# Keynote addresses

Keynote 1: Thursday, 15:00-16:00 UTC+2

**Variation in the Creative use of Metaphor and Meto**nymy

Jeannette Littlemore
University of Birmingham, UK

Keynote 2: Friday, 15:00-16:00 UTC+2

**The Show Must Go On: Combining Metaphors, Similes, Blends and Image Schemas for Embodied Story-telling with Robots**

Tony Veale
University College Dublin, Ireland

Keynote 3: Saturday, 15:15-16:15 UTC+2

**Creative, cutting edge, and bleeding edge metaphors**

Marianna Bolognesi
University of Bologna, Italy

Keynote 4: Sunday, 15:00-16:00 UTC+2

**Mental Metaphors**

Daniel Casasanto
Cornell University, USA

Keynote 1: Thursday, 15:00-16:00 UTC+2

## Variation in the Creative use of Metaphor and Metonymy

Jeannette Littlemore
University of Birmingham, UK

In this three-part talk, I will explore variation in the production and interpretation of creative metaphor and metonymy. The talk will draw on findings from a range of studies that I have conducted, alone and with others, that draw on data from academic and real-world, linguistic and multimodal, monolingual and multilingual settings.

In first part of the talk, I will use examples from some of our work to explore what is meant by 'creative metaphor and metonymy'. Here, I will discuss the variety of ways in which these tropes can be used creatively, moving beyond the traditional idea of juxtaposing novel source and target domains. I will look at whether we can draw a distinction between creative metaphors and metonyms per se and creative uses of metaphor and metonymy. I will discuss questions such as: At what level of analysis should the decision be made about whether or not a trope is creative? And to what extent do the criteria for distinguishing between creative and conventional metonymy resemble those used for distinguishing between creative and conventional metaphor? I will also discuss the interplay between form-focussed creativity and meaning-focussed creativity in the context of metaphor and metonymy, and ask if it is useful to make such a distinction.

I will then turn my attention to individual differences in the production and interpretation of creative metaphor and metonymy, reporting on a number of empirical studies that I have conducted, alone and with others, into the ways in which factors such as gender, cultural background, multilingualism and synaesthesia shape the ways in which people work with different kinds of creative metaphor and metonymy. The findings from these studies suggest ways in which factors such as empathy, emotion, and experience interact to shape the associative networks that people draw on when working with creative tropes.

In the final part of the talk, I will turn my attention to studies that we have conducted using 'real-world' data to explore the different ways in which people respond to creative metaphor and metonymy in everyday settings, and the different factors that drive the creative production of these tropes. Here I will discuss findings from studies that we have conducted in collaboration with advertising agencies investigating the various ways in which people combine different semiotic resources when interpreting creative metaphor and metonymy. I will also discuss the ways in which people make creative use of metaphor and metonymy to express positive and negative evaluation, to describe challenging incidents, and to come to terms with traumatic emotional experiences.

I will draw together the findings from this three-part talk to identify factors that appear to drive the creative production of metaphor and metonymy (such as the need to express and share evaluation, emotion, and traumatic experiences) and factors that appear to shape variation in the associative networks that lead to variation in people's responses to creative uses of metaphor and metonymy (such as age, gender, and multilingualism). I will then discuss the implications of this for the ways in which the creative use of metaphor and metonymy shapes, and may ultimately improve, people's lives.

## About Jeannette:

Jeannette Littlemore is a Professor of Applied Linguistics in the Department of English Language and Linguistics at the University of Birmingham.

Jeannette's research focuses on metaphor and metonymy and explores the facilitative and debilitative role played by metaphor and metonymy in language education and in cross-linguistic and cross-cultural communication more generally. She is interested in the creative use of metaphor and metonymy and in the ways in which figurative meaning is negotiated by speakers with different kinds of background knowledge and different emotional experiences.

Her monographs include: Metaphors in the Mind: Sources of Variation in Embodied Metaphor (Cambridge University Press, 2019), Metonymy: Hidden Shortcuts in Language, Thought and Communication (Cambridge University Press, 2015); Figurative Language, Genre and Register (with Alice Deignan and Elena Semino, Cambridge University Press, 2013); Doing Applied Linguistics (with Nicholas Groom, Routledge 2011); Applying Cognitive Linguistics to Second Language Learning and Teaching (Palgrave MacMillan, 2009) and Figurative Thinking and Foreign Language Learning (with Graham Low, Palgrave MacMillan, 2006). She is currently working on a new monograph: Unpacking Creativity: The Role of Figurative Communication in Advertising, (with Paula Perez-Sobrino, Cambridge University Press).

