  3. All bells swap
  4. 1st & 4th bells make a place – Half Lead Change
  5. All bells swap
  6. 1st & 4th bells make a place
  7. All bells swap
  8. 1st & 2nd bells make a place – Lead End Change
- The vast majority of methods have leads that are symmetrical, so that the changes in the second half of the lead are a mirror image of those in the first half.

1 2 3 4
X X
2 1 4 3
I X I
2 4 1 3
X X
4 2 3 1
I X I
4 3 2 1 HL
X X
3 4 1 2
I X I
3 1 4 2
X X
1 3 2 4
I I X
1 3 4 2 LE

Place Notation

- We can take advantage of this symmetry to simplify our instructions:
  1. All bells swap
  2. 1st & 4th bells make a place
  3. All bells swap
  4. 1st & 4th bells make a place – Half Lead Change
  3. All bells swap
  2. 1st & 4th bells make a place
  1. All bells swap
  0. 1st & 2nd bells make a place – Lead End Change
- After the half lead change, the instructions are just the first half of the lead in reverse, with the lead end change added at the end



Place Notation

- Here's an even simpler version:
  1. All bells swap
  2. 1st & 4th bells make a place
  3. All bells swap
  4. 1st & 4th bells make a place – Half Lead Change
  5. 1st & 2nd bells make a place – Lead End Change
  6. 1st & 2nd bells make a place – Lead End Change
- Using these instructions we can construct the first lead of Reverse Canterbury
- But we know that the first instruction is symmetrical, so we don't need to write it down twice
- The final step is to create a shorthand for the above instructions

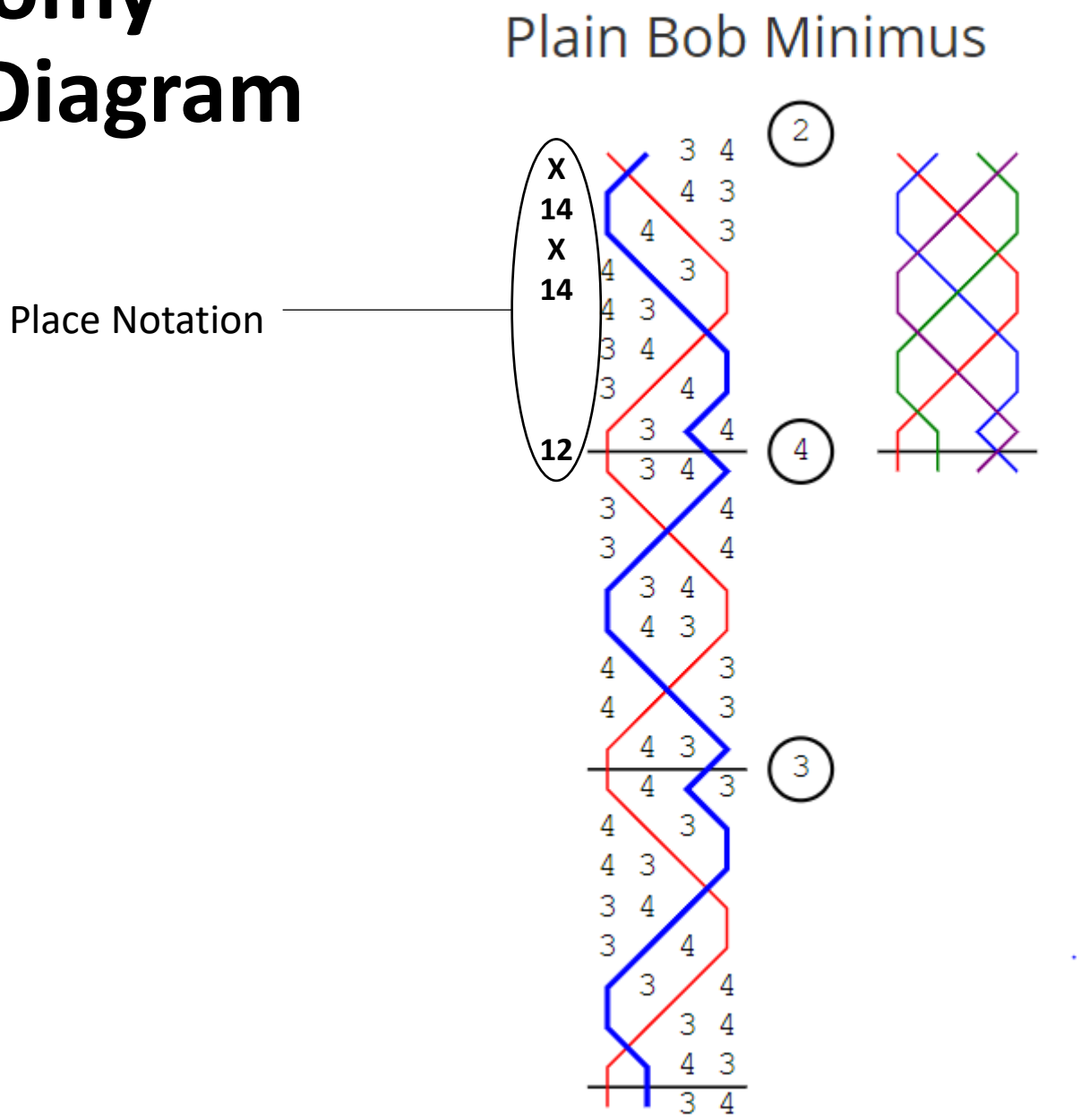
1 2 3 4
X X
2 1 4 3
I X I
2 4 1 3
X X
4 2 3 1
I X I
4 3 2 1 HL
X X
3 4 1 2
I X I
3 1 4 2
X X
1 3 2 4
I I X
1 3 4 2 LE

Place Notation

- Let's use an X to represent the 'All bells swap' rule
- And for changes where a place is made, we will just use the place numbers alone, so '1st and 4th bells make a place' becomes '14'
- So now our instructions are:
  1. X
  2. 14
  3. X
  4. 14 HL
  5. 12 LE
- We could also write this as X 14 X 14 LE:12 or X 14 X 14 - 12

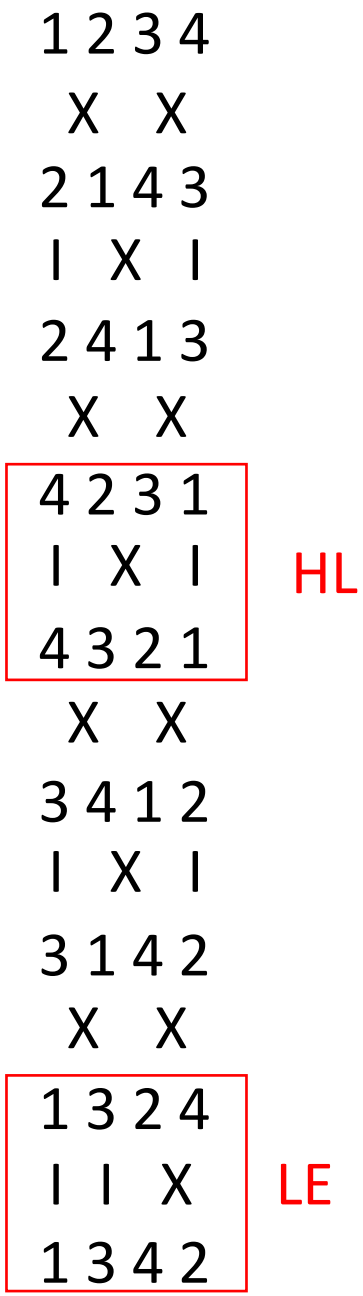
1 2 3 4
X X
2 1 4 3
I X I
2 4 1 3
X X
4 2 3 1
I X I
4 3 2 1
HL
X X
3 4 1 2
I X I
3 1 4 2
X X
1 3 2 4
I I X
1 3 4 2
LE

Anatomy of a Diagram



Place Notation – Additional Points

- In our example we have an ‘X’ every other change, but this is not always the case (and is never the case at odd-numbered stages)
- Therefore we need a way of separating the notation when we have consecutive changes with places. We’ll use a full stop, e.g. 12.34
- BEWARE: Place notation is not standardised:
  - -14.12.36.12.56,12
  - X14.12.36.12.56-12
- Both of the above are the same place notation displayed using slightly different shorthands!



