Aesthetics of Interaction in Digital Art

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5 Case Studies

The aim of this chapter is to show how the artistic strategies, processual characteristics, modes of experiences, and epistemic potentials identified in earlier chapters take on concrete form as features of individual works. The criteria identified will not be addressed exhaustively for each individual work; rather, they should be understood as an open set of instruments that we can use to look at very different works from different perspectives.

The aim of the case studies is not to provide a representative overview of interactive media art. Instead, each of the selected works portrays specific aspects of an aesthetics of interaction in a particularly striking manner. The works deal with strategies of narration and of fictitious communication, with the complex relationship between real space and data space, with forms of bodily interaction and multi-modal interplay, with stimulation of self-awareness and self-reflection, and with the relationship between exploration and expression.

Case Study 1: Olia Lialina, *Agatha Appears*

Olia Lialina's *Agatha Appears* is an early example of Internet art that, in terms of instrumental interactivity, can best be characterized by the notion of simplicity. It has a classically linear narrative structure and requires only minimal activity on the part of the recipient, who remains almost entirely in the role of observer.

Olia Lialina is a Russian journalist, film critic, and media artist. She has held a professorship at the Merz Akademie in Stuttgart since 1999, claiming that "I was not an artist before I became a net artist."[1] Since 1996, she has created various Internet artworks, many of which feature narrative elements and references to film, but also self-referential investigations of the digital medium itself.

Agatha Appears, one of Lialina's first Internet artworks, was created in 1997 while she was a resident artist at Budapest's C^3 Center for Culture & Communication. Márton Fernezelyi collaborated on *Agatha Appears* as a programmer.[2] As of this writing the work can be still accessed at http://www.c3.hu/collection/agatha. However, with advances

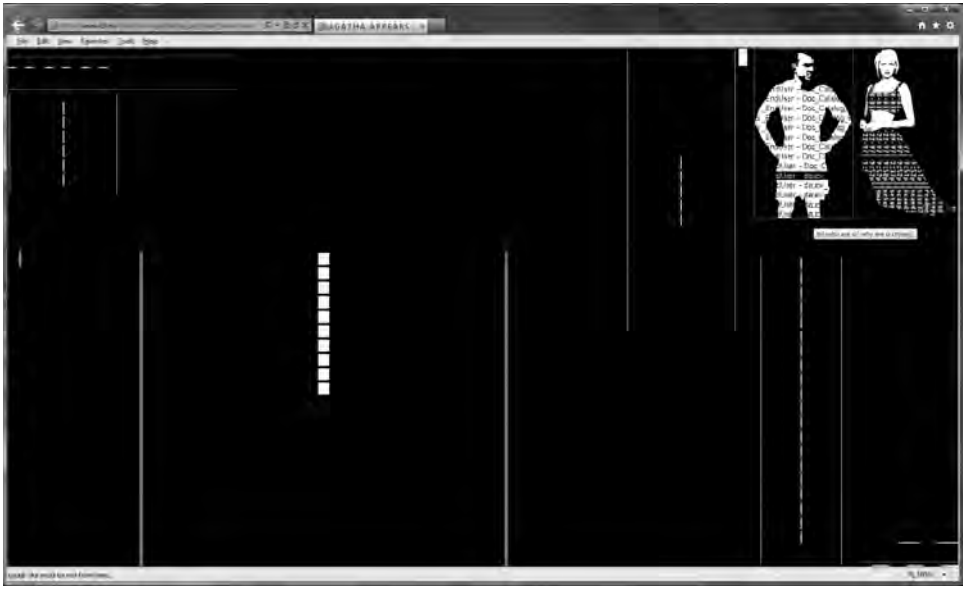

Figure 5.1
Olia Lialina, *Agatha Appears* (1997), screenshot.

in browser technology, it became impossible over the years to activate certain features of the work, and some HTML pages disappeared from the servers on which they had been stored. For those reasons, *Agatha Appears* was restored in 2008 by Elżbieta Wysocka and can now be accessed only in its restored form.[3] The following description is based on repeated realizations of the restored version. In the course of these various activations of the work, I noted slight variations in the responses of the system. These can be attributed to the different browser versions, operating systems, and security settings I was using, but also to local and global network problems. In other words, the steps described in the following will never be identical to other realizations, either before or after the restoration, notwithstanding the broadly linear structure of the work.

Agatha Appears is a graphic story presented on the World Wide Web in comic-book style. The viewer proceeds through the linear sequence of Web pages by clicking a computer mouse. Agatha is a young girl from the country seeking a new life in the city. She happens to meet a systems administrator who has just been fired from his job. The administrator offers to teleport her into the Internet, but his attempt fails. Agatha then travels independently through the global networks until she eventually disappears.

In this work, the browser window serves as a frame within which the story is enacted as if on stage. Linguistic elements appear either as mouseovers (that is, they

appear automatically if the cursor passes over the represented figures) or in the status bar at the bottom of the browser frame. The title page of the work shows a frontal view of the system administrator, depicted as a white silhouette on a black background. The silhouette contains strings of characters reminiscent of a computer program screenshot and is traversed by vertical black stripes, so that the administrator appears to be standing behind bars.[4] When the recipient moves the cursor over this figure, the story begins with a mouseover text: "Once a system administrator was fired from his job." The sentence continues in the status bar: "because some important files disappeared from his network."[5] A mouse click takes the recipient to the first scene, in which lines are used to represent streets. These streets are shown in aerial view, whereas the two main characters are depicted from the front. Agatha wears a bustier and a skirt, both of a pattern that again resembles the display shown on a computer screen. In fact, the names and dates visible on a bright blue background recall the screenshot of an MS-DOS directory structure. Agatha first appears as a small figure in the top right corner of the screen, but each time the page automatically reloads she has moved a step closer to the system administrator. Accompanied by the children's song *Goodbye Jack and Sue*, Agatha gradually becomes larger, lending the depicted space a three-dimensional effect.

The text on the title page had begun the story in the third person, but from this moment on the mouseover texts are used only for direct speech by the protagonists, thus functioning as the equivalent of speech bubbles in standard comic strips. The status bar, by contrast, is reserved for the private thoughts of the two characters. For instance, when the mouseover text shows the system administrator speaking the words "hi, who are u, why are u crying?" the status bar reveals his unspoken thought: "she must not be from here."

Initially, the pages reloaded automatically, but now the recipient must move the narrative forward himself. When he uses the mouse to pass the cursor over an image, the cursor arrow changes into a pointing-hand symbol, indicating (in accordance with standard World Wide Web logic) that a hyperlink is available. In other words, the recipient discerns the operational rules by adhering to Internet conventions. Clicking on the links moves the conversation forward one utterance at a time. The dialogue evolves in short sentences such as "God! Take me away from here" and "HA-HA-HA! Baby, have u heard about the INTERNET?" The only action the recipient can carry out is mechanical clicking, which, paradoxically, is made to seem even more repetitive by the fact that its results are not as predictable as one might expect. In fact, clicking on a figure doesn't necessarily activate speech on that character's part; it may lead to an utterance on the part of the other figure. And occasionally the narrative moves forward without any clicking at all, for the thoughts of the protagonists often appear in the status bar only when the cursor has first moved away from and then returned to the hot-spot area. Because the recipient becomes aware of these structural details only

gradually, such processes are often activated by chance while the recipient is engaged in exploratory navigation or is repetitively and mechanically clicking the mouse. Thus, the narrative is partly driven forward intentionally and partly driven forward in a purely mechanical fashion through trial and error.

The first scene ends with the system administrator inviting Agatha to his apartment the following day, from where he will try to upload her into the Internet. The scene change created by the next mouse click is also evidenced in the address bar of the browser. Whereas previously the URL was http://www.c3.hu/collection/agatha/big_city_night_street.html, now the recipient reads http://www.c3.hu/collection/agatha/next_night_sysadms_apartment.html. The new scene is a frontal view of a room featuring simply sketched ceiling lights and a bed on a black background. Agatha has changed into a dress whose pattern consists of color photographs—seemingly from the mass media—of the faces of two men. This is a classic scene change. It is evidenced by the jump in space and time reported in the address bar and by the new setting and new costumes, and is further emphasized by the replay of the children's ditty.

The two main characters greet each other with a brief "hi." Only the thoughts shown in the status bar shed light on their personal impressions. Whereas the reaction of the system administrator is a pleasantly surprised "she came," Agatha comments to herself on the "awful place." During the conversation that follows, which is once again driven forward by mouse clicks, the two characters gradually move left toward the simple bed image. Although it may seem to the recipient that the story is about to take a different course, the conversation concludes with the system administrator instructing Agatha to jump into the Internet: "so jump." A long, narrow pop-up now appears on top of the browser window, spanning the full height of the screen. This pop-up contains several images of the top half of Agatha's head, repeated one on top of the other for the length of the window. The effect is reminiscent of a filmstrip—perhaps specifically of Joan Jonas' famous video work *Vertical Roll* (1972), in which the artist likewise alienates video footage of her own body by showing it in a vertically projected slow-motion filmstrip. However, the repetition of the images in Lialina's work is static. In a standard dialogue box next to the pop-up we see the error message "No, definetly, your legs are too long." In order for the narrative to continue, one must acknowledge this message by clicking on an OK button. The conversation now proceeds for a time only in this dialogue box, which requires confirmation after each message and contains statements such as "Just a moment, i'll make a shortcut" and "What is error 19?" In the first case, familiar HTML terminology is used as a narrative tool. The second utterance can be interpreted as a response by the protagonist to apparently extradiegetic error messages coming from the system.