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Keynote 2: Friday, 15:00-16:00 UTC+2

## The Show Must Go On: Combining Metaphors, Similes, Blends and Image Schemas for Embodied Story-telling with Robots

Tony Veale
University College Dublin, Ireland

Metaphor grounds the abstract in the physical and the vague in the concrete. The source of the metaphor is often an experiential concept, but it can also be our actual, physical bodies. The more embodied the source, the more universal the resulting metaphor is likely to be. For when we use space, gesture and body language to convey meaning, we intuitively map from the semantic to the personal and the abstract to the real. Using our bodies to augment the spoken word comes so naturally to us as embodied agents that we unthinkingly nod and gesticulate even when speaking on the phone.

Embodied metaphors allow us to turn the world into a stage for our meanings, especially when those meanings assume a narrative form. We humans put our backs into telling a story, to help our audiences feel part of the narrative too. That we don't think of machines as natural story-tellers has much to do with our perceptions of them as creative meaning makers, but it also owes something to this lack of physical investment in the tale. As a result, their metaphors ring false because we don't feel that machines are grounded in the same reality that we ourselves must navigate.

But this doesn't have to be so. In this talk I will focus on the use of embodied metaphors to tell stories, using walking/talking robots with physical bodies of their own. The stories are also machine-generated, and build on metaphors that are augmented in the telling with pantomimic gestures and image-schematic uses of space. I will show that embodied metaphors have a real semantic impact, and ultimately improve audience perception of a robot-enacted tale. Just as our own automatic use of gesture and space on the phone shows that physical embodiment is deep-seated in our semantic understanding of the world, the key to turning machines into better storytellers is to build embodied metaphors into the deepest foundations of their semantic systems.

### About Tony:

Tony Veale is an associate professor at UCD, University College Dublin, where his principal research interest is Computational Creativity (CC), specifically focusing on irony, humour, metaphor, simile, blending and analogy.

Tony Veale has been a visiting professor at Fudan University, Shanghai for 13 years, as part of the international BSc. in Software Engineering which he helped establish in 2002, and at KAIST, the Korean Advanced Institute of Science & Technology, as a visiting professor in Web Science. Veale led the European coordination action on Computational Creativity, PROSECCO (Promoting the Scientific Exploration of Computational Creativity) which worked to develop the field of CC into a mature discipline. He is the author of the 2012 book Exploding the Creativity Myth: The Computational Foundations of Linguistic Creativity from Bloomsbury, co-author of the 2016 textbook Metaphor: A Computational Perspective from Morgan Claypool, co-author of the 2018 book Twitterbots: Making Machines That Make Meaning from MIT Press, and co-editor of several collected volumes of research. He is chair of the international Association for Computational Creativity (ACC), and launched the site RobotComix.com to make CC more accessible to the public.

To find out more (and explore further links), see here.

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Keynote 3: Saturday, 15:15-16:15 UTC+2

## Creative, cutting edge, and bleeding edge metaphors

Marianna Bolognesi
University of Bologna, Italy

Creativity is a driving force of the human mind, which enables us to innovate as well as to adapt to the environment. Having a vast cortical surface, our brains are predisposed for the setup of a virtually infinite number of associations between neurons which, at a higher level, result in creative associations between concepts in the mind. Such associations become increasingly more conventional if frequently activated. Thanks to this cognitive architecture, given a perceptual stimulus we can simulate in our minds conventional and creative options in response to it, by navigating old and new associative paths, before taking action toward a specific goal.

In creativity research, a creative output (an idea, a behavior, a linguistic manifestation, etc.) is the result of divergent and convergent thinking processes, in which the divergent phase provides ranges of possible associations, while the convergent phase selects an appropriate association that makes an effective output in relation to a goal, a context and a recipient.

In this talk, I will relate the construction and interpretation of creative metaphors in monolinguals and multilinguals to the model of divergent and convergent associative processes borrowed from creativity research. Metaphors, in this theoretical framework, are defined as associative constructs whose degree of creativity is determined by the amount of 'traffic' on the path that connects the metaphor terms.

