Techno-Theoretical Paradigm: Performance, Fashion and Wearables

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Abstract. This paper seeks to formulate a theoretical ground from which to analyze wearables as performative. My aim is to argue that wearables are theoretically (and practically) situated somewhere between the performance art costume and that of the fashion garment.

Keywords: Wearables, performance, laboratory culture, design, embodiment, interface culture, textiles, prototyping.

1 Introduction

First I examine a critical analysis of the body-garment dynamic present within performance studies and fashion theory. The aim is to first establish the link between the garment and the body as being inherently performative. This performance angle will then be built upon by looking at the relationships between technology, performance and the body. The first section of this paper investigates the legacy of the “Performative Turn” in expanding the notion of performance beyond the stage, associating it with the important role of body politics, props, costumes and contexts in shaping meaning. The second section examines fashion theory’s construction of meaning through the visual orchestration of the body and garments within performance and event-based contexts related to fashion, including the runway and the street. The performative analysis of garments and bodies within both fields (performance art and fashion) serve as a foundation through which we will later investigate the links between garments, bodies and the technologies present within wearables. Lastly I will probe how media culture in relation to the body amplifies and extends its range and types of expressions.

2 Performance Theory and the Performance of the Body

We begin with an overview of performance theories relating to the body. Particularly, we look to performance examples from outside the tradition of theatrical stage scholarship—in which costume traditionally plays a supporting role—to focus on contexts in which costumes are at centre stage in the construction of characters, narrative, and meaning. These contexts encompass the use of non-actor elements such

as props, make-up and more particularly, costumes to create meaning within both artistic and every day contexts.

The first performance context is the artistic genre known as “performance art.” Emerging at the turn of the century, performance art gained prominent acceptance from the art world in the 1960s. The foundations for performance art, as distinguished from those of theatre, were developed outside the parameters of the black box/stage, with “real world” contexts, objects, and settings fueling the construction of events. In short, performance art is about acting in real world settings and with a high degree of context awareness in which the objects, people and settings at hand are key players within the performance. This is not to argue that performance art is more “real”—it contains a high degree of imagination and abstraction—however, it does aim to create theatricality built on an actual situation in the real world, as opposed to creating imaginary realms divorced from the immediate setting as in theatre. As a craft, performance art often highlights the actual actors and their unique bodies (i.e. gender, race, sexual orientation), and costumes are used as highly codified and important elements to the construction and interpretation of the performance and the performer. In addition, the disarming charm and appeal of performance art is tied to its convergence with the “real.” Performance art and performance studies theoreticians such as Carlson, Schechner and Goldberg have observed how the use of costumes, props, and settings are enlisted in creating performance within the everyday and by means of visual as opposed to dramaturgical codification [1; 2; 3; 4; 5].

The idea that performance can be built upon the everyday, and that the everyday is a type of performance came to the fore in the 1960s through a movement known as the “Performative Turn.” The “Performative Turn” explores methodologies and analysis of the everyday rooted in bodily actions—rituals, play, games, sports, individual and social practices of society—wherein an emphasis is placed on performance as the key to understanding these actions. These modes of research—engaging with, observing and analyzing the uses of performance in rituals [5]; and constative utterances such as the phrase pronounced at weddings, “I do take this woman to be my lawful wedded wife,” [6] shape the thinking around external and contextual elements playing an important role in performance in the everyday. What is more, the negotiation and flux of public identity through “social” performances [7] as well as the understanding of rituals and play in sports and society via props, costumes, and situations take on greater meaning when viewed from this angle [8; 9; 10; 11]. The “Performative Turn” spawned modes of knowledge production anchored in action, fieldwork, and everyday social dramas in which the combined action of bodies and costume/props/settings gained important signification. As McNamara and Schechner note in their introduction to Turner’s *From Ritual to Theatre*: “Performance is no longer easy to define or locate: the concept and structure has spread all over the place. It is ethnic and intercultural, historical and ahistorical, aesthetic and ritual, sociological and political.” [11]. This lateral adoption of the theories of performance in the “Performative Turn” have had an important effect in defining performance as a way of understanding the construction of human events in tandem with the environment.

