

# Studies in Material Thinking



---

Auckland University of Technology  
School of Art and Design  
Auckland 1142, New Zealand

---

Eml [info@materialthinking.org](mailto:info@materialthinking.org)  
Web [www.materialthinking.org](http://www.materialthinking.org)

---

## Volume 07 Where Art, Technology and Design Meet

---

### Wearable Technologies: From Performativity to Materiality

---

Valérie Lamontagne

---

*Abstract: The terms performance and performativity have garnered an increased importance in the fields of visual and media arts, humanities and the technosciences, signalling an epistemological shift from representational to performative modes of knowledge and experience production. This paper traces the terms performance and performativity — historically and conceptually — within the broad field of performance (linguistics, sociology, anthropology, theatre, dance, music and performance art) to extend their meaning(s) to the fields of technoscience and wearables. It aims to posit that a coupling of wearables technology and performativity is not only (a) crucial to an understanding of the materiality of the wearable object and its social practice, but (b) also offers new grounds for a repositioning of research within the fields of wearables and performance.*

*Keywords: Wearables, performance, performativity, materiality, human/nonhuman, technoscience*

---

**STUDIES IN MATERIAL THINKING**

<http://www.materialthinking.org>

ISSN: 1177-6234

Auckland University of Technology

First published in April 2007, Auckland, New Zealand.

Copyright © Studies in Material Thinking and the author.

All rights reserved. Apart from fair dealing for the purposes of study, research, criticism or review, as permitted under the applicable copyright legislation, no part of this work may be reproduced by any process without written permission from the publisher or author. For permissions and other inquiries, please contact the Editor at <[materialthinking@aut.ac.nz](mailto:materialthinking@aut.ac.nz)>

**STUDIES IN MATERIAL THINKING** is a peer-reviewed research journal supported by an International Editorial Advisory Group and is listed in the Australian ERA 2012 Journal List (Excellence in Research for Australia).

---

Author

Valérie Lamontagne /  
Design & Computation Arts,  
Concordia University /  
info@valerielamontagne.com

---

Introduction

Drawing from American dramatic theorist and practitioner Richard Schechner's performance theory, sociologist of science Karin Knorr Cetina, and feminist philosopher Karen Barad's quantum physics-inspired posthumanist theory as related to performativity and materiality, it will be argued that the progression from performance to performativity is increasingly situated not only off-stage, but also within relationships between human/nonhuman agencies and the modalities under which technoscientific communities engage with materials. In particular, the convergence of materiality and performativity will be traced within the techno-scientific-social-artistic practice of wearables, with examples drawn from the field of wearables research. This aims to demonstrate how performative objects/subjects are constituted via an active entanglement of materiality and performativity, technology and social, and are thus a specifically hybrid instantiation of human/nonhuman performativity.

From Representation  
to Performance to  
Performativity

Performance and performativity - in contrast to the representation models of indexing, archiving, and documentation - both as theory and practice, have increasingly been taken on as placeholders of the modality of the knowledge production occurring in the arts and humanities as well as in technoscientific communities and discourse. This shift can be traced to a general concern for "action," which permeated 20th century culture and science, and which has also been echoed in a variety of disciplines from linguistics, anthropology, sociology, and gender theory, to performance art, music, dance and theatre — marking a turning away from fixed representational documents as knowledge depositories towards the investigation of event and time-based structures as a knowledge flow.

However, when discussing the terms *performance* and *performativity*, the words are often ill-defined and interchangeably miss-used. It is my argument herein that the terms are not equivalent and that we are witnessing an evolution from the use of the term *performance* toward the term *performativity*, which heralds a heightened attention to a quality of doing versus simply a doing, or otherwise a transformation from an action to an adjective. For example, the ubiquity of the terms *performance* and *performativity* in the critical fields of arts and media suggests that a concern for the *quality* of events is increasingly emerging as the paradigmatic framework within which media arts are being evaluated and valued in the technoscientific and artistic realm. A quick search for the keyword "perform" in abstracts of the recent media arts conference ISEA2011 identified no less than one hundred panels and presentations engaging with the word and concept of "performance." These presentations referred to a vast spectrum of contemporary media arts production including: code, robotics, music, dance, mixed reality, open source practices, feminism, gaming, urban environments, networks, DIY and hacker-spaces as well as bio-art. So, it must be concluded that performance is a desired *quality* as well as a necessary *condition* to media arts production, analysis, presentation frameworks and values. However, the terrain remains unclear. How and when did performance begin to play such an expansive role in our understanding of culture and society? Specifically, which theorist(s) are we conjuring when we speak of performance and performativity? And, what is the difference between a performance and performativity?

