Sail Trim
What is he talking about....
Think smart! – Think about air flow over all sails!
I require more power, need to change gears!

Just like driving a car, we need to change gears, as the conditions change.
What Gear?

1\textsuperscript{st} – Lots of Power, Good Acceleration

3\textsuperscript{rd} – Low Power, High Efficiency, Good Point
1st Gear

For light airs (under powered)

- Deeper sails, with fuller entry (especially in chop).
- More twist
- Prioritise speed over height
- Set boom on (or just below the centre line)
- Try to heel the boat
- Keep crew movement down and slow movements
- All tell tales should be flowing (not hiding)
- Usually less than 6 knots.
2nd Gear

Moderate wind (full power)

- Keep boat flat, crew weight.
- Firm the leech on the mainsail, less leech twist than 1st gear
- Boom on (or just above) centre line
- Top leech tell tales, hiding half the time (with flat water)
- Max Speed, with height
- Flatter sail plan
- Wind speed between 7 to 15 Knots.
3rd Gear

Heavy wind (over powered)

- Reduce heel, crew hikes hard ...
- Flatten Sails (backstay, sheet tension, headsail car position, traveler)
- Twist sails open
- Sail to the conditions, keep helm balanced
- Helmsman sail to telltales, may pinch in puffs
- Mainsail trimmer, keep constant heel angle
- Wind speed + 15knots.
Headsail Trim
Headsail Tell Tales

Fine tuning

By pointing higher or lower "in the groove" you may, by using the windward telltales, fine tune for each of the above gears.

- Maximum speed
- Optimum pointing ability and speed
- Maximum pointing ability
Straight Forestay.
Headsail with forestay Sag.
Forestay Sag and halyard tension

**Halyard's Effect on Draft Location**

- **Draft Forward**: Created by greater luff tension.
- **Draft Aft**: Created by minimal luff tension.

Both halyard and forestay are medium tensioned. Draft position is 40%.

**Halyard's Effect on Entry Angle**

- Decreased halyard tension produces flatter entry angle, which is more likely to stall, yet allows an attentive person to point higher.
- Increased halyard tension produces fuller entry angle, which is more forgiving, i.e., an unsteady helm is less apt to stall the sail.

The stay is now tensioned for optimal pointing. The sail becomes flatter with a finer entry but the draft has moved too far aft.

By tensioning the halyard, the draft is moved forward to about 45%, which will be desirable in this example.
Lead Position

• Controls the “mix” from the sheet.

Jib lead aft flattens the foot and loosens the leech because the sheet pulls aft more than it does down.

Jib lead forward loosens foot & tightens the leech because the sheet pulls down more than it does aft.
Set the lead position, by the telltales

- Three sets of telltales on the Luff
- Try to get them flying together (approximately)
Draft Stripes

Not only do they:

Add colour to a boring white sail!

They do make it easier to see the draft position and depth of the sail.
Headsail Shape Properties
Genoa Sheeting, off the Wind
Mainsail Trim
Luff Tension

Eased Cunningham

Tight Cunningham
Outhaul

Tightening the outhaul removes fullness from the bottom part of the sail and makes the lower batten less 'hooked' to windward.
Mast Bend

As the tip of the mast moves aft, the middle of the spar goes forward, pulling draft out of the middle of the sail.
Sail trim for Speed, all telltales streaming!
Good Laminar flow = Good speed
Correct depth and sheet tension for upwind sailing.

Perfect leech tension

Top leech tell tales is hiding half the time!
Reading the telltale when sheeted to hard!

Leech tell tales are hiding around the back of the leech.

More twist required.
Weather Helm

- Heel
- Mast rake
- Sheet tensions
- Main traveller
- Rudder balance

Adams 10 Tape Drive carbon Mainsail
Mainsail Shape Properties
Mainsail Off the Wind

Vang tension so that top batten is parallel to boom

Vang eased, too much twist
Handling is Important
Run vs. Reach

- On a Reach Wind Flows around the sail
- On a Run Wind hits the sail
Fore or Aft?

Pole too far forward

Pole too far aft

The pole angle is correct when the luff of the spinnaker flies nearly straight up as it leaves the pole. Squaring the pole too far aft means the sheet will need to be over-trimmed, causing the luff to angle off to leeward. When the pole is too far forward, the sheet will be preecceded and the luff of the sail will luff to windward and the boat stability.

Pole angle perfect!
Pole Up and Down

- Controls the draft position of the spinnaker
  Keep the center seam of the spinnaker perpendicular with the horizon
- Keep the Luff breaking even
Pole Too High
Pole Too Low
Pole About Right
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