Vantage Theory

Vantage Theory:
A View on Language, Cognition and Categorization

Edited by

Adam Głaz, Marnie L. Moist
and Elena Tribushinina

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It is customary but certainly appropriate to say that the completion of a given project would not have been possible without the help and contribution of many people. This is especially true about this book. The people we feel we must thank above all are, obviously, the late Rob MacLaury, whose ingenious insights and intellectual generosity inspired us to pursue an interest in Vantage Theory, and María I. MacLaury, who over the course of several years has been rescuing Rob's unpublished work from his archives and sharing it with us.

Secondly, we thank all our friends and colleagues, involved in Vantage Theory as researchers, authors, reviewers, or editors, who have been incessantly supplying us with materials, ideas, and observations. They are too numerous to mention by name so we shall refrain from doing so for fear of inadvertently omitting someone whose name might have dropped from memory.

However, we must personally thank Keith Allan for writing the Foreword to this volume, and Matthew J. Donald of The Cavendish Laboratory, the University of Cambridge, Great Britain, for helping us come to grips with aspects of the spatiotemporal analogy that VT proposes.

Needless to say, we are grateful to our families and friends for support, as well as to the editorial staff at Cambridge Scholars Publishing for helping us bring this project to its present shape.

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July 2013

FOREWORD

KEITH ALLAN[1]

I first encountered Robert E. MacLaury's Vantage Theory (hereafter VT) at the LSA Summer Institute in Tucson during July 1989 and got to know more of this fascinating theory from Rob himself during subsequent months while we were both at the University of Arizona. The principal presentation of VT is *Color and Cognition in Mesoamerica: Constructing Categories as Vantages* (MacLaury 1997) but MacLaury had already been writing and publishing on VT for a decade and he continued doing so until his death at the early age of 59 in 2004. Since then a driving force for the continuation and development of his work has been Adam Głaz, who, for several years, has retained an online site for VT and linguistics: http://serwisy.umcs.lublin.pl/adam.glaz/vt.html. Głaz organized a Theme Session "Extensions of Vantage Theory: Points of View in Language Structure and Use" at the 10th ICLC in Kraków (July 2007) and was instrumental in getting papers from that session published in a special issue of *Language Sciences* (32 (2) "Vantage Theory: Developments and Extensions," 2010). This present volume, *Vantage Theory: A View on Cognition, Categorization, and Language*, co-edited by Głaz, Marnie L. Moist and Elena Tribushinina, is a further step in the development and propagation of VT. It includes three chapters of previously unpublished papers by MacLaury, with part of Chapter Four co-authored by his wife María I. MacLaury. It is valuable to have these made available to students and researchers of Vantage Theory. The remaining chapters are substantial contributions to the history and development of VT.

The Introduction by the three editors sketches the content and purpose of this volume, which is to preserve and share Robert MacLaury's intellectual heritage and further to demonstrate the potential in VT to elicit new insights into human cognition for linguists, anthropologists, sociologists, and psychologists.

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In Chapter One, "Vantage Theory, the Nature-Nurture Debate, and the Four-dimensional Mental Flexiverse," Moist and Głaz coin the term *flexiverse* to refer to the "integrative theoretical framework that assumes perceptual learning, similarity and difference, categorization, working memory, long-term memory, attention, and language [expression]." There is focus on the flexibility with which the mind moves between discrete perceptions and conceptions (fixed coordinates) and the similarity or difference between concepts and percepts (mobile coordinates) at different levels of concentration. Holistic processing amounts to emphasizing similarity, while analytic processing emphasizes difference. Switches of vantage (roughly, point of view) reflect perceptual learning, memory retrieval, attention, emotion, motivation, and language expression. Moist and Głaz argue that VT solves several controversial dichotomies–nature vs. nurture, embodied vs. disembodied, modal vs. amodal information–by always including both.

