Self-reflexive performance: Dancing with the computed audience of culture

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Abstract

Typically performance is a display for others, and is time-limited. But if we also regard everyday life as a performance, we see that it is a continuous improvisation—a multi-faceted dance with an audience that is our social and cultural milieu. In moments of self-reflection, we ourselves motivate this performance, seizing these occasions to explore and debate our relationship to culture and our reflexive situation within it. This article introduces a digitally mediated framework for real-time self-reflexive performance, called the Identity Mirror. Here, the audience is a computational model of culture himself—his moods complex and shifting constantly according to daily happenstance. The mirror shows the performer her dynamic and panoptic reflection against culture, which she can negotiate through dance. The article goes on to unravel the politics of self-reflexive performance—exploring the ideas of cultural persona, facets, and shadows, and gestating a future where these performances can be sustained as a daily dialogic, and co-performances can be had amongst friends.

Keywords

Culture
Reflexivity
Computing Audience
Identity
Meta-audience
Off-stage performance

Introduction

Performance is not a notion reserved for the stage. It does not even have to be occasional. Harkening to Shakespeare in *As You Like It*,

> All the world's a stage,
> And all the men and women merely Players;
> They have their Exits and their Entrances,
> And one man in his time playes many parts.

> (Shakespeare, c. 1598-1600/1997: 414)

If all the men and women are merely 'Players,' it begs the question, who is the audience? Perhaps Shakespeare was simply making a poetic evocation of God or the collected myth of humanity as the audience to the performances of man, but there is something decidedly judicious that our lives, qua performance, might be appreciated and judged by an audience capable of seeing the Play in its gestalt. While resisting the metaphysical, perhaps Shakespeare might have allowed that the audience is culture[1] herself.

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[1] Here, we invoke 'culture' to mean the collective symbolic creative product of humanity, and not to mean a mode of superior intellect or taste. Our

A more contemporary voice, Erving Goffman, also likened life to drama, and being in the world to performance. In *The Presentation of Self in Everyday Life* (Goffman, 1959), Goffman writes that individuals find identities in relation to their social and cultural milieu. In the theatrics of the everyday, and according to daily happenstance, individuals constantly shift the masks that they wear to befit their present social situation. And in fact, the word person itself refers to a mask—from the Etruscan word *phersu*. Life being a performance through various masks, Goffman also distinguishes the interiority and exteriority of this performance—an individual communicates some "expressions given," but the recipient also receives some "expressions given off" which are "more theatrical and contextual" and "presumably unintentional" (Goffman, 1959: 4). Importantly, these "expressions given off" are judgments that the audience produces—more than "expressions given," the audience's judgments represent the performer's broader situation within the performance *in toto*.

As performers in life's drama, individuals experience an interiority, but need also to essay some understanding of their exterior meaning in relation to the whole performance—to discover their situation within culture. In *The Interpretation of Cultures* (1973), Clifford Geertz motivated the significance of culture to the self thusly, "man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs" (Geertz, 1973: 4-5) The practice of self-reflection in everyday life is the venue for grasping one's situation in culture, rightfully synonymous with 'identity.' Self-reflection, motivated by a desire to understand, reveal, and identify, is a play atop the stage of the Cartesian Theatre of mind—there, an individual is all of performer, audience, and *meta-audience*. On the one hand, he replays his performance up to the present. On the other, he imagines in his mind's eye what the judgment of culture-as-audience might be. And then on the third hand, he is individual-as-meta-audience, watching the back-and-forth of performer and audience, and feeling self-conscious emotions like shame or pride. Self-reflection needs to recur because we continue to perform throughout life, and therefore need as often to reflect upon the previously unassessed. Also, culture's eye is capricious, its attention and emphasis over matters ebb and flow, thus we must continually re-anticipate culture's judgment over not only our nonce, but also over the whole history of our being in the world. In self-reflection, we re-perform ourselves in order to understand through culture's eyes what our performance means— this might aptly be termed a *self-reflexive performance*.

