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Eduardo Kac

Networks as Medium and Trope

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In the future much more than the simple defense of nature will be required.

—Félix Guattari, *The Three Ecologies*

Over two decades, Eduardo Kac's hybrid networks have connected in real time disparate and distant elements. They also have offered new insights into art, while leading the artist in 1999 to the literal creation of new hybrid life-forms. By changing habitual ways of seeing and communicating, Kac's networks and transgenic creations continuously challenge our understanding of the "natural" environment as well as the environment of art. They explore what French philosopher Jacques Rancière called the "distribution of the visible, the sayable, and the possible."[1] This chapter offers a brief overview of Kac's development from the early 1980s, focusing on two telepresence works of the mid-1990s—*Rara Avis* and *Time Capsule*. A third focus is the juxtaposition of the artist's 2004 *Rabbit Remix* exhibition and the publication of two anthologies of the artist's writings. In my conclusion, I argue that Kac's theoretical essays constitute an intrinsic part of his networked ecology.

By converging art, science, and technology with communication theory, philosophy, and poetry, the artist produces unusual connections such as those among language, light, and life. Insightful and experimental, Kac's work suggests alternative ecologies neither by denouncing climate change and environmental disasters nor by calling attention to monstrous threats produced by the manipulation of DNA information. The dimensionalities and temporalities explored by Kac's networks—both

human and nonhuman—examine the wider ecological questions posed by Félix Guattari's *The Three Ecologies*, a manifesto that called upon activists "to target the modes of production of subjectivity, that is, of knowledge, culture, sensibility, and sociability."[2]

Prompting a continuum between nature and culture, between species, and among the senses, Kac's work questions the structures, mediations, and ultimately the supremacy of vision in art, while promoting synesthetic experiences that rearticulate individual consciousness within social, cultural, and finally environmental realms. In addition, his work addresses issues of spectatorship by emphasizing participatory action and two-way communication. Kac's hybrid networks of physical and virtual spaces dislocate audiences within environments that examine how vision, touch, hearing, and voice are facilitated and constrained by the structures and mediation of technology. Within his networked environments, dialogical communication among humans, animals, plants, microorganisms, and machines is never given but instead must be construed by participants word by word, frame by frame.

Kac's Twenty-Five-Year Trajectory: Connecting Language, Light, and Life

Never purely visual, always impurely polysemic, and disregarding traditional disciplinary boundaries, the artist's works are neither easy to classify nor to locate. When I first interviewed Kac more than a decade ago, being curious about his fluency in at least four languages (English, Portuguese, Spanish, and French), I began by asking him about his nationality. He answered that his work was not about location but connectivity: "I prefer not to be bound by any particular nationality or geography. I work with telecommunications, trying to break up these boundaries."[3] For him, identity and location are never fixed but vectors in the production of subjectivity that his work explores.

Kac began his career in Rio de Janeiro with wildly transgressive poetry performances on Ipanema Beach (1980–1982). In 1983, seeking to create a new language for poetry out of the fluidity of light, the artist found in holography a new medium for art making. His holopoems (1983–1993), which use light as an immaterial writing environment, depend on the location of the body of the viewer in space for the construction of their syntax and semantic meanings. Kac approached holography as a time-based medium, where both the eyes and the whole body of the viewer are activated.

Parallel to his holopoems, since 1985 Kac has been exploring communication at a distance in complex interactive works connected via

telecommunication systems—at first videotexts, videophones, and telerobotics—then through more complex networked events taking place on the Internet. In these telepresence works, communication was not only mediated by hardware and software but was negotiated among multiple participants, not always human, often of different species, such as in his 1994 *Essay Concerning Human Understanding*, in which a dialogue took place through the network between a plant in New York and a bird in a gallery in Lexington, Kentucky. Many viewers were skeptical. Was the work a practical joke? Could a real phone dialogue take place between a plant and a bird? Was this a poetic metaphor or a real and literal conversation?