In Chapter Two, "Vantage Theory in Outline," written in 1999, MacLaury presents a most thorough and succinct account of VT that would serve as a great introduction to VT for a neophyte because it lays out the fundamentals of the theory very clearly. To oversimplify: VT

> poses that a category is composed by a deep-seated, unconscious, and automatically expedited analogy to space-time coordinates, which a person processes as fixed landmarks and motion between them. The categorical equivalents are inherently fixed images and inherently mobile reciprocals of attention to similarity and difference.

The steps in constructing the category are a vantage (a point of view on the category): the dominant vantage progresses from similarity (synthesis) to analysis (dissimilarity); the recessive vantage progresses from dissimilarity to synthesis. VT allows for categorical asymmetry when a category is named from two vantages (e.g. when the terms for Red and Yellow or Blue and Green overlap on a particular hue).

"Categorization as space-time analogy," Chapter Three, was written in 2003. In it MacLaury argues that categories are constructed on the basis of an analogy to the method through which we reckon our positions in space-time, via a fixed coordinate (attention to similarity) and mobile coordinate (attention to difference). A person contracts, skews, and divides categories by shifting attention from similarity to difference. The analogy is with Albert Einstein's account of an object dropped from a moving railway carriage, from which vantage point it falls straight (fixed, same vertical space) but from the vantage of a perceiver standing by the track it is

parabolic (mobile, different vertical spaces) because every point along a trajectory occurs at a different moment in time.

The fourth chapter in this compendium is a compilation by the editors of studies authored by MacLaury produced at different times, for different audiences. "Four Case Studies in VT Application" reports on the application of VT beyond the color domain. The first study reviews the belief entertained by Eastern Bororo men (from north central Mato Grosso) that they are red macaws. The explanation is that people are composed of *bope*, a life force the drives vital processes, and *aroe*, a singular, pure soul. These constitute fixed coordinates. In the dominant vantage, *bope* in the bodies of men attains nexus with the *aroe* of macaws who provide the behavioral model; in the recessive vantage, macaws provide the body and men the model for the urges that drive behavior. The second case study is the representation of the category of personhood in sixteenth/seventeenth century Aztec codices–which is linked to Marcel Mauss' (1938) thoughts on the evolution of *personnage* and self. It is argued that the construction of dominant and recessive vantages enables different concepts of the person as holding a social role (dominant vantage) or an individual self (the less stable recessive vantage) to coexist in a culture or an individual mind. There follows the exquisite "Vantages of a Song about Love" co-authored with María MacLaury. The fixed coordinates here are (1) the groups to which the lovers belong and (2) each individual lover. Before the pair meet there is emphasis on the former, afterwards on individualized acts and reactions emphasizing the different identities. Then finally the individuals join as a pair or group there is a zooming to similarity. The last study in Chapter Four is an account of "Plain speech and *masu* forms in Japanese." The dominant vantage gives rise to the use of the plain form; one recessive vantage gives rise to polite usage marking the interlocutor's difference in status, the other ignores this because of perceived temporary intimacy or the making of an objective comment that has no relevance to the status of the interlocutor. Writers on the use of such forms of politeness have often referred to the speaker's viewpoint as a determining factor, making it appropriate to reconsideration in terms of VT.

Chapter Five, "Category Invasion, Vantage Theory, and the Semantic Definition of Subject" by Jinseung Eu, discusses the notion of category invasion, e.g. when a term covers another term's referential territory including the latter's prototypical core. The phenomenon can occur inter-categorially or intra-categorially, and so is claimed to be distinct from VT's coextension, which is intra-categorial only. Eu seeks to show how the notion of category invasion helps explain the problem of the semantic

definition of subject posed for this definition by the verbs such as *see, know*, and *hate*, e.g. verbs that occur with "stative experiencer" subjects.

The next three chapters are contributions from each of the editors presenting developments of VT beyond its application to color terms.