During this attempt to upload her, Agatha sees "millions of zeros, laughing and screaming," which she finds "disgusting." Ultimately, the teleportation fails. The

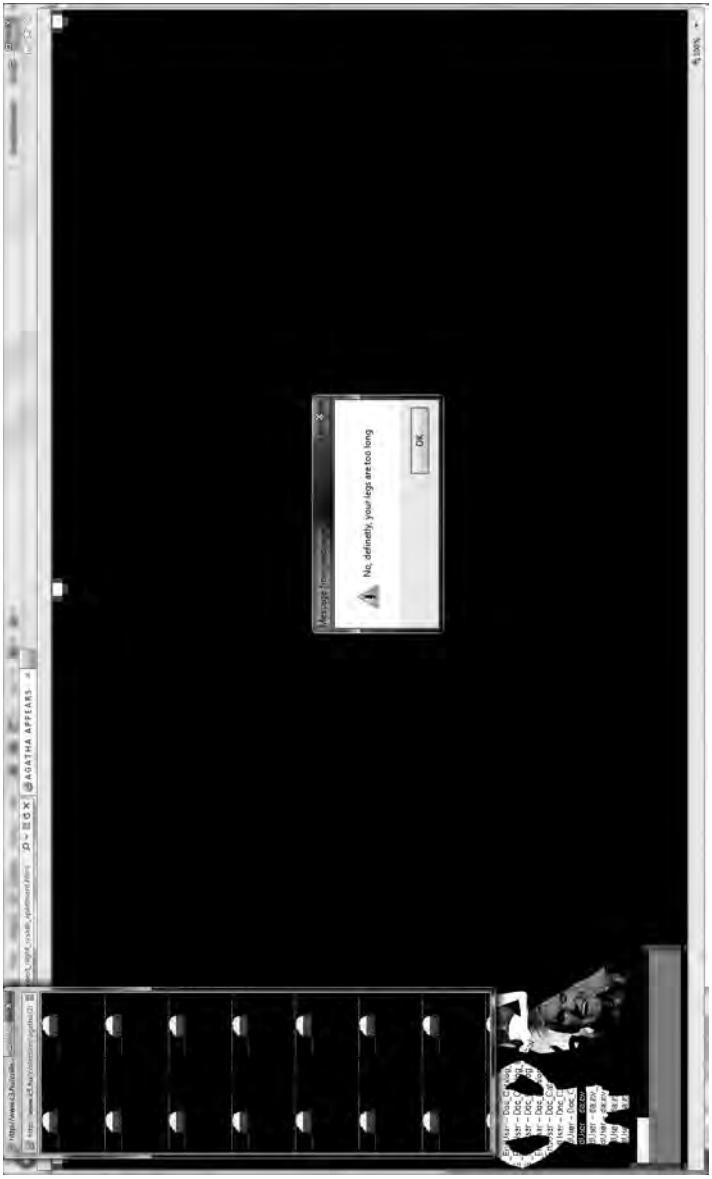

Figure 5.2
Olia Lialina, *Agatha Appears* (1997), screenshot.

recipient can respond to the system administrator's resigned apology ("I'm sorry, it always worked . . .") by clicking either on OK or on Cancel in the dialogue box. If the recipient accepts this apology by clicking on OK, the upload attempt starts again—without ever succeeding. If the recipient decides to terminate the process, the narrative returns to the system administrator's apartment, where he explains that something is amiss with the connection. Agatha suggests meeting the following day at the railroad station. Thus, the story skips to the next scene, which is introduced by the following URL in the address bar:

http://www.c3.hu/collection/agatha/late_evening_railway_station_heavy_rain.html.

The scene is set by means of a simple drawing of a coach indicator displayed in the bottom right corner of the screen. In addition to showing departure times in chronological order, the display also shows the order of first-class and second-class coaches, which are depicted in simple ASCII art. The ASCII characters also appear—alternating with fragments of text—as a scrolling text in the title bar that can be seen as a representation of moving trains.[6] Josephine Berry interprets the setting of the scene in a railroad station as a reference to the "historical springboard of industrialised and bureaucratised travel and romantic film and fiction." The railroad station stands, Berry believes, for traditional forms of travel, although the moving cars might also be seen as an analogy to sequences of frames passing through a film projector. Thus, in Berry's view, the setting is also a reminder of the change from a linear narrative to a "database logic."[7] Thus, in addition to the comic-book analogy and the work's earlier reference to a filmstrip, here a reference is made once again to older (non-digital) narrative media.

Agatha has changed dresses again. Her new dress features a screenshot of an email program. The system administrator now appears twice, once to Agatha's left and once to her right. Via mouseover texts alternating between his two instances, he gives her an introductory lesson about the Internet ("Its not a technology, but new world . . .") before disappearing. Agatha speaks her only lines in this scene ("new world? I want to try"), then disappears, leaving only the black background behind her. The mouseover text now reveals the following: "Bye, if problems—sysads_apartment.4am.html." Another mouse click brings Agatha back (alone), promising "but, I'll come here again." Although the recipient never finds out how the teleportation managed to succeed, he can now see in the address bar that Agatha appears on a new server each time he clicks the mouse. She is traveling the world. Each new HTML page describes her journey in the file names that appear in the bar:

http://profolia.org/agatha/was=_born_to_be_happy.html

http://bodenstandig.de/2000/agatha/cant_stay_anymore.html

http://pleine-peau.com/agatha/starts_new_life.html.

As long as all the servers are accessible, the journey continues until Agatha eventually loses interest (". . . /lost_the_interest.html"). Agatha has now had enough and returns to the system administrator, though not before changing her dress again (the new one is made of ASCII characters): "I'm back again? Where is he? I'll try on my new dress." But the system administrator—depicted sitting behind a monitor in the upper left corner of the screen—shows no reaction. And so Agatha goes to a bridge (. . . /old_bridge_early_morning.html), lamenting "he left me, when i started to love this world." The next mouse click leads to a view of Agatha not just on the bridge, but also—three times—in the water under the bridge. Now, for the first time in the story, text elements take the form of hyperlinks, which appear alternately to the right and left sides of the bridge's central pillar. Clicking on them activates a dialogue (somehow reminiscent of a psychotherapy session) between Agatha and an entity that remains unseen. Agatha's disconsolate observation "Internet is our future! . . . But I am nothing" elicits comments such as "dont say it!!!" and "YOU CAN DO A LOT!!!" and Agatha eventually decides to work in the Internet herself, in the world of teleportation. Finally, the recipient ends up on the home page of www.teleportacia.org, another of the artist's projects, which promises the next episode of Agatha's story.[8]

Agatha Appears is an interactive artwork that offers very limited possibilities for action. All the recipient can do is drive forward a predetermined process—a simply recounted and depicted (audio)visual narrative—with practically no means to influence the course of events. The reason this work was chosen for the first case study is that it helps to demonstrate that interactivity's significance isn't proportionate to its complexity.

Agatha Appears is based on a reactive liveness. It proceeds (only) thanks to the recipient's "clicking ahead" (with the exemption of the first few pages, which reload automatically). Therefore, in purely instrumental terms, it depends on an interactive realization. In addition, the recipient's input, although its action potential is inherently minimal and repetitive, is essential for the aesthetic experience. The mouse clicks determine the mechanics of the interaction. Owing to the necessity of their constant execution, they are central to the aesthetic experience of the work. The mouse clicks turn the two main characters into puppets animated only by the action of the recipient, even if that action is purely mechanical and is comparable to flicking through a flip book. The recipient essentially engages in an act of comprehension, which, however, is not so much a constructive realization as a mechanical one. Nonetheless, the reception relies on this mechanical action, unlike the reception of the linear narrative forms of comic books and films (to which various references are made in the work).

The puppet-show impression is further reinforced by the similarity of the protagonists' appearance to dress-up dolls, and also by the background music, which starts anew each time the scene changes. The simplicity of the interaction, the graphics, and

the music, as well as the repetitions and the rhythms of the work, lend it an almost naive and childlike character. This is reminiscent of the artistic strategies used in pop art, as is the work's homage to the comic-book format. The work also plays with stereotypes from the time-based arts, for example by using theatrical scene changes and by adopting plot lines typical of melodramatic films.

This slightly clichéd style is offset, however, by the exhaustive and technically ambitious use of all the options offered by the markup language HTML at the time the work was created. *Agatha Appears* not only features hyperlinks and mouseovers, but also makes use of the status bar, the address bar, and pop-up dialogue boxes to advance the narrative. The page layout is employed to differentiate between statements that are verbally expressed by the protagonists (shown in the mouseover texts), their thoughts (reported in the status bar), and details about the location and time of the action (shown in the address bar). In this work, the status bar, the address bar, and the dialogue boxes— normally used to provide extradiegetic information—become parts of the diegetic narrative.

When—beginning with the railway station scene—the address bar no longer merely describes changing settings by means of page names, but also documents the repeated moves between the various servers on which the individual pages are stored, the diegetic and extradiegetic levels are being merged. Not only is the recipient being informed as to the protagonist's current location; in addition, the Web page in question is also actually physically located on the server named in the address bar, so that the Internet is presented as a geographically disseminated and referenceable entity. Agatha's journey may be fictitious, but it is also very real, for the artwork itself is stored and accessed on a series of servers located in different countries. Whereas the first scenes reside on the server of the C^3 Center for Culture & Communication in Hungary, the original journey subsequently led to Slovenia, Russia, and Germany—that is, to servers used at the time by the Internet art community, including the Austrian network platform thing.at and the Slovenian platform ljudmila.org.[9] The dialogue boxes also operate on the boundary between technical feedback and narrative fiction. Their purpose in the work (in accordance with the usual function of such windows) is to report errors (such as the failed upload), but their presentation is diegetic. The blending in this work of the diegetic and extradiegetic levels—of fiction and reality—is an excellent example of how materiality and signification can be fused in the digital medium.

