

Positioning on the beat

It is the last day of the hottest SB3 nationals so far: we are lucky enough to find ourselves, in "Q", slotted into the middle of 5 past world champions and the odd Olympic medallist; nine races down, three to go.

The light shifty offshore breeze at Hayling means that nothing is certain - all the front-runners have at least one bad result - there is everything to play for.

The wind is close to mean direction as start time approaches: we opt to take the bias and start near the pin. A great start sees us lifting over the boats to leeward, but we have some serious work to do before we can cross the mid line starters. (diag1)

After a couple of minutes, I look under the boom and see Paul, one of our closest rivals, bailing out onto port tack: he has already ducked two boats and has a lot more to duck before he reaches a clear lane. "We won't be seeing him again!"

Some of the boats on the far right have started to peel out to the right as well, but we opt to keep going: "surely there will be a left shift soon?"

Eventually that left shift comes: we can tack and cross the remainder of the fleet: we should be in great shape at the windward mark. Most of the boats on our windward hip begin to tack as we do, rather than crossing behind.

"We are pretty tight on the layline here" the strong cross-tide has skewed the course more than we realised; the transit through the windward mark is barely moving. And now the wind has shifted further left again: that means the boats to leeward can lay the mark. "More twist; we need fast forward!"

Finally the wind heads when we are about 20 boat lengths from the mark. The only boats in our pack we will beat to the mark are the ones who crossed behind when we tacked onto port tack. And who is in the blue boat that tacked onto starboard as the wind veered: yes it's Paul, crossing our whole pack, and about to round the mark comfortably in the top ten... how did he do that?

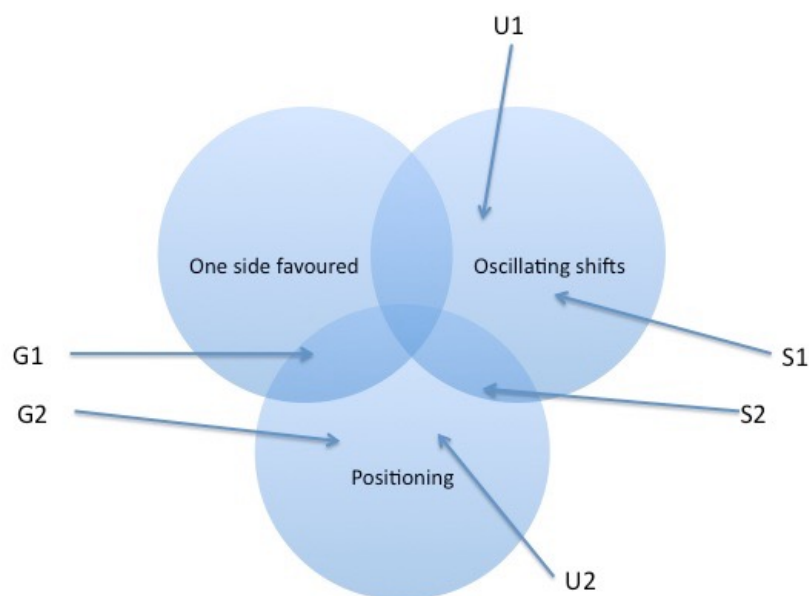
Coming up with a winning strategy when we think we know what is going to happen next is relatively straightforward: sailing in the Ora from Riva del Garda, go right for more pressure and a big starboard tack wind bend. Sailing in an established sea breeze on England's South coast: keep in phase with the shifts, tacking whenever your heading is below mean. These strategies should give you the shortest or quickest track to the windward mark, whatever choices your competitors make. But what's the winning strategy on the day or venue where you are just not sure what is going to happen next: the wind is patchy, the shifts irregular, nothing is that obvious?

In his book "Positioning", US tactics veteran Stuart Walker suggests that there are three sorts of day (each with a corresponding winning strategy): "One side favoured" (sail to that side) "Oscillating shifts" (keep in phase), "None of the above" (play the positioning game). In real life, there are very few race scenarios where you can completely ignore your positioning relative to the racecourse or to your competitors. Positioning becomes relevant, even at Lake Garda, as you approach the edges of the course, and as you get closer to the windward mark.

