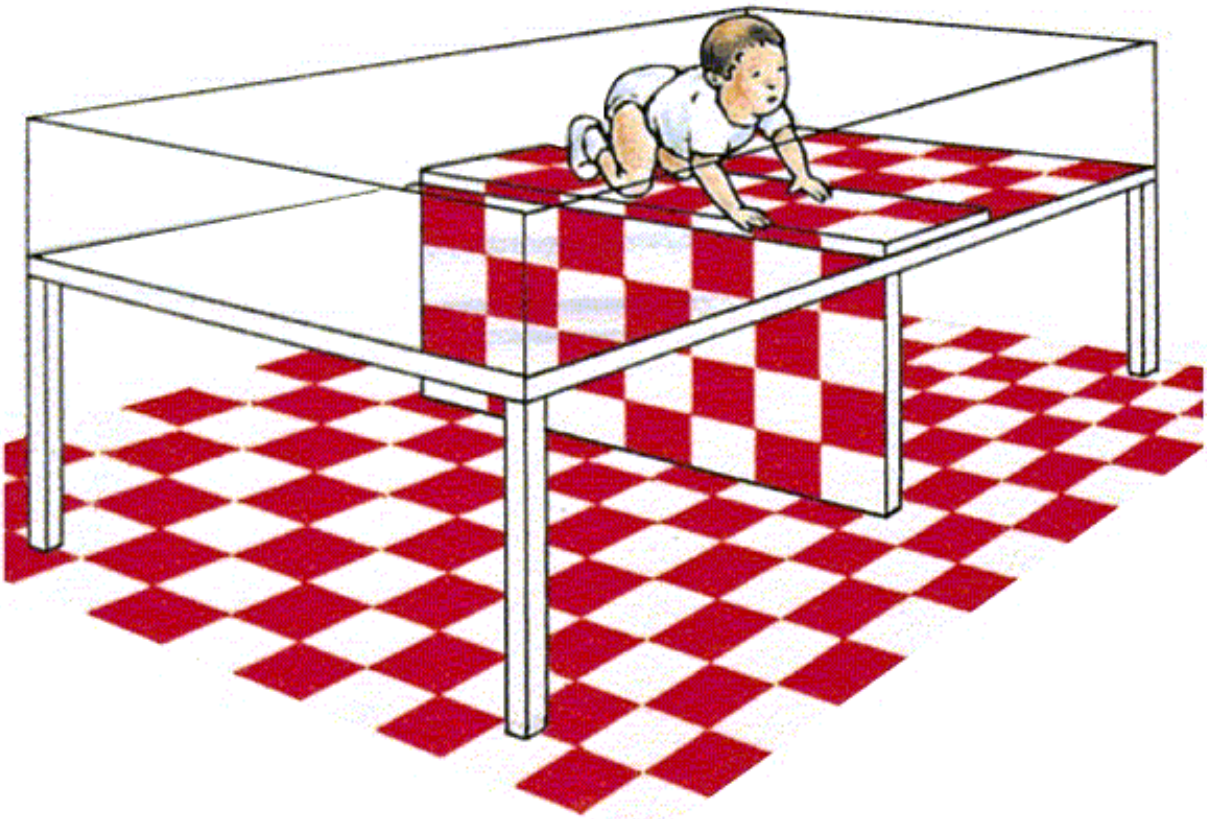
AALBORG UNIVERSITY
STUDENT REPORT



Human senses and perception miniproject

Depth perception

Daniel Kartin
Student ID 20163822
AAU CPH - MED3
Human Senses and perception

Teacher
Sofia Dahl
sof@create.aau.dk

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Contents

1 Introduction

Depth perception. What cues does the brain use to infer depth in the visual scene? Under what conditions do the various cues operate? In particular, explain what is meant by "stereopsis" and "binocular disparity" and how these are used in the construction of stereograms and autostereograms.(Abrams & Yantis, 2017)

2 Theory

Going through the theory in the book *Sensation and perception*, to categorize the different depth cues a tree was made, and to give structure to my essay, I remade a copy of it as seen Figure 1, and will utilize this for presenting my findings and answering the topic questions.