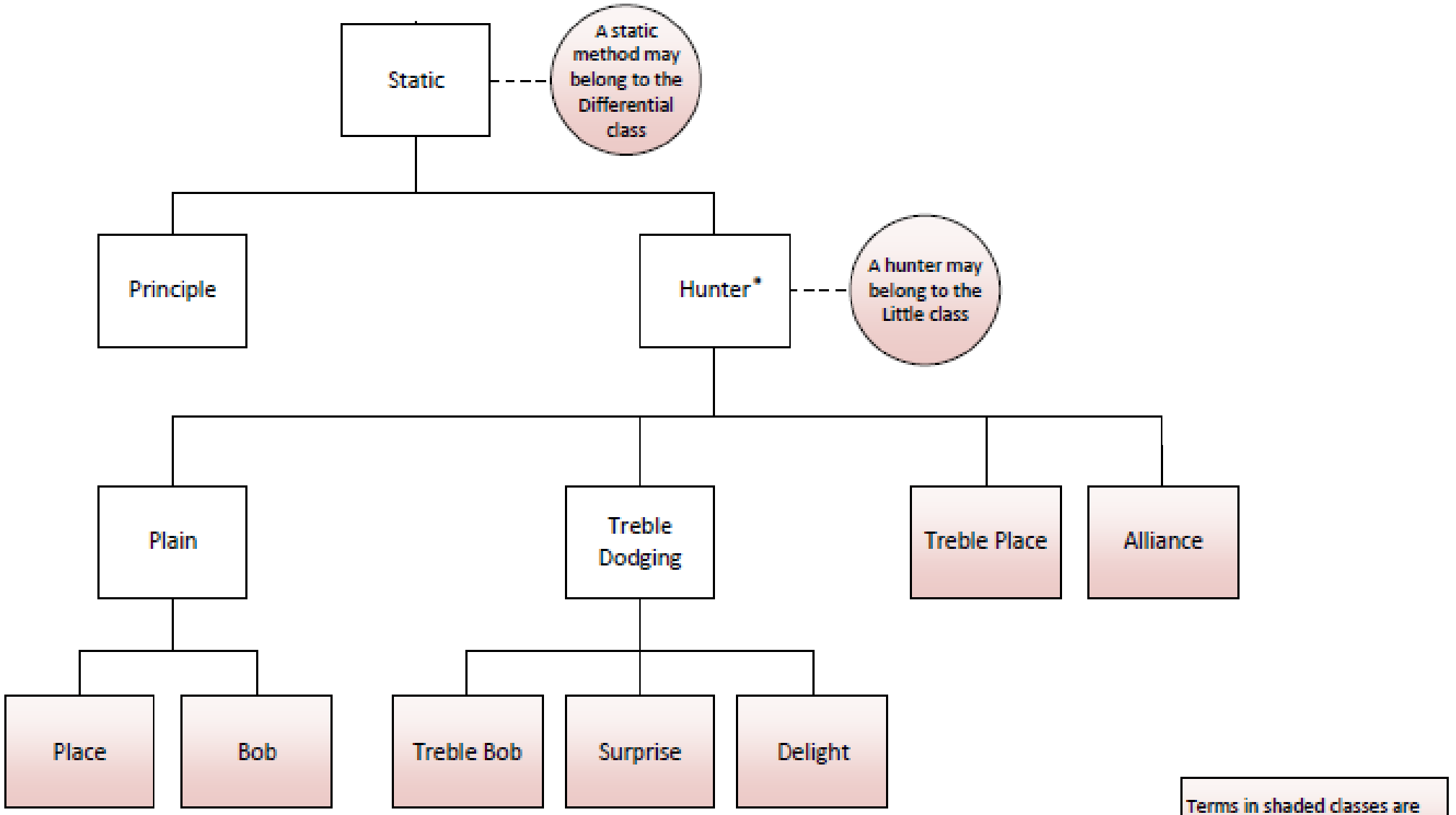
Place Notation – Putting it into Practice

X 14.12.36.12.56-12

- Repeat x4 to get a full plain course
- This method is Corse Bob Minor, once you've written it out you can look up the blue line to double check!

1 2 3 4 5 6
2 1 4 3 6 5
2 4 1 3 5 6
2 4 3 1 6 5
4 2 3 6 1 5
4 2 6 3 5 1
2 4 3 6 5 1
2 4 6 3 1 5
4 2 6 1 3 5
4 2 1 6 5 3
4 1 2 6 3 5
1 4 6 2 5 3
1 4 2 6 3 5

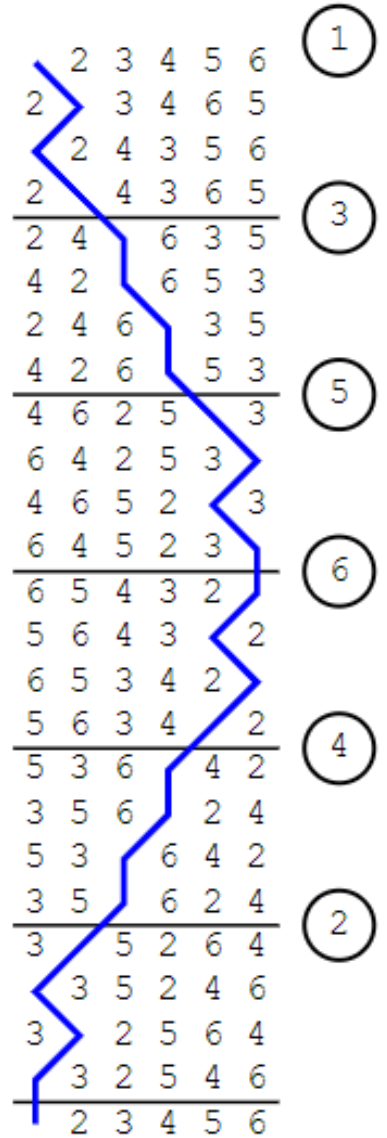
Method Classification



Principles

- All bells follow the same path, with no hunt bell
- Since there is no hunt bell, principles do not contain ‘leads’ or ‘lead ends’, but are still split into ‘place bells’
- The length of each place bell can vary, as it is not dictated by the path of a hunt bell.
- Well-known principles include
  - Original (Plain Hunt)
  - Forward
  - Stedman
  - Erin
- NB: Stedman place bells are 12 rows long (2 sixes per place bell), and the place bells start half way through a six!

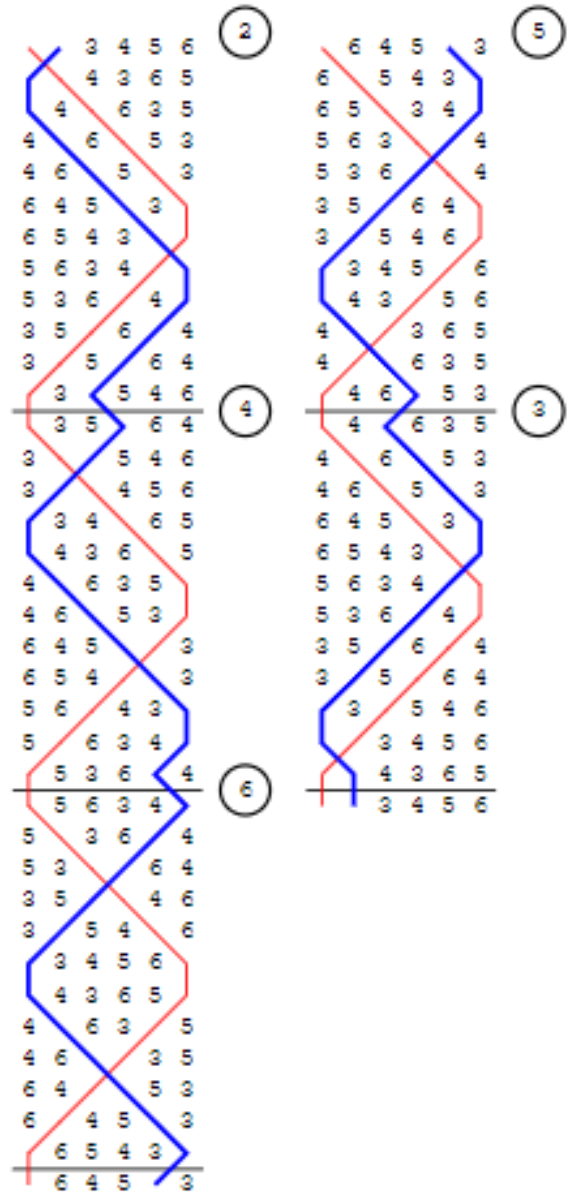
Forward Minor



Plain Hunters

- Hunt bell(s) plain hunt
- Plain hunters exist at all stages
- Leads are 2n changes long (where n = number of bells)
- In ‘Plain Place’-type methods the working bells only make places, with no dodges, e.g. Reverse Canterbury Pleasure Place Doubles (most plain place methods are doubles)
- All other Plain methods are ‘Plain Bob’-type methods
- Plain hunters can have multiple hunt bells, e.g. Grandsire, Canny Bob Triples