Self-initiated and focused self-reflection is hard—it would seem to require an enormous effort of the imagination, and an advanced intuition for the cultural *zeitgeist* to reflect deeply and successfully. The exteriority of our performance is hardly obvious. But understanding one's situation is important enough that society has cultivated many reflexive techniques and reflexive technologies

interpretation is in line with the word 'Kultur' and Clifford Geertz's interpretation in "Interpretation of Cultures."

dedicated to helping us along. One is the humanistic discipline of anthropology, whose ethnographic practice Clyde Kluckhohn in *Mirror for Man* (1949) interprets as an effort to understand ourselves by examining our collected reflection in a cultural mirror. Another is the cultural institution of narrative. Narrative is reflexive when our experience of some protagonist's perspective reveals something about our own situation. In *Exposing Yourself*, (1980) Jay Ruby illuminates an entire genre of film that especially supports reflexivity, which includes the films of Woody Allen and Jean-Luc Godard. The hallmark of reflexive narratives, Ruby writes, is that their creators "are trying to raise the critical consciousness of their audiences by being publicly, explicitly, and openly self-aware or reflexive" (Ruby, 1980: 154).

Films and narratives are opportune to engaging the critical, reflexive mode because their graphicality and vivid affectiveness help to nudge individuals along in task of imagining cultural judgment and consequence. These devices are however, still indirect. Rather than supplementing the imagination of culture, Janet Sonenberg who teaches acting, describes an alternative—train the performer's ability and stamina for reflective practice. In *Dreamwork for actors*, Sonenberg makes it clear that even stage actors need to reflect. Her *dreamwork* is an acting technique that allows the actor to harness the power of dreaming while awake, in order to understand his character more intimately. The dream, writes Sonenberg, sources from the unconscious flows of being – "the world of potent symbols, tidal relationships, impulses, and chaos" (Sonenberg, 2003: 2). We suggest that this is very much akin to understanding the systems of psychological significance governing the character, which are not unlike a cultural backdrop.

In this article, we examine the question—might there be some technological device which could support vivid self-reflexive performance? The device should vitally support the performer's critical imagination of culture-as-audience, as does film and narrative, yet the subject of the self-reflexive performance should be the performer herself, like the focus of Sonenberg's methods. In attempting an answer to this question, we firstly present some technological situation for our work—the literature on mirror-based performance interfaces. Secondly, building on the success of these immersive and reflexive performance environments, we move to address how such an environment could immerse a person not in sound or imagery, but directly into the abstract cultural flows of identity and symbolism. In our self-reflexive performance interface, the Identity Mirror, the judgments and perspective of culture-as-audience are automatically computed and used to affect a visually abstract swarm-of-keywords display—the technique of this computation is imparted thirdly. Fourthly we discuss in depth the performative modalities and varied interplays afforded by the Identity Mirror—addressing how the performer negotiates cultural space through dance; how performance continues away from the Identity Mirror; how performers can interact with cultural moods, facets, and shadows; and what *co-performance* would mean in the self-reflexive context.

Mirror-based performance interfaces

Mirrors engage because they move us to self-awareness of body, movement, and intention. They can be used for observation, or if the mirrored image can be regarded with a certain sense of detachment from the body, and as an artistic production, mirrors could then be used to express and to perform. A natural way to situate our work on the computation of culture and self-reflexive performance, then, is to examine mirror-based technologies for performance.

Physical mirrors have enjoyed our sustained interest since time immemorial; they seduce us into play because the image produced is, as it was for Narcissus, easily self-absorbing. The mirrored image is a connected likeness, it tracks movement smoothly and continuously, and moving before it affords a visceral self-awareness of body, motion, and intent. Its reflexive quality is supported by its affordance for a panoptic view of ourselves—more than showing facial and bodily features, it shows every feature together in relation to each other, in mutual situation, concentrating the whole subject into a singly potent eyeful.

