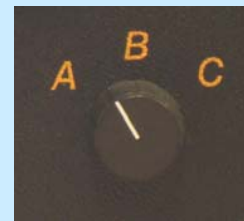


Examination with the Intuitive Colorimeter

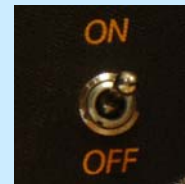
Arnold Wilkins
University of Essex

Check list - 1

- Attenuators in
- Switch to A
- Supply ON
- Saturation to 0



(to restrict maximum saturation)



Check list - 2

- Text on viewing platform
- Room lights dim
- Open window on front panel

Sit on right of patient



Symptoms

“Are the letters and words clear or difficult to see?”

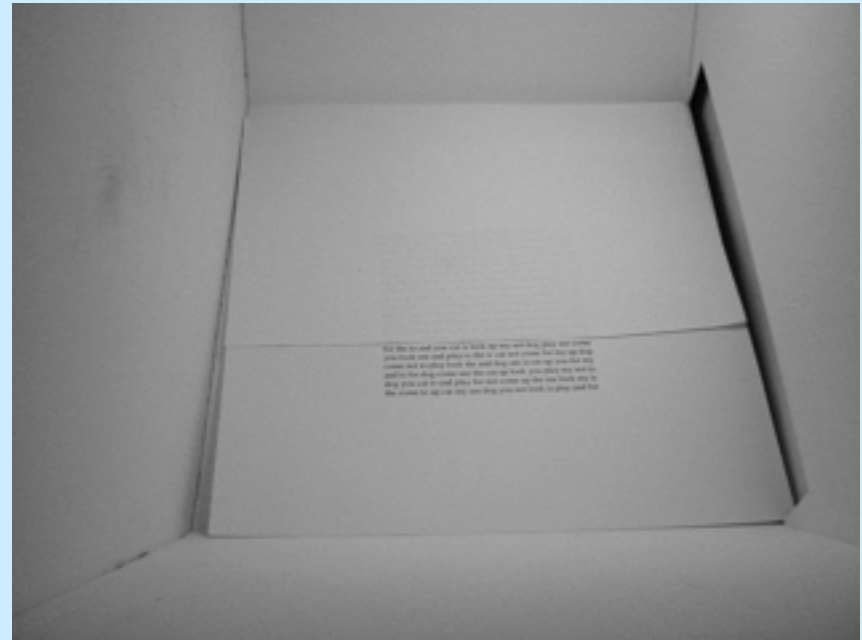
“Do they stay still, or do they move?”

“Does the text hurt your eyes?”

Note patient’s description and use it subsequently

If discomfort is extreme

Cover some of the text



Explain procedure

“I will shine coloured light on the text

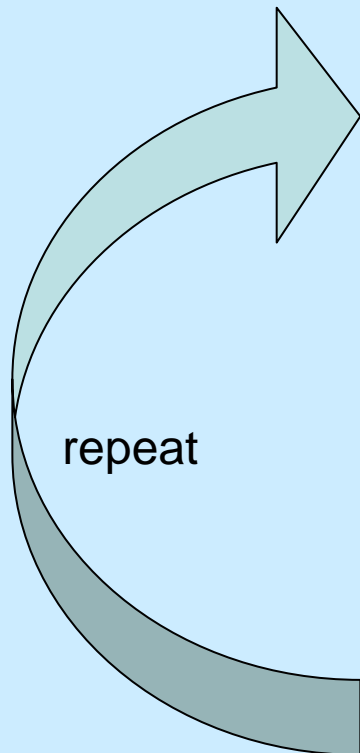
“Colour may make the text

- easier or more comfortable to see
- more difficult to see
- or it may have no effect

“If colour makes text worse, close your eyes!”

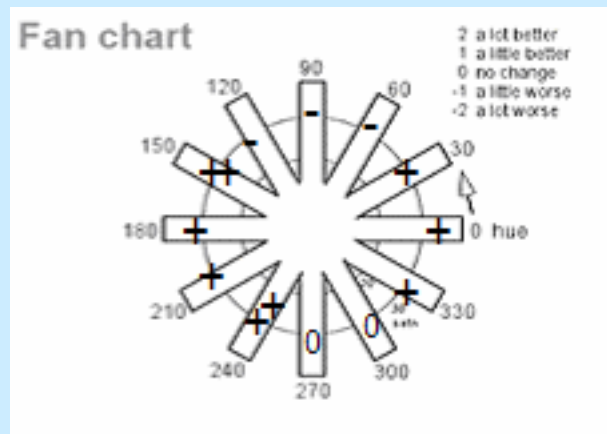
Obtain best hues

Start with hue=0, saturation=0



- Increase saturation to 30
- Wait 5s
- Decrease saturation to 0
- What was effect of colour?
 - easier to see
 - more difficult to see
 - no effect
- Annotate Fan Chart ...
- Increase hue by 30 degrees