Chapter Six, by Adam Głaz, reexamines "Vantage Theory as a Model of Categorization," reviewing the space-time analogy, the conception of a category as an assembly of points of view, and the categorizer's attention to similarity or difference as the fundamental cognitive process. Głaz shows that the "role of similarity in concept-formation, viewpoint, and metaphorization is suggestive of its more fundamental function as the very essence of the process of category construction." MacLaury believed VT uniquely explains coextension: the mappings of two terms substantially overlap and each term encompasses the focus of the other. The mappings constitute two vantages that reflect points of view on the same category rather than identifying two categories. In addition to coextension, VT models prototype effects, fuzzy boundaries, peripheral membership, the relative strengths of similarity and difference, the existence of double foci in color naming, and the discrepancy between semasiology and onomasiology. On the other hand, questions remain about the space-time analogy, the definition of (dis)similarity, and whether the process of category construction is unidirectional and innate or learned.

In "Vantage Theory and Linguistics: An Assessment of Framework and Methodology," Elena Tribushinina argues that VT offers "a unified account of language phenomena substantiated by general cognitive mechanisms" and suggests moves to develop a more rigorous methodology for VT research. She notes the importance of communicative purpose in determining viewpoint and therefore vantage, supporting her argument by reference to many studies beyond the application of VT to color naming. In VT, categories are not permanent and well-defined but fluid: individual cognitions are influential in category construction, though languages encourage particular vantage configurations as conventional. A discourse proceeds through a succession of vantages–how is this structured and what are the relationships among these vantages? And whereas fixed coordinates in color naming are physiologically given, this is not so in many other domains; how are coordinates to be determined objectively? If VT is a theory of cognitive process it would benefit from neurolinguistic experimentation and validation. Furthermore, language is transacted between speaker and hearer and VT has hitherto had nothing to say about language comprehension.

In the final chapter, "Zooming from Human Evolution through Culture and Individual Differences Using the Vantage Theory-based Four-

dimensional Mental Flexiverse," Marnie Moist delves into human evolutionary development and culture to explain in terms of VT how humans deal with novelty and complexity. She supposes that in pre-linguistic primates there would be fixed coordinates such as color, shape, and/or orientation; and mobile coordinates arising from attention to similarity and difference, motivation, emotion, and preparation of action that would link fixed coordinates together into discrete, bounded events. These abilities were built upon by hominids: *homo erectus* showed variability in customs, which could have both resulted from and motivated development of perspective-taking skills–perhaps an ability to shift between dominant and recessive vantages. Similarity in the perceptions of ingroup members may have led to the adoption of the dominant vantage when dealing with ingroup members such that exposure to outgroup members triggered a recessive vantage. Global processing (initial attention to similarity at the first level of concentration in the dominant vantage) precedes local processing (differentiation and construction of a recessive vantage). Collectivist cultures like those of East Asia have a collectivist dominant vantage that includes a focus on knowledge of others, whereas the individualistic dominant vantage of Westerners focuses on knowledge of self; but, in both these systems, individuals are internally able to shift between dominant and recessive vantages.

The great value of *Vantage Theory: A View on Cognition, Categorization, and Language* is to advance the progress and understanding of Vantage Theory: first, by making available previously unpublished work by Rob MacLaury, some of which will instruct readers who know nothing of VT in its fundamentals, the rest extends the theory. Second, this book is valuable for the studies presented which apply VT to domains other than color, developing the scope of VT research into the cognitive skills of humans in their perception and categorization of the world around them. Third, to facilitate the understanding of and research into Vantage Theory and its applications, a hugely valuable Appendix consists of a structured bibliography of the dozens of publications on VT.

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INTRODUCTION

THE WHATS AND THE WHYS

ADAM GŁAZ, MARNIE L. MOIST
AND ELENA TRIBUSHININA

1. What is this book?

In 2004, one of the keynote speakers at the conference Progress in Color Studies, held in Glasgow, Scotland, was to be an American anthropologist and linguist Robert E. MacLaury, the proponent of an original model of color categorization called Vantage Theory (henceforth also VT). Sadly, a few months before the conference Rob passed away, and the event was dedicated to his memory. His departure, apart from the obvious human dimension, was a major blow to the never very sizeable community of VT researchers. It was even prognosticated by the more pessimistic among us that the year 2004 would mark the beginning of a steady and irrevocable decline of interest in VT, consigning it to eventual oblivion. That atmosphere could also be felt before the 10th International Cognitive Linguistics Conference (ICLC) in Kraków, Poland, when one of us (Adam Głaz) was trying to organize a session devoted to VT and the conference organizers were rather skeptical about the idea for fear of a lack of interest.

