



European Semiotics
Sémiotiques Européennes

8

Todd Oakley

From Attention to Meaning

Explorations in Semiotics, Linguistics, and Rhetoric

Peter Lang

"Rhetorical theorists interested in understanding what rhetoric can accomplish by way of asking, what makes rhetoric possible, will find this a satisfying and compelling read."

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"Todd Oakley's book is a most innovative, radical and deeply inspiring contribution to what must be considered a cutting edge in Cognitive Linguistics: the role of attention in language and discourse. It is the first encompassing proposal for a general theory of attention in relation to meaning construction in discourse and a claim for a 'Cognitive Rhetoric'. As such the book is a must for anybody interested in Cognitive Linguistics and Cognitive Semiotics."

Cornelia Müller
European University Viadrina, Frankfurt (Oder)



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Sémiotiques Européennes

Of all the tasks you perform, perhaps none is more consequential for the performance of other tasks than paying attention. When you attend, you perceive. When you attend and perceive, you remember. When you attend, perceive, and remember, you learn. When you learn, you have the option of acting deliberately. Perceiving, thinking, learning, deciding, and acting require the constant adjustment of the attention system. The author proposes a model of the greater attention system as comprising three distinct but interdependent sub-systems: the *signal* system, the *selection* system, and the *interpersonal* system, with eight elements distributed among them: *altering*, *orienting*, *detecting*, *sustaining*, *controlling*, *sharing*, *harmonizing*, and *directing*. The chapters in this book develop an "attentional" analysis of meaning under the unifying framework of mental spaces theory. In addition, each chapter explores the implications of an attention based approach to meaning for research in semiotics, linguistics, and rhetoric. Data for the investigation originate from the author's own field work carried out in cultural institutions.

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From Attention to Meaning

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Todd Oakley

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Linguistics, and Rhetoric



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Contents

Acknowledgements	9
Attention: A foreword	11
Introduction	17
A Collector's Conceit	17
Prologue: Attention, Meaning, and Knowledge Representation	19
Synopsis	21
Chapter 1	
The Greater Attention System and the Cognitive Sciences	25
Attention	25
The Greater Attention System: An Overview	26
<i>The Signal System</i>	27
<i>The Selection System</i>	29
<i>The Interpersonal System</i>	33
<i>Summary</i>	36
The Cognitive Psychology and Neurophysiology of Attention	37
<i>A Cognitive Psychology of Attention: Protocols, Models, Theories, Paradigms</i>	38
<i>A Neurophysiology of Attention</i>	46
Related Topics in Cognitive Science: Consciousness, Memory, Categorization, Affect	52
<i>Consciousness</i>	52
<i>Memory</i>	53
<i>Categorization</i>	56
<i>Affect: Values and Emotions</i>	58
Relevant Concepts	61
<i>Meaning</i>	61
<i>Imagery and Schemas</i>	62
<i>Mental Models</i>	64

<i>Mental Spaces</i>	66
<i>Culture and Cognition</i>	72
Chapter Summary	75

Chapter 2

Attention and Semiotics	77
Semiotics	77
<i>What is Semiotics?</i>	77
<i>Five Theoretical Perspectives: Overview and Assessment</i>	78
The Greater Attention System as Semiotic	83
<i>Three Dimensions of the Sign: Presentation, Representation,</i> <i>Interpretation</i>	83
<i>Nine Functions of the Sign</i>	86
<i>Frick's Conceit and the Attention Semiotic</i>	90
<i>Synopsis: Signs and the Greater Attention System</i>	93
Brief Case Studies in the Semiotics of Attention (with special emphasis on conceptual blending)	94
<i>Debating Kant</i>	94
<i>Kant and the Graduate Student</i>	96
<i>Melville's Mincer: Presentation as Symbolization</i>	100
<i>Landing an MD-80 Aircraft: Distributed Attention</i>	102
Extended Case Study: Auto-Ethnography of the Cleveland Zoo's Rainforest Exhibit	106
<i>Attention Structures of the Cleveland Rainforest Exhibit</i>	106
<i>Agenda</i>	109
<i>A Guided Tour of the Rainforest Exhibit</i>	109
<i>The Architecture of Attention</i>	111
<i>Infelicitous Apologies and Felicitous Human Scale Reasoning</i> <i>in the Rainforest Exhibit</i>	115
Chapter Summary	123