The "Performative Turn"

The last 50 years have seen the increased use of the terms and uses of performance and performativity in non-theatre/stage associated research fields of linguistics, anthropology, ethnography and sociology. The "performative turn", a paradigmatic shift in humanities and



social sciences from the 1950-70s, took performance-inspired methods and situations as both the subject of research and methodology - focusing on grounded, intimate, and embodied practices as a source for understanding society. The modes of research employed stemmed principally from first-person and everyday interactions, observations, and analyses, thus stepping away from representational and symbolic models to engage with the "real" world (Austin, Conquergood, Goffman, Turner).

The performative turn's uniqueness was through an exploration of methodologies and sites of analysis rooted in bodily actions - rituals, play, games, sports, individual and performative practices of society - and a foregrounding of performance as key to understanding these actions. This mode of research - engaging with, observing and analysing the uses of performance in rituals (Schechner), speech acts such as the transformative impact of the phrase pronounced at a wedding "I do take this woman to be my lawful wedded wife" (Austin), or the negotiation and flux of public identity (Goffman) - created forms of production of knowledge anchored in action, in field work, and in everyday human drama. The performative turn sought an understanding of the meaning of events, which took into account the complex negotiations between humans and their social/physical environments. Schechner situates performance as the "outer" layer, or the all-encompassing, of a continuum that includes a range from "great" to the "everyday" performance, wherein ritual, play, games, sports, and theatre are varied and non-evolutionary practices related to theatre. He notes:

Performance is an inclusive term. Theatre is only one node on a continuum that reaches from the ritualisations of animals (including humans) through performances in everyday life - greetings, displays of emotion, family scenes, professional roles, and so on - through to play, sports, theatre, ceremonies, rites, and performances of great magnitude." (Schechner, 1988, p. xvii)

We notice that Schechner is principally interested in the interconnectedness of performative axioms and how they come to overlap, bleed into and influence one another. For Schechner, four key qualities are shared by the activities of performance, which include (a) a special ordering of time, (b) a special value attached to objects, (c) non-productivity in terms of goods, and (d) rules. He also notes how "special" or "non-ordinary places" are used or constructed to perform these activities in. These basic rules or limitations bound the concept of performance to a very specific form of event that distinguishes it from the particular *quality* through which I wish to draw out the uses of performativity as present in the media arts, technoscience and specifically wearables.

### The "Performative Turn" as "Boundary Object"

The legacy of the "performative turn" has been the transformation of methodologies and subjects to validate and understand fields of research grounded in action, notably human social situations. However, a few problems arise when one wishes to transpose a "performative turn" research methodology onto present contexts related to the hybrid fields of media arts, technoscience and, more specifically, to wearables. The differences between the performative turn of the 1970s and performativity, as prevalent in 21st century media arts and science, need to be better outlined and specified in order to reveal the nuances and shifts in meaning which have occurred in the progressive use and interpretation of performance to performativity.

### Three Key Conditions

I will briefly outline three key conditions to the understanding of the concept of performance as understood within the "performative turn" in relation to Schechner's writings in particular: 1. textuality; 2. space time and context; 3. humans versus nonhumans. Later I will investigate how these shape the conception of performance as a *boundary object* to demonstrate how the validating elements of performance cannot be applied to the performative contemporary practices of media arts, technoscience and wearables. I hope to elaborate a practised dissonance between the terms *performance* and *performativity*, which outlines a specific kind of 'doing' of performance (action) versus a specific quality of doing performativity (adjective).



Although I am invoking the intentions of authors from the 1950-70s time period, I do not wish to imply that the fields of sociology, ethnography and linguistics - which I am investigating from a very specific historical purview - have not themselves also undergone a shift from performance to performativity, of which I may not be aware of and which is not the goal of this paper. Rather, I am seeking to seed the concepts elaborated in the "performative turn" - situated at a specific historical moment - and to chart the evolution of the term *performance* towards that of *performativity* with the incursion of new and hybrid fields of artistic and social expression and research related to performance such as those seen within the fields of performance art, technoscience, and wearables.