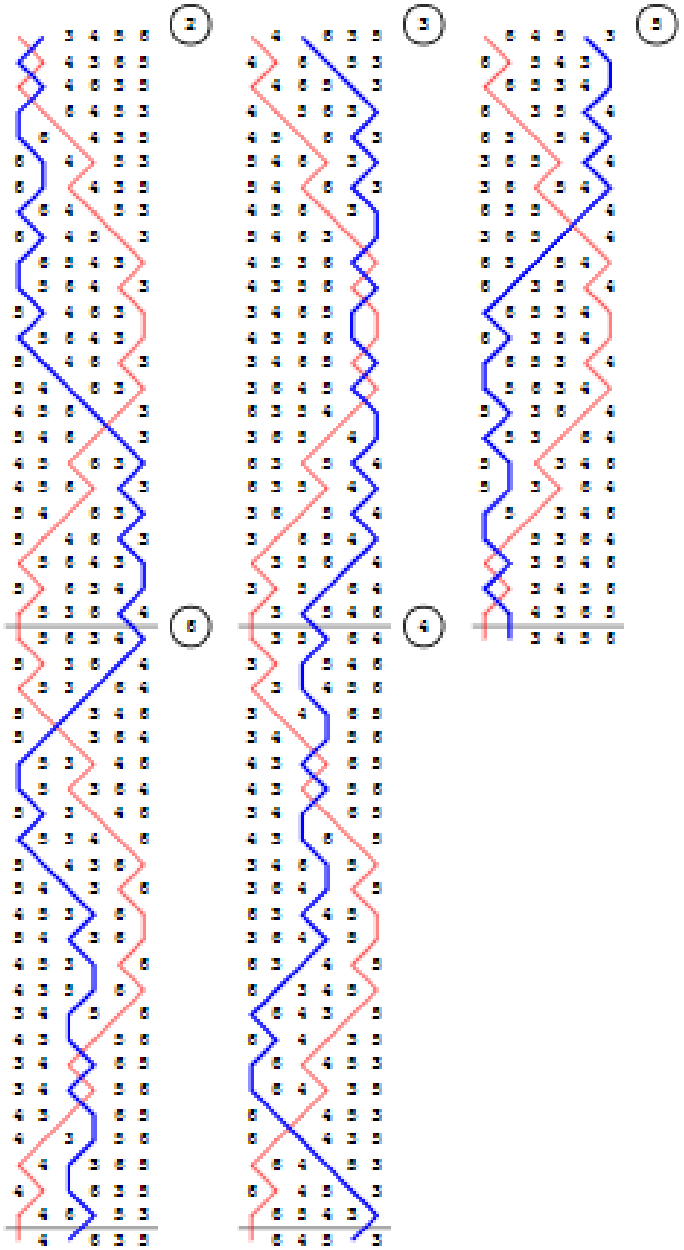
Plain Bob Minor



Treble Bob Hunters

- Hunt bell follows a path defined by the following rules:
  - Ringing more than twice in each position during a lead
  - Ringing the same number of times in each position during a lead
  - Only makes two places during a lead
- This almost always means that the hunt bell ‘Treble Bob Hunts’, with a single dodge in each dodging position as it progresses through the lead, with a place made at the front and back
- Leads are (usually) 4n changes long, but the hunt bell can dodge more than once in each position, as long as the rules above are satisfied (see Double Darrowby Surprise Major!)
- Only possible on even stages
- Most are ‘regular’ i.e. have Plain Bob lead ends
- Treble bob hunters are divided into three sub-types
  - Treble Bob methods
  - Surprise methods
  - Delight methods

Cambridge Surprise Minor



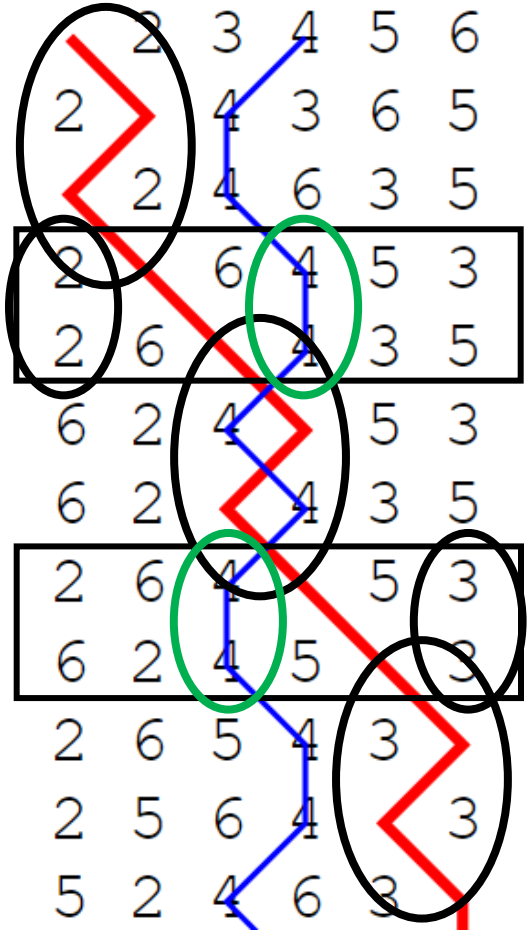
When is a Surprise not a Surprise?

- Definitions:
  - In a **Treble Bob** method, none of the working bells make an internal place whenever the hunt bell moves between its dodging positions.
  - In a **Surprise** method, at least one working bell makes an internal place whenever the hunt bell moves between its dodging positions.
  - In a **Delight** method, there is a combination of an internal place(s) and no internal places made whenever the hunt bell moves between its dodging positions.

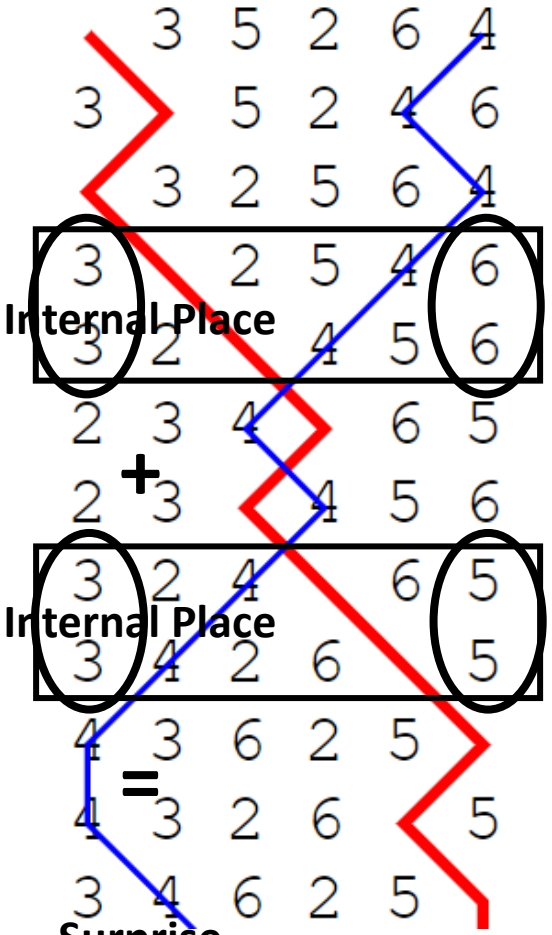
- In English?
  - What is an internal place?
  - What about the business with the hunt bell?
  - We'll consider this on six bells, but the rules apply at all stages!

When is a Surprise not a Surprise?