Chapter 3

Attention in Language and Discourse	125
Language	125
The Greater Attention System and Language	127
<i>The Signal System</i>	128
<i>The Selection System</i>	136

<i>The Interpersonal System</i>	151
<i>Overview</i>	156
Case Studies in Language and Discourse	159
<i>Fictivity and Aesthetic Perception</i>	160
<i>The Prosody of Attention</i>	178
Chapter Summary	187
Chapter 4	
Attention and Rhetoric	189
Three Perspectives	191
<i>Aristotle</i>	191
<i>Perelman and Olbrechts-Tyteca: Rhetorical Presence</i>	193
<i>Burke: Dramatic Identification</i>	198
<i>Summary</i>	201
Case Studies	202
<i>The Rhetoric of Force and Counterforce</i>	203
<i>Rhetoric, Argumentation, and Construal</i>	207
<i>Force Dynamic Analysis of the Preface</i> <i>to Bush's National Security Strategy</i>	208
<i>The Rhetoric of Compliance: The Census 2000 Campaign</i>	218
Chapter Summary	230
Concluding Remarks	233
References	235
Appendix A	245
Preface to National Security Strategy of the United States of America	245
Appendix B	249
Author Index	259
Subject Index	261

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Attention: A foreword

A little philological observation for a starter. The German translation of *attention* is *Aufmerksamkeit*, whose Old Norse root /merk/ also gives rise to verbs such as *bemerken*, to notice, and *markieren*, to mark out. The French has the same differentiation: *remarquer* (to notice) versus *marquer* (to mark out). English *notice* and *note* reflect the Latin *nota*, written sign, distinction, from the verb (g)*nosco*, to study, know, recognize, understand, hence: (cum + (g)*nosco*), *cognitio*, knowledge as process or result: *cognition*. Underlying this double semantics – whereby the word for attention also refers to demarcation, marking, apposing a mark on some object – there may be a general tendency is to associate a graphic act of distinguishing a thing and the event of becoming aware of this thing. The phenomenon of ‘paying attention’¹ to some entity by a conscious effort thus appears to show affinity to the semiotic activity of writing, marking, signifying. A possible interpretation: Our *attention* is thought of as a mode of signifying by mental *writing* into perceptual space; the result, cognition, is conceptualized as some sort of ‘writing with the eyes’ by looking upon something. The attentive gaze is a pen.

Attention is often ‘shared’; if a person ‘draws’ attention to something, or ‘attracts’ someone’s attention, such events or acts of sharing seem intelligible in this framework of a semiotic phenomenology.² The exercise of attention affects dynamically some other ‘attentions’ present in a given space; it attracts them – to some marked-out object – and thereby creates experiences of mental contact, intersubjectivity. These experiences of joint or shared ‘attending’ to something will further give rise to feelings of sharing thoughts, or exchanging information, making possible the concept of *communication*, including the well-known models representing conduits, senders, receivers, and channels through which meaning appears to ‘flow’ while subjects attend to its referent.

- 1 This semantic area is rich in similar figurative data. In Danish, you can ‘ofre opmærksomhed [på noget]’, literally, *sacrifice* [your] attention on something... *Paying*, sacrificing, and in general: the symbolic act of *giving*, are instances of signifying, making sense in an intersubjective, socio-cultural space.
- 2 A phenomenology of attentional ‘writing’ or ‘marking’ is semiotic, since such imaginary graphic marks would be symbolic signs of having been attended to – checkmarks.