Fortunately, later developments showed that reality was not so bleak as prophesied. The theme session on VT held at the 10th ICLC was a success. Out of it grew a special issue of *Language Sciences* published in 2010 (vol. 32 (2)). VT has also proven intriguing enough to be included in a newly designed encyclopedia of color (Głaz 2013).[1] Moreover, the year 2012 saw the publication of a monograph devoted to an extended version of VT (EVT), applied to an analysis of language data (Głaz 2012). Not the least important is also the fact that MacLaury's major work, the 1997 book *Color and Cognition in Mesoamerica*, was published in paperback in 2011. True, VT has lost its founder, its *spiritus movens* and ultimate

[1] An earlier encyclopedic entry on VT in a major reference work is Allan 2005.

authority but has continued to shed light on various aspects of human cognitive behavior.

With the death of Rob MacLaury also came the realization that, having been very active until his final days, the scholar must have left a rich archive of unpublished work, some of it perhaps in the form of sketches or notes. Indeed, we were in possession of a few such pieces and María MacLaury was diligent in mining her late husband's vast repository. We then thought that at least some of this work is too valuable to remain inaccessible to a larger readership. This brought us to the idea of having it published. Additionally, we were advised that the readers will also appreciate a critical evaluation, elaboration, and extension of at least some of the aspects of the theory. This, in short, is the present volume: it introduces VT in a broader psychological and cognitivist context, it contains hitherto unpublished work by Rob MacLaury, a discussion of several aspects of the theory, a critical assessment of its applicability in various fields of scientific inquiry, and an indication of the possible avenues for future research.

In Chapter One, Marnie Moist and Adam Głaz introduce the major tenets of Vantage Theory and locate it in a broader context of cognitivist issues, such as the nature-nurture debate, the operation of working memory, VT's relation to continuum theory etc. The authors then propose what they call a "four-dimensional mental flexiverse" as a model of cognition and categorization.

Next come three chapters authored or co-authored by Robert MacLaury. At this juncture the reader must be forewarned: prior to the publication of this volume, the chapters were not brought to a publishable shape and as such may exhibit some of the flaws typical of pre-final drafts. The most complete of the three is Chapter Two, an overview of VT, which was written in August 1999 and available since then until 2003 on MacLaury's University of Pennsylvania website. It is published here with only minor changes, corrections of obvious errors, etc.

The central theme of Chapter Three, the nature of the analogy between the way people orient themselves in space-time and category construction, was MacLaury's primary concern in his final years. The first draft of the manuscript bears the date August 14, 2002, but a later, electronic version received from the author is dated September 23, 2003. This also appears to be pre-final, though Rob had planned its publication. A major problem for us as editors of the present volume has been to integrate Chapters Two and Three. Chapter Three has been shortened in order to avoid excessive repetition with Chapter Two. Some repetition, however, proved unavoidable: the two pieces were never planned to be published together

and hence they cover some of the same ground. We feel, nevertheless, that they are distinct enough to deserve inclusion here: while Chapter Two is a general overview of VT, Chapter Three provides greater elaboration on the spatiotemporal analogy. The reader is asked to be tolerant and make allowances for the historical context in which they were produced.