Actual communication involving not only different species but also multiple institutional nodes both private and public is central to the artist's aesthetics. Kac's telepresence events emphasize real time over real space, linking humans, animals, plants, and machines in several nodes of observation and participation worldwide. Furthermore, his telepresence events underline the spatial dislocation of vision into multiple points of view. Between Kac's telepresence events with the *Ornitorrinco* telerobot (1989–1996) and the transgenic creations he started in 1999 are a number of complex telepresence installations and performances that expanded the artist's examination of interspecies and remote communication also including human-machine exchanges, such as: *Teleporting an Unknown State* (1994–1996); *The Telepresence Garment* (1995–1996); *Rara Avis* (1996); *A-Positive* (1997); *Time Capsule* (1997); *Uirapuru* (1996–1999); and *Darker Than Night* (1999).

Commenting on a series of telepresence works created with his telerobot *Ornitorrinco*, Kac stated: "What the telepresence installation with the Ornitorrinco telerobot is all about is to metaphorically ask the viewer to look at the world from someone else's point of view. It's a non-metaphysical out-of-body experience, if you will."[4] This positional exchange between viewers and the point of view of the telerobot is further expanded in *Rara Avis*, 1996, where the artist employed VR technology and multiple Internet protocols to displace the viewer's gaze into the body of a robotic macaw while turning that gaze upon viewers themselves.

A transitional work between Kac's telepresence events and his bio art is *Time Capsule*, from 1997, in which the artist examined issues of memory and digital archives, that literally entered the artist's body through the implantation of a microchip in his ankle. The chip information was then interactively stored in a data bank in the United States while being simultaneously broadcast on television and on the Web. Like his early performances on Ipanema Beach, holopoems, and telepresence events, Kac's bio artworks continue to explore communication processes, as well

as new ways of seeing, writing, reading, and speaking. Translation and inscription are especially prominent in his transgenic Creation Trilogy—*Genesis* (1999)*, GFP Bunny* (2000), and *The Eighth Day* (2001)—and in the also trangenic *Move 36* (2002/2004).[5] However, since 2004, in his *Rabbit Remix* ongoing series, Kac employs the media reception and circulation of his work across space and time as a new material for art making, thus re-defying and enlarging the concept of network.

Network as Medium: The Examples of *Rara Avis* and *Time Capsule*

As part of his dialogic practice, Kac often forged new venues for his work and thus approached art institutions less as a hardware and container of culture and more as interface, where institutions might function as software, frame, or site—one more node of his ephemeral ecologies. For instance, when in 1996 Kac was invited by Nexus Contemporary Art in Atlanta (now Atlanta Contemporary Art Center) as part of the cultural events surrounding the Olympic Games, that important and large art center only had telephone and fax machines. Kac brought the Internet to their galleries for the creation of the *Rara Avis* installation, which networked the Nexus Contemporary Art to the Internet through three protocols: CU-SeeMe, the Web, and the MBone. In this work, local and remote participants experienced a large aviary from the point of view of a telerobotic macaw placed among thirty live birds.[6]

The VR technology *Rara Avis* employed was state of the art in 1996, and Kac used it to subvert common expectations about immersive technologies. Instead of offering a simulation, he turned the viewers' gaze back upon themselves by projecting in real-time stereoscopic 3-D color images of the viewers in the gallery. The two cameras were located in the eyes of the exotic robotic bird within the aviary. Gallery visitors wearing the VR headset saw from close up the thirty live birds flying, eating, and perched on branches quite close to the camera lenses. They simultaneously saw themselves in the image background, standing outside of the aviary wearing the VR headset, and thus being both inside and outside of the aviary at the same time. Kac summed up this reversal: "In *Rara Avis*, the spectacular became specular, forcing the viewer to see himself or herself through the eye of the so-called exotic being."[7]

While denying users of VR technology the simulated worlds they normally expected and instead offering them a reflective visual experience of simultaneously seeing and being seen, the artist in addition networked the headset images with remote participants on the Web. Participant-