A special effect of this basic dynamics of attention is what we call *intentionality*, in the simple sense of: the quality of the intentional, as in: ‘an intentional act’, ‘he did it intentionally’, or simply: ‘the meaning intended was ...’ When our individual attention to an item is ‘shared’, in that other persons are ‘paying’ attention to the same item, and this communal situation acquires certain stability in time, the meaning of the object of attention tends to stabilize. What we attend to then begins to ‘mean’ something, in itself and to us. If the doing of a person requires the attention of the doer and allows or attracts the attention of others, we will in the same way ascribe intentional meaning to it, to be assumed by the doer, who is thus its ‘intentional’ agent. *The intentional meaning of an act is the meaning it has as object of stable, shared attention*; we can even call this its *objective meaning*; it is this meaning that the (responsible) agent has to assume as the intentional meaning of his own act – even if, for some reason, the actual doer does not attribute such meaning to it. If something ‘makes sense’, we cognitively experience this sense to be ‘made’ intentionally, in so far as it is grounded in stable, shared attention. This cognitive principle is incompatible with many hermeneutic philosophies; but in social life, ethics and jurisdiction rely on it, as well as the structure of narratives cross-culturally presuppose it in the very set-up of a third-person perspective.³

In the world of art, this phenomenon of ‘sense-making’ by the ascription of objective meaning to artifacts, works of art, texts, pieces of music, etc. is particularly salient. Art critique is mainly an instance (or institution) of interpretation, namely of the possible objective meaning of each work. Here, the basic but intriguing fact is that the artist does not have to be the best interpreter, even of his own work. The artist or author of a given piece participates in the community of attending (inter-)subjects but enjoys no privileged interpretive authority. The meaning of the item is necessarily experienced as *written into* it through the artistic act (of ‘paying’, ‘offering’, ‘giving’ ...) of signification, inherent in the presumed intense primordial attention paid to it during its creation, again according to the basic marking phenomenon mentioned above. Once thus ‘written’, it no longer belongs to the initial ‘writer’. It now ‘means what it means’.

We live in a human world of meanings, that is, in this sense, of objective meanings ascribed to experienceable phenomena, rather than in an astrophysical or micro-physical world. Our historical meanings refer to intention-

3 So, as narrators we can say: “Paul promised to marry Jane”, and under certain circumstances, this can be true even if Paul disagrees.

ality in the radical acception considered here. In this framework, it may be easier to see how religion can be grounded in cognition: the sense that things make to us is intentional and can sometimes be ascribed to creative acts of primordial attention (even without authority over the resulting meaning!), so why not the entire physical world? If meaning is intentionally given, even without a human author, then why not interpolate a non-human author?

Deus in cognitione? In fact, human cultures equipped with conscious attentional resources have across many millennia explored the epistemic richness of the basic semiotic tendency to interpret the universe by ascribing intentional meaning to it, before reaching the state where the involved objectivity became the objectivity we assign to knowledge in areas we now call history, philosophy, science. The basic principle, however, remains: the author, in cases where such an instance can be identified, is not the master of meaning, just one of its interpreters. To interpret natural regularities, and to let the concept of objective meaning include 'laws of nature' – to let the Grand Book of Nature be written, with or without writers, in the language of mathematics, as the classical rationalists suggested – is to continue what the cognitive phenomenology of the minds of our species has always done, as long as there have been inter-subjective sense-making and 'communication'. All forms of knowledge are based on intentionality. The main difference between religious beliefs ('faith') and profane beliefs or assumptions may be that the interpretive *communities* establishing the stable contents of phenomena as meanings are closed and esoteric in the former case and open and exoteric in the latter. Closure then leads to dogma and dogmatism, that is, rigid and inconsistent beliefs, while openness of discourse leads to unbounded curiosity and negotiable theory. It could be said that religion is an attentional accident; but we will have to add that due to its structure, it is likely to stay ubiquitous or imminently present within human civilisation.⁴

The cognitive and semiotic study of attention, its forms and its 'grammar', and the relations of these aspects to the rather complex semantics of human experience, as developed theoretically, technically, and empirically in the present volume, represents an important new step in the exploration of human consciousness. By lifting the inquiry out of the philosophical discourse – where it was born and raised, thanks to classical rationalism and modern phenomenology – and installing it in the open discourse of systematic collaboration, this work accomplishes a remarkable feat. It explores

4 For example, most or all ethnic communities or 'cultures' that claim to possess an 'identity' also present a religious profile. Closure is structural in the case of ethnicity.

a basic phenomenon and invites critical debate and further contributions from the wide field of cognitive consciousness studies spanning from aesthetics and linguistics to biology and neuroscience. This is, I think, the way in which a cognitive semiotics works.