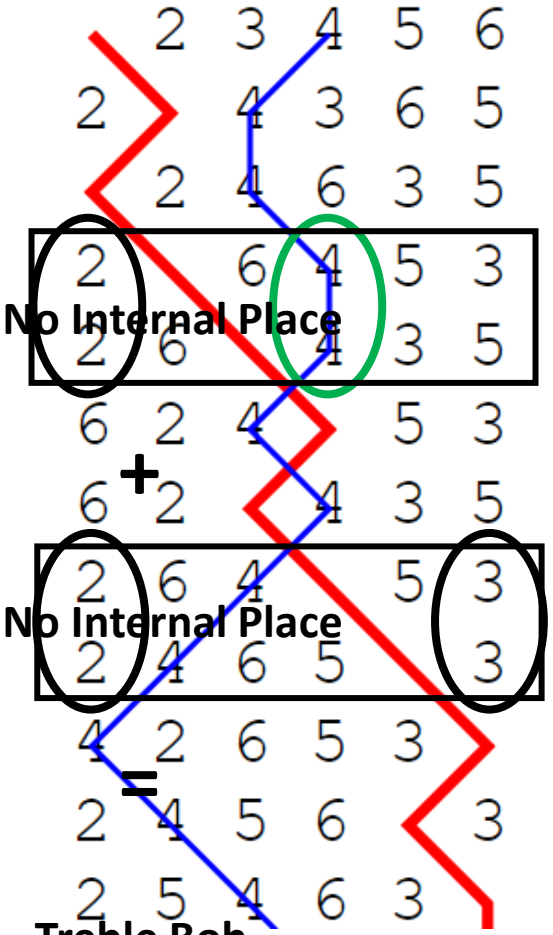
Surprise



Treble Bob



Delight



At higher stages each lead has more dodging positions for the hunt bell, and therefore more changes to check for internal places, but the same rules still apply:

Internal Place
Always an internal place
=
+ Surprise

Never an internal place
No Internal Place
=
Treble Bob

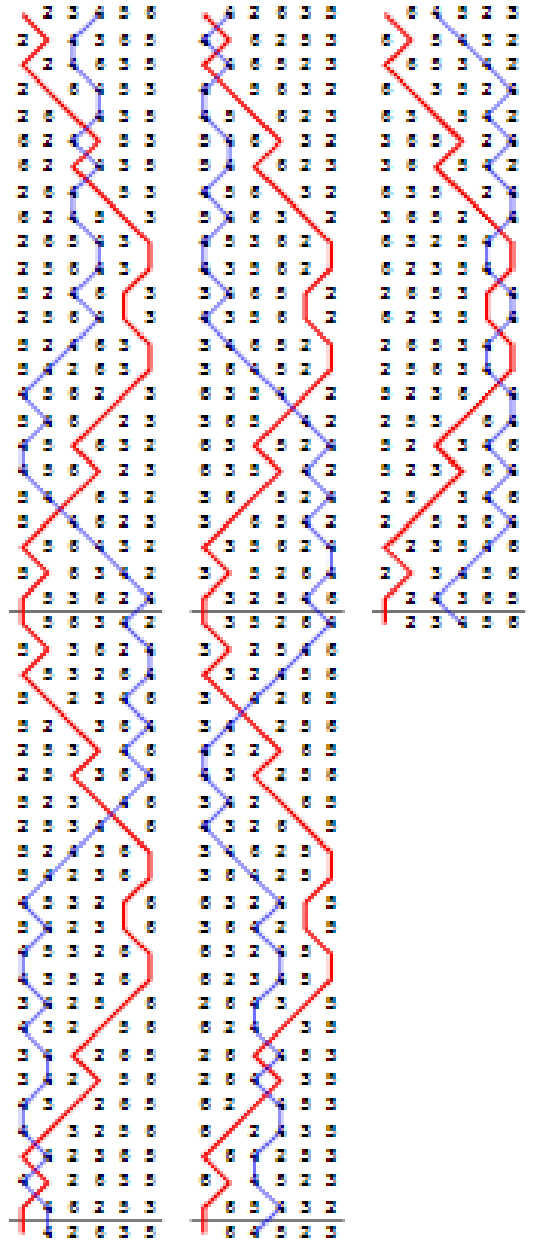
=
A combination
=
Delight

Delight

Treble Place Hunters

- Hunt bell follows a path defined by the following rules:
  - Ringing more than twice in each position during a lead
  - Ringing the same number of times in each position during a lead
  - Makes a place more than twice during the lead
- Possible on odd and even stages
- Most commonly, the hunt bell ‘Treble Bob Hunts’ but makes places in 12 or 56 instead of dodging
- The hunt bell path can be more complicated than this, as long as it satisfies the rules above
- Some treble place hunters are ‘trivial variations’ of recognisable treble bob hunters (see right), whilst others are very different!

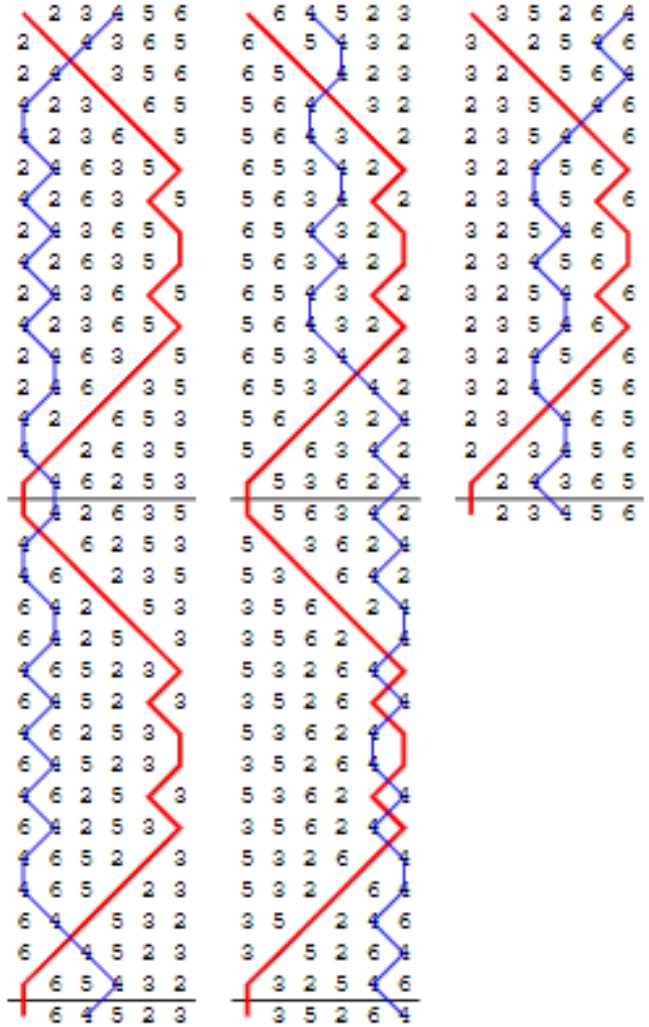
Cambridge Treble Place Minor



Alliance Hunters

- Hunt bell does not ring an even number of times in each position during a lead
- Possible on odd and even stages
- Usually the hunt bell path is a combination of Treble Bob and Plain Hunting

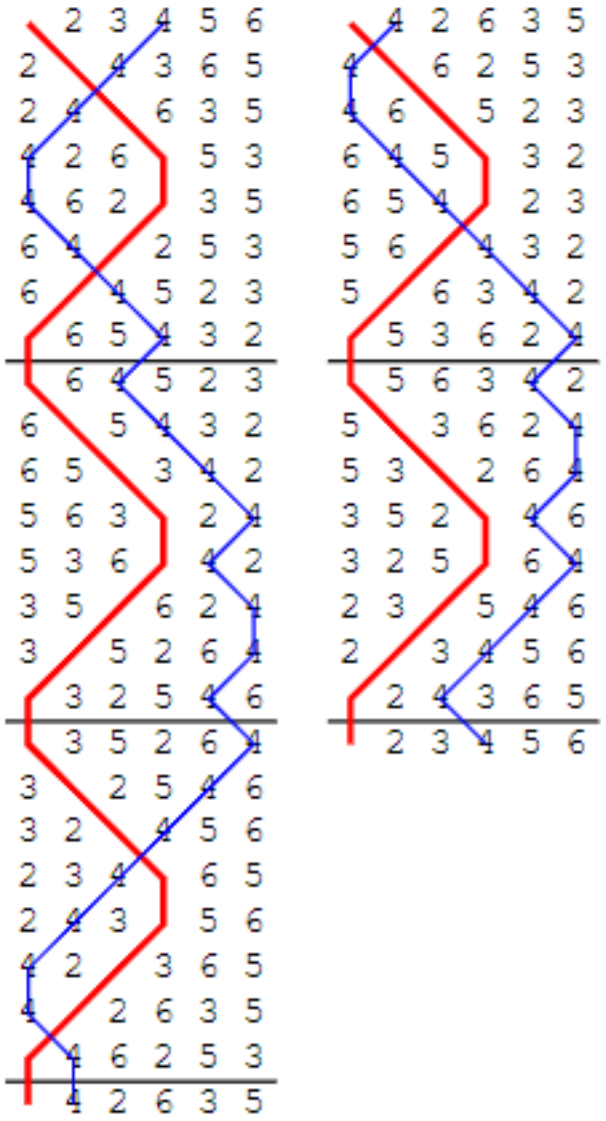
Winchcombe Alliance Minor



Little Hunters

- All method types in the hunter group can be also be ‘Little’
- The hunt bell path follows the rules for that type of hunter, but does not ring in all of the positions during a each lead
- Usually the hunt bell starts at the front and ‘turns around’ before reaching the back
- Little Bob and Bastow Little Bob are the most commonly rung
- Little Surprise methods are sometimes rung at higher stages (e.g. Littleport Little Surprise)

