

# TABLE OF CONTENTS

<b><u>PREFACE</u></b>	<b>1</b>
<b>TABLE A : Participants</b>	<b>3</b>
<b>TABLE B : National Correspondents</b>	<b>5</b>
<b>TABLE C : Contributors to Chapters 1–4</b>	<b>5</b>
<b><u>CHAPTER 1 – What is Cognitive Science ?</u></b>	<b>6</b>
<b>Cognitive Science Prism</b>	<b>11</b>
<b><u>CHAPTER 2 – Survey of Cognitive Competencies</u></b>	<b>12</b>
<b>SECTION 2.1: Perception</b>	<b>13</b>
2.1.1: The scope of research in perception	13
2.1.2: Overview of vision research	14
2.1.3: Applications of perceptual research	21
2.1.3.1: Prevention and correction of sensory loss	21
2.1.3.2: Perceptual performance	22
2.1.3.3: Technological applications	22
2.1.3.4: Reading	25
2.1.4: Prospects for future research on the visual system	25
<b>SECTION 2.2: Language</b>	<b>27</b>
2.2.1: Formal theories of language	28
2.2.2: Psychological studies of language processing	34
2.2.3: Speech studies	37
2.2.4: Prospects	39
<b>SECTION 2.3: Inference</b>	<b>41</b>
2.3.1: Probabilistic reasoning	41
2.3.2: Problem-solving	44
2.3.3: Machine inductive inference	47

<b>SECTION 2.4: Action</b>	<b>51</b>
2.4.1: Placing action perspective	51
2.4.2: Trends in the study of action	53
2.4.2.1: The neurophysiological approach	53
2.4.2.2: From action to cognition: the developmental approach	54
2.4.2.3: Actions that convey meaning	56
2.4.2.4: Fitting action to the environment: the ecological approach	57
2.4.2.5: Perceiving action	58
<b>CHAPTER 3 – Biological Perspective on Cognitive Science</b>	<b>61</b>
<b>SECTION 3.1: Recent advances in the neurosciences</b>	<b>62</b>
3.1.1: At the molecular level	62
3.1.2: At the cellular and intercellular levels	63
3.1.3: At the behavioral level	63
<b>SECTION 3.2: Neuroscience perspective on brain pathology</b>	<b>65</b>
3.2.1: Language and communication	66
3.2.2: Reading and writing (Dyslexia and dysgraphia)	67
3.2.3: Memory (Amnesia)	68
3.2.4: Object and person recognition (Agnosia and prosopagnosia)	68
3.2.5: Prospects in neuropsychology	69
<b>SECTION 3.3: Parallel processing in the cerebral hemispheres</b>	<b>70</b>
<b>SECTION 3.4: Future prospects in neuroscience</b>	<b>72</b>
3.4.1: Impact on health	72
3.4.2: Impact on the organization of work	73
3.4.3: Impact on technology	74
3.4.4: Impact on education and society	74
<b>CHAPTER 4 – Cognitive Ergonomics</b>	<b>75</b>
<b>SECTION 4.0: Introduction</b>	<b>76</b>
<b>SECTION 4.1: The relevance of human-computer interaction (HCI)</b>	<b>77</b>
4.1.1: Software vs. Hardware Ergonomics	78
4.1.2: Cognitive Ergonomics and Human Factors	78

<b>SECTION 4.2: Some comments on history</b>	<b>79</b>
<b>SECTION 4.3: Basic aspects of human-<i>computer</i> interaction (HCI)</b>	<b>80</b>
4.3.1: Human-computer Interaction and Problem solving	80
4.3.2: Elements of Human-Computer interaction	81
<b>SECTION 4.4: Cognitive Science and Human-Computer interaction</b>	<b>81</b>
4.4.1: Perception in Human-Computer Interaction	82
4.4.2: Language in Human-Computer interaction	84
4.4.3: Inference and Memory in Human-Computer Interaction	86
4.4.4: Action in Human-Computer interaction	89
4.4.5: Additional topics in Cognitive Ergonomics	91
<b>SECTION 4.5: Concluding remarks and aspects of future research</b>	<b>92</b>
<b><u>BIBLIOGRAPHY</u></b>	<b>94</b>
<b><u>CHAPTER 5 - Survey of Cognitive Science resources in the EEC</u></b>	<b>100</b>
<b>SECTION 5.1: Introduction</b>	<b>101</b>
<b>SECTION 5.2: Belgium</b>	<b>102</b>
<b>SECTION 5.3: Denmark</b>	<b>105</b>
<b>SECTION 5.4: France</b>	<b>110</b>
<b>SECTION 5.5: German Federal Republic</b>	<b>138</b>
<b>SECTION 5.6: Great Britain</b>	<b>160</b>
<b>SECTION 5.7: Italy</b>	<b>172</b>
<b>SECTION 5.8: The Netherlands</b>	<b>186</b>
<b>SECTION 5.9: Spain</b>	<b>204</b>
<b>SECTION 5.10: Switzerland &amp; Scandinavia</b>	<b>210</b>
<b><u>CHAPTER 6 - Analysis and Proposals</u></b>	<b>220</b>
<b>SECTION 6.1: Analysis</b>	<b>221</b>
<b>SECTION 6.2: Proposals</b>	<b>224</b>
6.2.1: First proposal: coordinated research in Cognitive Science on a European scale	224

<b>6.2.2: Second proposal: a European Institute of Cognitive Science</b>	<b>225</b>
<b>6.2.3: Other proposals</b>	<b>229</b>
<b>TABLE 6A</b>	<b>230</b>
<b>TABLE 6B</b>	<b>233</b>
<b>TABLE 6C</b>	<b>235</b>
<b>TABLE 6D</b>	<b>236</b>