The panoptic's spell over humanity is extensive. Gazing into mirrors, climbing hills, making maps, belief in gods, and even cultural self-reflection, all are governed by what Michel de Certeau describes as every individual's 'cartographic impulse' (Certeau, 1997). That a mirror allows an individual to glance his subjective gestalt is crucial to the experience being reflexive. Exploring variations around the thematic of the traditional physical mirror, Daniel Rozin's oeuvre (2005) has experimented with the materiality of the mirror, e.g., Wooden Mirror (1999) and Trash Mirror (2001). Rozin's mirrors color the viewer's experience by their various impressionistic renditions, but as his mirrors still track the viewer smoothly in real-time, and afford a panoptic perspective over the whole of the subject, its reflexive quality remains.

Myron Krueger's Video Place system (1970) was the first computer-mediated responsive interface of its kind—it had both reflexive and performative aspects. An individual's silhouette was projected onto a large video screen, into a virtual world. Based on real-time video tracking, the performer could use body movement and gestures to actuate his silhouette within the virtual world, interacting with its critters and floating across its horizon. Krueger noted the reflexive mirroring quality of his piece, remarking that performers felt as equally self-consciousness and private about their projected silhouettes as about their bodies. Performers' identified with their virtual likeness to such an extent that some were telepathically creeped out when critters crawled over their silhouette. More than a mirror however, Video Place has a strong performative quality because the mirrored image could also constitute a highly expressive artwork—that is to say, *it could be regarded not only as a means, but also as an aesthetic end suitable for audience.*

Like Video Place, David Rokeby's "Very Nervous System" (1986-1990) is also a mirror-based performance interface, but here, no

visual reflections are produced. Rather, it is an interactive sound environment that maps physical gestures to actuations in a soundscape. Very Nervous System nonetheless offers a reflexive experience because the feeling of moving through sound is a visceral one. Large body movements create large movements in sound, and small gestures like making a rippling motion with the fingers finesse small articulations in sound. The interface is an invisible and diffuse 'zone of experience', and to compose a successful performance, the performer must constantly audition how his body is producing sound, and make appropriate adjustments. The piece is not merely a musical instrument but a reflexive mirror because *every movement effectuates a proportionate response in sound*. In *Transforming Mirrors* (1995), Rokeby well summarized the key dualism of mirrors, exact—transformative, as follows.

> While the unmediated feedback of exact mirroring produces the closed system of self absorption (the reflection of the self is re-absorbed), transformed reflections are a dialogue between the self and the world beyond. The echo operates like a wayward loop of consciousness through which one's image of one's self and one's relationship to the world can be examined, questioned and transformed.

> (Rokeby, 1995: 146)

A self-reflexive performance

Building upon the success of mirror-based performance interfaces like Krueger's Video Place and Rokeby's Very Nervous System, Identity Mirror asks, what if instead of sound or imagery, an interface could immerse an individual in the abstract cultural flows of identity and symbolism? What if the individual's mirror image was a cultural reflection, and the quality of this reflection changes as culture's priorities and zeitgeist change, and as the individual occupies various moods? What if through dance and off-stage performance, the individual can explore various facets of his cultural situation?

We position Identity Mirror as an interface for self-reflexive performance—self-reflexive because it affords a panoptic view of self situated in culture, and performative because an individual can dance and live his life (off-stage performance) to explore and create more nuanceful cultural reflections.