Figure 5.1. Eduardo Kac, *Rara Avis*, 1996. Telerobot, thirty zebra finches, aviary, VR headset, Internet

viewers elsewhere saw on their computer screens the same real-time video images projected inside the VR headset, and if they used their own home cameras and the CU-SeeMe program, they also could send live audiovisuals of themselves, thus seeing and talking to other users. Strange conversations took place. As a privileged viewer-participant of *Rara Avis* in three of its exhibition venues (I was present in the gallery in Atlanta in 1996, at the Mercosul Biennial in Porto Alegre, Brazil, in 1997, and as a remote viewer-participant using CU-SeeMe during the opening of *Rara Avis* in Austin, Texas), I experienced firsthand not only the uncanny dislocation of point of view the work promoted for viewers in the galler but also how the Internet stratification and fluctuating traffic patterns produced alternative experiences of the work. During the opening of the exhibition in Texas, sounds and images were being exchanged in real time among remote participants and combined with the voices and images of the viewers and birds in the Austin gallery. My remote reception of the sounds was not always synchronized with that of the images. Fluctuations and delays produced fragmented moving images and disjointed real-time conversations, which at some point included the feedback of my own voice as a ghostly presence in the gallery opening night.

Time Capsule was a more dramatic and controversial, yet equally
bold, network installation and performance. After being censored by
the first venue where the event was scheduled to take place—the Itaú
Cultural in São Paulo—another prestigious venue in the city merely one
block away from the first—the cultural center Casa das Rosas—offered
to showcase the performance and exhibition.[8] The work consisted of a
microchip implant, a live television broadcase, and a simultaneous Web
cast of the performance, an interactive telerobotic Web scanning of the
implant, a remote database registration, and additional display elements,
including seven sepia-toned photographs and X-rays of the artist's ankle
before and after the implant.

The performance-media-spectacle took place on November 11,
1997, when the artist implanted a memory chip in his own ankle in
a gallery exhibition that displayed old sepia family photographs on the
wall (the only images that surivived after his family had to flee Poland
in 1939), thus bringing to the critical forefront of his work questions
of information, documentation, and history, which have always been
connected in Kac's artistic practice from the beginning of his career.
Many journalists with cameras of all sizes filled the gallery document-
ing the microchip bio-implant simultaneously in the print media, in a
live broadcast on TV, through later TV broadcast updates, and on the

Figure 5.2. Eduardo Kac, *Time Capsule*, 1997, Microchip implant, simulcast
on TV and the Web, remote scanning of the microchip through the Internet,
photographs, X-ray.

Web. After the insertion of the microchip in the artist's body, the digital information it contained was remotely retrieved by a scanner attached to a computer, as the artist registered the chip's ID number over the Internet in a databank in the United States.

Time Capsule locates a digital archive—a computer memory unit used to track animals—inside of the artist's body underlying the increasing embodiment of technology: "Scanning of the implant remotely via the Web revealed how the connective tissue of the global digital network renders obsolete the skin as a protective boundary demarcating the limits of the body."[9] In addition, *Time Capsule* occupied many sites simultaneously: the artist's body, the gallery space, the mass media, and the Web, as this memory archive traversed the skin boundary and thus blurred its inside and outside limits.

In a poignant keynote lecture phiosopher Jacques Rancière connected the concepts of spectators, spectacle, theater, and intellectual emancipation. Rancière's words echo Kac's emphasis on a dialogic aesthetics: "Emancipation starts from the principle of equality. It begins when we dismiss the opposition between looking and acting and understand that the distribution of the visible itself is part of the configuration of domination and subjection. It starts when we realize that looking is also an action that confirms or modifies that distribution, and that 'interpreting the world' is already a means of transforming it."[10] By creating experiences where the points of view of observers are dislocated, distributed and unstable, viewers' awareness of their own position in the work may change in the passage from the experience of being an observer to that of becoming observed (by the birds, by Internet participants, by himself or herself through the eyes of the macaw). This complex examination of the act of seeing—which *Rara Avis* and *Time Capsule* promote and distribute among multiple sites—the exhibition *Rabbit Remix* will further extend by orchestrating the global media response that the *GFP Bunny* generated between 2000 and 2004.