Chapter Four aims to illustrate the explanatory power of VT beyond the domain of color categorization where it originally came into being. The chapter consists of four separate case studies, each illustrating the theoretical potential and analytic tools offered by VT by considering various phenomena, ranging from the intriguing beliefs held by the Bororo tribes to the sociolinguistic analysis of *masu* forms in Japanese discourse. Because none is long enough to constitute a chapter on its own, we thought it would be best to bring them together. Case Study 1 ("'We are *araras'*: Bororo vantages on male person"), which we have received from María MacLaury, was probably written in the 1990s and was planned for further elaboration and expansion, as indicated in the author's note at the end of the manuscript. Case Study 2 ("Terror of Montezuma: The Aztec category of person") was probably written around 1989-1990. It seems to constitute a middle stage in a series of conference presentations and published pieces, some of them authored by Robert MacLaury, others by Jane Hill, yet others being coauthored. Case Study 3 ("Vantages of a song about love") is the most unusual of all: it is in fact Rob and María MacLaury's letter, dated September 2, 2002, to Johannes Wagner and Chris Sinha, the organizers of Summer School on Blending in Context in Odense, Denmark. It is published here with the permission of María MacLaury and both addressees. Finally, Case Study 4 ("Plain speech and *masu* forms in Japanese") is the most finished piece, originally to be linked to what is included here as Chapter Two, then appended to MacLaury (2003a). We do believe each study has a unique value and together they constitute a valuable evidence of VT's potential. We are also aware of MacLaury's other unpublished work (e.g. on coextension or pronouns and deixis in Zapotec) which either remain unavailable or require much more editorial work. We would certainly like to bring them to a publishable shape in the future.

The remaining chapters contain assessment and elaboration of some of the many aspects of Vantage Theory. In Chapter Five, Jinseung Eu harnesses VT for an explanation of what he calls "category invasion," as well as a semantic definition of subject. Chapter Six, by Adam Głaz, is devoted to the relationship between VT and other models of categorization, with some critical evaluation of the former. In Chapter Seven, Elena Tribushinina surveys and also critically evaluates

applications of VT in analyses of linguistic data. In Chapter Eight, Marnie Moist looks at the psychological side of VT in a broader context of evolution, symbolism, and culture. Finally, the Appendix contains an up-to-date bibliography of publications on VT, which shows the extent of the work done so far and which should help the reader navigate in perhaps less traveled areas where VT has left its mark.

If one were to find a common thread running through all the chapters, we would like to invoke John Taylor's (2003a) apt observation that through categorization people want to achieve two major, though apparently contradictory goals: maintain the stability of the cognitive structure and adapt to novel circumstances. It is to account for precisely this, we believe, that Rob MacLaury devised the rather complex architecture of his model. We also like to see it as the major and common theme of the remaining contributions.

2. Why this book?

We are aware that the impatient reader might be discouraged by the very fact of being faced with yet another book on categorization. However, we do believe that VT is not merely "yet another" categorization model but one that is full of potential and ground-breaking observations, both in the domain of color and beyond. In what originally was a footnote to Chapter Three, MacLaury says:

> Although founded on color research, Vantage Theory is about categorization at large. MacLaury (1992) uses the theory to integrate brightness with Berlin and Kay's hue-category evolution; MacLaury (1995, 2003c), Hill and MacLaury (1995), and Taylor (2003b) apply it to cognition apart from color; MacLaury (1997) conducts its main test as a unified explanation of 100 observations of color categorization collected from 900 speakers of 116 Mesoamerican languages; the special issue of *Language Sciences* (2002, vol. 24, nos. 5-6) anthologizes applications by anthropologists, linguists, and psychologists to issues unrelated to color; MacLaury (2002) develops capacities to model curves of categorical membership and objectification; MacLaury (2003b) models distributed attention to similarity and difference to account for Berlin and Kay's evolutionary stages and universal ceiling of eleven basic categories, the basis for posing total attention as the categorical constant.

Over the last decade VT has been successfully applied in various branches of linguistic research ranging from orthography to discourse analysis, as evidenced, for example, by two special issues of *Languages Sciences* (2002, edited by Rob MacLaury, and 2011, edited by Adam Głaz

and Keith Allan) or the recent monograph on the English articles (Głaz 2012). Since linguistic applications of VT are surveyed in Chapter Seven, here we will confine ourselves to briefly mentioning other areas where the model has been found illuminating, although the line separating language from non-language is often thin and largely arbitrary.