#### Condition 1. Textuality

To begin with, the performative turn - though validating the importance of performance in the everyday in a rich and varied way - seeks to principally describe and understand events within a textual realm. The dissemination of knowledge of performance was articulated via textual documents as *the* paradigmatic knowledge tool. Though a shift in practice (social, political, personal, etc.) may occur or be desired through the dissemination of textual documents (for example a better understanding of foreign tribal cultures and rituals as related to performance, as in the writing of Schechner), I would argue that the principal focus within the performative turn is the production of textual documents as knowledge endpoints. That is to say that sociologists, ethnographers and linguists uphold the text as the referential knowledge container or terminal "boundary object" in relation to performance.

#### Condition 2. Space, Time and Context

Secondly, the idea of performance in the performative turn is bounded by space, time and context. When referring to a situation such as a sport, game, or ritual - for example - there is a specific staging that is required in its recognition and participation predicated on a place, a time and a reasonably recognisable pattern of unfolding. Or, as previously noted by Schechner, a "special ordering of time" set against an assembly of objects and rules. For Schechner, three types of time exist within the performance:

1. *Event time*, when the activity itself has a set sequence and all the steps of that sequence must be completed no matter how long (or short) the elapsed clock time. Examples: baseball, racing, hopscotch; rituals where a "response" or a "state" is sought, such as rain dances, shamanic cures, revival meetings; scripted theatrical performances taken as a whole.

2. *Set time*, where an arbitrary time pattern is imposed on events - they begin and end at certain moments whether or not they have been "completed." Here, there is an antagonistic contest between the activity and the clock. Examples: football, basketball, games structured on "how many" or "how much" can you do in x time.

3. *Symbolic time*, when the span of the activity represents another (longer, shorter) span of clock time. Or, where time is considered differently, as in Christian notions of "the end of time", the Aboriginal "Dreamtime", or Zen's goal of the "ever present". Examples: theatre, rituals that re-actualise events or abolish time, make-believe play and games. (Schechner, 1988, p. 8)

#### Condition 3. Humans and Not Nonhumans

Finally, the performative turn is invested principally in humans; nonhumans do not acquire agency in the unfolding of performance in the performative turn except as secondary props, tools, or symbolic objects at the service of propelling *human* performance, action and transformation. The field of STS literature, we will see, is keenly invested in the exploration of performativity from a full spectrum of actors including humans, objects, material, matter, networks, and other related nonhuman entities, which significantly differs from the performative turn (Latour, 1986).



**Case 1. Performance  
Art from the 1960s**

If we step back in time and media, the first examples of performativity can be found in the field of visual arts. In performance art the emphasis on quality - on the performative - has been built upon the blurring of performance and the everyday in open-ended structures. The 1960s saw the rise of collective and experimental movements such as Happenings, Fluxus, and Performance Art influenced by structures borrowed from theatrical performance, yet expanded into the realm of collaborative modalities of event creation, incorporating time, media arts, and embodied experience. A number of these moments broke with the conditions set by Schechner to further expand his "outer layer" as related to performance. For example, focuses on indeterminacy (John Cage), visually interpretive-based actions (Yoko Ono), social engagement (Linda Montano), duration/presence (Tehching Hsieh) and endurance (Marina Abramovic) all point to a framework in which events are opened up to outside contribution, disruption, participation and context. These do not rely on (a) text for validation, (b) expectations of space, time and place by exploiting indeterminate uses of these and (c) beings to introduce nonhumans as actors in the event. An example is Montano's "SEVEN YEARS OF LIVING ART" (1984-1998) performances where she engaged with one colour of the chakra for one whole year, eating one colour, wearing one colour, and living in one colour. When performance-as-form is conjured specifically (as in the examples above), its goal eschews a formulation of *imitation* and foregrounds a desire for unscripted exploration both on the part of the performer and that of the public. In this sense, performance art within the context of the everyday moves away from representation and into the field of doing, being and transforming events. (Carlson, 1996)