The role of the body becomes increasingly important within theories of performance, from art to sociology/anthropology. Marcel Mauss' notion of the "techniques of the body" explores how the ways in which the body in movement and display is symbolically crafted [12]. Furthermore, the body itself becomes a highly contested zone of artistic and political agency—keenly tied to socially engaged performance art practices in the 80s and 90s—which sought to re-map the meaning(s) of people in the arts, performance arts stages, and the general public sphere by way of performative actions [13; 14]. The expanding importance of performance, on both a symbolic and a practiced scale, is important when considering wearables as artistic artifacts occurring at the interstice of the body and fashion/technology, for it points to how the body, in consort with costumes, creates performance.

3 Fashion Theory and the Performance of the Adorned Body

Performance theories previously discussed were principally focused on the creation of meaning through performance contexts highlighting the body and costumes/props. However, fashion discourse is specifically focused on the garment's contribution to the construction of meaning when worn on the body. Fashion has built its own set of theories and means of interpretation attached to various practices of adornment and its relationship to the body, the individual, and society. These theories differ from those stemming from performance studies, as their primary departure point for expression is clothing, as opposed to the body. In fashion theory, emphasis is mainly placed on understanding social codes and influences as expressed through sartorial choices and public displays of style, both of which are keenly mapped onto social and economic hierarchic structures. A number of theoretical avenues explored in fashion theory can guide us towards a richer understanding of "performativity" in wearables, specifically from the perspective of the garment's contribution to expression. Of particular interest is the relationship between the body and the garment and how, when combined, new forms of performances of self can occur. As much as performance studies theory can guide us in a better understanding of the body's actions, fashion theory has a more intimate handle on the specific contribution of the garment in shaping meaning at the intersection of the body and clothing.

Theories around dress and fashion start with the garment itself. The main modes of analysis focus on two dominant narratives: emulation (based on social and economic stratification) and communication (based on individual and collective expressiveness) [15]. Early sociological texts focus on emulation in fashion, postulating that styles began at the top of the social hierarchy, with the elite forging a distinctive style of dress, which are then emulated by the lower classes, hence the "trickle-down effect" [16]. Theories of emulation are heavily reliant on a unidirectional social flow from rich to poor, leaving little opening for individual "expressiveness" in fashion or for stylistic "reverse engineering." However, emulation also proposes tensions in expressions of individualism versus collectivism, a creative push and pull still at play today between the classes [16]. Other emulation theories reliant on a psychoanalytical model see fashion as a "social regulating system," entwined in personal psychology

and collective desires and other mores often found at the brink of disruption, deviation and change [17]. Philosophical and historical overviews probe the nature of emulation in fashion, revealing the increasingly democratic power of clothes where fashion is not bounded by class but rather affords a fluid political and social trajectory since the modern era [18].

Communication theory, for its part, revolves around the individual's choices in fashion and clothing to express both personal identity as well as group adherence [19; 20; 21]. From this viewpoint, clothing becomes a conduit for "the expressive culture of a community" [15]. Within a communication system, however, where clothing acquires the ability to be "read," there is a danger of also reducing clothing to sign (or semiotic interplay), divorced of bodies, action and performative "events." For example, some texts focus on a strict system of semiotic meaning to explain fashion, such as through print, such as in the case of fashion magazines [22].

Recent fashion theory has begun to incorporate performance as part of fashion's expression. As fashion's influence is increasingly mediated through performance and communication technologies such as photography, film, video, runway shows and the Internet, the importance of fashion "performance" is also coming to the fore. With the rapid stylistic flux associated with fashion, change is intrinsic to its survival (in terms of both economics and relevance), and has propelled more diverse and dynamic developments conflating strict "emulation" or "communication" systems. Fashion is "of the moment" and in this way, it can be appreciated as part of a *Zeitgeist* linked to performance, event making, and the constructions of mediatized time-based arts [20]. Moreover, fashion as art embodies the "phrasing of human life" which encompasses historical, mediated and performance-based modes of cultural presence [23; 24].

