

**CONCEPTUALIZING TRANSLIMINALITY AS FUNCTIONAL
REGULATION OF INTERACTION AMONG BRAIN REGIONS**

BY

JAMES HOURAN, M.A. CLINICAL PSYCHOLOGY

**THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF ADELAIDE,
ADELAIDE, SOUTH AUSTRALIA**

AUGUST 2003

TABLE OF CONTENTS

STATEMENT	II
DEDICATION AND ACKNOWLEDGMENTS	III
TABLE OF CONTENTS	IV
LIST OF TABLES	XI
LIST OF FIGURES	XIV
ABSTRACT	XV
CHAPTER 1: DEVELOPMENT AND EMPIRICAL MEASUREMENT OF TRANSLIMINALITY	1
1.1 PROLOGUE	1
1.2 THE CONCEPT OF MENTAL BOUNDARIES IN HISTORICAL PERSPECTIVE	2
1.3 EVOLUTION OF TRANSLIMINALITY AND ITS MEASUREMENT	11
1.3 CORRELATES OF THE TRANSLIMINALITY SCALE AND THEIR IMPLICATIONS	18
1.3.1 Psychological Correlates	18
1.3.2 Parapsychological Correlates	29
1.3 TOP-DOWN PURIFICATION OF THE TRANSLIMINALITY SCALE	32
1.3.1 Rationale for a Re-Analysis of the Transliminality Scale	32
1.3.2 Rasch Scaling	33
1.3.3 Differential Item Functioning	36
1.3.4 Multidimensionality	38
1.3.5 Method	38
1.3.5.1 Dataset	38
1.3.6 Results	38
1.3.6.1 Preliminary Analyses	38
1.3.6.2 The “Purified” scale	43
1.3.6.3 Ancillary Analyses	47

1.3.7 Discussion.....	50
1.4 EPILOGUE.....	51
CHAPTER 2: A PRELIMINARY COGNITIVE MODEL OF TRANSLIMINALITY BASED ON CORRELATES OF THE REVISED TRANSLIMINALITY SCALE (RTS).....	55
2.1 PROLOGUE	55
2.2 A NEW LOOK AT OLD DATA: RE-ANALYSES OF STUDIES PERTINENT TO MODELING TRANSLIMINALITY	56
2.2.1 Psychological Correlates.....	56
2.2.2 Parapsychological Correlates.....	58
2.3 NEW STUDIES WITH THE REVISED TRANSLIMINALITY SCALE	59
2.3.1 Transliminality and Varieties of Dream Experience.....	59
2.3.2 Transliminality and Temporal Lobe Lability.....	61
2.3.3 Transliminality and Childhood Trauma: A Potential Developmental Antecedent.....	67
2.4 TOWARDS A PSYCHOPHYSIOLOGICAL MODEL OF TRANSLIMINALITY.....	71
2.4.1 Initial Speculations	71
2.4.2 A Cognitive Regulation Paradigm	74
2.4.3 General Predictions from a Cognitive Regulation Paradigm.....	77
2.5 EPILOGUE.....	79
CHAPTER 3: ENCOUNTER EXPERIENCES IN THE CONTEXT OF MENTAL BOUNDARIES AND BILATERALITY: A CONTRIBUTION TO THEORY- BUILDING.....	81
3.1 PROLOGUE	81
3.2 BACKGROUND AND HYPOTHESES	82
3.2.1 Levels of the Boundary Construct	82
3.2.2 Handedness and the Boundary Construct	83
3.2.3 Transliminality and Persinger's Model of Apparitional Phenomena.....	84
3.2.4 Transliminality and a Psychological Approach to Apparitions	86