To begin with, Chapter Four contains two such case studies, both dealing with the category of person: the Bororo male person and the Aztec person (for the latter, cf. also Hill and MacLaury 1995). But the first application of VT outside color was María MacLaury's (1989) Master's thesis on urban planning. Other published non-linguistic VT work beyond the domain of color is not numerous: we are only aware of Lansing's (1995) article on the notions of genus and species (though Lansing only uses some aspects of VT). Some of that work remains in the form of manuscripts or internally-circulated documents, such as MacLaury and Trujillo's (1989) report on literacy. Most studies, however, have only been presented as talks at conferences and symposia. Chronologically, in July 1989, Lauren Clark spoke about biomedical and holistic views on health at an LSA Institute symposium on "Cognitive Grammar and Related Topics: Vantage, Prototype, and Metaphor," in Tucson, AZ. She addressed related issues at the 88th Annual Meeting of the American Anthropological Association, in November 1989, Washington D.C. At the same meeting, other speakers who dealt with VT and non-color domains were John P. Molloy ("Vantages in Roman history"), Denis F. Viri ("American Indian categories of tradition and self: Variations of vantages"), and Ellen L. Price ("Multiple viewpoints of 'mission' in community college administration"). Price also appeared at the 61st Annual Meeting of the Southwestern Anthropological Association, 12-14 April 1990, Long Beach, CA, together with Octaviana V. Trujillo ("Yaqui language and education: Vantage theory as applied anthropology"[2]), Kimberly Meyers ("Neo-racism as point of view"), and John W. Sherry ("Human vantage in connectionist networks: Computation from a standpoint").

One can see, then, that the breadth of application of VT is impressive– it is only to be regretted that most of that work is unavailable, not having been developed into publications. Aware of these dangers and the merciless effects of passing time, we have designed the present volume precisely in order to preserve and share Robert MacLaury's intellectual heritage.

[2] This was probably a presentation of the MacLaury and Trujillo (1989) report mentioned above.

3. What next?

The list of VT applications above, as well as several examples in the present volume, show that Vantage Theory's potential has been utilized to some extent. Even so, one does have a feeling of insufficiency. In order for VT to gain momentum, we would like to propose four steps.

First, the theory should be made more accessible by producing a textbook-type publication. A noteworthy precedent is a section in Allan's (2001) textbook on *Natural Language Semantics*, though it remains isolated and rather limited in scope. Such textbook presentations are much needed, since VT is a complex model and MacLaury's rather idiosyncratic writing style does not always make it easy for the reader to extract its gist.

Second, more applications of VT outside color would be welcome, both in linguistics and beyond. Although the number of linguistic applications has been growing, some of them are still not known to the larger audience and it seems that the community of VT researchers has not yet gained the critical mass. This should be accompanied by more systematic applications of VT to non-linguistic problems: only then can the theory be shown to be truly universal and able to model categorization at large. Being an interdisciplinary approach, VT is a fertile ground for psychologists, linguists, anthropologists and sociologists, *inter alia*, to join forces and thereby gain exciting new insights into the intricate workings of human cognition.

Third, VT's major theoretical tenet, the spatiotemporal analogy (Chapter Three here; Głaz 2010), should be given a more solid grounding, with a more careful elaboration of its mathematics.

Fourth, VT research beyond the domain of color imposes methodological demands, since the empirical methods employed by MacLaury in the investigations of color categorization are often unsuitable for other research areas. Furthermore, VT would particularly benefit from recent methodological advancements, as up-to-date methods of investigation might be particularly illuminating about the online dimension of cognitive processing.

None of those tasks is easy, nor is it obvious how to approach them. We have learned, however, that VT, if pursued methodically, does not only promise but in fact delivers much. It is with this positive message that we would like to encourage the reader to approach the present volume.