Rabbit Remix: The Media as Medium

The media, understood both as the plural of medium, and as the means of mass communication (such as newspapers, magazines, radio, and television), have been explored as a medium by the artist since the beginning of his career. But beyond a few revolutionary and enthusiastic moments such as the one led by the Russian Constructivists between 1917 and 1925 and by the Bauhaus artists, in general the relationship between the twentieth-century avant-gardes and the mass media remained

controversial—from the futurist radio to Orson Welles's famous adaptation of the sci-fi novel *War of the Worlds* in a radio broadcast on the day prior to Halloween in 1938; and from Pablo Picasso Cubist's collages of 1912 to Jackson Pollock's 1949 photo spread on the pages of *Life* magazine and Andy Warhol's profitable engagement with celebrity and commodity culture.

Throughout the 1970s and in many parts of the world, video art began to further close this gap as visual artists increasingly embraced video as an experimental, time-based medium. Nam June Paik's *Global Groove* 1973 anticipated the MTV aesthetics and the Martha Rosler 1975 deadpan performance of domesticity in *Semiotics of the Kitchen* contrasts sharply with the visual exuberance of Mariko Mori's high-tech nirvana-pop videos of the 1990s, as well as with Mathew Barney's ambitious epic *Cremaster Cycle*, completed in 2002. Over the last fifteen years, artists such as Orlan and Stelarc have in different ways been highly skilled in framing their notorious performances as public media spectacles. Others, such as Andrea Zittel, have collapsed the boundaries between art and design by creating their own brand of products. And because of the early media acclaim she received, Cindy Sherman has had to negotiate her media image as another dimension of her identity and numerous self-portraits throughout her career.

Kac's performance is uncommon among artists and theorists, because he is fluent in multiple languages and fields of knowledge, ultimately influencing the history of new media as well as participating in the theoretical discussion that his work generates. Besides being an accomplished researcher and writer, Kac has always articulated the experience of creative work with aesthetic theory. Among the few artists who can lucidly speak about aesthetic concepts in relation to other disciplines, such as science, technology, and poetry, his voice contributes to debunk the fantasy that studio work does not involve either theory or research, thus grounding his creations both in experiment and debate. Always minding the cognitive structures of communication processes, Kac's networks and writings continuously connect art and life, culture and nature, and art writing and art making. An example is the juxtaposition of the publication of Kac's 1980s' critical writings in his book *Luz & Letra* and his solo exhibition *Rabbit Remix*, which linked the media interventions in Rio de Janeiro by the artist over a period of twenty-five years.[11]

In September 2004, when I arrived in Rio de Janeiro on my way to the 26th São Paulo Biennial, images of Eduardo Kac's *GFP Bunny* were strategically placed throughout the city on three types of advertising displays: illuminated advertising signs mounted above digital clocks/thermometers put on view the enigmatic green bunny, panels at bus stops

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announced his solo exhibit at Laura Marsiaj Gallery in Ipanema, and constantly moving displays rotated images of cultural events in the city, among them Kac's *GFP Bunny* and Bebel Gilberto's new CD. One week later, at the São Paulo Biennial, Kac presented a transgenic installation titled *Move 36*,[12] which was being appointed by the media as one of the must-sees among the 135 artists from sixty-two countries of this mega-event. Interviews and images of his installation appeared in the major newspapers and magazines of Rio de Janeiro and São Paulo prior, during, and after the opening of the exhibit.[13]

Besides being the title of his solo show in 2004, *Rabbit Remix* also titles an ongoing series of works with three phases: the first was the creation of the *GFP Bunny* in 2000; the second was the *Free Alba!* campaign carried out by the artist in 2001–2002; and the third is his ongoing orchestration of the ensuing global media response to this work. The *Rabbit Remix* series extends the discussion of bio art in relation

Figure 5.3. Digital street clock in Ipanema Beach with image of Kac's 2000 *GFP Bunny*, a public intervention in Rio de Janeiro as part of his solo show *Rabbit Remix* at the gallery Laura Marsiaj Arte Contemporânea, Rio de Janeiro, Brazil, 2004 (artwork by Eduardo Kac; photograph by Nelson Pataro; provided by the artist)

to science, ethics, religion, and culture, which Kac continues to address beyond the space of the gallery in many forms such as mass-media articles and interviews, academic books and essays, lectures and debates, and public interventions.