The specific characteristics of the medium also determine the graphic layout of the main image area. The background is kept decidedly simple, which allows rapid loading—something that was important at the time the work was created. In addition, the page layout is dynamic, allowing the scenery to adapt to changes in the screen size. Very simple means are used to indicate spatiality, such as the changing size of Agatha's figure at the beginning of the work and the indicative depiction of the settings by means of a few lines. This representation of spatiality is based on traditional

approaches to perspective projection and contrasts with the work's portrayal of the global spatiality of the digital network in the form of data crossing national boundaries to servers located in different countries. In extradiegetic terms, the individual pages of the work are distributed across these servers, while it is thanks to them, in diegetic terms, that Agatha can travel the world.

In contrast to the spatial staging of the background scenery, however rudimentary, the figures themselves are emphatically two dimensional. In fact, their silhouettes, which are reminiscent of dress-up paper dolls being pushed across a stage, remain unchanged for the entire duration of the story. Both of their heads, as well as Agatha's arms, show some internal detail in the form of low-resolution black-and-white graphics, but the remainder of their bodies are simple silhouettes patterned with fragments of screenshots. It almost seems as though the figures have been cut out of the black browser window so that the recipient can see through the resulting holes in the screen to layers lying below or to deeper levels of the system architecture. However, the data structures that become visible have no informational value; they are reduced to purely decorative patterns on fabric.

HTML, the basic markup language for Web pages, is thus exploited to the full, creating a multi-layered flow of information and a complex system of self-referential allusions that stand in contrast to the simplicity of the plot and the formal components. The frame collisions that arise do not result from conflicting possibilities of positioning oneself with respect to the work; rather, they result from interactions between diegetic and extradiegetic elements. However, these interactions must be activated by the recipient, even if he is involved neither physically nor emotionally and his role is reduced to that of mechanical button-pusher. *Agatha Appears* uses interactivity as one of many strategies to scrutinize media-based systems by means of a deliberately simple story. If we were to apply a ranking scale of instrumentality, this work would be located at the bottom rung on the scale of interactivity. Nonetheless, the aesthetics of the work would be entirely different if the story were not interactive at all—if it were to self-load and simply unfold autonomously before the eyes of the recipient. On the one hand, the role of the recipient is in line with the extreme simplicity of the story; on the other, it can be interpreted as the performance of a reception strategy. Similar to zapping from one television channel to another, constant clicking allows one to rapidly skim through information while looking for something interesting. Under the guise of a stereotypical story—country girl meets city geek, is dumped by him, then makes a career for herself—an everyday mode of entertainment is staged. Moreover, the dream of teleportation, which was topical at the time the work was created, is not only represented, but actually realized, even if it is only by a virtual protagonist. At the same time, it is her journey that illustrates the work's moorings in physical reality. Some of the error messages that appear are artificially staged, but the widespread distribution of the pages also increases the likelihood of

real error messages warning of blocked connections or inaccessible servers. The fusion of diegetic and real information flows is one possible way to interrelate materiality and signification and so to constitute the interpretability of the work. The effect of the work on the individual recipient is undoubtedly not the same today as when it was first created, when visions of virtual reality had much greater appeal and even a mere illustration of the possibilities offered by HTML would have fascinated viewers. The effect was certainly also different for Eastern European recipients, who would have interpreted the staging of free travel through the networks as a political statement. However, the work's critical engagement with the aesthetics of mainstream media can be analyzed in just the same way today as in 1997.

Case Study 2: Susanne Berkenheger, *Bubble Bath*

Unlike *Agatha Appears* this work is confusing to a degree that left me—and possibly all other recipients—wondering if I had experienced this work in its entirety and fully

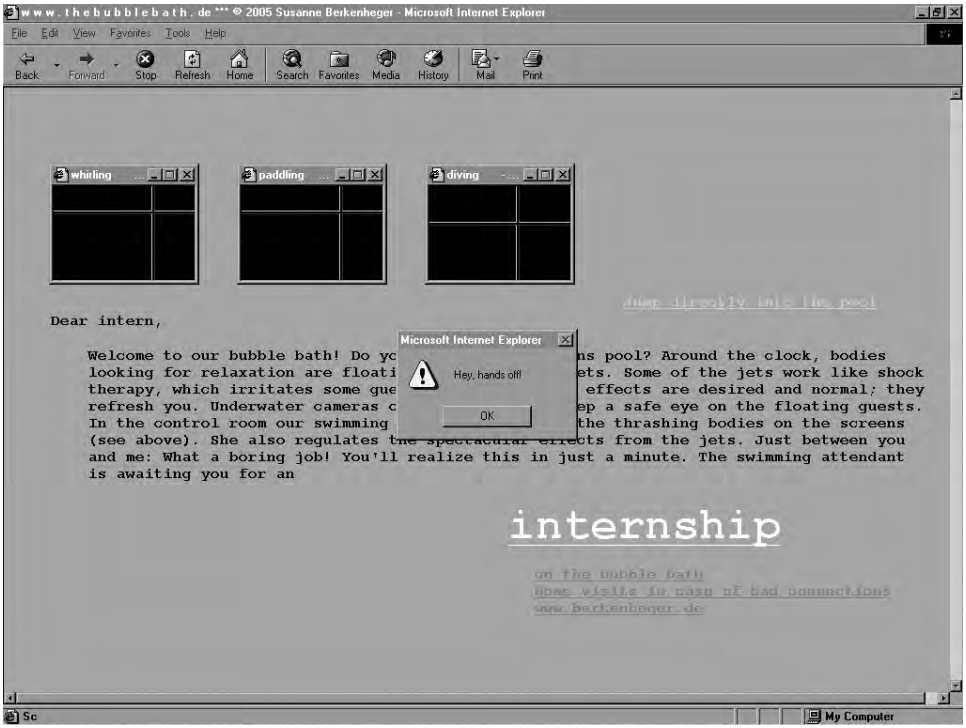

Figure 5.3
Susanne Berkenheger, *Bubble Bath* (2005), screenshot.

grasped its complexity or had actually appreciated only a fraction of its intricacies. A more thorough study of the instrumentality of the work and an effort to better understand its directory structure or to elicit details about it from the artist might, of course, have clarified matters. The reason I did not dig deeper is that the artist herself, in an accompanying text, presented the recipient's uncertainty as a central characteristic of the work.[10] As a result, the work will be described here as I experienced it on several different occasions—up to a level of comprehension that can be regarded as typical for most realizations of the work.

Susanne Berkenheger, a native of Stuttgart, studied literature and subsequently worked as a journalist, in theater, and in digital media. She has created various projects on the World Wide Web since 1997, most of which are deemed hypertext fiction. However, in addition to her "digital" activity, she writes traditional, linear texts and stage plays. Berkenheger's projects examine questions concerning identity and role play, observation and surveillance, and (self-)presentation and communication in the information age. She lives and works in Berlin.

The original German-language version of *Bubble Bath* was called *Schwimmmeisterin* (Swimming Attendant) and went online in 2002. At the time of this writing it can still be accessed at http://www.schwimmmeisterin.de. *Bubble Bath* was created and launched in 2005.

Opening the Internet address http://www.thebubblebath.de leads (after the recipient has been instructed to set the correct screen resolution) to a bright yellow browser window containing the following text:

> Dear intern, welcome to our bubble bath! Do you see the attractions pool? Around the clock, bodies looking for relaxation are floating past pulsating jets. Some of the jets work like shock therapy, which irritates some guests at first. These effects are desired and normal; they refresh you. Underwater cameras on the pool walls keep a safe eye on the floating guests. In the control room our swimming attendant monitors the thrashing bodies on the screens (see above). She also regulates the spectacular effects from the jets. Just between you and me: What a boring job! You'll realize this in just a minute. The swimming attendant is awaiting you for an internship!

The screens mentioned in the introduction are three small blue pop-up windows that open in the foreground. A white cross in constant motion within each window creates the impression that we are looking at tiles on the wall of a swimming pool, as our vision is disturbed by waves in the water. Passing the cursor over one of these windows opens a dialogue box containing the text "Please don't touch the monitors. Leaves grease spots." If we try again, a less polite "Hey, hands off!" appears. In this fashion we are familiarized with the swimming attendant's habitual tone of discourse.

