

NEH Application Cover Sheet (FA-252032)

Fellowships for University Teachers

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APPLICATION INFORMATION

Title: *Seeing What You Hear: A Multisensory Philosophy of Perception*

Grant period: From 2017-07-01 to 2018-06-30

Project field(s): Philosophy, Other; Interdisciplinary Studies, Other

Description of project: *Seeing What You Hear: A Multisensory Philosophy of Perception*

argues that human perceptual consciousness is richly multisensory. This project's thesis is that the coordinated use of multiple senses enhances and extends human perceptual capacities in three critical ways: (1) Crossmodal perceptual illusions reveal hidden multisensory interactions that typically make each sense more reliable as a source of evidence about the environment; (2) The joint use of multiple senses discloses more of the world, including novel features and qualities; (3) Through perceptual learning, each sense is reshaped by the influence of others. The implication is that no sense--not even vision itself--can be understood entirely in isolation from the others. This undermines the prevailing approach to perception, which proceeds sense by sense, and sets the stage for a revisionist multisensory methodology that illuminates the nature, scope, and character of perceptual consciousness.

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NEH Supplemental Information for Individuals

This form should be used by applicants to the NEH Fellowships, Fellowships for Advanced Social Science Research on Japan, Awards for Faculty, and Summer Stipends Programs.

Field of Project:

Field of Project #2:

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Project Director Field of Study:

The mailing address provided on the SF 424-Individual is for your work home

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Are you affiliated with an institution? (If yes, provide information below.) Yes No

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Status: Senior Scholar Junior Scholar

Reference Letters

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First Name:

Last Name:

Email:

Title:

Department Name:

Institution:

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First Name:

Last Name:
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Nominating Official (Summer Stipends Applicants Only)

Are you exempt from nomination? If not, provide information below. Yes No

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Institution:

Seeing What You Hear: A Multisensory Philosophy of Perception

Casey O’Callaghan

Beyond Vision

Sense perception is the most vivid form of lived human consciousness. You may see the flash of a cardinal taking flight, hear the thumping of a hammer, or detect a faint citrusy smell. Through our senses, we encounter the world. We believe what we see, and our senses guide what we do. Reflecting on impairments to sight and hearing reveals how much each of our senses matters.

Understanding the interface between mind and world and the relationship between mind and body has animated a philosophical tradition stemming from Plato’s *Theaetetus* and Aristotle’s *De Anima*. Modern and contemporary philosophical thinking about perception and its significance has been shaped to a remarkable extent by attention to vision (e.g., Descartes 1637; Berkeley 1709; Dretske 1969; Noë and Thompson 2002; Matthen 2005; Siegel 2010; Orlandi 2014). Vision, however, does not stand alone. At most waking moments, people perceive using their other senses. We hear, smell, taste, and touch our surroundings. Nothing guarantees that what we say about vision extends neatly to the other senses.

My books, *Sounds: A Philosophical Theory* (2007) and *Beyond Vision: Philosophical Essays* (forthcoming, Oxford University Press), challenge claims about perception founded on vision alone. For instance, the essentially temporal nature of sounds and the ways sounds occupy pitch space confound what I call “visuocentric” thinking about the objects of perception. Attention exclusively to vision blinds us to the nature and scope of what we perceive. This has implications not just for philosophy but also for art and aesthetics, sound studies and music theory (Cox 2013).

Recently, other philosophers have followed the lead, looking beyond vision to touch, bodily perception, olfaction, and taste for insights about how our senses connect us to the world (e.g., Batty 2011; Richardson 2013; Fulkerson 2014; Smith 2015). This has reoriented the philosophy of perception (see Stokes et al. 2015), enriching how we understand spatial awareness, what it is for an experience to represent, and whether brain processes could fully explain sensory consciousness. What goes for vision does not always go for our other senses.

Multisensory Perception

No sense is an island. Each sense operates against the background of others, and people typically perceive using multiple senses at once. The most striking development in the cognitive psychology and neuroscience of perception during the past two decades is that sensory systems interact extensively with each other (Spence and Driver 2004; Stein 2012).

