Lecture notes to accompany the slides for the lecture summarising Chapter 3 of Why Red Doesn't Sound Like a Bell. J.K O'Regan, 2011

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1 Slide: Applying the New View of Seeing

- Thanks for the invitation
- PhD Student. Research relates to Enactivism
- Studying embodied-embedded cognitive science since attending Mark Bishop's Cognitive Computing MSc in 2010

2 Slide: Quick Recap

- The "what it is like" of seeing consists in the sensorimotor interdependencies.
- We feel we see the whole scene as it presents itself to us under interrogation
- Real World interactions have Richness, Bodiliness, (Partial) Insubordinateness, Grabbiness

3 Slide: Retinal Image Inversion

Let's consider this from the neural correlates of consciousness account.

- Standard view: Stimulus are processed.

- This processing causes consciousness
- If you invert the stimulus you get upside down consciousness.
- Prediction: Someone with inverted stimulus would act upside-downy. Until the representations or the homunculus also inverts.

4 Slide: Vision Inversion Goggles

Things don't go inverted to non-inverted. They go from unfamiliar interaction to familiar interaction. It's the wrongness we eventually no longer perceive. "Saying that we have an impression of a coherent visual field is simply an abbreviated way of saying that we are comfortable with all the ways that we visually interact with the world."

5 Slide: The myth of upright vision

- "Experiments with cats show inability to adapt and eventual disregard for visual modality."
- "Truly compensatory processes seem to be confined to higher visual and visuomotor areas. Particularly in the parietal cortex."
- *Show Shading Illusion*
- Is motor adaptation matched by perceptual adaptation?
- Shading illusion proves no "global re-inversion".

6 Slide: Answers

- The task was expected to be easy. But the experiment proves that we are not flipping the whole scene. As we would have noticed the inverted features. Look again.

7 Slide: Blind Spot & Retinal Scotoma

Sensorimotor contingencies allow for the discrimination between features of the sense organs and the object explored.

8 Slide: Dennett & O'Regan

There are differences between vision and touch. The motor actions in interrogating the environment with the appropriate sense organs and the resulting stimulations.

9 Slide: Awareness of Aberrations

- "To perceive the deficiencies of the organ you use to perceive with you have to make use of known facts about the environment to reveal them."
- The congenitally blind/non-psychic/non-force sensitive don't know it.
- Stopping feeling something in certain directions is fundamental in defining its shape.

10 Slide: Conclusion

- "Whatever the efficiency [of neural processes] and whatever the code, we perceive the world, not the code.

References

[1] U. Heinecke A. Singer W. Goebel R. Linden, D. E. J. Kallenbach. The myth of upright vision. a psychophysical and functional imaging study of adaptation to inverting spectacles. *PERCEPTION -LONDON-*, 28(4):469–482, 1999.

[2] J.K. O'Regan. *Why Red Doesn't Sound Like a Bell: Understanding the Feel of Consciousness.* Oxford University Press, 2011. 182 pages.