A brief description of the Identity Mirror installation follows. The performer stands before a large screen (the mirror) displaying a swarm of keywords (cultural identity) hovering over a silhouette of the performer. A computed audience representing cultural judgment generates the keywords, based on machine analysis of the performer's self-described profile of her favorite books, music, subcultures, television shows, sports, films, and foods. The mirror, however, reflects not the performer's 'expressions given' (to echo Goffman), but rather culture's reception of the performer's 'expressions given off'—the mirrors shows you your ethos and location within the space of culture. Even if you insist that you are intellectual, if you love American Football and the move *Top Gun*,
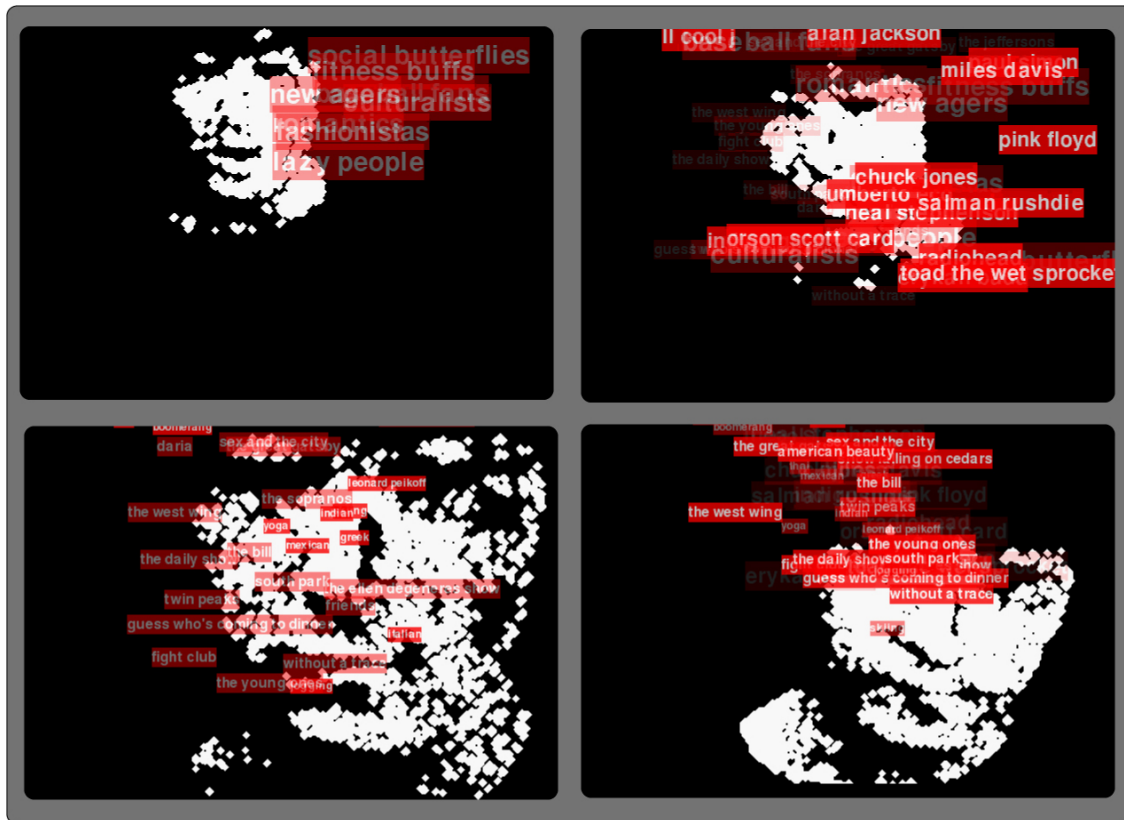
Figures 1a-d. Clockwise from upper-left. As performer approaches the Identity Mirror, his reflection gains descriptive granularity, passing from subcultures (a), into genres and artists (b), into films and albums (c), into foodstuffs, activities, and songs (d).

then your cultural reflection in Identity Mirror will deny your intellect and instead brand your identity with "Republican Party." The judgment of culture-as-audience is not always kind or easy to swallow.

Figures 1a-d depict the swarm-of-keywords format of reflections employed by IdentityMirror. This mode of describing could be variously characterized as hypertextual or intratextual. Keywords constitute a hypertext because of their nonlinearity and because subcultures expand into genres, genres into albums, albums into songs, and so on. A swarm-of-keywords serves also as an impressionistic device, with the sum of its descriptors insinuating a central intratextual thematic—one's identity, or sense-of-situation. Identity's mythic richness can be well preserved through intratextual portraiture—or "thick description," as Geertz called it (1973).