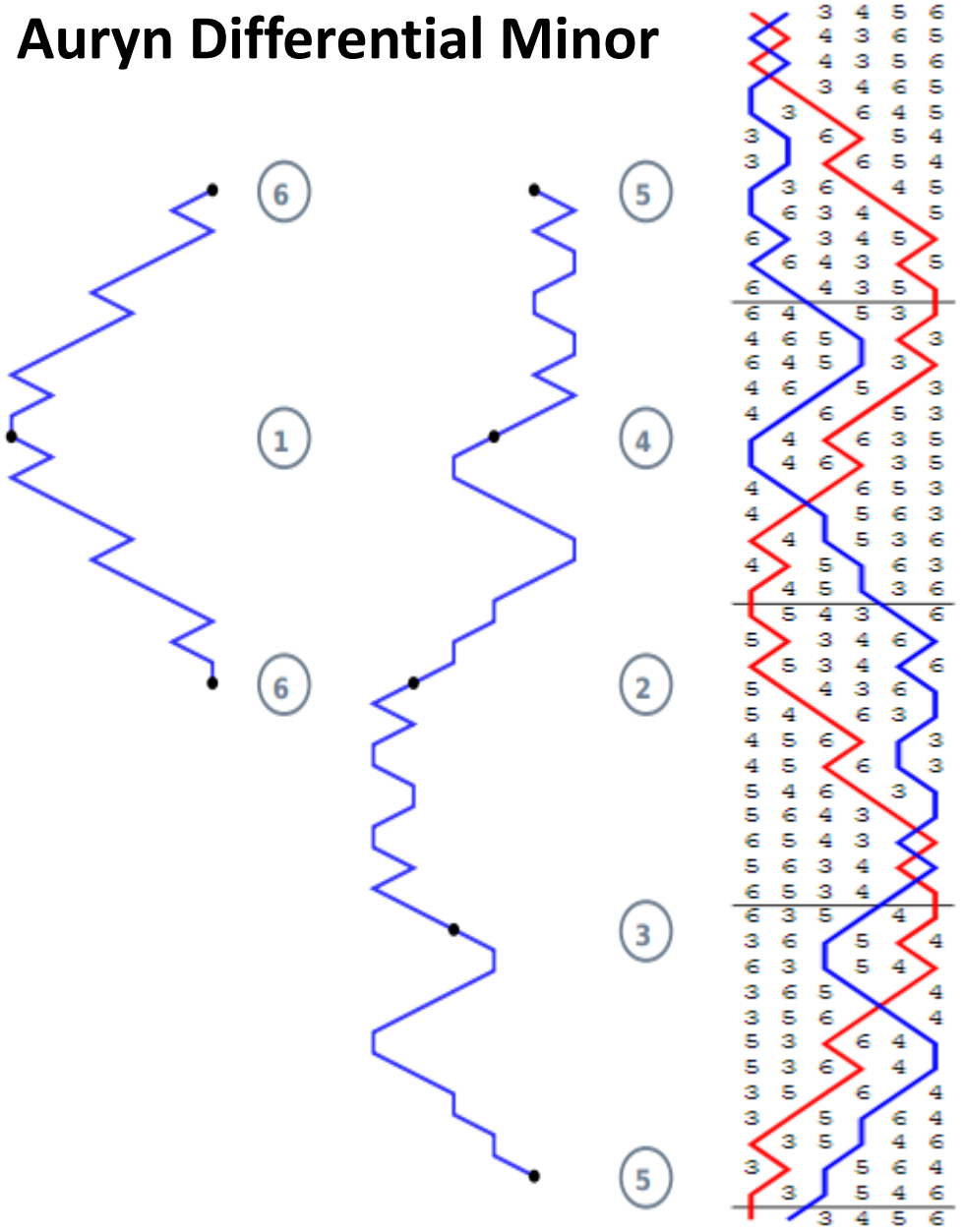
Little Bob Minor



Differentials

- Defined as a method where the working bells do not all reach their starting positions after the same number of leads
- Essentially these are methods with more than one blue line, with at least two bells on each line
- May have a hunt bell (Differential Hunter) or no hunt bell
- If there is no hunt bell, then the length of a lead is not fixed, as with principles
- The length of a differential plain course is not always obvious!

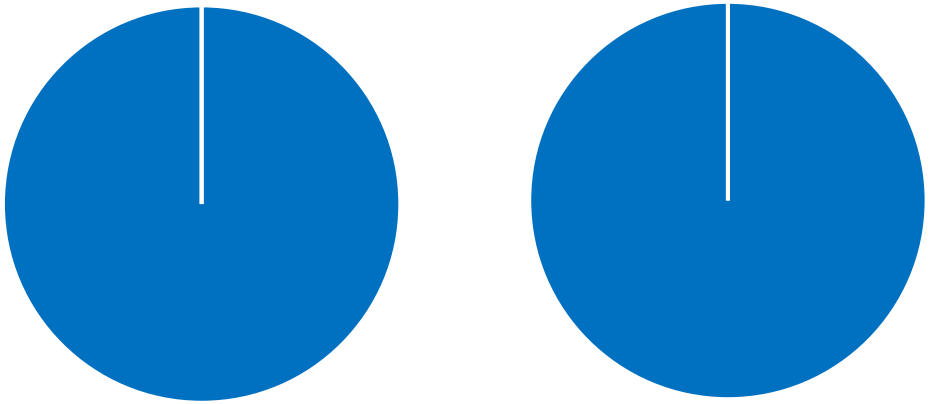
Auryn Differential Minor



When does a Differential End?

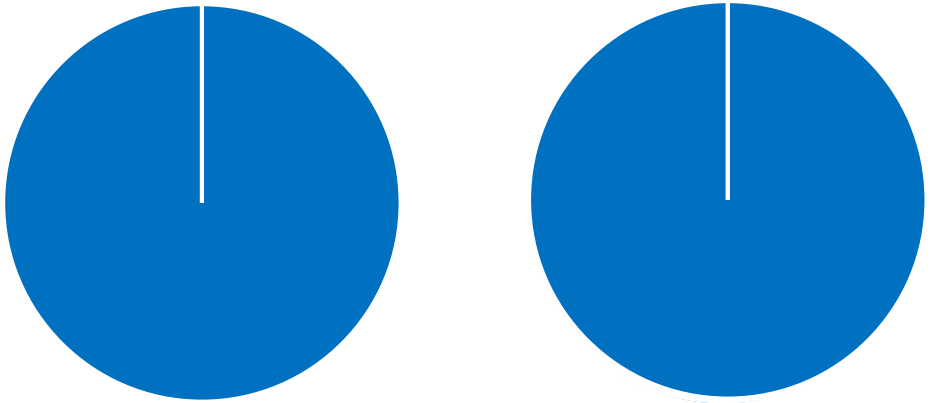
- Normally, the number of leads in a plain course is the same as the number of working bells.
- In Differentials, the number of leads depends on the number of bells in each group.
- It is the smallest number that can be divided by the number of bells in each group
- Double Helix Differential Major has a group of 3 and a group of 5, so 15 leads in a plain course. Each lead is 112 changes long, so a plain course is 1680 changes long!

6 Bells, Group of 2, Group of 4



4

8 Bells, Group of 3, Group of 5



15

Method Naming and Extension

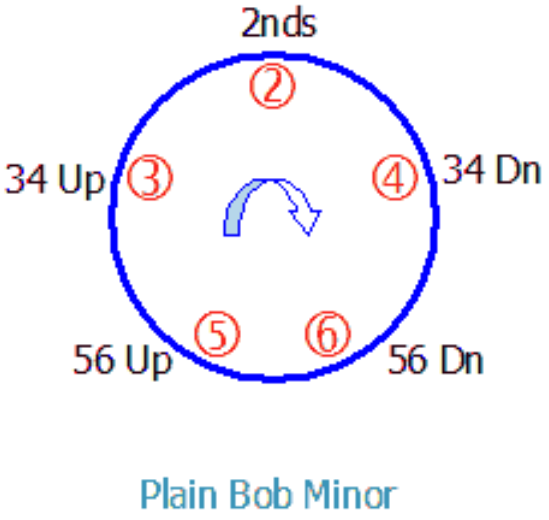
- Method titles consist of a method name, a method classification and a stage (e.g. Cambridge Surprise Major), although there are some exceptions to this rule, such as Grandsire, which is technically ‘Grandsire Bob’

- Previously un-rung methods can be named by the first band to ring them, according to rules set by the CCCBR

- Many methods can be extended (or contracted) to be rung at some, or all stages. The rules for extension are complicated, and whilst some method extensions seem very obvious (e.g. Plain Bob), others are not so, with multiple different extensions possible at higher stages (e.g. London Surprises Nos. 1-4 Royal). An in-depth discussion of method extension is beyond the scope of this talk!