Next, the "pool regulations" appear in another dialogue box. They instruct the recipient to close all windows not related to the work, to hide the task bar, and to turn up the volume. Only after we have accepted these rules with the OK button does the postscript "The rules also apply to interns!" appear. Whereas the instruction to set

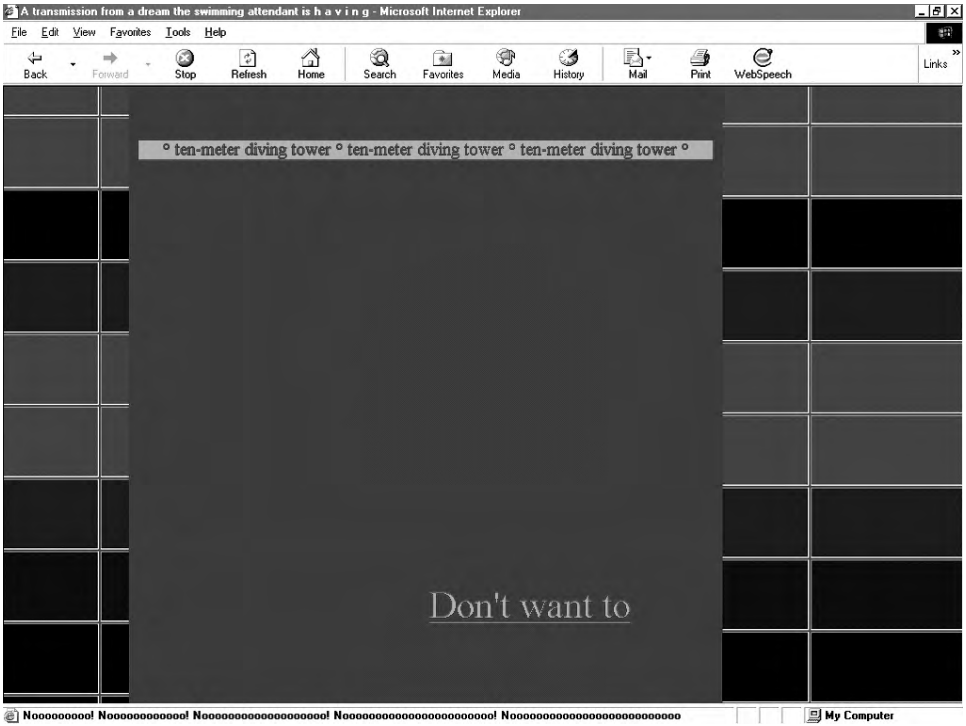

Figure 5.4
Susanne Berkenheger, *Bubble Bath* (2005), screenshot.

the screen resolution was given in advance, and is thus contextualized outside the work itself, the "pool regulations" have a diegetic flavor. If the recipient now clicks on the "Internship" link provided in the introductory text and also confirms the subsequent dialogue box ("Follow me to your employment test!"), a new browser window opens. This shows blue tiles in faster and slower motion on the left and right sides of a divide featuring the question "How rough a sea can you stomach?" The recipient can choose the "right" or the "left" tiles; either way, the internship now begins. First, a broad green vertical stripe appears on top of the moving blue background. This window can be assumed to present an aerial view, insofar as it bears the inscription "ten-meter diving tower." Thus, the recipient is apparently looking directly down from the ten-meter diving board at the water lapping in the pool. A link proclaiming "Don't want to" can be seen jumping around the green area. The swimming attendant is thus represented by a hyperlink which, when activated, does exactly the opposite to the desire it expresses in textual form: Clicking on the swimming attendant's opposition actually amounts to pushing her off the board. However, carrying

out this task turns out to be anything but easy, for catching the shifting link requires dexterity and rapid reactions. Accomplishing the undertaking briefly opens a pink-colored window containing the follow text: "For a moment the swimming attendant stood in midair." The window then gradually diminishes in size until it disappears altogether, leaving the view clear for the tiled bottom of the pool. The recipient is thus watching the swimming attendant falling off, as symbolized by the pink window getting smaller and smaller. This event is followed by the alarming error message "plot.alert (That was it! On the floor of the pool a few ice cubes clinked.)" Happily, however, the text that appears in the following browser window explains that the lack of water in the swimming pool was only a bad dream: ". . . then she woke up. Blinked in front of the whirlpool monitors. With three hickeys on the neck and a harpoon in the locker. At 3 o'clock in the morning." At the same time, new pop-ups appear, introducing new characters: "giggling man, the ignorant," "pool attendant, the trainer," "angry girl, the innocent," "shark75, the demon," "perdita, the desired one," and "bikini strap, the lost one."

Clicking on the part of the text formatted as a hyperlink—". . . then she woke up"—turns the window green, then makes it flicker, then turns it black. New text appears in a font and a format reminiscent of the news ticker headlines seen in television news broadcasts: "+++ the server reports a security problem +++ a distant demon is trying to log on +++ remain calm +++ smoke cigars +++ drink whiskey +++." The recipient is powerless to intervene as more text fragments and hyperlinks gradually appear and are activated by the cursor, which has suddenly taken on a life of its own. He must watch helplessly as a virus called "shark.exe" is loaded, installed, and "smuggled into the guest's system as a swimming object of desire." Gray-toned fade-in comments enclosed on either side by arrow symbols (as used for marking commentaries in software codes) document the reactions of the swimming attendant to these successive events: "<!-- . . . the swimming attendant remained calm. She had dozed off again and was unsuspecting . . . -->."

The recipient must let this scene play out in front of him like a film. The process described here is thus an example of the kind of passage that Alexander Galloway calls "cinematic interludes" in relation to computer games. The recipient's involuntary passivity is especially emphasized in this moment, for if he takes his diegetic role seriously he will feel compelled to intervene. But all he can do is wait until the scene ends and he is returned to the preceding window, which tells of the swimming attendant waking up. If he clicks again on the link ". . . then she woke up," two dialogue boxes appear—"plot.alert (The challenge of her job as a swimming attendant was to stay awake)" and "plot.alert (Her only fun was to tickle the objects of desire with the cursor when they were floating by in shiny bathing suits)"—followed by a new browser window again featuring the swimming pool. The tile structures now slowly move from left to right to the sound of gurgling water, so that the recipient has the impression

that he is swimming. The characters represented by the pop-up windows begin to move.[11] Although it is theoretically possible to navigate within the presented scene, the recipient must behave entirely passively for a short while before the story proceeds autonomously again. This time the wait is not caused by a cinematic interlude in which the story progresses automatically; rather, it is a "wait in real time"—a phase in which nothing happens. Eventually, a new browser window opens in which the swimming attendant asks herself what is going on in her control room. A conversation ensues between the swimming attendant and the shark, driven forward by the recipient through the activation of text fragments marked as hyperlinks. However, this also involves both dialogue boxes and intermittent self-loading browser windows, which—once again as short, cinematic, albeit text-based interludes—drive the story forward beyond the control of the recipient. The swimming attendant and the shark speak directly to one another, accompanied by reports and comments by the narrator. The swimming attendant occasionally addresses the intern—essentially the recipient—who can respond only by selecting one of the available links. For instance, clicking on the word 'swimming' in the statement

> The swimming attendant crossed her legs, grass-green thongs were dangling from them, the apron dress crackled, small sharks were wriggling on it. She hummed, shut the eyes, opened them again. O.K. that is nice of you. But I have work to do. Later perhaps you can come swimming with me, she said, turned squeakily away, fished a bobby pin out of the hairdo and rubbed herself on the neck beneath the unfolding hair.

opens a dialogue box "shark.alert (What are you talking about, swimming, swimming. . . . Let me have a go at it, intern!)"; followed by the self-acting cursor selecting the word "legs" as the "right" link option, which leads to the next text window. Ultimately, the recipient is left with no choice at all. The swimming attendant and the intern appear to be getting to know each other better when suddenly the swimming attendant throws the harpoon at the intern, barely missing him. The shark joins in the exchange again, unnerving the swimming attendant, who wonders whether the intern himself might be the shark. A series of poetic and erotic text fragments are then presented as an interconnected web of daydreams, actual occurrences, and conversations. For example, the swimming attendant sends the following message to the shark:

> I was licking, just imagine, a shark on a stick when I ran across Perdita this evening. The ice cream was dripping and at the same time the droplets froze, thin icicles fell on Perdita's champion neck, where they melted and were searching her body for a way to the heat.
>
> <!-- The swimming attendant's head fell to the side. . . . She dreamed with open eyes, in front of open monitors, in front of an open mail to shark75. She had completely forgotten she wasn't alone. Or didn't she care? -->

In the German version, a further link on "way to the heat" leads to a prompt demanding "Say right now what you're looking for." The recipient is no longer asked

to choose from a limited number of possible links, but now is asked to freely enter text of his own making, which potentially could lead to innumerable more pages and developments. However, my own efforts to enter text only led me (via dialogue boxes containing ironic comments) back to the previous browser window. Clicking on the second link ("Or didn't she care?")—the only available link in the English version—produces a further text in which the swimming attendant protests that she does indeed care about the intern. The shark then butts in again, declaring that he will have to shut off the power for a minute, with the result that all the windows turn black. The situation escalates. The swimming attendant, who has dozed off, wakes with a start, alerts the intern, and tears the door open, allowing black figures to storm the control room. After a few more dialogue boxes, a blood-curdling scream is heard—the harpoon appears to have hit its target. I must, of course, withhold the identity of the victim, especially because, as I explained above, this is a description of only one possible version of this project. However, my various realizations of the German version always led to a dialogue box declaring "shark.alert (high time to work on your traumas! regret and forget!)" and subsequently to a page depicting a bogus flow diagram of the sequence of action. This maze-like image is designated as a "whirlpool of thoughts" and also offers the recipient the possibility of starting all over again. In fact, going back to the beginning is positively encouraged, for the German version, at least, explicitly states that "the remaining and most important three rounds of text" have not yet been experienced. The English version, although it also offers the possibility of consulting the "whirlpool of thoughts" doesn't stop at the mysterious scream, but immediately proceeds into a kind of second round with slightly altered texts and—of course—different victims. The description of the work ends here, which is another way of saying that I eventually conceded victory to the system. Probably like most other recipients, I will have to live with the doubt that I perhaps never made it to the real core of the work or to a possible high point of the plot.