"Information is never found in a pure state. It always implies a point of view," observed Kac in reference to his 2004 exhibit *Rabbit Remix.*[14] An important component of this exhibition at the Laura Marsiaj Gallery was its advertising campaign as a further intervention in the public space of Rio de Janeiro—the scene where the artist first started reclaiming the public space in the early 1980s. The gallery exhibition was comprised of a series of photographs, drawings, a flag, a Web piece, and a limited-edition artist's book titled *It's Not Easy Being Green!* (most of the large photographs are now in the Gilberto Chateaubriand Collection of the Museum of Modern Art, Rio de Janeiro). Kac's remix of the *GFP Bunny* icon, which includes the reappropriation of the media response to his work, both verbally and visually, employs *the media as a medium.*

The publication of Kac's two volumes of collected writings and essays, which stress Kac's performance and voice as an artist-theorist, coincided with his 2004 *Rabbit Remix* exhibition. The first compilation, published in Brazil also in 2004, is titled *Luz & Letra: Ensaios de Arte, Literatura e Comunicação* [Light & Letter: Essays in Art, Literature, and Communication], thus far in Portuguese only. It collects Kac's early articles and essays written between 1981 and 1988 and published in the most important newspapers in Rio de Janeiro and São Paulo, along with an appendix of early projects and sketches. The second anthology, *Telepresence and Bio Art: Networking Humans, Rabbits, and Robots* (2005), compiles articles published in the United States between 1992 and 2002. The subtitle of Kac's 2005 book—*Networking Humans, Rabbits, and Robots*—underlines the artist's radical and hybrid connectivity in which, I argue, the books themselves are constitutive elements.

The articles included in *Luz & Letra*, originally written to discuss and promote electronic art, had a lasting impact. In their visionary originality they are early critical probes at the intersection of art, literature, technology, and popular culture. Written in an elegant, direct, and informative style, Kac's articles and essays challenged established artistic notions, values, and venues. In the Preface of *Luz & Letra*, art critic Paulo Herkenhoff, a former curator at the Museum of Modern Art in New York, stresses the importance of Kac as a theoretician:

> This book is a document which recovers the 1980 decade—a period thought to be lived under the tyranny of painting—as a moment of gestation of new ideas. *Luz & Letra* reveals a

mode of thinking about a contemporary practice in parallel to the traditional processes of artistic production. It points to, in sum, a double cultural state: the degree of discussion of media art in Brazil and the capacity of an artist to critically absorb and interpret the possibilities of technology. Eduardo Kac is a precursor among precursors of media art theory [. . .]. To him the central question, however, was never his own placement in history. On the contrary, his action was always characterized by an intention to alter a system of hierarchies through the rescuing of artists and experiences, which encourage the construction of new negotiating processes about the presence of art in society. From this horizon, artists of interest emerge from their humble and discrete status, from their silence, exclusion, or exile.[15]

The juxtaposition of the publication of *Luz & Letra* with Kac's exhibition *Rabbit Remix* revealed a direct relationship from the beginning of his career among his work, his critical writings, the gallery space, and the mass media. In September 2004, all of these multiple arenas were occupied simultaneously by the glowing rabbit icon as it continued its four-year rapid propagation along with a controversy of unforeseen scale and speed.