Computing culture-as-audience

Taking Geertz's charge that culture be 'webs-of-significance,' we have computed culture as a symbolic medium—a densely interconnected network of cultural symbols in music, books, film, television, sports, food, and subculture. These symbols span different granularities from the very large (subcultures, music

genres) to medium-grain (musical artists, authors, auteurs, cuisines), to the very small (book titles, songs, sports, food dishes).

The network of cultural symbols was harvested through automated ethnographic data mining from social network profiles. The companion papers *Unraveling the Taste Fabric of Social Networks* (Liu, Maes & Davenport, 2006) and *Taste Fabrics and the Beauty of Homogeneity* (Liu, Davenport & Maes, forthcoming) discusses this process in greater detail. Online social network websites enjoy over 30 million users, each of whom maintains a self-described keywords profile of their favorite things. Individuals expressed their favorite books, films, music, foods, sports, television shows, and the subcultures they identify with in these profiles, and we have used artificial intelligence machine learning techniques to measure the connectedness between each of these symbols, and unravel latent cultural patterns. In fact, our computation examined a hundred thousand personal profiles, and learned all of the numeric affinities between twelve thousand symbols, pairwise—that is, the learned network of cultural symbols has twelve thousand nodes and one hundred forty-four million interconnections.

The cultural fabric is constituted in a rich and complex way such that it has captured not just denotation but also connotation. Every symbol is linked by affinity to each other symbol. Thus, every symbol affords a panoptic view, and can be an entry point into culture; as more and more symbols are specified, the culture neighborhood being alluded to gains specificity.

The cultural fabric is a material, and culture-as-audience's reactions are temporal appropriations of this material surrounding the trajectories of the performer and performance. These reactions should be informed by perspective, mood, and history. The most basal reaction is how the performer appears through culture's eyes. Applying the cultural fabric as a lens or filter on the performer, the performer's profile makes some contextual impression unto the network of interconnected symbols, causing certain symbols and symbol-regions to be activated. The set of cultural symbols which are most energized represent the performer's resonance with culture-as-audience, and this resonance pattern, we suggest, constitutes culture-as-audience's most basic reaction to the performer. Next, we describe how the various performative interplays between performer and culture-as-audience afford other kinds of reactions.

Interplays

The Identity Mirror affords a rich, complex, and evolving relationship between performer and culture-as-audience. We wanted to reify basic metaphors of the mirror, of the stage, and of the audience. From physically dancing with culture, to off-stage performance-as-living-life, to convivial co-performance amongst friends and family, we examine the interplays in this self-reflexive performance, below.

Dancing

A most immediate interplay between performer and culture-as-audience is body movement and physical gesture. Using real-time video tracking, the location and distance of the performer from the display can be sensed. With the performer standing far away, the reflection is comprised of culturally general descriptions (Figure 1a), labeling the performer's silhouette with subcultures, musical genres, book genres, and so on. As the performer approaches the mirror (Figures 1b-d), general keywords fade out, supplanted by increasingly detailed descriptions like musical artists, authors, auteurs, cuisines. When the performer is closest to the mirror, he sees book titles, songs, sports, food dishes, which compose culture-as-audience's assessment of his ethos. Thus, movement toward and away, evoking the back-and-forth footwork to many ballroom dances, allows the performer to physically negotiate the granularity at which culture judges him.