3.2.5 Hypotheses.....	90
3.3 HARTMANN’S BOUNDARY QUESTIONNAIRE	91
3.3.1 Description of the Boundary Questionnaire.....	91
3.3.2 Correlates of the BQ	95
3.4 BRIGGS-NEBES HANDEDNESS SCALE.....	101
3.5 REVISED PARANORMAL BELIEF SCALE (RPBS).....	101
3.6 MEASURE OF ENCOUNTER EXPERIENCES.....	103
3.7 METHOD	103
3.7.1 Participants.....	103
3.7.2 Measures	104
3.7.3 Procedure	105
3.8 RESULTS	106
3.8.1 Preliminaries	106
3.8.2 Main Findings.....	107
3.8.2.1 Hypothesis 1	107
3.8.2.2 Hypothesis 2	110
3.8.2.3 Hypothesis 3	112
3.8.2.4 Hypothesis 4	112
3.8.2.5 Hypothesis 5	113
3.8.2.6 Hypothesis 6	113
3.9 EPILOGUE.....	114
3.9.1 Implications for the Boundary-Threshold Construct	114
3.9.2 Origins of Encounter Experiences and Implications for Modeling Transliminality	116
CHAPTER 4: TRANSLIMINALITY AND PARANORMAL IDEATION RELATIVE TO HYPOCHONDRIASIS AND THE SOMATIZATION SYNDROME.....	121
4.1 PROLOGUE	121

4.2 BACKGROUND AND HYPOTHESES	121
4.2.1 Cognitive Aspects of Hypochondriasis and the Somatization Syndrome.....	121
4.2.2 Paranormal Ideations as Idioms of Psychophysiological Distress.....	128
4.2.3 Hypotheses.....	131
4.3 SCREENING FOR SOMATIZATION SYMPTOMS (SOMS-2)	132
4.4 WHITELEY INDEX (WI).....	133
4.5 COGNITIONS ABOUT BODY AND HEALTH QUESTIONNAIRE (CABAH).....	134
4.6 ANOMALOUS EXPERIENCES INVENTORY (AEI)	135
4.7 METHOD	137
4.7.1 Participants.....	137
4.7.2 Measures.....	137
4.7.3 Procedure.....	139
4.8 RESULTS	139
4.8.1 Preliminaries	139
4.8.2 Correlational Findings	141
4.8.3 Multiple Regression Analyses	143
4.9 EPILOGUE.....	145
CHAPTER 5: IMPACT OF TRANSLIMINALITY AND COMPETING PERCEPTUAL-PERSONALITY VARIABLES ON ANOMALOUS EXPERIENCES IN A NATURALISTIC SETTING.....	152
5.1 PROLOGUE	152
5.2 BACKGROUND AND HYPOTHESES	154
5.2.1 Perceptual-Personality Variables and Haunt Experiences.....	154
5.2.2 Hypotheses.....	159
5.2.3 “The Edinburgh Ghost Project”	160
5.3 METHOD	163
5.3.1 Participants.....	163

5.3.2 Measures	164
5.3.3 Procedure	166
5.4 RESULTS	169
5.4.1 Patterns in the Reported Haunt Experiences.....	169
5.4.2 Experiencers vs Non-Experiencers.....	173
5.4.3 Associations Among the Perceptual-Personality Variables and Their Relation to the Reported Haunt Experiences	175
5.4.4 Two Distinct Classes of Experience?.....	179
5.5 EPILOGUE.....	182
CHAPTER 6: QUASI-EXPERIMENTAL STUDY OF TRANSLIMINALITY, VIBRATACTILE SENSITIVITY, PROCESSING SPEED, AND SELF- REPORTED ABERRATIONS IN MEMORY	190
6.1 PROLOGUE	190
6.2 BACKGROUND AND HYPOTHESES	192
6.2.1 Definition and Measurement of Thresholds.....	192
6.2.1.1 Absolute and Differential Thresholds.....	192
6.2.1.2 Methods of Estimating Thresholds	194
6.2.2 Transliminality and Signal Detection Theory.....	196
6.2.3 Overview of Cutaneous Sensitivity	201
6.2.3.1 <i>Vibratactile Sensitivity</i>	202
6.2.3.2 <i>Thresholds for Pressure</i>	203
6.2.3.3 <i>Point Localization for Pressure</i>	204
6.2.3.4 <i>Adaptation to Pressure</i>	205
6.2.4 Hypotheses.....	206
6.3 O-SCALE	206
6.4 COMPUTER AIDED SENSORY EVALUATOR (CASE IV) SYSTEM	207
6.4.1 Description of CASE IV System	207
6.4.2 Description of CASE IV System Hardware.....	208