4 Technology as an Extension of the Self

Some analysis of our relationship with technology has to be elaborated in order to discuss the impact of wearable technologies on the body when embedded into fashion/garments. The Canadian philosopher Marshall McLuhan viewed technology as an extension of our bodies, wherein our senses were solicited to interpret and experience media [25]. McLuhan noted that "...the electric age ushers us into a world in which we live and breathe and listen with the entire epidermis" [25]. This epidermis, by which McLuhan means the outer layer of the human skin that protects the flesh, can be used as a metaphor for the second skin that is wearable technologies. As techno-fashion researcher Sabine Seymour notes, digital displays from mobile and networked environments are merging with the organic epidermis of our bodies through wearable technologies [26]. Hence, our bodies increasingly become interfaces, mediated through technologies from interactive art, for handheld or embedded devices. This techno-organic epidermis constructs new relationships with technology, which use wearable technologies to blur the traditional limits between object, garments, information and entertainment. As the concept of the mediatized "epidermis" evolves to represent the meeting of body and technology, new kinds of technological experiences emerge. As technology becomes as extension of the

garments and networks in which we participate on a daily basis (Facebook, email, blogs, news feeds, etc.) it also become closer to our body, more immediate in access and more available to interact with other interfaces. Technologies that use somatic inputs are an important element to consider in the “performance” of wearable technologies. Further examples of user interfaces that depend on the body—along with media arts expression via the body—will be investigated to reveal the changing and increasingly intimate relationship we are developing with media interfaces [27; 28; 25; 29: 30].1.4

5 Performative Wearables and Laboratory Cultures

We now look at the atelier/laboratory culture currently involved in wearables research and production. As these sites cultivate the materials, technologies and modes from which techno-fashion is developed, they also stage the ways in which these objects become technologically and somatically performative. In order to follow and engage with this techno-cultural scientific design field, I look at the ways in which Science Technology and Society (STS) theories of laboratory research and knowledge production have used performance as a platform from which to analyze labs [31; 32; 33; 34; 35; 36]. In particular, I look at the branch of STS literature in which performance concepts are used to examine scientific research occurring in laboratories. STS describes events taking place in the laboratory—such as material testing, prototype development, fabrication of new materials, note taking and technology testing—as “performative.” Within this theoretical frame, individuals working with technology, materials and various test equipment are considered to be “performative” factors within the development of this research. This “performative” focus is used to analyze laboratories in which individuals and materials play equally “performative” roles in the process of shaping research outcomes. It owes much to mid-twentieth century sociological and anthropological theories of performance, previously described. However, STS theories of performativity expand into the unheralded territory of scientific and material research in order to question the otherwise deductive reasoning of laboratory operations and findings. Performativity from an STS viewpoint, as applied to wearables sites of production offers a unique way to highlight the actions of all involved, from technologies and materials to individuals.

Wearables are complex designs bringing together expertise from the disparate fields of garment making, textiles, engineering, computation and somatic knowledge. One way of examining the intertwined collaborations contributing to the design and technological innovations of wearables is through the optics of performance-focused research as proposed by STS literature. The advantage of using STS performance theories has two principal purposes: a) these theories provide an opportunity to look at a rich and varied spectrum of contributing factors, including the various individuals, material sciences, technologies, and social organizations that shape each unique wearable, and b) they encompass the ateliers/laboratories within the narrative of performative events that traces its history and seeds the modalities of use on and with

the body. In this way, an analysis of the studies pertaining to ateliers/laboratories that produce wearables gives us the opportunity to reveal the nuances of the individuals (scientists, designers, engineers) and materials (tools, matter, technologies) that have an impact on design and use outcomes. The perception of the laboratory as a place of genesis for performative wearables informs the story of how they come into being materially and expressively.