Of the keywords comprising the characterization, some are deeply rooted—deemed by culture as central to the performer's identity, whereas other keywords more tenuously describe the performer's ethos. If the performer is slow and deliberate in her movements, keywords will swim viscously in the interior region of her silhouette, and the tenuous keywords will be visible (Figures 2a-
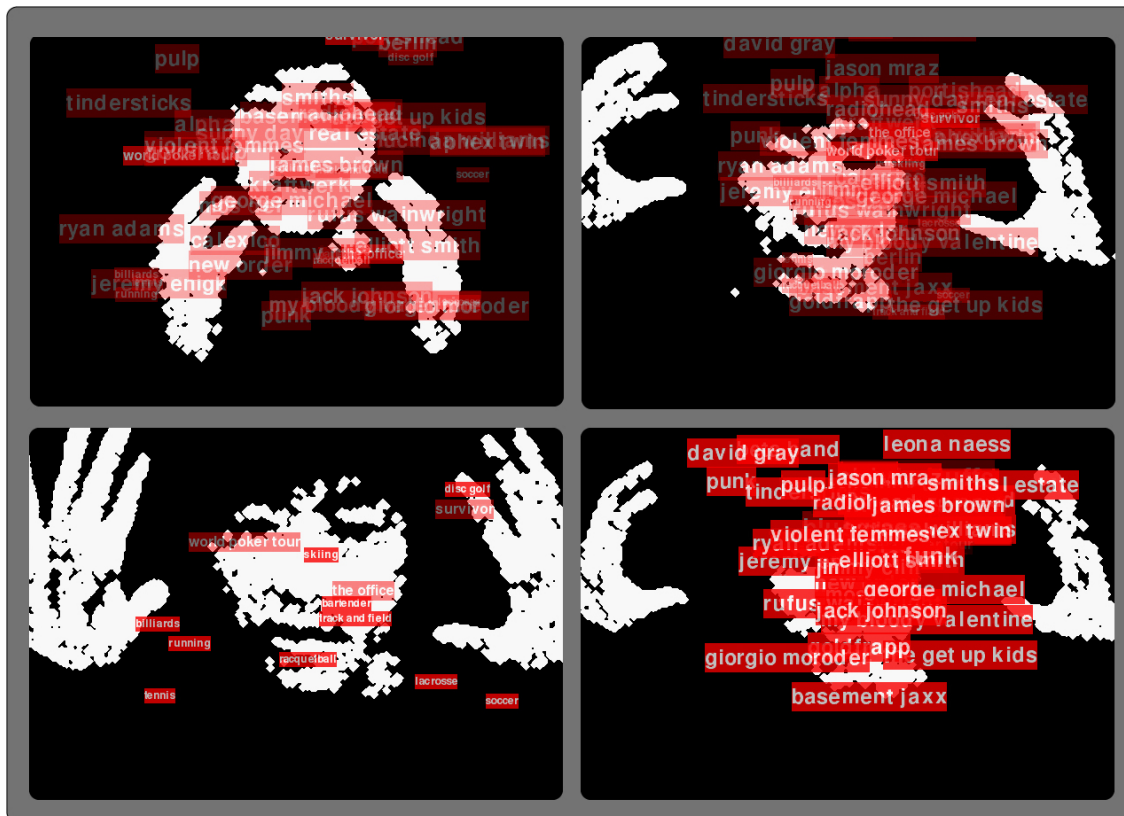
Figures 2a-d. Clockwise from upper-left. From (a) to (c), the performer moves slowly and deliberately, effecting a highly viscous swarm-of-keywords. By (c), even tenuous descriptors are visible. But a dynamic movement in (d) evaporates the tenuous descriptors, leaving only stable descriptors.

c). However, if the performer should jerk or move too quickly (Figure 2d), keywords will bounce around vigorously in the silhouette's interior, and tenuous keywords will not be visible.

A restless audience

As the mood of culture's collective consciousness shifts from one day to the next, a corresponding shift can be felt in the attention faculty of culture-as-audience. Culture's network of interconnected symbols is always in flux. As new connections emerge, other connections atrophy. These cultural shifts take place on a longer time scale. Day-to-day changes are shifts in mood. They are reflected in the energy levels of each symbol on the cultural fabric. When a symbol is highly energetic, it tends to contextually bias how a performer's profile will be interpreted. Aspects of the performer close to the biasing symbol will be more prominent in the performer's cultural identity. To mirror procession of the cultural *zeitgeist* and mood, Identity Mirror applies a machine reader to each day's cultural news feed, extracting hot topics *du jour*, and using those topics to selectively energize and enervate the network of symbols. For example, immediately after September the 11th of 2001, the performer's cultural identity would have appeared much more austere than immediately before that date. As cultural emphasis shifts, so unwittingly does the performer's displayed identity, for identity is always articulated against culture.