6.4.3 Description of Calibration Procedure	209
6.5 METHOD	209
6.5.1 Participants.....	209
6.5.2 MEASURES	210
6.5.3 Procedure	210
6.6 RESULTS	213
6.6.1 RTS and O-Scale Measure of Memory Aberrations.....	213
6.6.2 Vibratactile Threshold Data.....	213
6.6.3 Time to Determine Threshold.....	216
6.6.4 Reliability.....	217
6.6.5 Possible Response Biases	218
6.7 EPILOGUE.....	218
CHAPTER 7: GENERAL DISCUSSION OF RESULTS FROM THE SERIES OF FOUR STUDIES AND THEIR IMPLICATION FOR A COGNITIVE REGULATION MODEL OF TRANSLIMINALITY	222
7.1 PROLOGUE	222
7.2 GENERAL DISCUSSION.....	224
7.3 EPILOGUE.....	234
APPENDICES.....	297
APPENDIX A: TRANSLIMINALITY SCALE (FORM B)	298
APPENDIX B: HARTMANN’S BOUNDARY QUESTIONNAIRE.....	299
APPENDIX C: BRIGGS-NEBES HANDEDNESS SCALE	300
APPENDIX D: REVISED PARANORMAL BELIEF SCALE	301
APPENDIX E: SCREENING FOR SOMATIZATION SYMPTOMS (SOMS-2)	302
APPENDIX F: WHITELEY INDEX	303
APPENDIX G: COGNITIONS ABOUT BODY AND HEALTH QUESTIONNAIRE.....	304
APPENDIX H: ANOMALOUS EXPERIENCES INVENTORY	305

APPENDIX I: EDINBURGH GHOST PROJECT - FACE SHEET	306
APPENDIX J: SYNESTHESIA-HYPERESTHESIA SCALE	307
APPENDIX K: O-SCALE.....	308
APPENDIX L: PUBLICATIONS	309

ABSTRACT

Transliminality refers to the tendency of psychological material to cross thresholds into or out of consciousness. This thesis examines transliminality in several contexts. Since Chapter 1 shows that its major correlates are syncretic cognitions (the fusion of perceptual qualities in subjective experience), Chapter 2 presents a cognitive regulation hypothesis that specifies transliminality as disinhibition between brain hemispheres, as well as among frontal cortical loops, temporal-limbic structures, and primary or secondary sensory areas and/or sensory association cortices. Chapter 3 shows that transliminality taps the same boundary construct as Hartmann's Boundary Questionnaire (BQ) and that the BQ's experiential-syncretic factors are most predictive of transliminality. The boundary construct is significantly related to apparitional experiences, a phenomenon that likely derives from syncretic and somatization processes. However, a relationship between bilaterality and transliminality was not confirmed. Chapter 4 replicates positive associations among apparitional experiences, transliminality, and paranormal belief, and it establishes that these variables positively correlate with somatic-hypochondriacal tendencies. Chapter 5 tested the predictive validity of these relationships *in vivo* by studying participants' experiences at an alleged 'haunted' site. Patterns of participants' anomalous experiences and their scores on psychological measures hinted that syncretic and symbolic cognition were operating. Transliminality was positively associated with both types of cognition, which parallel established attentional mechanisms. This suggests that transliminality is a form of cognitive disinhibition involving lower sensory thresholds. Chapter 6 tests this idea via a quasi-experimental test of vibratactile sensitivity. High- and low-transliminality groups (HT & LT) completed threshold testing while listening to competing auditory stimuli of varying intensity and complexity. The HT group exhibited lower sensory thresholds and quicker performance times than the LT group. Further, introducing a high-intensity stimulus increased the thresholds of the HT group. This group also reported more aberrations in memory. These findings suggest that high transliminality reflects disrupted attentional or regulatory processes. In Chapter 7 it is concluded that a cognitive regulation model is a parsimonious explanation for the cumulative pattern of results in the literature and in the research reported here.