

RULES OF THUMB

A post-festive season custom for my first Uniblog of the year is that it should start by congratulating the winners of the World Champs, so let's not break with tradition! Here's a massive "Well Played" to Rob Cross for his PDC victory – what a way to round-off a stunning debut year. As for the BDO event, it's nice to be able to reiterate last year's congrats to Lisa Ashton and Glen Durrant – consecutive wins are always a sign of real quality.

Apart from great entertainment, watching the World Champs always provides me with food for thought concerning both the technicalities and psychology of our sport. On the psychological side, exactly how much did the significance of the occasion contribute to MvG missing with six darts to win his PDC semi, Mark McGeeney missing with two to win the BDO final, and Duzza missing with loads to put himself in a position to prevent Mark having those chances?

That said, it's on a technical aspect of those very same matches that I want to focus, specifically on how the set-ups of the various players' darts affect how they enter the board. As far as I know, all four players involved, MvG and Voltage, Duzza and The Gladiator, use a barrel/shaft combo of roughly similar length and weight (48-50mm, 21-23gm barrels fitted with medium length plastic end-loading shafts). From an in-flight characteristic viewpoint, therefore, any major difference is most likely found in their choice of flights.

Now, whereas both MvG and Rob use comparatively large, standard shape ("Plus"/"Big Wing" in Unicorn parlance) flights, Glen and Mark favour slightly smaller ones of Pear or Kite shape. It is thus unsurprising that the darts of the first two players land in the board in a fairly similar fashion, point slightly down more-or-less in line with the dart's trajectory at that point.

A broad and oft-stated rule of thumb in this context is that a more aerodynamically "stable" darts set-up (the larger the flight generally the higher the stability of the set-up) will land point-down, a less stable one flat or even point-up. Unfortunately, it now behoves me to show the problem with broad rules of thumb by considering the second two players above, whose roughly similar but smaller-flighted darts land at completely different angles.

Although The Gladiator's darts do indeed land, in accordance with our stated convention, flat, Duzza's land determinedly point-down, even more so than either MvG's or Voltage's. How can this be if they are indeed less stable?



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Well, the answer lies in another type of rule of thumb. Whereas Mark's thumb tends to pull his darts from the front, Glen's pushes his from the back, forcing that down slightly as his hand drops fractionally away as he releases. Duzza's darts thus start their flight pointing sharply upward and their relatively lower stability means they only have time to complete half a "pendulum swing" of angle (yaw cycle, for those who remember stuff from my early Uniblogs) before they reach the board, resulting in them hitting it sharply point-down.

In contrast, Mark's forward grip results in his darts being launched fairly flat, hence pointing slightly down relative to their initially upward trajectory. Their half-cycle hence thus results in a slightly point-up angle relative to their downward terminal trajectory – which adds up to them landing pretty much flat. Isn't science wonderful? (Don't answer that!)

So much for explaining the physical mechanisms behind flat, point-down, and point-up impacts, the question remains which is better? Well, despite Phil Taylor's success with the last (and best wishes to him for a happy retirement, by the way), it's not one I would readily recommend for the average player. To be honest, that also applies to Duzza's pronounced point-down version. As for flat or mildly point-down, they both have their merits.

I believe a flat impact can be a psychological aid to aiming and may also be more readily consistent with the aerodynamics of a lower-stability, accuracy-tuned, "small sweet-spot" dart (on which maybe more another time). A mildly point-down impact roughly in line with the terminal trajectory angle can help to minimise dart-on-dart impacts and also be consistent with a stability-optimised, robustly "forgiving" dart set-up.

As a very general rule of thumb, I could suggest a flat impact may work well for an "aimer" and point-down for a more "rapid fire" merchant. However, as we've already seen the dangers of rules of thumb, I'll leave it for you to make your own mind up as to what best suits you!

