

Contents

1	Introduction	1
2	Two visual systems	3
2.1	Ungerleider & Mishkin: "What" versus "where"	3
2.2	Livingstone & Hubel: Magno- versus parvo-system	10
2.3	Goodale & Milner: Perception versus action	18
2.4	The patients D.F. and R.V.	20
2.5	Psychophysical evidence	23
3	Separate representation vs. common representation	35
4	Ebbinghaus Illusion	41
4.1	Experiment 1: Grasping the Illusion	43
4.2	Experiment 2: Effects of presentation time?	51
4.3	Experiment 3: Test for additivity	53
4.4	Experiment 4: Did attention induce additivity?	56
4.5	Discussion: Ebbinghaus Illusion	58
5	Müller-Lyer Illusion	61
5.1	Experiment 5: Grasping the illusion	62
5.2	Experiment 6: Effects of presentation time?	66
5.3	Experiment 7: Effects of comparison position?	69
5.4	Discussion: Müller-Lyer Illusion	70

6 Parallel–Lines Illusion	73
6.1 Experiment 8: Grasping the illusion	73
6.2 Experiment 9: Effects of presentation time?	78
6.3 Experiment 10: Effects of comparison position?	80
6.4 Experiment 11: Using a unipolar perceptual measure	82
6.5 Discussion: Parallel–Lines Illusion	86
7 General Discussion	87
7.1 Comparison with previous studies	89
7.2 Consequences for the perception versus action hypothesis	93
Appendix A: Maximum preshape aperture	97
A.1 Individual profiles	97
A.2 Variability between participants and normalization	98
Appendix B: Common Representation Model	103
B.1 Comparing illusion effects	103
B.2 Prediction for the Aglioti paradigm	104
B.3 Idealized Expected Correlation	105
Appendix C: Aglioti Paradigm	107
C.1 Procedure: Titrating the illusion	107
C.2 Estimating illusion effects	110
Appendix D: Apparatus	111
D.1 Accuracy and calibration	112
References	117
Publications	129