Network as Trope: Interpolations of the Artist-Theorist

Like numerous conceptual and performance-based artworks, Kac's networks further erase boundaries between the artwork and its documentation, thus frequently challenge the traditional separation between the artist, the historian, and the critic. Yet unlike much art of the last forty years, Kac is not interested in metaphorical images but in actual experiences that include live and remote communication as well as live hybrid beings (he has created new living organisms specifically for each new artwork since 1999). Given the unprecedented nature of Kac's creations in concert with his clear and articulated writings, my suggestions of his use of network as a trope may indeed deviate from the literal sense the artist privileges in his art making. Nevertheless, the artist's voice—which beyond his works is present in his theoretical writings, lectures, and interviews—clearly constitutes further hybrid interpolations in his networks, pointing out, in addition to the artworks themselves, important philosophical, aesthetic, and critical questions.

While the best artists' writings explore what constitutes medium, both conceptual and creative processes, and institutional context,

increasingly artists have had to fill the gaps left by art criticism.[16] If there is a common agreement in current discussions of art criticism it is the recognition of a general crisis, as foreground by the 2002 *October* group roundtable "The Present Conditions of Art Criticism," by James Elkins's 2003 booklet *What Happened to Art Criticism?*, by Raphael Rubinstein's 2003 article "A Quiet Crisis," and by Nancy Princenthal's 2006 article "Art Criticism, Bound to Fail."[17] As many agree, the expansion of the global art market has paradoxically diminished the ability and interest of critics to make value judgments. Therefore, art criticism has become increasingly more informative and promotional than critical, and art history, for the most part, continues the tradition of lagging behind new media artists' own theoretical articulations.

In the Foreword of Kac's *Telepresence and Bio Art*, art historian James Elkins pointed out: "This is an unusual book, because Kac has participated in the movements he discusses. He is an artist and also, at times, a historian. The combination is rare." Elkins is right in positioning Kac as a historian "at times," because most of the time the artist is a theoretician. In his writings the historical research is at the service of his theoretical argumentation.[18] Kac's 2005 book articulates several new concepts he introduced, such as *telepresence art*, *telempathy*, and *performative ethics.*

Formerly, artists' writings were included within the discourses of art history as source material, but not as authoritative voices. Nevertheless, they continue to disrupt these discourses from within. From Marcel Duchamp's *Fountain* to Kac's *GFP Bunny*, revolutionary artistic practice often exposes art's taboos, biases, and ideological frames. Kac's networks examine how technology-mediated environments structure our perception and cognition. By approaching networks as a medium and trope, that is, by displacing visual perception and the clear location of voice and vision through viewer participation and interpolation in his networks (in which I include the effects produced by the artist's own voice and discursive body of work), Kac places aesthetic experience at the center of philosophical concerns, as a few philosophers also have privileged, among them Kant, Adorno, and Rancière. Kac's networks change the hierarchies and the function of institutions and the clear location of voice and vision among network participants, ultimately including our cognitive understanding of the "natural" within the environment of art.

Notes

1. "Art of the Possible, Fulvia Carnevale and John Kelsey in conversation with Jacques Rancière, *Art Forum* (March 2007): 256–59.

2. Félix Guattari, *The Three Ecologies* (London: Athlone Press, 2000), 49.

3. Simone Osthoff, "Object Lessons," *World Art* (Spring 1996): 18.

4. Kac, *World Art*, 22.

5. All of Kac's transgenic works up to and including *Move 36* are documented in Eduardo Kac, *Telepresence & Bio Art: Networking Humans, Rabbits, & Robots* (Ann Arbor: University of Michigan Press, 2005). About *Move 36*, see also Elena Rossi, ed., *Eduardo Kac: Move 36* (Paris: Filigranes Éditions, 2005), with essays by David Rosenberg, Frank Popper, Didier Ottinger, Linda Weintraub, and Hugues Marchal.