I will then describe two behavioral studies that I conducted with colleagues. The first focuses on the processing of creative metaphors that are perceived to be 'easy' (e.g., beaches are grills) and 'hard' (e.g., silence is an apron), by English monolinguals and then by multilinguals English native speakers. The results show a higher degree of cognitive flexibility in multilinguals vs. monolinguals. The second study focuses on a comparison between monolinguals and multilinguals in their processing of literal expressions (e.g., a simple idea), familiar expressions based on conventional metaphors (e.g., a bright idea), creative extensions of conventional metaphors (e.g., a grey idea), and creative expressions based on novel conceptual metaphors (e.g., a damp idea).

In the second part of the talk I will discuss how divergent and convergent thinking processes apply to the construction of creative metaphors within the pictorial semiotic system. I will show that this system typically exploits perceptual features of the depicted entities to cue to conceptual similarities between metaphor terms. In other words, the perceptual mappings based on iconicity, represented in the image, trigger the construction of conceptual mappings, which activate conceptual features that are typically less concrete. The passage from perceptual to conceptual mappings, I will argue, can be explained by means of metonymic chains, which interact with metaphors within the pictorial mode to cue to abstract concepts that cannot be otherwise depicted.

I will conclude by discussing how creativity relates to learning, from a cognitive perspective: I will explain to what extent learning constrains creativity (for example, in education) and to what extent the result of learning (i.e., knowledge) is required for creative thinking.

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## About Marianna:

Marianna Bolognesi is a senior assistant professor in linguistics at the University of Bologna, Italy, working on metaphor in thought, language and images.

From 2017-2019, Marianna worked at the University of Oxford within the AHRC-funded project Creative Multilingualism. Before then (2015-2017), she was a EU Marie Curie awarded postdoctoral fellow at the Metaphor Lab Amsterdam, where she is still coordinating the research area on Metaphor and Multimodality.

Her research bridges empirical (behavioral) approaches and computational modeling based on distributional semantics, as well as quantitative, corpus-based analyses with qualitative observations.  For more information, please see here.

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Keynote 4: Sunday, 15:00-16:00 UTC+2

## Mental Metaphors

Daniel Casasanto
Cornell University, USA

Thinking metaphorically means using one domain of knowledge as a scaffold for thinking about another (e.g., using space to think about time). For decades, research on metaphorical thinking has been rooted in language. Yet, metaphorical language and metaphorical thinking dissociate in multiple systematic ways. As a result, at any moment people may be talking one way (e.g., saying that the future is ahead of them) but thinking in a different way (e.g., thinking that the future is behind them, or to the right of them).

In this talk I will sketch a theory of mental metaphors that can help predict and explain: (a.) when metaphorical thinking and metaphorical language converge or diverge, (b.) how metaphorical thinking can vary across groups of people with different languages, cultures, or bodies even when it is grounded in experiential universals, and (c.) how metaphorical thinking can change from one moment to the next, even though it is fundamental to our understanding of many basic human concepts.

### About Daniel:

Daniel Casasanto is an Associate Professor of Human Development and Psychology at Cornell University and director of the Experience and Cognition Laboratory <casasanto.com>.
He studies how the diversity of human experience is reflected in our brains and minds: how people with different physical and social experiences come to think, feel, and act differently, in fundamental ways. To study cognitive diversity across cultures, his lab conducts research on five continents, using methods that range from watching children at play to brain imaging and neuro-stimulation.

A former opera singer, Casasanto received a graduate diploma in Voice from the Peabody Conservatory before earning a doctorate from the department of Brain and Cognitive Sciences at MIT in 2005. Casasanto's awards include a National Research Service Award from the National Institutes of Health, the James S. McDonnell Foundation's Scholar Award, the Association for Psychological Science's Award for Transformative Early Career Contributions, the American Psychological Association's Fantz Memorial Award for Young Psychologists, and the Psychonomic Society's Early Career Award for Exceptional Research Contributions to Scientific Psychology.

Casasanto has authored over 100 scientific publications, which are featured routinely in the national and international media. These include over 60 papers and chapters on metaphor in language, mind, and brain. He serves on the editorial board of seven journals and was a founding editor of Cambridge University Press's interdisciplinary journal Language and Cognition.

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