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CHAPTER ONE

VANTAGE THEORY, THE NATURE-NURTURE DEBATE, AND THE FOUR-DIMENSIONAL MENTAL FLEXIVERSE

MARNIE L. MOIST AND ADAM GŁAZ

Abstract. Robert MacLaury's Vantage Theory has tremendous potential to move past the nature vs. nurture debate by allowing integration of empirical areas relevant to psychology, linguistics, and anthropology. The current chapter attempts to clarify Vantage Theory and build upon it by proposing the four-dimensional intrapersonal mental flexiverse. Within–vantage concept representation via chunking is the horizontal dimension. The global/local distinction relevant to the perception-cognition continuum is the vertical dimension. The up/down dimension involves holistic vs. analytic attentional zooming within and between dominant and recessive vantages. Stream of consciousness motion over time is argued to be the crucial, but often ignored, fourth dimension. The mental flexiverse is discussed as a useful tool for integrating working memory chunking, the structural alignment process, the role of attention in category learning, well-learned category membership vs. typicality judgments, top-down vs. bottom-up cooperation vs. competition, similarity- vs. rule-based categorization, embodied vs. disembodied cognition approaches and more.

Keywords: vantage; dominant-recessive; nature vs. nurture; chunk; global vs. local; holistic vs. analytic; mental representation of time; category; similarity; difference; embodied cognition

1. Introductory remarks

For quite some time we have been intuitively taken with the explanatory power of Vantage Theory (VT) pertaining to human cognition, without being easily able to explain the source of VT's potential to provide clarity to various key controversies. Rather than starting off with a summary of VT, which comes in MacLaury's own Chapter Two of this

volume, the purpose of this first chapter is to place VT within a larger context of more mainstream controversies pertaining to cognition. MacLaury himself, before his untimely death in 2004, chose to focus on connecting VT to physics as he recognized the theory's potential to broadly underlie an understanding of human consciousness (see Chapter Three). We argue here that VT also sits at the crossroads of several important cognitive theoretical controversies, mainly because fleshing out its core assumptions through integration with existing empirical evidence helps us move beyond problems that are rooted in the nature-nurture debate.

Regarding the nature-nurture debate, Stotz (2008: 360) has argued as follows:

> Despite being declared dead many times, this debate is alive and well today in the dichotomy of nature as the genetic, and stable factors of development, and nurture as the environmental and plastic influences (Kitcher 2001). The term *nature* is applied to those traits that seem genetically determined, fixed in their final form and are present in all cultures, as in discussion about human nature; the term *nurture*, on the other hand, implies variable rearing conditions, including human culture.

Stotz promotes instead the idea that all traits develop out of a single-cell state through the interaction of multiple developmental resources that defies this type of dichotomous separation. More specifically, the author argues that the term *innate* is problematic because (i) it merely labels causes of behaviors rather than explaining them, (ii) the apparently "innate" processes "have turned out to involve epigenetic or experiential factors (Blumberg 2005)," and (iii) the term, as argued by Paul Griffiths, "can imply three different and unrelated things, namely developmental fixity (noninvolvement of experience), species-typicality or universality, and adaptedness, or normativity, of a trait" (Stotz 2008: 365). McLafferty (2006), in a related vein, identifies three problematic assumptions that arise from any nature-nurture research: exclusivity, universality, and complementarity. Exclusivity is the assumption that only nature and nurture make us who we are, which precludes other possible influences; universality is the assumption that the nature-nurture paradigm is valid for every human trait studied; and complementarity is the assumption that nature and nurture constitute a linear dichotomy. McLafferty proposes that free will and choice move us beyond such a linear dichotomy. We argue in this chapter that Vantage Theory not only moves beyond the nature-nurture debate and allows room for choice, but that careful examination of VT's

unique assumptions provide a potential vehicle through which further progress can be made in resolving multiple cognitive controversies.