Attention is particularly relevant to linguistics, in so far as language is our main medium of ‘pointing’ to things among things, especially to absent things hidden among other absent things in the crowded archives of human reference. Let me mention one elementary dimension of attention-driven linguistic organization: the difference between lexical and syntactic reference (to same things). Any language offers a lexical stock, structured independently of its phrase and clause grammar; while a *phrasal* articulation of a scenario implies a vantage point, a scaling of objects, indications of experiential intensity, salience, epistemic value, etc., a lexical abstract of the same scenario, a *word* that summarizes it, will allow speaker and hearer to ‘attend away from it’, to lift off their attention from its episodic drama, and move the attentional ‘marking’ to related themes, concepts and problems, predicates and circumstances. Sentences, made of words, thus play a game of both attending and ‘dis-attending’, of thinking in the direction of or away from things and thoughts. In this sense, introducing or learning a *term* for a concept allows us to ‘freeze’ it, that is, to ‘keep it in mind’, to hold it without attending to it – a capacity that must have had an important role in human evolution of perception, signification, and thinking. Similarly, when we translate, a word in the source text’s language often becomes a phrase in the target language; this fortunately heightens the degree of translatability between the two languages, but to the price of changing the ‘economy’ of attention. Thus, ‘having a word for’ an entity in a cultural group does not indicate a structural revolution in its cognitive semantics but indeed a determination of its degree of attentional freedom, its resources for unbound thinking; with a poorer vocabulary, attention must work harder... Speaking a foreign language, using a limited vocabulary, can be stimulating for this very reason: it makes us attend differently, and thus, therefore, think differently. This effect corresponds to what has often been established through brain scanning of expert versus lay treatment of mental tasks; widespread cortical activity in the latter case, and more local and reduced activity in the former.⁵ The working of attention is of course both an immaterial operation and a material process.

5 The expert uses an expert terminology and – internally – an inventory of mental symbols or diagrams, either directly or indirectly linked to – external – terminological lexemes.

One of the most prominent features of the expressive behavior we call art (incl. literature and music) is to produce and present compositions for which we do not have words ready; we therefore have to ‘pay’ so much more attention, and thus will perceive slowly, carefully, in one sensory modality at a time, while enjoying art.⁶ Beauty is the classical name for the emotional value of doing just that. Here, we are apparently facing the opposite of the attentional freedom mentioned above. In art, the esthetic goal seems to obtain *anti-expert* perception and processing of the object. That is why art can be ‘captivating’.

With an expression coined by Danish musicologist and philosopher Carl-Erik Kühl, the particular, slow, and often erratic, hesitant style of perception we use in front of works of art is a genre of perception: not epistemic but instead *epimonic* perception (from the Greek *epimone* (from the verb *epimeno*, I continue) lingering, hesitation).⁷ Why do humans cultivate this genre of attention, *epimonic attention*?

I think this question is relevant, because it leads us toward that of the origins of symbolization. Only when we experience an item epimonically do we separate it from the context of manifestation and instead place it in a foregrounded position that forces it to make sense – to symbolize. Symbols are famously ‘conventional’, but their users do not have to ‘convene’ in order to establish them; however, their *attention* has to experience mutual reinforcement, to generate the intentionality that transforms them – from marks to symbols. Human semiotics, the basic condition of human culture formation, is a cognitive process of sense-making built directly on the grammar of human attention. So the present treatise is an elaborate introduction to *the* aspect of human consciousness that constitutes our semiotic being.

Per Aage Brandt

6 A figurative painting of course represents what a human eye would view in very few seconds: a landscape, an agglomeration of objects, a human face, etc. But in the framed and painted canvas window, we are offered a frozen view bound to stay showing forever what a human being may have glanced in an instant. A curious contrast occurs between fast and slow perception.

7 The distinction goes back to Roman Jakobson’s view of our perceptive attitudes (*Einstellungen*), which in his terminology could be pragmatico-functional or aesthetic. C.-E. Kühl, “Epistemisk og epimonsk sansning” [epistemic and epimonic perception], manuscript, Aarhus 2007.