How Can Blue Lines Help Us?

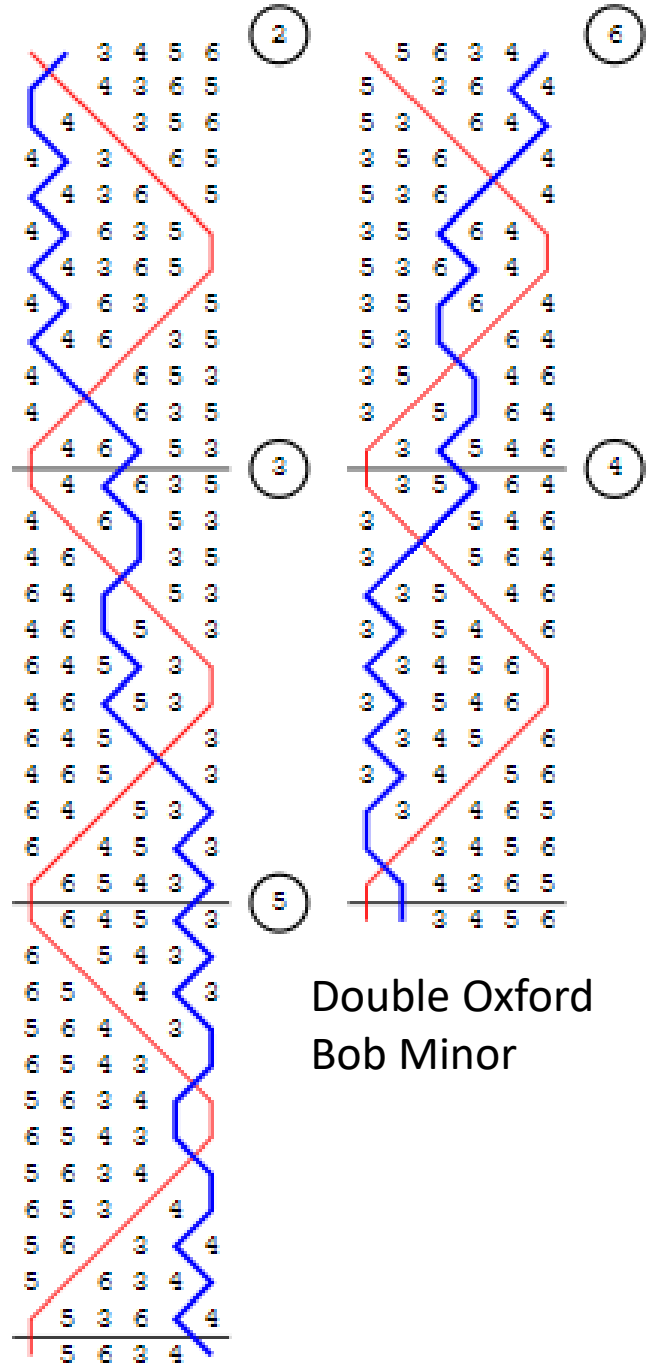
- Circles of work vs Blue lines
- The hunt bell as a landmark – Lead ends and place bells
- What really happens at a call? Rules vs place notation
- Visualising paths and naming patterns



Plain Bob Minor

Circles of Work vs Blue Lines

- Circles of work are a common way of learning plain methods where the ‘work’ happens only at the lead end
- A circle of work is an abbreviated form of the blue line
- However, many methods have additional work between the lead end changes, and are too complicated to represent as a circle of work
- A blue line diagram also has additional useful information (e.g. which bells dodge together, where the treble is passed etc)
- Getting used to looking at (and writing out) blue lines is very helpful when moving to more complex methods



Double Oxford Bob Minor

The Hunt Bell as A Landmark

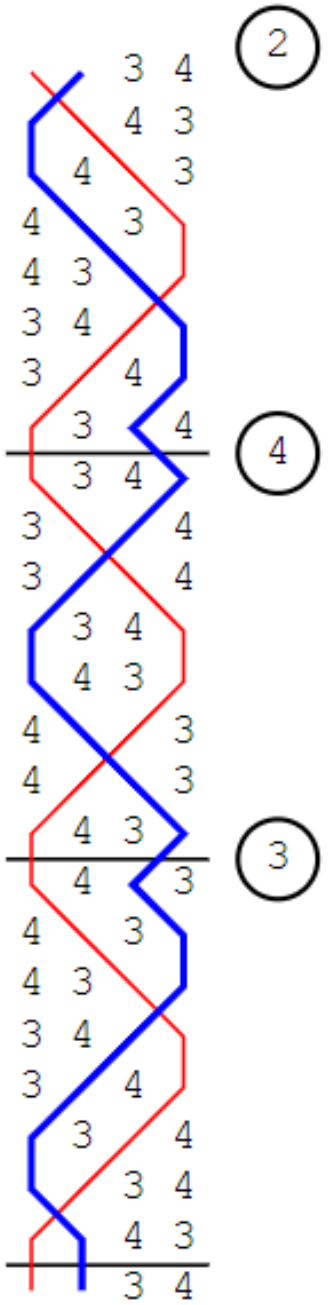
- From the simplest to the most complex methods, the hunt bell is a crucial landmark that can be extremely useful (although not in principles, of course!)

- The most important landmark of all is the Lead End change, when the hunt bell leads

- Other useful landmarks include where your bell passes the hunt bell, and the Half Lead change (when the hunt bell makes a place at the back)

Why is the Lead End so Important?

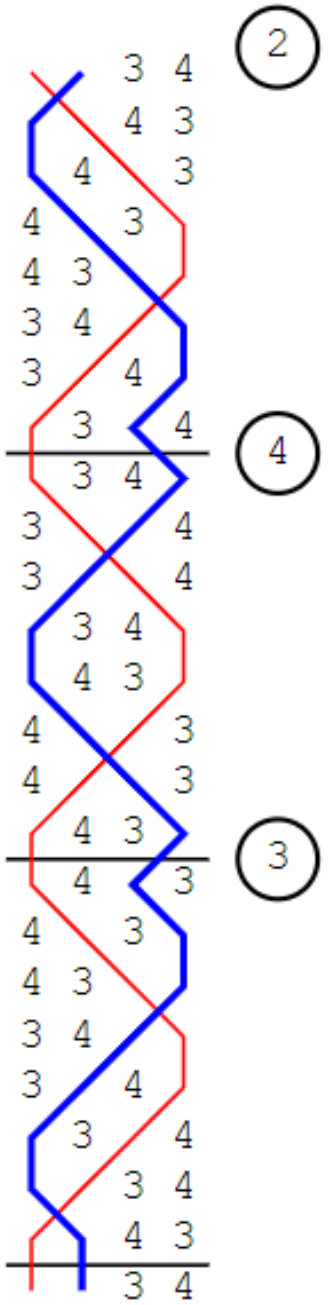
- The Lead End is the point at which the hunt bell returns to its initial position, and marks the point on the blue line where one of the working bells starts its path at the beginning of a plain course
- The section of blue line between one lead end and the next is called a ‘Place Bell’, and each place bell is given a number based on the starting position of the blue line in that lead, e.g. ‘3rd place bell’
- If you’ve ever asked ‘What do I do first in Plain Bob Minor on the 4th’ you’re essentially asking ‘What is 4th place bell’



Learning by Place Bells

- When we first learn methods we tend to learn a separate blue line for each bell. For example, Plain Bob Minimus on the 2nd would be ‘34 down, 34 up, 2nds’, on the 3rd it would be ‘2nds, 34 down, 34 up’ and on the 4th ‘34 up, 2nds, 34 down’

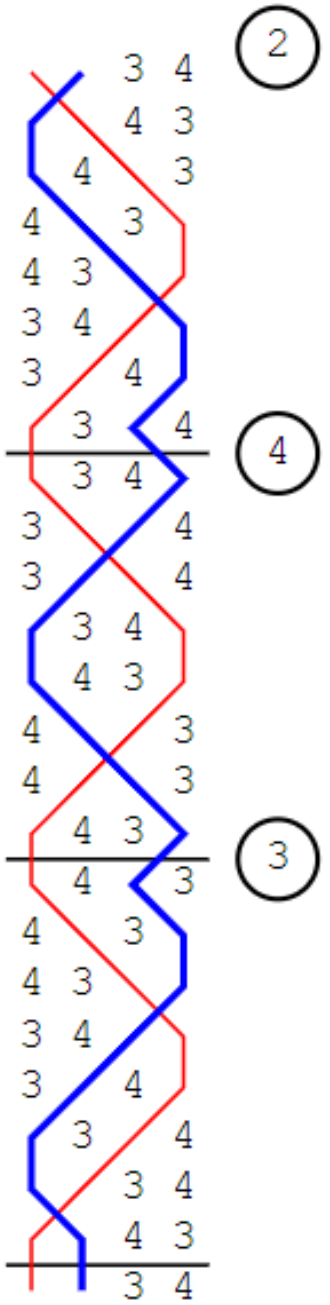
- To learn by place bells, not only do we look at the work of our bell, but we also need to take note of when we reach the starting position of another working bell. For example, in Plain Bob Minimus the work of the 2nd becomes ’start 2nd place bell, 34 down, start 4th place bell, 34 up, start 3rd place bell, 2nds, finish as 2nd place bell’



Why Learn by Place Bells

- There are a number of reasons why it is helpful to learn by place bells, but here are a few of the main ones:

1. As methods become more complex, learning by place bells allows you to break down the blue line into more manageable chunks
2. The lead end is a common place for conductors to correct errors, and this is often done by telling people which place bell they are about to start (or are already) ringing
3. Bobs and singles can change which place bell you ring in the next lead. So, if you want to be prepared for what to do next, you need to know your place bells by heart!