For Allan Kaprow, an important theorist/artist of the 1960s performance art scene, a "Happening" - a specific kind of experimental art performance/event of the era which sought to blur the line between art and life - necessitated three elements: a specific context which was conducive to non-theatrical performance (loft, street etc.); a lack of plot, therefore fostering the unfolding of unscripted and indeterminate events, which are "generated in action"; and chance, as a "deliberately employed mode of operating that penetrates the whole composition and its character." (Kaprow, 1993, p.19) What this means for performance as an 'ingredient' in the process of art-making, is that it is increasingly set against a background of co-structured elements, which come together to produce the event effects. The performance is defined as *all of the elements*, including the performers, the audience, the architecture, and various apparatuses coming together to constitute the event. There is no levelling to exclude an element, either human or nonhuman, within this scope. Again, we can consider this as a first instantiation of a concern for the *quality* of the performative which is not performance-bound in the same ways as expressed in the performative turn.

**Case 2. Performativity  
in STS**

Performativity is emerging as a key concept in the area of STS (Science, Technology and Society) to challenge and rethink forms of knowledge production. Technoscientific practices in the field of STS are engendering a shift from a representational model to a performative one wherein an emphasis on the mechanics of the production of knowledge - laboratory contexts, specific uses of apparatuses, human/nonhuman interactions - are shifting and shaping scientific paradigms. An STS perspective takes issue with the premise that scientific knowledge is only encoded in inscriptive forms such as documents, theoretical frameworks, papers, texts or other techniques of traditional knowledge capture and creation. Barad notes how:

Performative approaches call into question representationalism's claim that there are representations, on the one hand, and ontologically separate entities awaiting representation, on the other, and focus inquiry on the practices or performances of representing, as well as the productive effects of those practices and the conditions of efficacy. (Barad, 2003, p.807)

Within the field of STS, Barad maps this shift in the natural and human sciences away from representational modes of knowledge production to performative, enacted ones that bridge the gap between representational knowledge versus performative material. She discusses



how “the move towards performative alternatives to representationalism shifts the focus from questions of correspondence between descriptions and reality (e.g., do they mirror nature or culture) to matters of practices/doings/actions.” (Barad, 2003, p.802) Bruno Latour, for his part, takes a more political view of the science/knowledge/human/nonhuman issue to propose that the modernist conception of the humanities have turned a blind eye to the growing overlap and interdependence between disciplines and between the shared agencies of human and nonhuman systems. For Latour, what is at stake is a need to encompass all the actors from nature, systems, the environments and humans as a levelled and equality disruptive, empowering, and influential force. What this means for technoscientific frameworks is that one must begin to include and relativise the intertwined influence of all the parts *acting* together.

Sociologist Knorr Cetina makes a case for investigating a specificity of influence within cultures of production, which take into account the “messiness” of knowledge production. According to Knorr Cetina, the creation of knowledge is shaped by expertise characterised by specific epistemic cultures, which include humans, nonhumans, technical apparatuses and practices. Knorr Cetina argues that contemporary Western societies have become “knowledge societies” where diverse-yet-specific cultural ontologies generate clearly unique internally referential systems, which are amalgams of societies, practices, and scientific tools. These epistemic cultures - or “amalgams of arrangements of mechanism” situated in laboratory practices (and in the case of Knorr Cetina’s research, in a comparison of high energy physics with molecular biology) - dis-unifies and diversifies the project of scientific knowledge making (Knorr Cetina, 1999, p.1). Knorr Cetina advocates for an “emphasis to knowledge as practiced - within structures, processes, and environments that make up *specific* epistemic settings” (Knorr Cetina, 1999, p.8). For Knorr Cetina, science produced in a laboratory is a result of a specific culture, which she uses to differentiate from *discipline* or *scientific specialty* and to emphasise situated human and nonhuman exchanges. In relation to her research in high-energy physics, the transformation of “machines into physiological beings” and, in the case of molecular biology, the transformation of “organisms into machines” is an interplay between the natural, social and technological.

What is important to retain from the literature in STS is the emphasis on non-textual knowledge through experiments, social dynamics, and technical practices which are not representation-based but rather enacted and performative in time and through a hybrid amalgam of politics, social networks, materials, humans, and other systems.