Off-stage performance

Viewing everyday life as a continuous performance, it would make sense that performance extends beyond time in front of the mirror. While only active reflection is self-reflexive, unaware actions in the world can still be judged by culture-as-audience. Off-stage, an individual builds a history of choices and behavior, to the extent that those aspects can be monitored and characterized. The individual listens to music, buys books, plans a night out on the town. The next time that the individual is before the Identity Mirror, the complete history of off-stage choices and behavior is remembered and incorporated into culture-as-audience's perspective on the individual.

Off-stage choices and behaviors performed by an individual within a particular context often suggests a facet of their persona. For example, the individual preparing for a Saturday night on the town listens to disco music and browses the Web for social events. Based on her performed acts within this context, culture-as-audience sees her not as her usual self but as a disco queen that night, so her reflection at that point in time is constituted by keywords belonging to her fun and entertaining facet.

Facets and cultural mood shifts, *in toto*, demonstrates how the computation of culture can account for ephemera such as the passage of time, and the shifting spotlight of attention. The reflections shown in Figures 1 and 2 are for the same performer. The reflection in Figure 1 is not faceted or mood-shifted; the reflection in Figure 2 depicts the performer's Saturday-night-disco facet (based on

off-stage performatives like recent music playlist), articulated against the current cultural mood (mined from daily newspapers).

Shadows

Performance casts many shadows, on the stage and over the audience, visibly and affectively. To disintegrate culture for a moment into its innumerable constituent realms, e.g. the world of fashion, the world of literature—each dimension behaves as a surface of sorts. Identity Mirror reifies the metaphor of surfaces and shadows, affording *dancing with shadows* as a further interplay. Whereas cultural reflection aims at a complete account of an individual in culture, dancing with shadows is phantasmagoric. Shadows of the performer against the surface of fashion, of food, or of literature alone are pale distortions of the whole self, but in multiplicity, shadows foment a dramatic nimbus of potentialities about the performer. Identity Mirror displays various shadows against fashion, literature, food, etc. When the performer stands to the left edge of the mirror, a shadow is cast to the right, as a dark swarm of keywords.

Co-performances

If each person amongst a group of friends were performing self-reflection with their Identity Mirror, the horizon of possible interplays would expand. Because a mirror tracks and remembers an individual's history of choices and behaviors, each mirror knows its owner's current disposition. If mirrors could be connected and self-images could be shared with trusted others, friends could cross-dress, 'step into each others' shoes and walk a mile'; lovers could intimate with each other's reflections; and students could learn interact with the point-of-view of their mentors. When self-images are shared, self-understanding makes way for perspective-taking, empathy, and intimation.

    Rather than performing to the broader culture as audience, Identity Mirror also affords performance within the context of other's performances. Convivial co-performance fuses the self-images and moods of a circle of friends, composing a reflection of shared identity. Competitive co-performance highlights the power structure of a group of individuals, allowing individuals to overshadow and upstage each other. One individual's dominance and strength over a particular cultural niche becomes fortified over a period of time. When this happens, the now owned cultural niche will be inhibited in the reflections of other individuals, who must stake their identities elsewhere.

Conclusion (or, performance henceforth)

Lest we forget, self-reflexive performance accomplishes—it cultivates intuition, facilitates self-discovery and self-revelation, and fosters exploration. Self-reflexive performance is in front of culture-as-audience, but the meta-audience to the whole performance is the individual, again. The idea that performance could be justified solely as a personal exploration, by and ultimately for the self,

challenges the traditional motivation that *performance* should be a display for others. As we have betrayed self-reflexive performance's genre, the audience's reaction, though indispensible, remains at day's end an elaborate ploy, and the self—culture agon, merely a self-revelatory foil.

That we are always performing in everyday life, and that there could be a computed audience that is always considering and appreciating these off-stage improvisations, these challenge the traditionally time-limited format of performance, and suggest a new poetics for living.

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