Bubble Bath was published seven years after *Agatha Appears* and has a considerably speedier narrative tempo. Berkenheger also uses all the options offered by HTML, but she uses them to entangle the recipient in an extremely confusing story line. Whereas *Agatha Appears* revolves around questions concerning virtual reality and teleportation, *Bubble Bath* comes from an era when discussions about digital media centered on issues such as surveillance, attacks by hackers and viruses, and asynchronous email communication. However, the work also describes situations that are not shaped by media and yet still concern different levels of (un-)reality or states of consciousness: sleep, dreaming, and drug consumption.

In contrast to Lialina's *Agatha Appears*, the recipient of *Bubble Bath* can often choose between options that lead to different plot developments. Even if most of these prove to be only brief diversions that ultimately lead back to the main story line, the recipient still has the impression that he is dealing with a complex system. He has to make

decisions and mostly receives direct feedback about them, even if the feedback often calls these decisions into question with responses such as "That was a mistake." In contrast with *Agatha Appears*, the recipient is not simply an external observer; he is assigned a role and is often addressed directly. But he is never in control of the situation. Not only does he remain trapped in the various options programmed by the artist; he is unable to guess their consequences in advance. Both the diegetic and the extradiegetic level of the work are characterized by the effects of different forms of heteronomy. The swimming attendant gives orders to the intern, but she is threatened in turn by a shark who has infiltrated as a virus. The recipient has some possibilities for personal action, but he is unlikely to experience a feeling of agency (defined in chapter 4 as the ability to exert influence on the course of a game in a logically comprehensible and relevant way). Instead, most of the recipient's decisions—generally choices between different hyperlinks—are criticized, mocked, or dismissed as irrelevant. The recipient who accepts his assigned role as intern ends up irritated and unsettled. He is not directing the course of the story; rather, he is being unscrupulously controlled and dominated. Voluntary participation, as one of the main characteristics of the experience of art, is challenged here by the power constellations created through the diegetic role allocation. Even though the recipient knows that the context of his experience is the reference system of art, and is thus based on artificiality, it is still difficult for him not to be affected by the rough treatment he is subjected to in his role as intern.

Like Lialina, Berkenheger plays with the options offered by HTML (and complementary programs such as Java Script) for interaction and dialogue, and also with its graphic components, which have become more sophisticated and now allow different forms of movement within Web pages (the lapping of the water, the sudden appearance and motion of pop-up windows, the change in size in the browser window when the swimming attendant is pushed into the water and when she wakes up again, and the letter-by-letter appearance or flickering of text). Media effects are used to portray spatial developments and temporal processes, although neither the protagonists nor the control room (the actual setting for the plot) are shown or are described in any detail.

The different levels of mediality in this work directly concern the recipient's positioning in relation to the work and to the story it stages. Events in a swimming pool are surveilled by means of control monitors presented on Web pages. Events in a control room are described by means of text. People are also portrayed through text, as is their movement (for instance, the representation of the swimming attendant on the diving board by means of the words "Don't want to"). Neither the beginning nor the end of the narrative is clearly defined, nor is the boundary between extradiegetic instructions and the fictional plot. The location given to the recipient as intern is a control room that is neither portrayed nor described. Thus, the recipient's individual space of interaction (his private room or other actual location) becomes the control

room: the recipient's own hardware (his computer or laptop screen) merges with the diegetic control monitor, and real space becomes diegetic space, while the control room symbolizes mediatized everyday life. Just as the control room works well as a metaphor for the oscillation of the project's spatiality between mediality and reality, the temporality of the work can be usefully described in terms of the concept of laboratory time. Repetition is not only possible; it is emphatically desired, for it is the precondition for an in-depth exploration of the system. Meanwhile, the recipient's actions are meticulously recorded—at least, the maze-like history log at the end of the work suggests that such documentation has taken place. Although the narrative follows a story line, the recipient is often brought back to pages that have already been opened, either because the system dismisses the choice of a particular link or because—as in the case of the infiltrating virus—it automatically returns to a previous page after a certain amount of time has lapsed. The work thus presents multiple, nested temporalities. The story involves frequent internal loops and may be repeatedly activated by a single recipient or by multiple recipients at different times. This is in contrast to the clearly advancing diegetic plot, which, despite its potential for repetition, is presented as unique. The tension that builds up in the context of the story, together with the formal dynamic of the work and the constant demand for (pseudo-)decisions on the part of the recipient, can certainly lead to phases of flow, but with constant interruptions. This happens formally when the reactive liveness of the work is interrupted by cinematic interludes. And it happens at the symbolic level as the recipient is made aware time and again that he is denied any kind of agency whatsoever. Ostensibly an actor participating in a communication situation, in this work, too, he is actually no more than a button-pusher, and his experience of the communication is ultimately passive because his responses are imposed on him by the system. As in Lialina's work, this situation invites the recipient to reflect on his own agency in digital systems, but in contrast to Lialina's work it also requires him to constantly take a position on his assigned role in the diegetic world, for the recipient is not only irritated here by instrumental strategies but is also subject to quite substantial provocation in the course of the staged communication.

Case Study 3: Stefan Schemat, *Wasser*

This case study and the next one move us away from Internet art and toward locative art. The works treated in these two studies are based on GPS technology. Both were presented at an exhibition I curated in the town of Cuxhaven on Germany's North Sea coast.

Stefan Schemat lives in Berlin. While studying psychology in the 1980s, he became interested in research on consciousness and in machine-induced trance states. Before conceiving *Wasser* (Water), Schemat had already carried out several artistic projects

Figure 5.5
Stefan Schemat, *Wasser* (2004), site of work.

featuring digital narrative. Some of these, like the project presented here, were media-based events staged in open space for which Schemat used the term "augmented reality fiction."[12]

The subject of this case study is the presentation of *Wasser* at the exhibition Ohne Schnur—Kunst und drahtlose Kommunikation (Cordless—Art and Wireless Communication), held in Cuxhaven in 2004. The work was conceived especially for the Ohne Schnur exhibition and with specific reference to the location in Cuxhaven. The description of the work presented in the following is the result of my deep engagement with the project, which lasted more than a year and which included organizational preparations and discussions with the artist, my experience as a recipient and custodian of the work (which allowed me to observe other recipients and to discuss the work with many of them), and several presentations of the project in written publications.[13] The following description thus results from a realization of a work which is based on my own experiences and reflections, on reports by other recipients, and on discussions with the artists. Like most art-historical descriptions of artworks, it is a cumulative construction.

Visitors to Schemat's *Wasser* are given a backpack containing a laptop computer, a GPS device, and headphones, and are then invited to explore a part of the coastline where the Elbe River enters the North Sea at Cuxhaven. Using the exact location of the visitor as established by the GPS system, the computer plays back different text fragments through the headphones. Together, these make up a story whose content is shaped by the recipient's movement, by the direction in which he walks, and by his endurance in exploring the area. The story line is not linear; rather, it takes the form of a mesh of situations, actions, memories, and observations. The basic framework is a criminal case: a woman has disappeared and the recipient is asked to find her.

The texts range from concrete instructions ("Come on, get going!"[14]), through private reminiscences ("But why did you run away?"), to scientific and philosophical observations about the weather and the underwater world, which often lead into musings about transformation and metamorphosis ("As a shell, I am deaf and blind"). The narrators sometimes appear to be detached observers and sometimes appear to be characters in the story. Occasionally they challenge one another ("Don't listen to the voices!"). The story alternates between fact and fiction and between past and present. It is also closely tied to the landscape in which it is being presented. Aspects of the scenery are mentioned, and observations are made about the weather. Descriptions are given of events that have taken place or could take place in locations that the visitor is passing at that very moment. The landscape thus provides imagery to accompany the text, and the recipient might have the sensation of being in a film—except that he is actor and audience at the same time. The spatial and temporal gestalt of the work depend entirely on the action of the recipient. He determines the work's duration and scope, as well as the order and the pace of the blending of texts and scenic elements that constitute the work. He becomes the conceptual, physical, and executive cornerstone of the work, even though its fictional centerpiece, the missing woman, remains hidden from him.

From the perspective of literature studies, Schemat's work is comparable to a drama. Its use of acoustic media relates it to radio drama, while its non-linear structure equates it with a hypertext. In terms of content, it is a detective story told by alternating narrators. The story has a fixed starting point to which visitors are sent after being given their equipment by the staff working at the distribution station. The boardwalk leading to the starting point is bounded on the left by a wind barrier and on the right by an embankment, so that it is practically impossible to stray from the route. The first text passage is thus the only one that is unquestionably heard by every recipient, and the first sentence immediately creates a link between the temporal and the spatial beginnings of the story: "Every story has a beginning. That is exactly where you are standing right now." A short introduction follows in which the visitor learns that he must assume the role of a blind detective who has been commissioned by phone to find a man's daughter. Accordingly, he is asked to close his eyes. He is told that a detective

Figure 5.6
Stefan Schemat, *Wasser* (2004), site of work.

doesn't believe everything he hears, and is then sent on his way: "Don't ask me how you're supposed to solve the case. Just start. . . . Go on, get out of here!"