Introduction

A Collector's Conceit

Our subject begins with a curious experience that happened as I toured the famous Frick Gallery on East 70th Street, overlooking Fifth Avenue and Central Park in New York City. As I entered the Living Hall, an oak paneled room at the center of the gallery housing some of Henry Clay Frick's most famous acquisitions, and oriented myself toward the fireplace, I took notice of three paintings: El Greco's portrait of St. Jerome (circa 1590) hanging directly above the fireplace mantle flanked by a portrait of Sir Thomas More (1527) to my left and Thomas Cromwell (1532) to my right, both creations of Hans Holbein, the Younger. The portrait of More (famous for its *trompe l'oeil* effect) presents the subject in a three-quarter view facing to his left, while the portrait of Cromwell presents the subject in a more severe profile facing



Plate 1: Thomas More (1527) and Thomas Cromwell (1532) painted by Hans Holbein the Younger (Copyright: The Frick Collection, New York).

to his right. Gazing out from the center of the room as I listen intently to the commentary about each portrait, I experience the odd feeling that Thomas Cromwell is staring at Thomas More, as if he were plotting against him, the imputation of such iniquitous intent no doubt prompted by the commentator's disclosure that Cromwell was More's arch political enemy and partly responsible for his execution in 1535. Although gazing in Cromwell's general direction, More seems unaware of his arch enemy's presence. It seems as if Cromwell has More right where he wanted him!

This odd feeling was not mine alone, as my companion, standing next to me and listening to the same commentary, agreed that Cromwell was indeed staring at More. Overhearing our conversation, a third patron perforce let out a short laugh at the situation presenting itself to us. We all thought that Frick probably savored the irony of this hang.¹

As strange as this feeling may seem, it is an absolutely normal occurrence based on the workaday cognitive operations, namely the ability to construct on the fly mental simulations of scenes and states of affairs displaced in time and space and involving disparate experiential domains (in this case from the domains of artistic portraiture, curatorial practices, and political infighting). Understanding why and how such effects happen is the subject of this book.

This curious experience is richly instructive in several ways and data from it will be mined throughout these explorations. It puts in evidence a prime instance of human beings forging dramatic meanings from static images by blending things that do not normally go together; hence, it is a prime example of conceptual blending, the general model of human meaning construction the mechanics of which involve the construction, completion, and elaboration of mental spaces – dynamic scenes and scenarios created as human beings think, talk, and interact.

But most fundamentally, this curious incident is important for what it says about human attention, in my view the *sine qua non* of human meaning construction.

The term attention pops up repeatedly in discussions of meaning, but its presence has been casually mentioned more often than deliberately explored. In response, this book qualifies as a new approach to meaning insofar as it provides “thick descriptions” of meaningful events as a function of attention, imagined in these pages as consisting of an interdependent *signal*

1 The living hall is the only room left unchanged since Frick's death.

system, *selection system*, and *interpersonal system*. This book presents this ‘greater’ attention system as a heuristic on which to build theories of meaning in semiotics, linguistics, and rhetoric but does not claim to present a grand unified theory of meaning. Instead this exploration offers a rough sketch of what the sciences of meaning might look like as a consequence of attending to attention.

Prologue: Attention, Meaning, and Knowledge Representation

As prelude, I wish to situate the attention system and Mental Spaces and Blending Theory within the province of knowledge representation, a concern at the core of cognitive science.

What do cognitive scientists mean by representation?

Markman (1999: 5–10) defines representations as consisting of four components. The first component consists of a *represented world*, or content, that discloses to us what representations are about. This world consists of the range of “somethings” worth attending to, thinking about, or acting upon. This first component refers to a world purportedly external to the representation system itself.² The second component consists of a *representing world*, or the domain of forms used to stand for entities in the represented world. This is the domain of signifiers. The third component consists of the *mechanisms* used to connect the representing and represented worlds. These two worlds can be linked isomorphically such that every piece of information in the first world has a corresponding form in the second world, but more often is the case that the two worlds are linked homomorphically such that multiple pieces in the first world share forms from the second world, with the result being a loss of information. The fourth component consists of the *processes* for using representations. The first three components, argues Markman, point to the potential for representations. But representations mean nothing unless processes unfold in using them. For instance, there is no representation of the feuding Cromwell and More until someone “reads off” their relationship from the display.