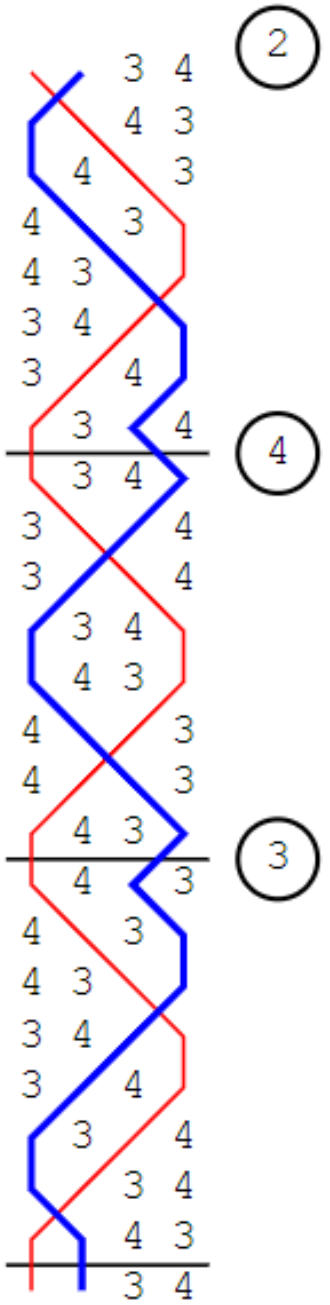


Tips for Learning Place Bells

- Spend time committing place bells to memory, especially:
  - The work that happens during that place bell
  - Which place bell you will become next (changes depending on method!)
  - Which place bell you will become if a call is put in at the end of the lead

- Try some of the following when you are ringing:
  - Spot when the hunt bell is leading
  - Make a mental note of the exact blow that you start each place bell
  - As well as making sure to do all of your hunting, dodging etc. also try to remember which place bell you currently are, and which you will be at the next lead end

- Remember: Dodges, places and even longer sections of work, tend to happen across the lead end, so whilst place bells provide handy ‘chunks’ to digest, you need to remember to stitch them together too!



What Really Happens at a Call?

- Have you ever rung a new method, asked what happens at a bob or single, and been told ‘It’s just the same as in Plain Bob?’

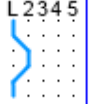
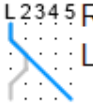
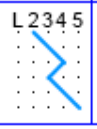
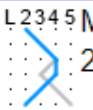
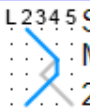
- What does that mean? How can they be the same if you’re ringing a different method? Are they right?

- The answer is both yes and no!

What Really Happens at a Call?

Work at Bob and Single in Plain Bob

This table illustrates how you will be affected if the conductor calls a Bob or Single indicated by an underscore. If you are not about to do the work tabled, continue the work unaffected. 5/6 Up or 5/6 Down are never affected by any call. Note:- When *unaffected* the places will stay the same but order you meet the bells changes.

How the Conductor's calls affect your work				
About to Do	Bob Called		Single Called	
	Do This	Next Work	Do This	Next Work
3/4 Down 5<u>4</u>3**43**2L.. 	 Run In 5<u>4</u>3**2L**L2..	3/4 Down	 Make 3rds and Out 5<u>4</u>3**34**56..	2nds
2nds L<u>L</u>2**2L**L2.. 	 Run Out L<u>L</u>2**34**56..	2nds	Unaffected	3/4 Down as usual
3/4 Up 2<u>3</u>4**34**56.. 	 Make 4ths and In 2<u>3</u>4**43**2L..	5/6 Down	 Same as Bob Make 4ths and In 2<u>3</u>4**43**2L..	5/6 Down

- These rules **ONLY** apply to Plain Bob Minor
- Some bits will also apply to some other methods but as a whole, they are specific to this one method

What Really Happens at a Call?

- To see what people mean when they say ‘It’s just the same as Plain Bob’ we need to revisit Place Notation.

- In most cases*, a call replaces the normal place notation with a different instruction for a single change, and this is usually** the lead end change

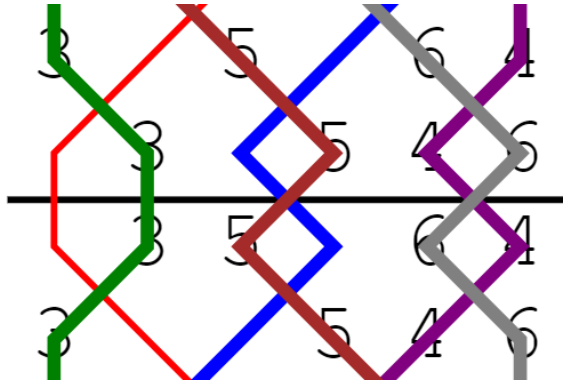
- After this ‘altered’ change, the normal place notation resumes, and the bells follow the same path as they would in a plain course until the next call (or ‘That’s All’)

- *It is possible for a call to affect multiple changes, but this is rare
- **Calls can take effect away from the lead end. Grandsire is an example of this

What Really Happens at a Call?

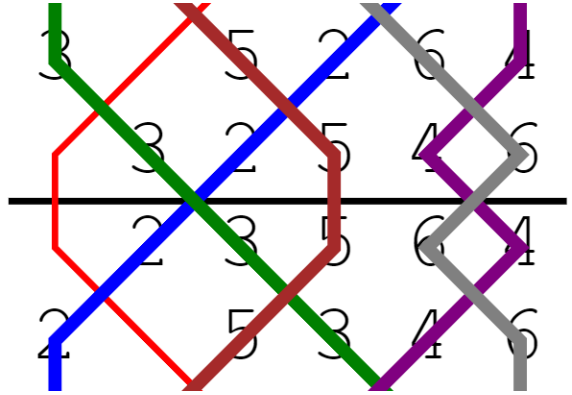
- Let’s take Plain Bob Minor as an example
- The normal lead end notation is ‘12’

12



- At a Bob the lead end notation changes to ’14’
- The ‘usual’ place notation then resumes immediately with an ‘X’

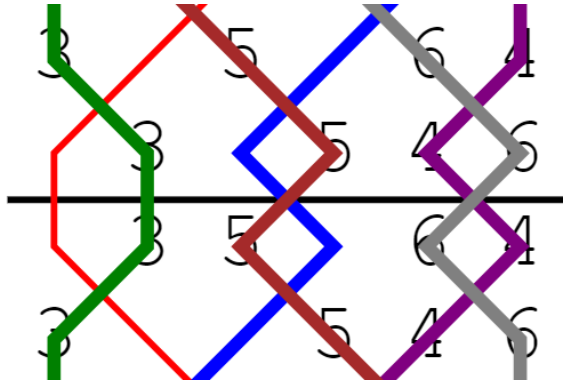
14



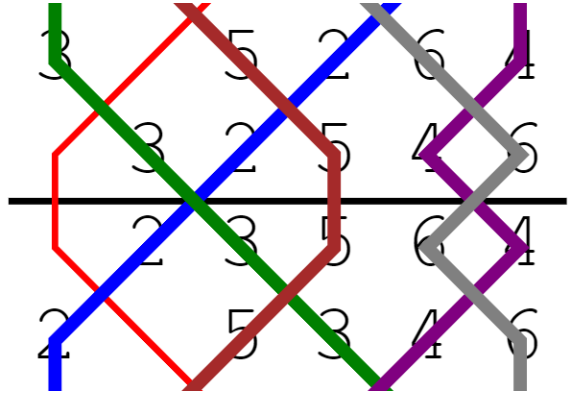
What Really Happens at a Call?