As Andrew Pickering notes, technoscientific practices in the field of STS are engendering a shift from a representational model to a performative one, wherein the mechanics of knowledge production, the specific uses of equipment, and the functioning of human/nonhuman “actants” are shaping scientific paradigms. Researchers such as Pickering and Karen Barad propagate this performative perspective. It refutes the premise that scientific knowledge is encoded in only inscriptive forms such as documents, theoretical frameworks, papers, texts and other techniques of traditional knowledge capture and creation [31; 32; 33; 35; 36]. Such a framework maps a shift in science research away from representational modes of knowledge production and toward performative, enacted modes that bridge the gap between knowledge and material through performativity and action [31]. This performative reading of science “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” [31]. Building on—and departing from—the sociology of scientific knowledge (SSK) theories from the 1970s, discussions of the performativity of both materials and machines becomes important to the understanding of a scientific enquiry that does not want to minimize the contribution of “actions” to knowledge production [35]. In fact, this knowledge is built on the accommodations of human and nonhuman agencies in the process of scientific experimentation [37; 35]. Furthermore, this focus on materiality, from a feminist and scientific realm, is part of a larger, emergent trend occurring in philosophical studies: that of materialities gaining critical ground [38; 39].

Laboratories and their operational structures, the sites where science, technoscience, and techno-artistic research are produced, have emerged arguably as one of paradigmatic loci of analysis for STS. To better understand the processes of knowledge production, the performative contributions of human (scientists and researchers or, in the case of wearables, fashion designers and engineers) and nonhuman agencies (materials, machines) or, as Bruno Latour has called them, actants, are considered as equals in analysis [40; 41; 42; 43; 44; 45; 35; 36]. This permits science to be reevaluated beyond previous Modern schemas of knowledge production that were divorced from the “mangle” of disruptive forces supplied by nonhuman agencies such as machines, materials and tools [35; 37]. By focusing on the tools, matter, and modalities under which scientific objects (and ideas) are measured, shaped, described and harnessed, human contributions are valued on par to nonhuman artifacts, with both influencing and shaping an experiment’s goals and results [46; 42]. This ethnography of science practice has been arrived at primarily through sociologists embedding themselves at the sites of material research (labs) to witness the “intimate processes of scientific work.” This close analysis of scientific process, viewed from a sociological angle, aims to bridge gaps between “human affairs” and “scientific production” as seen in the production of wearable technologies [42].

6 DIY and the Changing Face of the Laboratory

The changing face of the laboratory—especially in regards to craft, technology and physical computing for artists and designers—also needs to be addressed when discussing wearables. There is a growing body of literature describing the shift in production paradigms taking place as a result of the agglomeration and access to new technologies, machines, and shared expertise. Examples of this increased access range from the proliferation of physical spaces for creating technologies and rapid-prototyping objects (such as FabLabs and Hacker Spaces) to the increased networked possibilities of “print on demand” services for 3D printing, textile printing, and circuit printing. Increasingly, the arts and design “laboratory” has much in common with the cottage industries from before the industrial revolution, with the artist/artisan playing critical roles in fabrication processes and choices and retaining control over the end product or design—an element that Modern production chains had all but erased [47]. Hence, for a field such as wearables design - having direct access to expert machines and technicians can make all the difference. Much like fashion designers who begin their careers with a collection of accessible equipment such as home sewing machines and sergers housed in a basement or studio, the wearables designer and techno-crafter now has access to an increasingly expanding palette of technologies and tools from LilyPad Arduinos, conductive threads, laser cutters and more.