6. *Rara Avis* premiered as part of the exhibition Out of Bounds: New Work by Eight Southeast Artists, curated by Annette Carlozzi and Julia Fenton (Atlanta: Nexus Contemporary Art Center, June 28–August 24, 1996). In 1997, *Rara Avis* traveled to three other venues: the Jack Blanton Museum of Art, Austin, Texas; the Centro Cultural de Belém, Lisbon, Portugal; and the Casa de Cultura Mario Quintana, Porto Alegre, Brazil, as part of the *I Bienal de Artes Visuais do Mercosul.*

7. Kac, *Telepresence & Bio Art*, 163.

8. Patricia Decia. "Bioarte: Eduardo Kac tem obra polêmica vetada no ICI," *Folha de São Paulo* (October 10, 1997), Ilustrada, 13.

9. Kac, *Telepresence & Bio Art*, 232.

10. Jacques Rancière, "The Emancipated Spectator," *Art Forum* (March 2007): 271–80.

11. Eduardo Kac, *Luz & Letra: Ensaios de Arte, Literatura e Comunicação* [Light & Letter: Essays in Art, Literature, and Communication] (Rio de Janeiro: Contra Capa, 2004).

12. Besides the São Paulo Biennial, *Move 36* also was exhibited in 2004 at the Gwangju biennale in Korea and in 2005 in Paris at the Biche de Bere Gallery, September 28–October 26.

13. Among many others, see Caroline Menezes, "Uma nova genética para a arte. Eduardo Kac usa genes para discutir relação entre ser vivo e tecnologia," *Jornal do Brasil* (September 30, 2004), Caderno B, B4; Giselle Beiguelman, "O xeque-mate cibernético," *Folha de São Paulo* (September 19, 2004), Caderno Mais!, 14–15; "A Coelha Transgênica," *Veja Rio* (September 22, 2004), 43.

14. Eduardo Kac's public lecture at the gallery Laura Marsiaj, Rio de Janeiro, September 20, 2004, on the occasion of his show *Rabbit Remix.*

15. Paulo Herkenhoff, Preface of Kac, *Luz & Letra*, 18. Translation mine.

16. The combination of art practice with critical research and writing is about to become even more common in the United States over the next decades because of the upcoming PhD degree in studio art. The question of what constitutes research in fine arts studio education and the role of academic writing in such pursuit is open for debate, while it also points to new connections to be explored among previously unrelated academic fields. See the multiple contributions to this discussion by prominent artists and historians in "Art Schools: A Group Crit," *Art in America*, (May 2007): 99–109. Further examples of accomplished artists who also are critical writers in the United States include

the following: Donald Judd, *Complete Writings 1959–1975* (Halifax, Nova Scotia: Press of the Nova Scotia College of Art and Design, 2005); Andrea Fraser, *Museum Highlights: The Writings of Andrea Fraser* (Cambridge, MA: MIT Press, 2005); Martha Rosler, *Decoys and Disruptions: Selected Writings, 1975–2001* (Cambridge, MA: MIT Press, 2004); Robert Smithson, *The Collected Writings*, ed. Jack Flam (Berkeley: University of California Press, 1996); Joseph Kosuth, *Art after Philosophy and After: Collected Writings, 1996–1990* (Cambridge, MA: MIT Press, 1991).

17. Rosalind Krauss, Benjamin Buchloh, George Baker, Andrea Fraser, David Joselit, Robert Storr, Hal Foster, John Miller, James Meyer, and Helen Molesworth, "Roundtable: The Present Conditions of Art Criticism," *October* 100 (Spring 2002): 200–28; James Elkins, *What Happened to Art Criticism?* (Chicago, IL: Prickly Paradigm Press, 2003); Raphael Rubinstein, "A Quiet Crisis," *Art in America* (March 2003): 39–45; Nancy Princenthal, "Art Criticism, Bound to Fail," *Art in America* (January 2006): 43–47.

18. Further editorial projects by Kac include: Eduardo Kac, ed., *Signs of Life: Bio Art and Beyond* (Cambridge, MA: MIT Press, 2007) and Eduardo Kac, ed., *Media Poetry: An International Anthology* (Bristol: Intellect, 2007), first published as a special issue of the journal *Visible Language* (1996) vol. 30, no. 2.