Sensory interactions sometimes lead to surprising perceptual illusions. Seeing a talking face can change what speech sounds you hear—for instance, you may hear /da/ rather than /ba/ just because you see someone articulate /ga/ (McGurk and MacDonald 1976). In the sound-induced flash effect, hearing two clicks makes one flash look like two (Shams et al. 2000). In ventriloquism, you hear the sound’s location differently because you see the dummy (Bertelson 1998). Crossmodal illusions are *surprising*. One sense can reshape what you perceive with another (O’Callaghan 2012).

My new book project, *Seeing What You Hear*, explores the multisensory nature of perception and addresses its theoretical and philosophical significance. Against skeptics (e.g., Spence and Bayne 2015), I argue that perception is *richly* multisensory. My central thesis is that *the coordinated use of multiple senses enhances and extends human perceptual capacities*. The normal and optimal functioning of each sense requires the support of multiple senses.

Methodologically, this project is assiduously multidisciplinary. I take the other senses seriously, theorize about how they are alike, how they differ, and how they interact, and articulate why this matters for an empirically informed philosophical understanding of perception.

A Multisensory Philosophy of Perception

Some people hear sounds as colored, feel touch from sounds, or taste shapes. Synesthesia has inspired artists from Kandinsky and Hockney to Pharrell Williams (*Seeing Sounds*). Some say it helps explain

metaphor, creativity, and the origins of language itself (Ramachandran and Hubbard 2003). Synesthesia is rare, affecting just five percent of the population. Crossmodal illusions, however, are pervasive. They occur in typical perceiving subjects across a wide range of domains with numerous sensory pairings.

Just as visual illusions illuminate how vision functions, crossmodal illusions reveal how the senses work together. Multisensory effects serve an important purpose by improving perception’s accuracy and its reliability, even though in some circumstances they lead to illusions. Spatial hearing gets better when it listens to vision, and lipreading improves speech comprehension as much as a good hearing aid (Massaro 1998). Believing your senses works better when your senses work together. Showing this requires philosophical arguments concerning the conditions under which perception is accurate and what makes a process reliable, moving beyond the descriptive to the normative.

What’s puzzling is that crossmodal recalibrations and illusions typically go unnoticed—you may not realize that what you see affects what you hear. Nonetheless, perceptual improvements reverberate as epistemic advantages. More reliable perception means more reliable cognition; better evidence means better inferences. Epistemic accounts that treat as evidence only what is evident to a thinker, or in which epistemic differences require subjective differences, fail to capture this advantage. Multisensory epistemology reaches beyond what meets the ears and the eyes (cf. Pryor 2000; Lyons 2011).

Multisensory perception does more than improve the testimony of the senses. Sometimes, conscious awareness itself is noticeably multisensory. For example, novel features of the world are perceptible only thanks to the coordinated use of multiple senses. Umpires in baseball are trained to tell whether a baserunner is safe or out by watching the foot touch the bag while listening for the sound of the ball striking the glove (Weber 2011), and, at the movies, images on screen appear to produce the sounds you hear. Moreover, thanks to the way smell, taste, and somatosensation work together, novel qualities, such as flavors—the *mintiness* of mint, the *spiciness* of capsaicin—are perceptible only multisensorily (Auvray and Spence 2008). Without their properties being bound together across senses—what researchers call “binding”—objects themselves are scarcely intelligible.

It follows that sometimes one’s multisensory capabilities are evident. The joint use of our senses enables us to enjoy new forms of perceptual awareness. As a consequence, perceptual consciousness is not always specific to one sense or another (O’Callaghan 2012; Bayne 2014). Contrary to the prevailing view (e.g., Grice 1962; Peacocke 1983; Spence and Bayne 2015), the subjective feeling of sensory consciousness itself is irreducibly multisensory. This contravenes a central assumption in the empiricist philosophical tradition (Locke 1689; Prinz 2002).

Multisensory perception even reshapes unisensory perception. Perceptual capacities associated with one sense depend on other senses, so one sense can change over time thanks to another. This means the *auditory* experience of a congenitally blind person may differ from someone who sees (King 2014). Perceptual learning can enable us *auditorily* to detect features that otherwise are accessible only through sight (cf. Dretske 1997). Crossmodal parasitism can infuse an auditory experience with characteristics inherited from vision. Silent lipreading can activate the auditory cortex, thereby enriching a visual experience (Calvert et al. 1997).