Annotate fan chart



easier to see +
more difficult to see -
no difference 0

a lot ++ or --
a little + or -

Permit maximum saturation

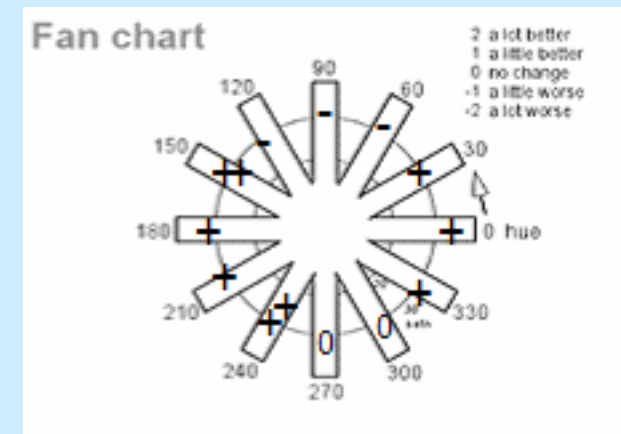
Set switch to B



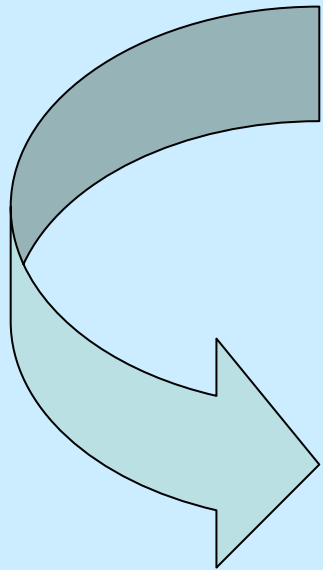
Optimise saturation at best hues

Examiner or patient
adjusts saturation
“as if tuning a radio”
to get best perception
of text.

In this example, best hues
are 150° and 240°

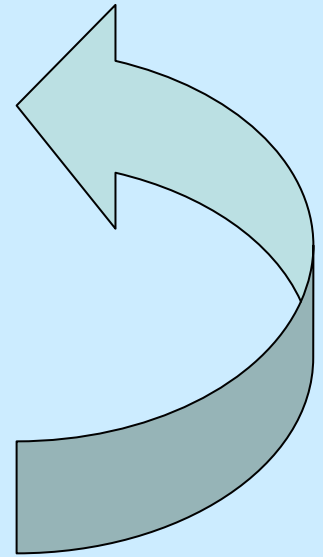


Shortlist the settings and search for a consistent optimum



Re-optimize hue
at revised saturation

Re-optimize saturation
at revised hue



Then minimise saturation

Attenuator test

At best hue and saturation -

“Is it better when it is dark like this?”

Pull out 50% attenuator

“...or light like this?”

Push in 50% attenuator



Residual glare

Preference for 50% attenuator may indicate residual glare -

Check by increasing saturation slightly, and repeating attenuator test.

Darkness of lenses

Strong colours usually come in dark lenses.

Preference for no attenuator may indicate intolerance for dark lenses.

Will lenses of the chosen colour be dark? ...

Enter



and



in **Lens.xls**

Entry: Hue 220, Satn 35. Check: 220, 35. Dye 1: N/A, Dye 2: N/A, Neutral: []

Calculation based on hue and satn entered above

Turq 2 Blue 5+4+3

Purple	A6	B5	C4	D3	E2	F1	
Blue	A5	B4	C3	D2	E1		Neutral C1
Turq	A5	B4	C3	D2	E1		
Green	A5	B4	C3	D2	E1		Neutral B2
Yellow	A5	B4	C3	D2	E1		Neutral A3
Orange	A5	B4	C3	D2	E1		
Rose	A6	B5	C4	D3	E2	F1	

Transmission of spectacles: 27%. To obtain luminance as with spectacles: No attenuator.

No. trial lenses: 4 lenses. Consider UV blocker.