2 Of course, the represented world can include reflexive content about the status of representations *as* representations; the represented world is also meta-representational.

Markman's model of knowledge representation presents a heuristic for locating the apparatuses of attention and mental spaces within the cognitive science landscape. The greater attention system and its corresponding elements – *alerting, orienting, detecting, sustaining, controlling, sharing, harmonizing*, and *directing* – purport to capture regularities of the processes underling representations, while Mental Spaces and Blending Theory (itself a process model of integrating elements into representations) captures facets of the mechanisms for relating the representing and represented worlds. For instance, on the processing end, the attention system predicts that certain representations function specifically as attention “harmonizers” inveigling others to allocate cognitive resources to the same item in the surround, while other representations function specifically as attention controllers, inducing cognizers to switch attention between two distinct items or to oscillate attention between two features of the same item; likewise, a mental spaces approach predicts that meaning arises from selective projection of elements from a stock of existing representations to compose, complete, and elaborate new representations that create new meanings not apparent in the preexisting stock. Together these apparatuses predict that the representations themselves unfold in the present as dynamic scenes and scenarios that, more often than not, allocate attention to the there-and-then, broadly construed. Patrons can see More and Cromwell staged in the here-and-now but attend to them as political actors of the historical past. Patrons see the arrangement of portraits before them but can turn their attention to the person who so arranged them for our amusement.

The broad sketch that human attention comprises the processes component and mental spaces comprise the mechanism component of knowledge representation is by no means an uncontroversial view of their relationship, if for no other reason than not all cognitive scientists, many of whom work within the mental spaces and blending framework, hold attention and consciousness in very high regard, and thus would envision a different relationship emerging. But the relationship sketched above is, at present, the one that makes the most sense to this researcher.

Another matter needs our attention before these explorations can begin in earnest. Markman's four-fold model is agnostic with respect to the precise nature of these representations. Do representations reside inside the head? Do they reside outside the head? Or, do they reside both inside and outside the head?

While Markman's sympathies lie more with the first option, my sympathies lie more with the third option. Since these are matters of deep philo-

sophical debate with no apparent consensus on the horizon, one is left simply to acknowledge initial biases. My own is to see cognitive science expand the unit of analysis beyond the individual mind to include facets of the environment, an environment teeming with other bodies and minds. Thus, representation and meaning is a function of body, brain, and environment in synchronized harmony with other bodies and brains. Take away any one of these features and meaning fails. The conjecture explored in the next four chapters is that the attention is the preeminent cognitive process that fills life with meaning.

Synopsis

To prepare you for what comes next, I conclude this introduction with a brief outline of each chapter.

The first chapter, “The Greater Attention System and the Cognitive Sciences,” presents the entire attention system as comprehending three subsystems – the signal system, the selection system, and the interpersonal system – which unfold dynamically during acts of meaning by eight elemental capacities: alerting, orienting, detecting, sustaining, controlling, sharing, harmonizing, and directing. The cognitive psychology and neurophysiology of attention further suggests that the attention system fits within the broader research paradigm of Distributed Adjustable Capacity theories, in which attention is understood as a socially and culturally attuned “zoom lens” that widens and narrows as occasion demands. The Frick Gallery and its contents serve as the underlying occasion to “scale up” experimental evidence in the cognitive psychology and neurophysiology of attention and to see how “ideal observers” allocate attention in a uniquely human habitat. This chapter also provides the occasion to introduce other research interests in cognitive science, such as consciousness, categorization, memory, affect, and culture, of central importance to the ensuing explorations in the meaning sciences.

Chapter two, “Attention and the Study of Signs,” presents an attention semiotic from the perspective of the attention system outlined in the previous chapter. I argue that sign production and comprehension are best understood as attending to one of three types of scenario at any given time – the “what is the case” scenario (*hypostasis*), the “what if X were the case” scenario (*hypothesis*) and the “as if X were the case” scenario (*hypotypotic*).