A surprising conclusion follows. While a deficit in one sense can enhance another, deficits in one sense also can ramify as deficits in another. Famously, spatial hearing improves with blindness, but blindness also yields hearing deficits (Gori et al. 2014). Appreciating crossmodal plasticity makes room for a novel account of sensory enhancement using prosthetics (such as cochlear implants) and substitution devices (cf. Keeley 2002; Noë 2004).

Sensory plasticity and crossmodal dependence present a dilemma for the sense-by-sense approach. Either it ignores what other senses contribute to sight and hearing, or it excises each sense from the others, thereby throttling back its capabilities and altering its character. This overturns the prevailing approach, which assumes that each sense can be theorized in abstraction from the others (Fodor 1983; Burge 2010; Siegel 2010; Orlandi 2014). Perceiving is not just seeing, hearing, touching, tasting, and smelling at the same time. No complete account of perceptual awareness or its epistemic role can be formulated without confronting the constitutively multisensory nature of perception. This calls for a revisionary, multisensory philosophy of perception.

Table of Contents

Chapter 1. Enhancement Through Coordination

Surveys prevailing unimodal approaches and documents how they neglect the respects in which perception is richly multisensory. Presents the thesis that the coordinated use of multiple senses enhances and extends human perceptual capacities, and explains its philosophical consequences.

Chapter 2. Sensory Interactions

Critically introduces varieties of interaction among senses. Focuses on explaining crossmodal perceptual illusions and how they contrast with synesthesia. Argues that multisensory effects are epistemically important even if they are not evident to perceiving subjects.

Chapter 3. Intermodal Binding and Awareness

Argues that one core variety of multisensory awareness involves perceiving a single thing or feature in a unified way through multiple senses. Develops an account of multisensory objects.

Chapter 4. Novel Features and Qualities

Argues that novel features and qualities are perceptible only by jointly using several senses. Perceiving thus is not just seeing, hearing, touching, tasting, and smelling at the same time.

Chapter 5. Crossmodal Dependence and Flux

Argues that one sense—even vision—can change over time in ways that depend on other senses. This undermines theorizing about one sense in isolation or abstraction from the others.

Chapter 6. Distinguishing the Senses

Describes how to understand and distinguish the senses given their tight interconnections, arguing that despite all the cross-talk, seeing and hearing remain useful explanatory notions.

Chapter 7. Multisensory Explanation and Taxonomy

Presents an account of how our differing explanatory purposes—empirical, rational, phenomenological—constrain the kinds of mental states and processes we invoke in understanding perception.

Work Plan

Current state of the project. Chapters 1 and 2 are written as drafts. Chapters 3 and 4 draw on previously published work (O’Callaghan 2014, 2015), and I’ll write these book chapters during Summer and Fall 2016. Research for Chapter 5 will continue during Spring 2017. Chapter 6 expands ideas briefly presented in earlier papers. Chapter 7 currently exists as a draft that expands sections of previous papers (O’Callaghan 2015, 2017). I’ll continue to present this material in talks on a number of occasions during 2016–17. I’ll submit a book proposal to my publisher, Oxford University Press, in June 2016.

If I were awarded an NEH Fellowship to support this work, I would spend the fellowship year, July 1, 2017, through June 30, 2018, in residence at my home institution, Washington University in St. Louis. This time would be devoted exclusively to completing and thoroughly revising this manuscript, preparing it for submission to my publisher, Oxford University Press, in June 2018.

July–October 2017. Write Chapters 5 and 6.

November–December 2017. Revise Chapters 2 through 5.

January–April 2018. Revise Chapters 6, 7, and 1.

May–June 2018. Complete Bibliography, and prepare book for production with Oxford University Press.

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Current and Past Positions

Washington University in St. Louis, Associate Professor, 2014–present.
Rice University, Assistant Professor, 2008–10; Associate Professor, 2010–14.
Bates College, Assistant Professor, 2003–8.
University of California, Santa Cruz, Visiting Assistant Professor, 2002–3.

Education

Princeton University, Ph.D. in Philosophy, 2002. Dissertation: Sounds.
Rutgers University, B.A. in Philosophy, Highest Honors, 1997.