The above table shows the lenses used as they appear in the box

Lens3-1. Copyright A. J. Wilkins, University of Essex, U.K. Nov 2006.
The author thanks the Colour Group of Great Britain for kind permission to use their image files.

No problem if...

- patient prefers no attenuator and **Lens.xls** indicates

To obtain luminance
as with spectacles
No attenuator

OR

- patient prefers 50% attenuator and **Lens.xls** indicates

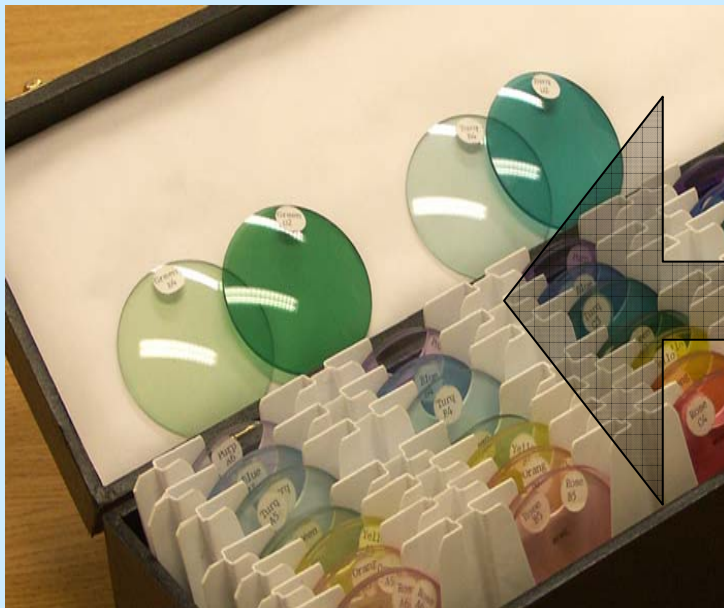
To obtain luminance
as with spectacles
50% attenuator

Otherwise...

Consider trade-off between saturation and luminance when trial lenses are offered.

Trial lenses

Select the lenses specified by **Lens.xls**



Entry	Check		Check
Hue	230	230	N/A
Satn	35	35	N/A
		Dye 1	N/A
		Dye 2	N/A
		Neutral	

Calculation based on hue and satn entered above

Turq 5+4+3 Blue 2

Purple	A6	B5	C4	D3	E2	F1	
Blue	A5	B4	C3	D2	E1		Neutral C1
Turq	A5	B4	C3	D2	E1		
Green	A5	B4	C3	D2	E1		Neutral B2
Yellow	A5	B4	C3	D2	E1		Neutral A3
Orange	A5	B4	C3	D2	E1		
Rose	A6	B5	C4	D3	E2	F1	

The above table shows the lenses used as they appear in the box

Transmission of spectacles: 28%

To obtain luminance as with spectacles: No attenuator

No. trial lenses: 4 lenses

Consider UV blocker

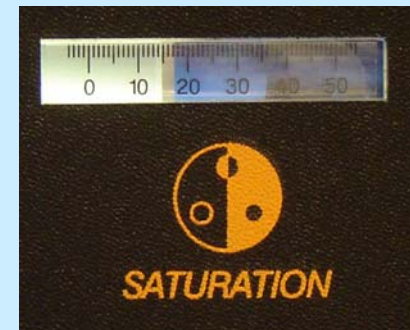
Lens3-1. Copyright A. J. Wilkins, University of Essex, U.K. Nov 2006.
The author thanks the Colour Group of Great Britain for kind permission to use their image files.

Try out lenses - 1

Turn switch to C and
operate saturation control
to give white

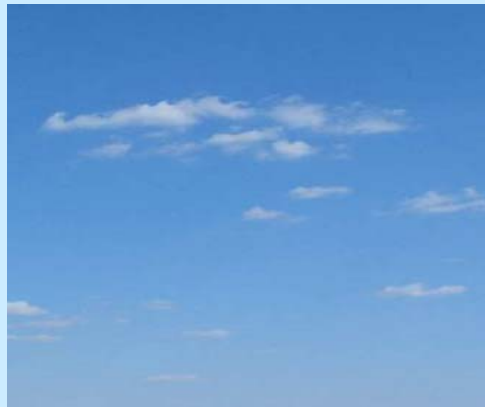
“Are the lenses as good as
it was in the box just
now?”

Adjust saturation if lenses
are too dark



Try out lenses - 2

Judge effect of lenses under typical lighting



- and typical tasks