Reusing the story recounted in the introduction as my principal illustrative case of minds entrained to oscillate between these three types of scenario, I show how the processes of attention employ mental spaces and blended spaces during meaning construction. I then supplement this exploration with two additional case studies. The first is a brief analysis of a philosophy discussion session, wherein a graduate student leads a group of undergraduate students through Kant's notion of a transcendental argument by effectively enacting the persona of the great philosopher. The second and more extensive case study is designed to show the attention semiotic as working in another cultural institution – the tropical rainforest exhibit at the Cleveland Metroparks Zoo. While any of the three scenario types can dominate meaning making at any given time, hypotypotic scenes enjoy a special status insofar as they, more so than the other types, blend the present with the future and the past, often inducing a greater sense of vividness, empathy, or urgency to the matter identified with it.

Chapter three, "Attention in Language and Discourse," applies lessons learned in the previous chapters to the domain of language and discourse. In this chapter, I explore the possibility of theorizing language as both conditioned by attention and, once developed, conditioning and refining the capacity to detect, select, sustain, control, harmonize, and direct attention. This chapter explores this possibility of a linguistics of attention with the help of Cognitive Linguistics approaches, namely Cognitive Semantics, Cognitive Grammar, and, of course, Mental Space and Blending Theory.

After correlating specific linguistic phenomena in English with attention phenomena predicted by the eight elements (with a special focus on the role semantic domains play as primary constituents of the selection system), I then shift the discussion to discourse, focusing on two extended case studies in written and spoken discourse. The first concerns the written genre of architecture writing and the use of *hypotypotic* scenario of a projected ego moving through a lived spaces. This case study focuses on the role a range of middle voice constructions play in directing the attention of readers to experience the space in a particular way. The second case study takes up the case of the graduate student enacting Kant presented in the previous chapter, this time focusing on five prosodic features of the graduate student's voice that appear, on close analysis, to be functionally significant in managing the flow of information and, hence, directing the attention of her interlocutors.

Chapter four, "Attention and Rhetoric," expands the purview of meaning construction to consider language and other signs as inducements to

social action in specific discursive situations. Rhetorical practices exploit current beliefs an audience holds to induce new beliefs in that audience. These new beliefs can subsequently induce physical actions based on the logic of persuasion that goes something like this: *If you attend to X in this or that manner, you will come to believe Y. If you come to believe Y strongly enough – usually through sustained concentration and effort – you will likely do Z.*

This chapter begins with overview of three prominent rhetorical theorists, starting with Aristotle, jumping ahead two-millennia to the work of Chaïm Perelman and Lucie Olbrechts-Tyteca and Kenneth Burke. Each theorist contributes specific features important for the construction of a rhetoric of attention: Aristotle contributes a classification of artistic proofs (*ethos*, *pathos*, and *logos*); Perelman and Olbrechts-Tyteca contribute a context-sensitive theory of argumentation based on the notion of *rhetorical presence*; Kenneth Burke contributes the idea that meaning is inherently dramatic and that persuasion depends on the audience's degree of *identification with* or *division from* the mini-drama as presented. This overview sets the stage for two extended case studies. The first case is a sentential analysis of the rhetorical semantics of force and counterforce in George W. Bush's "Preface" to the *National Security Strategy Report of the United States of America*, issued in September of 2002, that when presented to nation and foreign policy community became the first authoritative document justifying the "Bush Doctrine" of preventive warfare. The second case is an extended mental spaces treatment of the Census2000 campaign to induce citizens and residents of the United States to complete and send in the census form. In both cases, rhetorical inducement was about creating a new set of beliefs and applying them to specific situations. The first sought to induce cooperation between the Administration and Congress by *commanding* the attention of its audience, while the second sought to induce compliance by *inviting* the attention of its audience. A rhetoric of attention has to come to terms with the extrinsic conditions of an attention economy – some discourses we attend to by virtue of institutional prerogative (namely via the "voice" of a sitting president who is also Commander-in-Chief of the Armed Forces) and some discourses we attend to by virtue of repeated invitation (namely via an omnipresent message vying for our attention in the midst of the quotidian). This last chapter brings together the external forces of the semiotic and institutional environment with the internal forces conditioning one's ability to make sense of it.