2. Two assumptions preventing progress on core cognitive controversies

VT overturns two commonly-held assumptions about the nature of cognition. The first assumption is as follows:

> *VT overturned assumption 1*: Centuries-old philosophical reflections leading up to the nature-nurture debate have led many cognitive researchers to dichotomize and search for mental abilities that are, on the one hand, universal/innate/structured/rigid, or on the other hand, are culturally relative/learned/processed/dynamic.[1]

Whereas thinkers like Plato, later René Descartes and Gottfried Wilhelm Leibniz, argued that knowledge is innate to the human mind, empiricists like John Locke, David Hume, and John Stuart Mill argued that knowledge is primarily learned from the environment. Immanuel Kant's attempt to synthesize these views led him to argue that what came in as input through the sense organs was a disorganized sensory material which was then sorted into intelligible bundles by two mind-imposed structures: the forms of intuition and the categories (Davies 1996). The forms of intuition mean that individual objects were necessarily experienced in space and time. Categories allow us to understand various general concepts that apply across multiple instances (e.g., quantity, causality, permanence). The forms of intuition and the categories were described together as schemata of the mind, which humans impose on reality like a grid to make sense of it.

Kant's assumption that objects can be recognized only in the context of an understanding of space and time corresponds well to MacLaury's comment in Chapter Two of this volume that

> [i]n terrain, a person composes space-time by plotting his position in reference to stationary landmarks and to time as a function of motion. On the categorical side of the equation, a person constructs a commensurable point of view on any experience in reference to idealized images and to

[1] Although it is a great oversimplification to treat terms like *universal*, *innate*, *structured,* and *rigid* as synonymous (likewise with *culturally relative*, *learned*, *processed*, and *dynamic*), we do so throughout Chapter One of this volume because these terms all appear to be rooted in the nature-nurture dichotomy, which we are attempting to move beyond.

> degrees of similarity and difference, which are the fixed and mobile equivalents of space-time coordinates.

Kant's notion of schemata can provide a foundation upon which to understand MacLaury's notion of a stationary landmark (a.k.a., "fixed coordinate at the first level of concentration"). MacLaury describes inherently fixed mental coordinates as discrete constructs that stand apart from other senses or ideas and may take many possible forms (e.g., concepts, mental images, events, etc.). Similarity and difference are inherently mobile mental coordinates because attention to them occurs along an axis that ranges from unity to disparity; the process of attending to either similarity or difference is analogous to moving slowly or quickly along the velocity axis from zero to the maximum conceivable speed. In other words, by analogy to how humans orient themselves in space (stationary landmarks) and time (motion), they are claimed to categorize by employing mental counterparts of those, i.e. inherently fixed mental coordinates plus variable degrees of attention to similarity or difference.

Vantage Theory overturns Assumption 1 above because it argues that mental coordinates which are inherently fixed (i.e., discrete perceptions) can become temporarily flexible within a hierarchical, recursive network of coordinates; coordinates which are inherently mobile (i.e., emphases on similarity vs. difference) can in turn become temporarily fixed. A fuller explanation of this will be given below, and it is mentioned now only to point out that many theories overlook the idea that mental activity is in constant motion that unfolds over time. A notable exception is Deacon, who notes that time is a critically important factor in the parallel–processing brain, which relies on "primary areas" for fleeting signals and "association areas" for persisting signals. Deacon (1997: 292) argues "separating processes according to a gradient of time integration may be every bit as important for handling potentially interfering functions as is the segregation of different modalities and submodalities." Also, Baillargeon (2008) emphasizes that the developmental literature has begun to place importance on event perception over object perception as he summarizes evidence that infants operate with a principle of persistence (i.e., that objects persist in time and space). Therefore, it seems most parsimonious to assume that adult cognition at a fundamental level continues on via an understanding of oneself and others within the context of events that unfold in space over time through motion. Corresponding to this idea, VT assumes that the human mind at all stages of human development cannot be separated from movement through time, whether time be manifested in one individual's working memory activation over a brief few moments, in a cultural group's common construal of the meaning