### Case 3, Wearable Materiality & Performativity

It is my argument here that wearable technologies and materialities are the products of specific technoscientific frameworks similar to the laboratories investigated in STS literature, which span the variegated terrain of fashion technologies, electronics, design practice and computation. Through my interest in exploring how wearables relate to performance and performativity, as outlined in the previously described theoretical frameworks, I am curious how the body, public realm, technology and laboratory contexts play intertwined roles in the articulation of wearables’ expressiveness. Some of the questions I am interested in include: how does the body collude with a technical object? How do technologies expand on the expressiveness of “materials”? How do wearables/fashion/technologies perform in the public realm? How does the socio-technical coupling of laboratories engaged in the production of wearables produce a specific potential and co-structuration of performative enunciations?

It is my intuition that investigating notions of performativity and materiality permits us to better understand wearable technologies and their performative potential on the body. In speaking about performativity in relation to wearables, I conjure the full spectrum of performative actions from the artistic-laboratory context in which the works are produced: from the ways in which garments (even without technology) permit us to be transformed - to electronic, mechanical, and computational systems, networks, inputs and outputs that render wearables “alive”. Wearables (and fashion) are, as a science, the products of specific epistemic cultures, including technoscientific frameworks (textile factories and artisans, circuit making, crafting etc.) and artistic expressiveness. And, as the technical and aesthetic *raison d’être* of weara-





**Case 4. V2\_ & Intimacy  
Black & Pseudomorphs**

bles is to “do” - to enact some form of change when placed on the body - they constitute a unique potential for a very intimate example of human/nonhuman performativity.

As a case study I would like to look at wearable works produced at the Dutch V2\_ Institute for the Unstable Media and, more specifically, its collaboration with wearables/fashion designer Anouk Wipprecht.

V2\_ is a Media Lab engaged in the production of media arts. Their interest in body-based technologies stems from early collaborations with the Australian cyborg performer Stelarc, and is embedded in a culture of public presentation. As a lab, its function is to make finished artworks, as opposed to prototypes or material research, which have cultural meaning, artistic currency and public appeal. The lab's collaboration with Wipprecht stemmed out of an earlier project in which V2\_ collaborated with Studio Roosegaarde to produce “Intimacy Black” (2010). Studio director Daan Roosegaarde, approached V2\_Lab with the intention of exploring the artistic expressiveness of a material an architect had recently chanced upon by way of a distributor. This material, PDLC (Polymer Dispersed Liquid Chrystal Film), has the particular quality of being able to change from opaque to transparent when charged with an electrical current. Often used in architectural settings, it is a material that has not been extensively explored artistically in relation to the body, or within a performative. Wipprecht collaborated on the second instantiation of the design, in which scenarios and designs for integrating the non-woven material were explored. The result was a structural, cage-like dress, which only partially covered the body and reacted to proximity and flash exposure.

I stress the individuals (technicians, project managers, designers) or ‘actors’ (to use Latour’s term) involved in the creation of this work, which would not have existed without this particular configuration of expertise and goals. Without an architectural community, the material may not have become known in the V2\_Lab. Without the previous interest in cyborg and technologically-enhanced bodies, the impetus and interest within the art institution would not have progressed toward the production of an interactive garment (one can, after all, envisage many different non-body based applications and scenarios for PDLC). Without the desire to explore the impact of the newly discovered technology on the body, a fashion designer might not have been called upon (after all, material testing in itself could have satisfied many labs). Without the endpoint of a public dissemination in which aesthetics are highly valued, a fashion designer might not also have been called upon. Without the pressure of public acceptance and interest in the technical qualities of the wearable, various interactive scenarios - along with their documentation (the fashion shoot, promotional video and touring of the object) - might also not have taken place.

In this way, one can argue that the public deliverables (the need to prove that wearables “perform” on the body) trickled up the production cycle of V2\_Lab creating an “epistemic culture” focused on wearables and foregrounding a collaboration between the technical potential of the materials for performativity and the artistic potential for the wearable to transform the body. I argue that both elements - the technical apparatus and the body - come into performative action in this scenario.