And even in the most regular oscillating breeze, the potential gain from the final shift can be easily outweighed by the risk of the unexpected, or the loss through over standing, as you get closer to the layline.

One of Skandia Team GBR's young racers recently suggested a development of Stuart Walker's model: we named it "Dobson's choice". The relative importance of the three priorities depends on the venue, the specific conditions of the course and environment, and your location on the race course. An awareness of just where you are on our Dobson's choice diagram might help you to balance the potential gain from searching out that extra gain against the risk of high tariff positioning.

In the first part of the beat at Garda, G1 (diag2) would summarise your priorities. On the sea breeze day, S1. Approaching the layline at Garda, G2 would be more appropriate, but on the shift day, if the shifts turned out to be not as symmetrical as expected, S2 might be appropriate just ½ way up the beat. On a shifty unpredictable day, getting the first shift right (U1) and from then on concentrating on positioning (U2) could turn out to be a race winning strategy.



Playing the chess game.

The basic principle of positioning is very simple. If you are not sure what is going to happen next, give yourself maximum opportunity to benefit from chance, and minimum opportunity to lose.

Rule 1: Avoid the short leg.

Why did Paul tack early with no helpful shift, ducking a large number of boats and forcing him to take a big hit? Because the tide had caused the beat to be considerably skewed: almost twice as much time needed to be sailed on port tack than starboard tack. Opting for the short tack first is like trying to overtake on the outside of a bend of a track race: it sometimes works, but more often allows the next racer through. Yes, if the wind had backed a couple of minutes after Paul tacked, we would have made a gain, but from position (a) he still has a huge distance on port before he is forced to tack: there is every chance that the righty will come before then, and until it does, he will make the most of the lefty. If (as

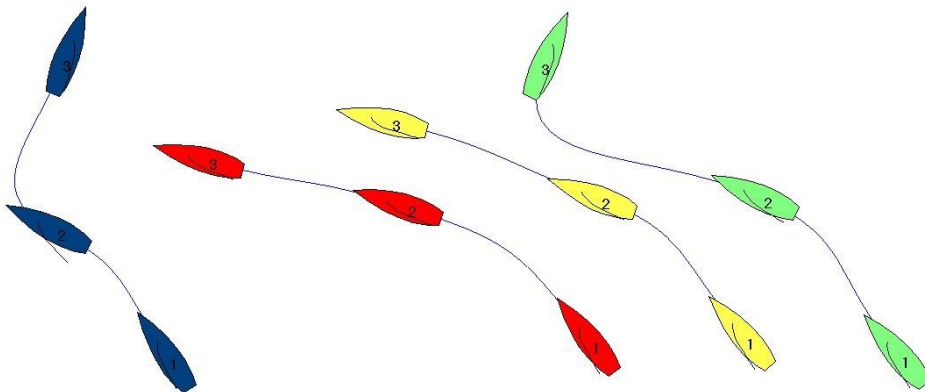
happened) the lefty comes after we have passed the shift line, we can't make full use of it, and he still has a reasonable run on the lifted port tack and plenty of time to gain from a late return to mean direction. Even if the wind direction remains constant, any error in layline judgement will result in extra sailing distance: it's much easier to nail the layline from close up, and the absolute loss from a misjudgement will be smaller.

Rule 2: Look for the gains early.

Unless you have magic boat speed, if you want to beat your rivals or win the race, it may be necessary to split from them at some stage. Rule 1 suggests that the best time to do this is away from the layline, giving the maximum possible opportunity for a shift to arrive in time to bring you back. Lead out early, then look for the opportunity to follow rule 3.

Rule 3: Bank the advantage.

A right shift in position (b) (diag 3) is only a paper gain while the boats keep sailing on parallel courses: if the wind shifts back, the gains will all disappear. Of course the wind may keep shifting right, but our premise is **we do not know what is going to happen next**. By tacking straight away, with every boat length sailed on a converging course, blue has made a real gain. Having banked some gain he can always tack in front of the pack and continue to lead to the right if he strongly feels that there is more potential advantage that way. And if the advantage comes from a favourable shift when you are to windward, consider sailing free and extra fast, even in a keelboat, to turn the gain to windward into gain toward the mark. Otherwise the paper profit will disappear just as fast when the next header comes.