However, the recipient is given no indication as to where he should go. He must choose either the long beach with its tidal mudflats, the boardwalk, or the dunes. If he follows the brash order to get moving and begins walking in one direction or another, he will encounter further texts spoken in a male or a female voice. Sometimes he is addressed directly; other times he simply listens in to monologues or stories. Some of the passages narrate concrete events or memories or comment on the situation of the blind detective; others are meta-texts describing meteorological phenomena or liminal situations, for instance the experience of drowning ("The drowning man has no time to marvel at the underwater world"). Although it is not clear whether either speaking voice specializes in particular types of text, direct orders and interjected warnings ("They want to pull you into the ocean!") usually are issued by the male voice. The female voice tends to speak more often of past events (such as her memories of her own visits to the beach as a child) and also makes many of the scientific obser-

vations. Nonetheless, there is no clear assignment of roles, and each of the voices occasionally also speaks the other's more typical content. The allocation of roles among recipient, speakers, narrators, and protagonists is likewise often ambiguous. For example, when a woman's voice says "I need your help right now," it is not clear whether she is speaking to the recipient or to a fictitious person. The same is true when the male voice shouts "Go back!" Likewise, the male speaker, who initially has the role of neutral observer, later becomes emotionally involved himself: "Why do the voices always try to lure me into the ocean?" This example also illustrates how the voices themselves are occasionally addressed as actors. The same is true when the recipient is told "Beware of being distracted [by the voices], open your eyes instead."

The texts form a rhizome of potential links with multiple layers that overlap in several respects and at the same time often contradict one another. On the one hand, there are actual acoustic overlaps between voices, while, on the other, there are overlaps between different narrative perspectives and between different temporal structures. For example, some texts allude to two different times in the past ("There was a moment on the first day when I was standing here, right in this place, and it was as though I had never been here as a child"). The texts do not follow an ideal sequence determined by evident links between one and the next, as in a linear narrative. But there is also no preset branching structure, as in hypertext. There are no hints that would constitute invitations to proceed to another text or offer the option of consciously moving on to one of several further texts. The recipient simply listens to a text or a part of a text, moves forward, and encounters new texts.

No two texts are directly linked, but the artist can increase the probability of a consecutive interplay by means of spatial proximity. The criterion that structures the composition of the texts is the landscape. Thus, it is the recipient who determines how the gestalt of the work evolves in each particular realization by deciding to go to a particular location or to choose a certain itinerary.

The landscape forms an integral part of this project. It is thus not just a text-based (auditory) endeavor, but a multi-sensory work. *Wasser* is a drama based on movement and visual perception. This is why a comparison with film seems appropriate, even if the work doesn't have discrete visual elements or segments—akin to film frames—that the artist could process or arrange in chronological sequence. The artist has chosen only the environment in which the story is supposed to take place and the specific locations in which the different texts will be heard. He has no control over the recipient's decision to go or not to go to the different locations, or over what they will look like at the specific moment when they are visited by the recipient. Likewise, the artist has no means of influencing the recipient's angle of vision or his distance from the object on which he is currently focusing (this might be likened to frame selection), nor can he control the duration of the recipient's gaze or the moment in which he changes perspective (as in film editing). It is entirely up to the recipient which visual

phenomena he turns toward, in which direction he moves, and at which speed he advances. His motion takes the place of the motion of the camera, and his eye substitutes for the lens. Continuing the comparison with film, the recipient's role is closer to that of camera operator than to that of audience. Seen from this point of view, Schemat's work is effectively an implementation of Dziga Vertov's theory of the "kino-eye," which equates the filmmaker—or even the camera lens—with the human eye.[15] Whereas Vertov, notwithstanding his theories, remained faithful to the tradition of pre-recorded and edited film in practice, Schemat's work really is based on the recipient's active perceptual choices. Moreover, these "visual selections" are not conveyed via media, as in film, and are thus not even images in the conventional sense, but are actual landscape—that is, matter put on stage by the artist.

The foundation of the aesthetic experience of the work on physical materiality encourages us, in turn, to investigate the work's relationship to the visual arts. Visual artworks traditionally have a material gestalt and a spatial extension. In terms of materiality, Schemat's work can be described as a combination of software and hardware—as a program installed on a portable computer that accesses stored assets (audio files) and processes data received from a GPS device. The only apparent interface is a set of headphones. The recipient is unaware of the input and receipt of information, which is actually triggered by his movement. Nonetheless, the work does have a spatial dimension—the "immaterial materiality" described in chapter 4 above. In fact, this work's materiality is even defined by means of exact geographical coordinates. Furthermore, just like the space of a painting or a sculpture, *Wasser*'s radius of action features compositional arrangements. Some positions are characterized by a tight sequence or overlapping cluster of audio data, others by counterpoints in the form of short, irritating sentences; still others belong to calmer areas where little information is provided. The texts are arranged spatially, and the distances between them are programmed in advance. Each text belongs to its own zone of fixed range. Nonetheless, the positioning of the texts is always only potential until they have been activated by the recipient. The sound composition doesn't linger in space independently of its reception, like an acoustic space created by loudspeakers or a visual space generated by a light installation; here, the sound only manifests itself the moment the recipient enters the zone allotted to that particular text.

Moreover, the work is not located in a neutral space. On the contrary, the geographical coordinates tie the data to a particular piece of the landscape, which, as a result, becomes a fixed component of the work in a material sense, too. As a mise-en-scène of landscape, the work can be compared to land art. Although Schemat doesn't move huge masses of earth, as North American "earth artists" did, he does incorporate the landscape into his work and thus has a similar approach to those land artists who, instead of altering the environment, give it new meaning through temporary, often performative actions. In Richard Long's *Walking a Straight 10 Mile Line Forward and*

Back Shooting Every Half Mile (1980), the artist walked through a landscape, following strict conceptual rules and taking a photograph every half-mile that recorded the exact view of the scenery at that point.[16] Schemat also stages movements within landscape and draws attention to particular areas of the environment. However, unlike most land art projects, he also ties the landscape into new narrative contexts.

But the landscape also tells its own stories, for the area in which the work is set is extremely diverse. On the one hand, the mouth of the Elbe and the mudflats are scenes of elemental acts of nature (in few places on Earth are the tidal cycles as impressive as here), and many of the texts are devoted to these natural phenomena. But the texts are not simply descriptions that seek to translate visual impressions into spoken word; rather, they contextualize the landscape from different perspectives. They contain scientific explanations, poetic adulations, and narrative adaptations, thus enhancing the experience of nature by means of other, often associative dimensions.

On the other hand, this is a man-made environment. The beach is artificial, a boulder wall protects the shipping fairway against silting. An embankment protects the dry land against flooding. Piers have been built as breakwaters, and wooden fences act as windbreaks. A stone-paved boardwalk, a beach restaurant, and wicker beach chairs are provided for tourists. Some of the texts refer to this aspect of the landscape, for example when the detective is instructed to question passers-by ("So now you can walk down the beach, show people the photo, and ask them 'Have you seen this woman?' "), or when the female voice remembers having been at the beach as a child ("I forget the days in the beach chair, wrapped up in a blanket").

A third characteristic of the landscape is represented by an old sea buoy and an abandoned harbor. These can be considered a reminder that shipping has long been an important contributor to the economy of the region. At the same time, they also testify to the historical evolution of shipping. The small harbor is no longer in operation, the buoy is no more than a symbol, and shipping nowadays relies on ultramodern radar technology. Schemat's texts do not explicitly mention shipping, but the recipient is constantly exposed to related technology. The sound of an ocean sonar is heard at regular intervals, almost subconsciously weaving the very heterogeneous texts together. These sounds also evoke a mysterious atmosphere that is well suited to the story of the missing woman.

Schemat chose this location for its ambiguous environmental characteristics. Here natural phenomena, tourist life, and nautical references come together. He used the positioning of the texts to call attention to certain sites, but he did not modify the environment in any way. The sounds and the texts add an extra layer to the landscape, enriching it with stories, explanations, associations, and memories. The landscape and the texts thus become a fabric woven from reality and fiction that constantly blurs the boundaries between documentary description and physical presence, on the one hand, and poetic atmosphere and narrative fantasy, on the other. It would be a mistake

to conclude that the fictional texts are anchored in reality by the actual landscape. On the contrary, the texts often seem to transform the landscape into a world of association colored by metamorphosis and ambiguity.

If the recipient were to follow the diegetic instructions literally, he would never see any of the scenic elements, because he is addressed from the outset as a blind detective and instructed to close his eyes. Though it isn't likely that any recipients follow this instruction for any length of time, envisioning its consequences brings other components of the work—all the sensory impressions not transmitted visually—to our attention. As an object of haptic experience, too, the landscape offers a multitude of different stimuli: the materialities of water, sand, mudflats, stone and concrete, grass and wood can be sensed in all their heterogeneity. Not to mention the wind, which is a characteristic feature of the area. Even the recipient's olfactory perception is stimulated in many ways—by scents that range from the salty intensity of the sea air to artificially perfumed sunscreen. The possibility of sensorimotor experience thus constitutes another important level of the aesthetic experience of this work. As was mentioned in chapter 1, this kind of experience has become a focal point of the visual and performing arts since the middle of the twentieth century. At the latest since Allan Kaprow filled the courtyard of an art gallery with old car tires (in his 1961 work *Yard*) in order to heighten the sensitivity of visitors for the aesthetics of bodily sensations, artists have continued to seek to activate multi-sensory perception.

The interweaving of landscape and fiction in each individual realization of *Wasser* is governed by a complex interplay of different rule systems. The instructions given to the recipient when he is handed his equipment are simple and rapidly articulated: He should put on his backpack and his headphones, walk in a certain direction, remain within the bounds of a specified area, and bring back the equipment within two hours. As was explained above, the recipient receives his first diegetic assignment at the point where he hears the first text passage—the task of looking for the missing woman. His role—that of the blind detective—is also explained to him at that point. Both of these instructions—the extradiegetic directions given by the assistant at the distribution station and the diegetic task given in the text—can be characterized as operational rules. At this point, the recipient has already managed to extrapolate another rule—that he must go to certain locations in order to hear further text passages. However, this rule can also be considered a constituative rule—a part of the logical structure of the work. The underlying logical structure of the system leads to a specific text being played as soon as the GPS device supplies a predefined coordinate. There are other, more complex constituative rules: tolerance values that define the radius of the sound zones, and settings that determine what happens if, for example, the recipient moves while a certain text passage is still being played.