A second work was produced by Wipprecht in collaboration with V2\_Lab (as a result of the positive collaboration on the Intimacy Black Dress) that illustrates a co-structured human/nonhuman performativity as embedded within the garment. “Pseudomorphs” (2010) is a dress that, through the integration of a series of liquid valves, can be auto-dyed by the wearer. It is described by the designer as:

... a dress that can be customized to the wearer's liking. Thanks to a system of valves and pumps attached to a neckpiece, ink flows over the dress creating a kind of bleeding effect. The neck-piece works with pneumatic control valves and a pressure and control system that allows the ink to be pumped throughout the design and spreads the ink over a series of absorbing dresses in an uncontrolled matter. (V2\_ website)





It is a work that performs its construction in the public eye. The series of valves and pumps release purple ink onto a white dress in a semi-unscripted fashion, resulting in a one-time-only event and object. Though the *performativity* of the dress is inscribed in its technological potential (after all it is not an accident that the dress will paint/stain itself through the release of the liquids) its *performativity* is also enacted at the moment where the wearer releases the valves and performs/creates the garment. The *performativity* of the “Pseudo-morphs” garment relies on this moment of human/nonhuman performance, creating a unique intimacy and quality.

### Conclusion

It has been my desire to demonstrate in this paper a number of things, firstly concerning where the term *performance* used within non-stage related research has emerged. Secondly, how the concept and framework of “performance”, even as outlined by the non-stage oriented “performative turn”, begins to shift within the performance art of the 1960s. Thirdly, to disambiguate the terms *performance* and *performativity* and to stake a claim for performativity as being a quality that is particularly adept at engaging with human/nonhuman actions. Fourthly, the introduction of new forms of performativity based in laboratory contexts stemming from STS literature, and lastly, a case study of how a wearable lab and wearable garment combines human, nonhuman, and the performative enunciations of materials.

### Acknowledgments

I would like to thank the Fonds Québécois de La Recherche sur La Société et La Culture for financial assistance while writing this paper, and V2\_ Institute for the Unstable Media as well as the Copenhagen Artist in Residency Programme for providing me with a research context to develop this paper.



**References**

- Austin, J. L. (1975). *How to Do Things With Words*. Cambridge: Harvard University Press.
- Barad, K. (2003). Posthuman Performativity: Towards an Understanding of How Matter Comes to Matter. *Signs: Journal of Women in Culture and Society*, 28(3), 801-831.
- Carlson, M. (1996). *Performance: A Critical Introduction*. London; New York: Routledge.
- Conquergood, D. (1989). Poetics, Play, Process, and Power: The Performative Turn in Anthropology. *Text and Performance Quarterly*, 9(1), 82-95.
- Goffman, E. (1959). *The Presentation of Self in Everyday Life*. New York: Anchor Books, Doubleday. Kaprow, A. (1993). Happenings in the New York Scene. In J. Kelley (Ed.), *Essays on the Blurring of Art and Life*. Berkeley: University of California Press.
- Knorr Cetina, K. (1999). *Epistemic Cultures: How the Sciences Make Knowledge*. Cambridge: Harvard University Press.
- Latour, B., & Woolgar, S. (1986). *Laboratory Life: The Construction of Scientific Facts*. Princeton: Princeton University Press.
- Quinn, B. (2010). *Textile Futures: Fashion, Design and Technology*. Oxford; New York: Berg.
- Schechner, R. (1988). *Performance Theory*. London; New York: Routledge.
- V2\_ Institute for the Unstable Media website. Retrieved October 1, 2011 from the World Wide Web: <http://www.v2.nl/archive/works/pseudomorphs-dress/view>



---

**Valérie Lamontagne /**  
**Design & Computation Arts,**  
**Concordia University /**  
**info@valerielamontagne.com**

Valérie is a PhD researcher investigating “Performativity, Materiality and Laboratory Practices in Artistic Wearables” at Concordia University where she teaches in the Department of Design & Computation Arts. She has curated design and media arts exhibitions and events for the 2010 Vancouver Winter Olympics; V2\_ Institute for the Unstable Media, Rotterdam; New Museum, New York; and the Musée National des Beaux Arts du Québec. Her design and media works have been featured internationally at festivals, galleries and museums including: ISEA (2011, 2010, 2009, 2008); SXSW (2010); Siggraph (2010, 2006); San José Museum of Quilts and Textiles (2008); Museum of Science, Boston (2008); Kunstencentrum Vooruit, Ghent (2006); Eyebeam Art + Technology Center, New York (2005); and FILE Festival, Sao Paulo, Brazil (2004).