- What has happened?
  - The place in 2nd has been ‘moved’ to 4th
- What does this do?
  - The bell in 2nd no longer makes a place
  - The pair in 34 no longer swap
  - The bell in 4th does make a place
- What are the consequences?
  - The hunt bell still leads, since its instruction did not change
  - The bell in 4th makes a place (‘make the bob’ to start 4th place bell)
  - The pair in 23 swap (‘run in to start 2nd place bell/run out to start 3rd place bell’)
  - The pair in 56 swap (‘unaffected’)

12



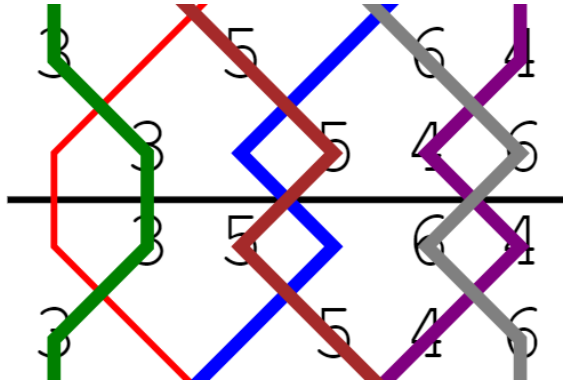
14



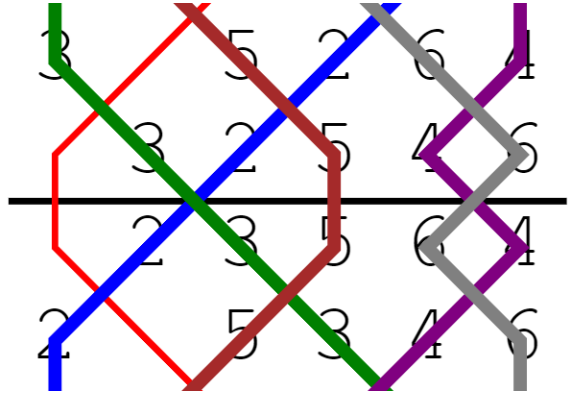
What Really Happens at a Call?

- Does this really help?
- Unlike the table of rules, which is specific to Bob Minor, the rules on the previous slide apply to ALL methods with a ’12’ lead end when a ’14’ bob is called
- When combined with knowledge the method’s place bells, you have all the information required to deal with the call

12



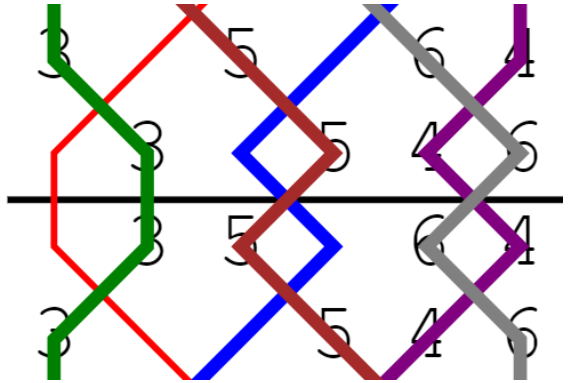
14



What About Other Calls and Other Methods?

- Many commonly rung methods have a 12 lead end notation, and are rung with 14 bobs.

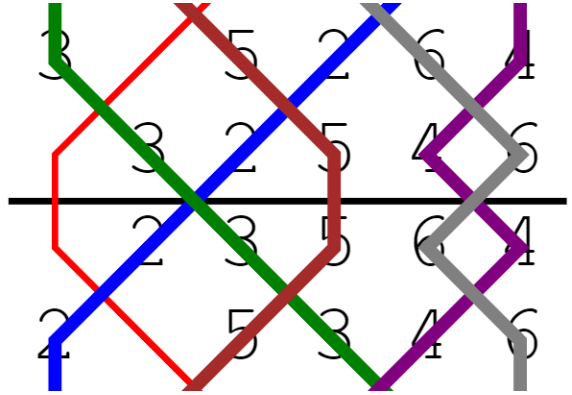
12



- For methods with a 12 lead end, singles usually have the notation ‘1234’

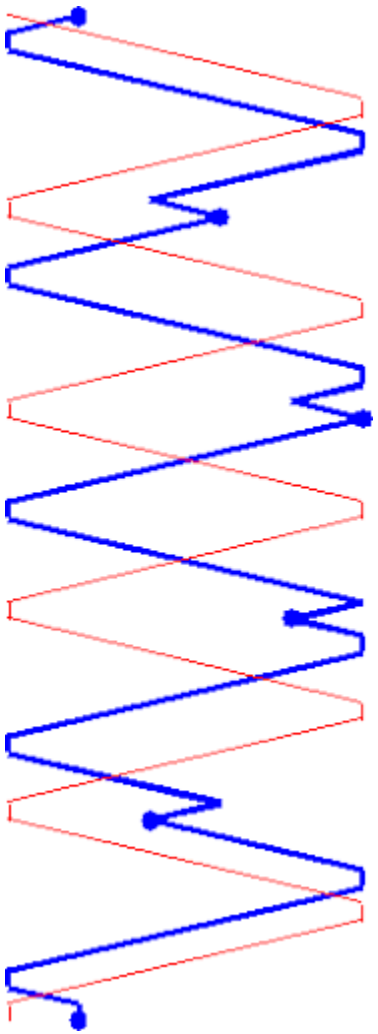
- Some methods (e.g. Kent Treble Bob Minor) have a ‘16’ lead end notation

14

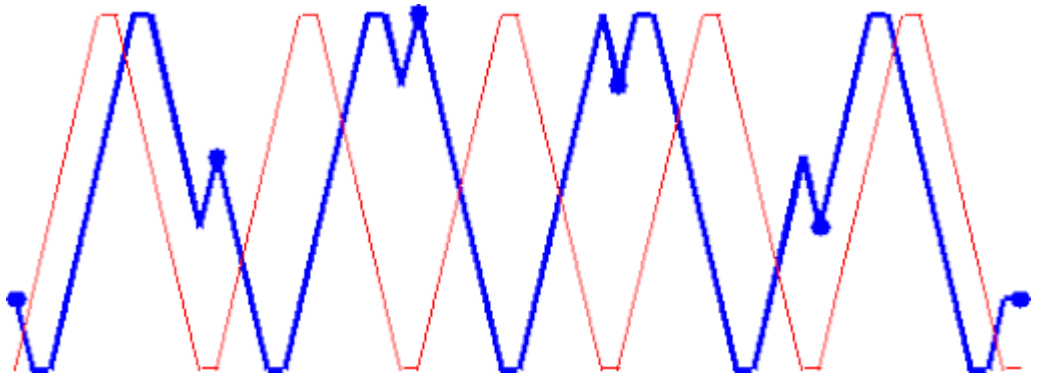


- You can now use your knowledge of place bells and place notation to work out the effect of a 1234 single in Plain Bob, or a 14 bob in Kent!

Visualising Paths and Naming Patterns



- Although some people rely on visualising the line more than others, almost all ringers will use the pattern of the blue line to some extent
- Some prefer to read the line vertically, others horizontally – choose the best for you!
- Ultimately, though, it needs to be in your head!

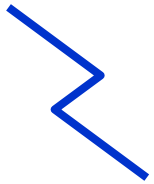


Visualising Paths and Naming Patterns

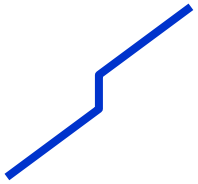
- To help learn complex blue lines, distinctive patterns of work are often given a name. Not only does this help to memorise longer sections of work more easily, but can also be used for any other method that contains the same pattern
- Almost every ringer will know the pattern of plain hunt, and probably what a ‘dodge’ looks like too
- Other patterns will be encountered as you progress to learn more methods, and it is a good idea to try and identify which ones crop up frequently and learn those names well!

A Few Common Named Patterns of Work

Dodge (up)



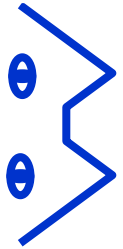
Place (down)



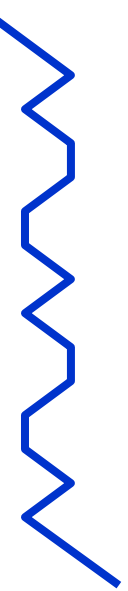
Treble bob front work

Fish tail

Cat's ears



Cambridge places (up)



16 blows described in three words

- There are many named patterns, and some may have different names in different towers! It's worth finding out what terms people use in your tower

That’s All!

Thank you for listening!