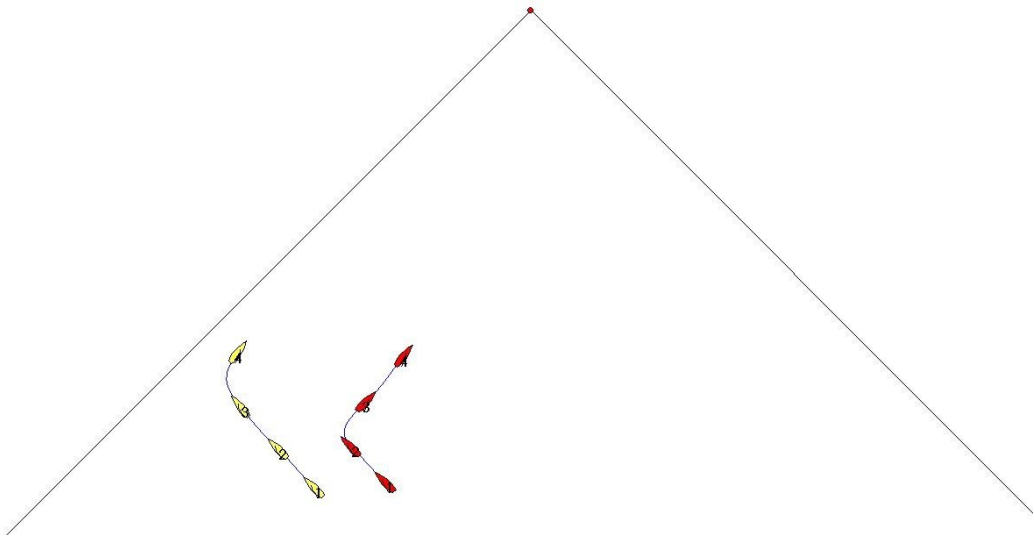
Rule 4: Don't let the pack bank their advantage.

Look at the choice of the boats in position 2 (diag 3). There has been a left shift, and the blue boat, by tacking, is gaining all the time that the boats are on

opposite tacks. The green boat tacks when blue does, and sails parallel to blue. if the wind shifts back to the right, blue's paper gain has gone. The boats that cross behind blue allow her to bank the wind shift gain. Yes, the wind may go further left, but as it is left of mean, it is more likely to shift right. That's exactly the situation with the boats that carried on and passed behind us in diag 1. The boats electing to continue on starboard in that case have also broken rule 5 (below).

Rule 5: Lead back to the centre of the course.

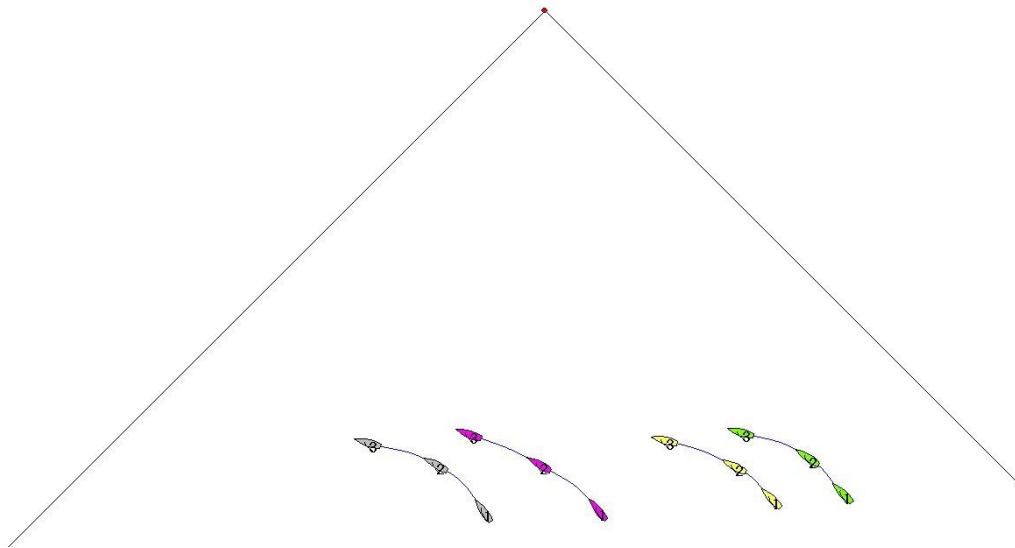
When the red boat tacked in position 2 (diag 4), he was level with the yellow boat. Now look at the relative strengths of their positions. If the wind shifts left, yellow will over stand the windward mark, Red has the shorter distance to the mark, will only have a very short starboard leg on low numbers, and in any case she has plenty of sailing time with every chance the wind will shift back to the right; if that happens she'll tack and comfortably cross yellow.