These four chapters comprise distinct explorations into the study of meaning construction. Each exploration carries with it its own implications

for future research and scholarship within their own fields of study. Thus, this book should not be construed as a seamless whole or as a single theory. It merely aims to advance the discussion and debate about the role attention plays in conscious mental life – a thoroughly social mental life.

Chapter 1

The Greater Attention System and the Cognitive Sciences

Attention

Of all the activities human beings undertake, perhaps none is more consequential for the performance of other activities than paying attention. When we attend, we perceive. When we attend and perceive, we remember. When we attend, perceive, and remember, we learn. When we learn, we can act deliberately and with forethought.³ When performing a task, we must, conversely, reduce the need for vigilant attention to some items and procedures, allowing them to be carried out automatically, yet the very act of pushing them into the background of conscious awareness occurs only because we must attend to something else. In short, perceiving, thinking, learning, deciding, and acting require human beings to economize attention.

So, if attention is at the center of human cognition, what precisely is it? A search for a concise definition needs go no farther than this famous quotation from William James: attention is “the taking possession by the mind, in a clear and vivid form, of one out of what seem several simultaneously present objects or trains of thought” (1910: 403–404). Current thinking among many cognitive scientists and neuroscientists is that this “taking possession by the mind” is not a single entity or mechanism, but rather the name given to a distributed set of contiguous neural populations that interact mutually with other populations during the performance of perceptual, motor, and conceptual tasks. Attention is neurologically and phenomenologically systematic.⁴

3 Raja Parasuraman produces a similar stylistic formulation in his introduction to *The Attentive Brain* (1998: 3).

4 By system, I mean a functionally and temporally related group of elements.

The Greater Attention System: An Overview

The greater attention system I am about to consists of three distinct but interdependent systems: the *signal system*, the *selection system*, and the *interpersonal system*.⁵ These three systems can only be apperceived relative to eight elements of attention that comprise them. A gerundive listing of the eight elements is as follows: *alerting* and *orienting* comprise the signal system; *detecting*, *sustaining*, and *controlling* comprise the selection system; and *sharing*, *harmonizing*, and *directing* comprise the interpersonal system.

Before explication of the greater attention system can begin, a first attempt to describe how the greater attention system works as a seamless whole is in order. Taken completely, the system operates on a continuum such that targets within the field of attention can occupy a place on a scale from *inactive* to *active* to *salient*, with inactive items remaining pre-conscious and active and salient items occupying explicit awareness (see Anderson 1982). Salient items readily play determining roles in thought and action, for they are immediately accessible with little or no effort; active items also play a conscious role in thought and action but require slightly more effort to bring them into focal awareness; and inactive items play a pre-conscious role in thought and action, constituting the background from which one can extract salient items. Bringing inactive items into full conscious attention requires greater effort or cognitive load, and greater shunting of information from long-term memory, and, concomitantly, greater effort in damping the flow of sensory stimulation.

A stimulus can become salient and active by two routes: exogenously through the bottom-up capture of external prompts, or endogenously through top-down imposition of memory. If an item impinges directly on visual, auditory, tactile, olfactory, or gustatory systems, one then places it momentarily in focal attention for further processing. An item can become

- 5 Development of this system was inspired by many sources in phenomenology, cognitive science and psychology, and cognitive neuroscience, including textbooks by Anderson (1982), Gazzaniga et al. (1998), Johnson and Proctor (2004), Matlin (1987), Posner and Raichle (1994), and Styles (2005); monographs and edited collections by Baars (1988), Baddeley (1998), Broadbent (1958), Deacon (1997), Groeger (2000), Jeannerod (1997), Kahneman (1973), Kosslyn (1994), LaBerge (1995), Merleau-Ponty (1962), Parasuraman (1984, 1998), Pashler (1998), Reisberg (1997), and Tomasello (1999); and research reports and articles by Lavie et al. (2004), Masuda and Nisbett (2006), Triesman (1960), Wickens (1984), and Yantis and Johnson (1990).