The operational and the basic constituative rules are thus easily explained. However, what are equally important for the aesthetic experience of the work are the implicit

rules—the unwritten laws of behavior that decisively influence the perception of action, especially when a project is located in a public space rather than in a gallery. These rules are closely associated with the question as to the framework in which the recipient contextualizes his activity. If the recipient accepts his role as a blind detective, he must obey the order to close his eyes, and his first aim—no matter what—should be to look for a missing woman. If he sees himself primarily as the recipient of an artwork, he should commit himself to concentrated perceptual awareness, to reflecting on the artwork, to exploring its structure, and to observing the interplay of the different components, both form and content. However, he should also handle the equipment he has borrowed with care, avoid placing it at any kind of risk, and be careful about returning it on time so that other people will also get a chance to experience the work. If he is mainly interested in the technology that has been used, he will particularly want to explore the programming behind the work. He will repeatedly enter and leave certain sound zones in order to test the reactions of the system, he will try to find the limits of the installation, and he may even be tempted to unpack the technical devices in order to understand the way they work. If he sees himself mainly as a tourist who has come for the beach (who perhaps only passed the lending station by chance and borrowed one of the devices out of curiosity), he will try not to stand out too much and will avoid disturbing other tourists (for example, by coming too close to their beach chairs). However, he will find it difficult to suppress or conceal the materiality of the technical system, for Schemat has no interest in technological transparency. Both the backpack that contains the laptop computer and the headphones are quite large.

The frames within which the recipient may perceive his own actions are kept consciously open. The artist doesn't prescribe the "right" reception attitude. Accordingly, very few recipients will adhere to a specific frame setting, but a recipient may prefer to switch from one attitude to another. The resulting frame collisions are a major component of the aesthetic experience, which is a consequence not of a sophisticated program but of the positioning of the interaction proposition in public space and of the self-positioning of the recipient with respect to the interaction proposition. Technically, the work is a fixed system. The composition of the texts in relation to the landscape was defined in advance, and every visitor always finds the same texts in the same place. The interaction proposition presets the content, style, and composition of the texts, as well as their location in the landscape; this is a data-intensive, not a process-intensive work.[17] In terms of the ranking-scale classification models described in chapter 4, the kind of interaction enabled by this work is purely navigational. If, nonetheless, the work can be said to be extremely complex, that isn't due primarily to the code on which it is based, but to factors that go beyond its information technology structure—namely the interplay activated by the recipient between the textual world and physical space. In other words, the changing weather conditions and social

circumstances in which the work is realized each time create new contexts for the texts. As a result, the work can be said to have an emergent character, in the sense of a gestalt that becomes concrete over the course of the interaction. This emergence isn't based on the interplay between operational and constituative rules, however; it is based on the interplay between implicit and operational rules and between materiality and interpretability in each individual realization. And yet here, too, there is no agency on the part of the recipient. Although he is assigned a diegetic role, he actually has no freedom to act within the narrative. Although solving the mystery of the missing woman is formulated as a diegetic goal, this is by no means the main factor motivating the interaction, insofar as the recipient is inclined from the outset to ignore a significant feature of the role he has been assigned—the fact that the detective is blind. Thus, the fictional goal is not—or at least not necessarily—crucial for the activity of the recipient.

While exploring a narrative structure, the recipient has to adopt a position with respect to different possible social roles, trapped as he is within a state of oscillation between reality and fiction. It is nearly impossible to experience the interaction as a seamless process, for complete immersion in the fictional plot, on the one hand or appreciative or critical reception of art, on the other is constantly impeded. It is highly unlikely that the recipient believes he is participating in an actual dialogue, although he is interacting with digital data—in this case with pre-recorded audio files. More probably, he will contextualize the project as a mise-en-scène and will be interested in exploring its structure. Consequently, he may well stray from the apparent goal of looking for a missing woman and instead listen over and over again to the same text passage because it moves him. He may also defy other diegetic rules of the work, such as the requirement that he close his eyes, because he doesn't feel them to be binding. In fact, the work encourages recipients to violate this rule, because, despite the clear order at the beginning to keep one's eyes closed, one is later explicitly encouraged to open them. At the same time, the work constantly prompts the recipient to traverse the boundary from art to everyday life and vice versa. To an external viewer the recipient is no different from any normal person walking on the beach, But the recipient quickly becomes aware of his double role as a walker (i.e., a participant in the everyday life of the health resort) and a recipient of art (i.e., an aesthetic observer of the activities he is carrying out). The ambivalence between the activities of contemplating art and strolling on the beach guides the reception of the work. Frame collisions of this kind are a basic component of the aesthetic experience of interactive art. The recipient is torn between the realization and the refutation of an action and has to decide whether to strictly observe to rules of the interaction proposition or to explore it more freely. This oscillation between identification and reflection contributes to the recipient's becoming aware of his own ambivalent position within the complex fabric of fictional elements, associations, and materialities that the work unfolds.

Schemat addresses the cultural and ecological setting of the North Sea coast as a tourist resort with its own memories and stories, but he also presents it as a scene of physical phenomena and imagined metamorphoses. In this way, he relates the mysterious heterogeneity of the environment to the mystery of a story that likewise interweaves personal memories with descriptions of natural phenomena. At the same time, he contrasts the experience of what is happening in the here and now (the actual presence of both the recipient and the landscape) with the cycles of nature and memories of past events. Schemat's work uses narration and fiction, although these are by no means either linear or seamless. The fact that this fiction is embedded in a real environment, however, means that physical activity is required on the part of the recipient, and consequently also a social self-positioning within everyday life. As in Berkenheger's *Bubble Bath* the emphasis is on the recipient's position with respect to the story. In Schemat's work the recipient's position takes effect within a complex arrangement of layers of reference systems which is substantially shaped by the localization of the experience within the space of everyday life. Not only are spacing and synthesis central components of the interaction proposition (in the sense of a spatial staging and contextualization of the narrative elements); they are also central components of the reception. The reception is accompanied by processes of spatial construction and perception that—just as Martina Löw describes in her sociological analysis of space (discussed above in chapter 4)—concern not only material space but also social space. In this way, reality constitution and interpretability enter into relationship, and the realization of this interplay is at the core of the aesthetic experience of Schemat's *Wasser*. The work takes on form only as a result of the recipient's act of synthesis. The emerging gestalt of the work concerns not only the paths chosen by the recipient and the resulting selection and sequencing of passages of text, but also the recipient's individual construction of interpretability at the boundaries of fact and fiction.

Case Study 4: Teri Rueb, *Drift*

Teri Rueb is a professor of media studies at the State University of New York at Buffalo. Since the late 1990s she has been creating site specific installations and interactive sound walks in both urban and rural public environments. These works invite recipients to explore landscapes of text and sound that have been configured using GPS technology. *Drift*, like Rueb's later project *Itinerant*, is based on literary texts. In more recent works, Rueb created location-based compositions of sound and noise.

Drift was presented at the exhibition Ohne Schnur—Kunst und drahtlose Kommunikation, held in Cuxhaven in 2004, which also featured Stefan Schemat's *Wasser*.[18] Because it depends on tidal flows, *Drift* was not only conceived for a specific location, but also for a specific period of time—the duration of the exhibition. The software

Figure 5.7
Teri Rueb, *Drift* (2004), visitor wandering in Wadden Sea (© Teri Rueb).

was created by computer science students of Professor Zary Segall at the University of Maryland. The computer scientist Erik Conrad assisted with the on-site configuration in Cuxhaven. My description of this work, like my description of *Wasser*, is based on my extensive conversations with the artist, on my own reception experience, and on observations of and exchanges with visitors.

The recipient of *Drift* first visits the distribution station, which is housed in a room provided by the lifeguard service in a building on the boardwalk. Here he is given a small backpack and a set of earphones and is instructed to head into the tidal mudflats of the Wadden Sea. He is also shown the 2-kilometer-by-2-kilometer area he is invited to explore. Unlike the path along the boardwalk that marks the "start" of Schemat's work, in *Drift* the recipient is not asked to follow any particular route across the beach into the Wadden Sea, and therefore the work doesn't have a distinct starting point. The recipient wanders freely through the mudflats. As he roams through this unique terrain, there are long phases during which his earphones remain completely silent and all he hears are the natural sounds of the landscape—the sounds of seabirds, wind, water, boat engines, and his own footfalls on the wet, sandy soil.

Suddenly, however, the recipient hears footsteps that he recognizes are not his own. After a little while, a voice begins to talk about walking, scenery, and journeys. The recipient may hear a complete train of thought, but sometimes the voice breaks off suddenly and the sound of footsteps also slowly fades away. After a while, the recipient hears another text, again heralded by the sound of approaching footsteps and again dealing with the topics of wandering or searching. The texts—fragments from the writings of James Joyce, Thomas Mann, Dante, and other writers—are spoken alternately in German and English; the recipient cannot choose one language or the other. The theme of all the texts is the feeling of being lost or disoriented. For example, one fragment consists of the opening lines of Dante's *Divine Comedy* ("Midway upon the journey of our life, I found myself within a forest dark, For the straightforward pathway had been lost"[19]) and another of a passage from Rousseau's *Reveries of a Solitary Walker* ("and there, stretching myself out full-length in the boat, my eyes turned to heaven, I let myself slowly drift back and forth with the water, sometimes for several hours, plunged in a thousand confused, but delightful, reveries").[20]

If the recipient, having listened to the texts while walking, turns back so as to hear a text again, he will be disappointed. It is nearly impossible to ever find the same text again, although the recipient doesn't know whether this is due to his (possibly weak) orientation skills, whether the text has been lost for technical reasons, or whether its disappearance is a conceptual part of the work. In other words, searching and wandering are not only the subject matter of the texts, but also modes of experiencing the work. Often the recipient is left to roam at length through the fascinating landscape. The complete absence of either physical or narrative landmarks focuses him on himself and on his own perceptions of the environment. When he eventually happens on a text again, it is as though he has met a stranger reflecting on his own loneliness.