In setting up a context for my own comparative analysis of four studio-labs involved in the design and production of wearables, I make reference to a number of key STS case studies of scientific, natural, social and/or technology-based research in order to develop my own research into the performative elements at play in wearables ateliers/laboratories. Examples such as Bruno Latour’s analysis of the failure of the Parisian transportation systems as described in his book *Aramis* [44], Michel Callon’s analysis of the domestication of scallops on the Northern coast of France and anthropologist Georgina Born’s embedded narrative of the development of avant-garde music from within France’s most famous sound research studio IRCAM [48] all are useful in analyzing the coupling of machines, technologies and tools together with human use, expectations and bodies that underlie the research at hand. By understanding the couplings of individuals and machines residing in studio-lab/ateliers we can better identify the ways in which wearables become materially and socially performative.

7 Wearables: How Do They Perform?

The characteristics valued in wearables can be explored and defined through three different lenses: a) the relationship of the body to fashion and technology; b) the types of material explorations developed to implement technology into the garment; and c) the symbolic expression(s) created by the implementation of technology into fashion and its use on the body.

The first quality relates to the intimate relationship that is forged between the wearable and the body. In particular, it looks at how the body, when combined with

technology, is transformed. By this I refer to how the unique mechanical-somatic exchange, created by implementing techno-fashion on the body, proposes new ways of thinking about, moving, and living in the body. The relationship of the body to fashion and technology is particularly expressed in wearables because it does not seek to solve a design/medical/health/safety/social problem, but rather explores how we experience the body in connection with technology and fashion. In this way, wearables are speculative fashion designs that seek to create new experiences for the wearer that are not deterministic, or even tangibly practical.

A second quality that can help us outline wearables for the purposes of this thesis is the type of materials and technologies used in the garments. These include electrical and mechanical technologies that enact some kind of state or material change. These material and technological explorations are found at the juncture of futuristic fashion material innovations such as 3D printing and knitting, digital printing and weaving combined with mechanical and electrical engineering and computational systems. The combination of these innovative fashion and engineering technologies produces design-focused state changes adapted to garments, such as dynamic transformations in shape, colour and illumination.

The third quality investigates the exteriorization of wearables: i.e. what they display, express and project onto the public. Where the first quality of wearables is concerned with the interiorization of the experience of the wearer, this section focuses on what techno-garments express outwards. The range of effects is linked to the materials and techniques used to produce them in the ateliers/laboratories where they are designed and developed. Both stylistically and technically, the range of effects available to wearables varies depending on the milieu in which they are produced (i.e. fashion vs. academia). Each milieu's distinguishing tools, materials, technologies, and design cultures end up shaping the expressions, narratives, and meanings attached to a particular wearable. In all cases, the uniqueness of wearables is expressed outwards, much like how fashion makes a statement about the individual wearing the garment. However, it has the added dimension of technology to generate new meanings and expressions. I situate wearables as tied to performance art through the use of time-based transformation and display on the body. In fashion, as in performance, a story, statement or expression is conjured for a public. It is within this culture of display and expression that I situate wearables gain meaning.

8 Conclusions

In this paper, I seek to situate body-based practices from three distinct yet related fields: (1) the use of the body as object within art historical notions of performance art and performance theory, (2) fashion's understanding of the garments and body in terms of public displays and social significance, and (3) the understanding of media and technology as influencing the somatic. On the one hand, performance art and performance theory constructs and comments on the uses of the body as a symbolic and expressive tool within performance as linked to the everyday, and in connection with objects. On the other hand, fashion theory maps out and categorizes the role of

the garment as social construction and personal expression in performance contexts such as the catwalk, film, photography, and street culture. Where one field (performance studies/art) probes the everyday context of the body to create performance, the other (fashion) brings garments into the fold of performance through display, show and media promotion. Finally, in the case of the encroaching importance of technology as a “second skin,” wearables and the added layer of media devices seen in society become critical to the understanding of the relationship of technology to the body. In all cases, a theory of bodies and objects is elaborated in which performance is the glue that secures its meaning.

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