Rule 6: don't worry about "paper" losses.

What are green's options in position 2 (diag 5) The wind has just shifted left, giving a paper gain to the boats on her left. Its tempting to keep in phase by

tacking onto starboard, but she'll then be breaking all the other rules; remember, ***we do not know what I going to happen next!*** Instead, green keeps going, sailing towards the middle of the course. As long as no one on her left tacks, there is no absolute loss. There is plenty of time before the port layline for the wind to shift back.



Rule 7: Stay inside the shift lines.

This is simply the re-application of the principles of rule 1. Rather than the course itself being skewed, the beat from our current position is skewed. If nothing changes, and pink continues beyond the "shift line" (the layline if the wind were at its furthest expected left), there will be no gain or loss. But if the wind shifts right, blue will be able to tack and cross, if the wind shifts left, pink will over stand and blue will get there first. That's what I call a no win situation.

If it's that easy, why don't we all do it?

That's a very good point. There are plenty of situations where we can see a little extra pressure just over the layline, we can get out of the main tide by taking the short leg first, or we are happy to split tacks with the bunch who are heading back to the centre of the course on the headed tack. And you can't expect to win sailboat races without taking some level of calculated risk. But before choosing the risky option, just take a quick reality check: how certain am I of what will happen next, and what other risks might I be exposing myself to? If the honest answer is "I don't know", then concentrate on your positioning.

Chips Howarth, Fireball world champ's views on positioning;

"If there is a specific direction to go up a beat, for example at Riva, Lake Garda I would always start to the right of the fleet to have my 'bow forward' of the pack into the cliffs, irrespective of the line bias. In that sort of condition my position relative to the fleet is more important than starting on a specific point on the line.

When I used to sail with the great Richard Estaugh, he had only a few rules, always try and keep an equal amount of boats either side of you and where possible get your bow forward on the longer tack to the windward mark. If you stick by these two rules, you will not go too far wrong.

As far as splitting from the fleet is concerned, I would always like to be the first to split from the fleet if we are the first to spot something (e.g. new wind line, significant cloud etc...) unfortunately we sail against excellent sailors who are usually seeing these things before us!

When crossing boats, if it is just a boat-on-boat decision, I only go for a lee bow tack if I am confident I can complete a tack and gain enough speed to reasonably quickly force the windward boat to tack away so freeing up my options again. This 'call' varies by wind strength as you will need more clearance as it gets windier due to the increased loss of tacking as it gets windier.

Regarding strategic positioning, we assess where we are trying to go up the beat, the phase of shift we are on and also visualise how exposed we would be if we are ducking a significant pack by the time we have free air to tack to windward of the pack. If we feel we have to sail too far to the edge of the course to clear a big pack we are likely to tack under the bunch. We would also consider the % of fleet either side of us as we assess our positioning to a pack.

Generally we try to avoid the corners, unless one side of a beat is very favoured, usually relating to current, wind bend or a pressure affect. Occasionally we will corner bang if we are having a bad day.

Both fleet size, and the state of the regatta, have an effect on our positioning strategy.

The larger the fleet, the more I play the percentages; to win in smaller fleets I think you have to sail more extreme and use the edges of the course some more. If we are building a good, consistent series, we would evolve our tactics to be more and more conservative, saving our discards for when we need them.

If we are starting to lose touch on points with the front of the leader board during a championship, we would start to get more extreme, this would primarily begin with our starting technique, if that failed then we are likely to be seen in the corners!

As a general rule of thumb, Nick Rogers used to always say, sail to your strengths, don't do anything stupid and wait for all your competitors to 'cock up'. It is amazing how often you can be successful as a result of other's failures."