Areas of Research Specialization

Philosophy of Mind and Perception, Metaphysics and Epistemology

Awards and Honors

Collaborative Fellowship, Institute of Philosophy, University of London, 2016. [\$4500]
Humanities Division nominee for Duncan Award for Outstanding Academic Achievement at Rice University, 2013.
Provost’s Faculty Initiatives Fund, Rice University. Research award for “The Senses Project at Rice,” 2012–13. [\$25,000]
ADVANCE (National Science Foundation) and Rice Humanities Research Center grant for Women in Philosophy Symposium, 2012. [\$5,000]
Humanities Research Center, Rice University, and Dean of Humanities. Research award for conference on “Consciousness, Intentionality, and Phenomenality,” 2011. [\$29,000]
Humanities Research Center Faculty Fellow, Rice University, 2011–12.
Humanities Research Center, Rice University. Research awards for Mind and Perception Workshop, renewed annually, 2009–14. [\$19,000]
National Endowment for the Humanities (NEH). Summer Institute on *Experimental Philosophy*. Directors Shaun Nichols and Ronald Mallon, 2009. [\$3,200]
American Philosophical Association, 2009 Book Prize, Honorable Mention for *Sounds: A Philosophical Theory*. Biennial prize for the best book published in 2007 or 2008. (Honorable Mention is top three.)
Mellon Innovation Grant. Research award for working group in Philosophy and Psychology, 2008. [\$19,500]
Oxford Studies in Metaphysics Younger Scholars Prize, Finalist, 2007.
Mellon Learning Associates Program in Humanities and Social Sciences. Short-term Learning Associate awards, 2005–8. [\$10,000]
Bates College Faculty Development Award. Research award for the project “Cross-Modal Perception,” 2006. [\$6,000]
Bates College Faculty Development Award. Research award for the project “Sounds and Perception,” 2005. [\$3,900]
Johnson Seminar: Movements for Change. Research award as selected participant, 2004–5. [\$1,000]
National Endowment for the Humanities (NEH), Summer Institute on *Consciousness and Intentionality*. Directors David Chalmers and David Hoy, 2002. [\$3,600]

Publications—Books

Beyond Vision: Philosophical Essays, Oxford University Press, forthcoming, 2016.

Sounds and Perception: New Philosophical Essays, Oxford University Press, 2009; paperback, 2013.

Co-edited with Matthew Nudds.

Sounds: A Philosophical Theory, Oxford University Press, 2007; paperback edition, 2010.

Publications—Journal Articles (refereed)

“Grades of Multisensory Awareness,” *Mind & Language*, forthcoming.

“Objects for Multisensory Perception,” *Philosophical Studies*, 173: 1269–1289, 2016.

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“Hearing Properties, Effects, or Parts?” *Proceedings of the Aristotelian Society*, 111(3): 375–405, 2011.

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“Privations and Their Perception,” *Acta Analytica*, 26(2): 175–186, 2011.

“Experiencing Speech” *Philosophical Issues*, 20: 305–332, 2010.

“Perceiving the Locations of Sounds,” *Review of Philosophy and Psychology*, 1: 123–140, 2010.

“Constructing a Theory of Sounds,” *Oxford Studies in Metaphysics*, 5: 247–270, 2010.

“Is Speech Special?” *University of British Columbia Working Papers in Linguistics*, 24: 57–64, 2009.

“The World of Sounds,” *The Philosophers’ Magazine* 45: 63–69, 2009.

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“Object Perception: Vision and Audition,” *Philosophy Compass*, 3(4): 803–829, 2008.

“Echoes,” *The Monist*, 90(3): 403–414, 2007.

Publications—Book Chapters (peer reviewed)

“Non-Visual Perception,” in *Oxford Handbook of the Philosophy of Consciousness*, ed. Uriah Kriegel, Oxford University Press, forthcoming.

“Synesthesia vs. Cross-modal Illusions,” in *Sensory Blendings: New Essays on Synaesthesia*, ed. Ophelia Deroy, Oxford University Press, in press.

“Enhancement Through Coordination,” in *Contemporary Controversies in Philosophy of Perception*, ed. Bence Nanay, Routledge, in press, 2017.

“Not All Perceptual Experience is Modality Specific,” in *Perception and Its Modalities*, eds. Dustin Stokes, Mohan Matthen, and Stephen Biggs, Oxford University Press, 133–165, 2015.

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