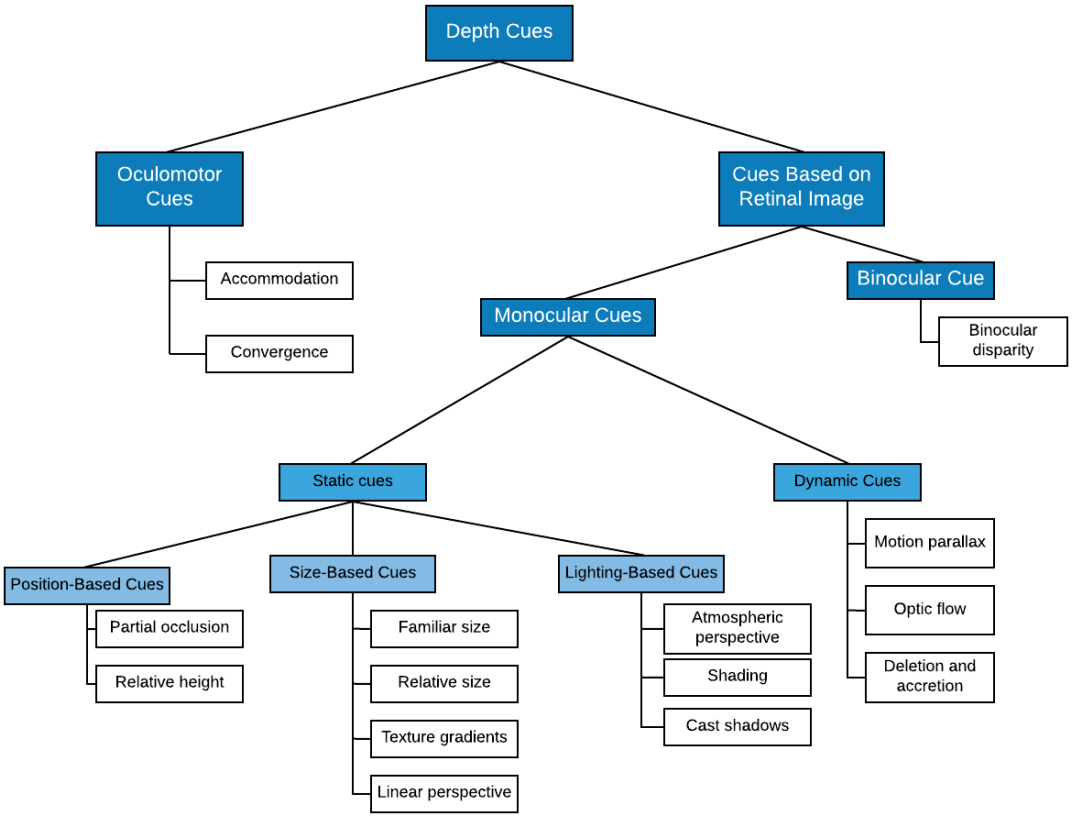

Figure 1: All the depth cues from the book, Sensation and Perception(Abrams & Yantis, 2017), the figure was made as a copy from the figure on page 195.

2.1 Oculomotor depth cues

2.1.1 Accommodation

Focusing on objects, not very much depth data.

2.1.2 Convergence

Eyes angle moving closer together, objects closer to eyes.

2.2 Monocular Depth cues

Retinal image information

2.2.1 Static cues

Cues that require no movement

2.2.1.1 Partial Occlusion

Objects that covers each other

2.2.1.2 Relative Height

The position of objects in relation to your eye level.

2.2.1.3 Familiar Size

Expectations of objects size, infer depth.

2.2.1.4 Relative Size

Golf ball size vs basketball size, if they seem identical in size, then the golf ball must be closer.

2.2.1.5 Texture Gradients

See a texture, that gets smaller, it looks like it is further away.

2.2.1.6 Linear Perspective

Parallel lines that get closer together, also infer depth.

2.2.1.7 Atmospheric Perspective

Due to the air and dust and such, further objects seem less "sharp"

2.2.1.8 Shading

Sun is natural and expected light, is above, gives shading on everything, gives expectations of depth. figure 6.16.

2.2.1.9 Cast shadow

Objects casting shadow, gives cue of their depth, due to where the shadow lands, and size of it.

2.2.2 Dynamic cues

Cues involving movement.

2.2.2.1 Motion Parallax

Walk left to right, closer objects seem to move faster, than further away objects.

2.2.2.2 Optic Flow

How objects further away from your focus point moves faster away in relation to your own movement.

2.2.2.3 Deletion & Accretion

Deletion = Moving things disappearing behind shit.
Accretion = Moving things appearing from behind shit.

2.3 Stereopsis

The sense of depth, coming from having like two eyes and shit.

2.4 binocular disparity

Difference between the eyes and shit

2.5 Stereograms

2.6 Autostereograms

3 Discussion

4 Conclusion

References

Abrams, R., & Yantis, S. (2017). *Sensation and perception* (Second ed.). Worth Publishers.