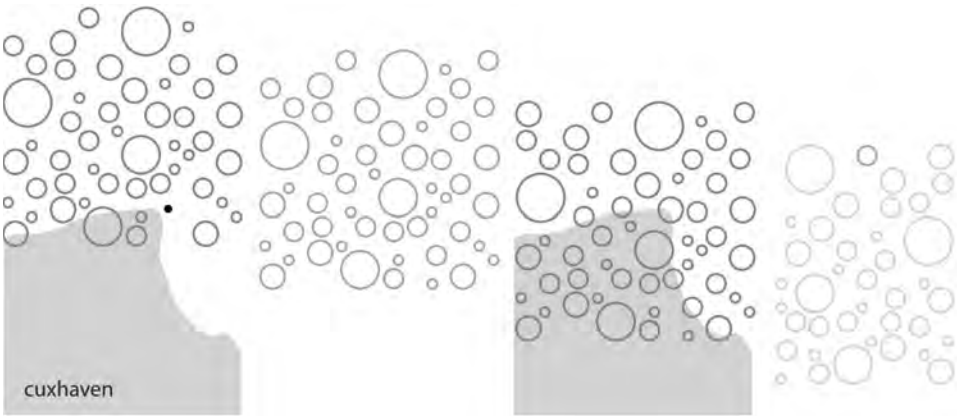

Figure 5.8
Teri Rueb, *Drift* (2004), graphic visualization (© Teri Rueb).

The reason for the ephemeral nature of the texts is revealed in a video projection that accompanies the work[21]: the texts wander across the Wadden Sea in correspondence with the North Sea tides. In other words, the recipient chances upon the texts, all of which may be heard in different locations a few hours later. The transient nature of the data space corresponds to the character of the landscape in which the texts are played, for the Wadden Sea is also in a constant state of change. It is flooded by the incoming tide at regular intervals, only to emerge again in a new guise, shaped each time anew by the weather conditions, the wind, and the ocean currents. The texts and the landscape enter into a symbiosis in which the ephemeral soundscape is interwoven with the cyclical movements of the tides. The temporal structure of the work is thus tied to a rhythm that—as one of the oldest timetables of all—predates man-made time systems. The rhythm of the work places the original cycles of nature at center stage.[22] These cycles have now been studied scientifically, can be forecast almost to the second, and thus can be simulated by a computer program. The wandering assets also present a more recent potential of time, which has been described by Paul Virilio as "delayed time"—stored time that can potentially be activated at any moment. However, in Rueb's work the location of this stored time depends on the tides. The recipient must conform to these cycles, which are dictated by nature and are now taken up by the computer program.

The simulation of the tides by means of the computer program belongs to the constituative rules of *Drift*. These rules are also responsible for the evaluation of the recipient's GPS coordinates, which activate the recorded texts. But the text fragments are not bound in a permanent way to these coordinates, for the allocation of particular texts to particular geographical positions changes constantly. Because the location of the texts is based on the tidal calendar, only an additional query regarding the time of the activation determines which text will be heard at the recipient's current position.

The operational rules, on the other hand, which are conveyed at the lending station before the beginning of the interaction, consist of just a few simple indications. The visitor is shown the area within which he is free to walk, and a maximum borrowing time for the equipment is agreed upon. In contrast with Schemat's work, the operational rules in *Drift* are limited to extradiegetic instructions. The recipient is not addressed directly during the interaction. He is not assigned any role, nor is he given a diegetic goal to pursue. There is also a fundamental difference between the implicit rules of the two works, although both are interactive artworks presented in public space and one might be tempted to assume that they have similar reference systems. The fact that Rueb doesn't assign the recipient a task belonging to a fictional framework means that the recipient is not obliged to decide either for or against taking on this role. Rueb goes even further by not even pretending to present a coherent narrative. The texts, which are literary citations in various languages, are solitary fragments—isolated passages that have been robbed of their original context. Nonetheless, they

have a common theme, and together they create an associative space of potential intertextual relations.

Since the text passages do not address or involve the recipient directly, he finds himself in a role similar to the distanced observer of art, or at least so it initially seems. As a recipient of art, he has certain expectations, which, however, differ considerably—regarding interactive art—from expectations concerning traditional artworks. Interactive art is often associated with the idea of complex and direct feedback processes that are as similar as possible to face-to-face communication. But Rueb's work defies such expectations, for example when she allows for lengthy stretches during which no sounds are heard from the earphones. Like the impossibility of returning to a location in order to listen a certain text again, these silent phases irritate the recipient. I met many visitors who returned prematurely to the distribution point believing that their equipment was defective or that they had not correctly understood the operational rules. It is not at all easy to accept the work as it is and to fill in its gaps (to borrow Wolfgang Iser's terminology, as discussed in chapter 2) in a productive way.

Rueb instrumentalizes the recipient's expectations of interactive art to heighten his sensitivity to the natural sounds of the environment and his connection with nature. Another strategy to achieve this goal is the deception of the recipient's sensory organs, which leads to a deeper perception of central features of the work. The unpredictable alternation between natural noises and transmitted sound bites makes it difficult to distinguish between the two. For example, the recipient may begin to wonder whether he is listening to his own footsteps, to those of other walkers, or to a recording. Such doubts become all the more likely as the recipient finds it difficult to believe that the work really could foresee such long passages without mediated sounds. The recipient knows that the work is based on a technical system, so he expects this system to do something. As a result, he may assess each and every acoustic perception—including the real sounds of the environment—seeking to understand whether or not it is part of the work. This activity of evaluation and questioning, in turn, increases his receptiveness to the feelings of disorientation described in the texts.

The way the work plays with real and fictitious environmental sounds also draws the recipient's attention to the landscape. The illusionistic sound of footsteps increases the recipient's awareness of his own movement, so that his gaze automatically shifts downward to the sand of the mudflats. The Wadden Sea, which is shaped by wind and water and is in a constant state of change, can be understood as a metaphor for our changeable journeys through life and our fleeting perception of space. The Wadden Sea consists of a broad and flat expanse with no prescribed paths or insurmountable obstacles. The experience of not having to follow a specified path but having complete freedom to choose the direction of one's own footsteps is unusual for contemporary man. At the same time, this huge area has an internal structure in the form of countless patterns on the ground. Each day, the wind and the waves sculpt new designs on

the wet, sandy soil. These web-like corrugated structures consist of ridges and grooves that open, merge, and separate again, each time either channeling or blocking the flow of the shallow water lying within them. In *Drift*, this physical structure is overlaid by the mobile network of the wandering citations. The spoken texts create an immaterial land made of stories and thoughts, on the one hand, and data streams, on the other. This land appears to be floating freely, but it is actually bound to the cycles of nature, because it changes with the tides.

As with Schemat's *Wasser*, it is the interplay between landscape and texts—activated by the recipient—that determines the aesthetic characteristics of the work. However, in Rueb's work the links between the landscape and the texts are fleeting and changeable. Drawing on Martina Löw's terminology concerning spatial analysis, the Wadden Sea is a place that resists "spacing"—the construction of space through the positioning of goods or people. If such positioning happens at all, it lasts only a short time before being obliterated. And yet the recipient does construct a spatial structure in his perception, of which the text passages he hears become an integral component. These processes of synthesis must build on memories, and the work becomes manifest as an ephemeral process in constant flux, each individual participant constructing his own relational map of his own movements, the texts he has heard, and the places he has visited. The next recipient will find the texts in different locations. The themes of Rueb's work are the transience of our spatial attachments, our rootlessness, and our disorientation. At the same time, she shows that where spaces are constructed on the basis of perception, ideation, and recall, this process may be governed by images and sounds from our individual memory as well as from external data sources.

Although Rueb's work doesn't construct a fiction, it does feature different levels of illusionism. In addition to the possible sensory deception stemming from the overlap between natural and artificial sounds, Rueb works with an illusion that concerns the technical structure of the work. As described above, the recipient perceives the interaction as a walk through drifting clouds of sound. He appears to be wandering through a mysterious data space. This interpretation of the work as a soundscape that exists independently of its activation is supported by the spatial dynamic of the sounds, wandering with the tides irrespective of visitor actions. Nevertheless, although Rueb strives to keep the required technology inconspicuous, technically the recipient of *Drift* still carries the data space on his own body—in fact, all the sounds are stored on the minicomputer he is carrying around with him. The only direct link with the "Hertzian space" is an integrated GPS device that constantly verifies the recipient's current position.[23] Thus, technically this work is only rudimentarily connected to what Manuel Castells has termed the "space of flows" of local and global data and communication networks (discussed above in chapter 4). Nonetheless, the aesthetic experience of the recipient is that of wandering through streams of sound or text that preexist in Hertzian Space and are rendered audible by the recipient. This experience

is in line with the work's goal of revealing the wandering streams of data and relating them to the constant variability of nature and to our own physical and emotional journeys. Not every form of illusionism in media art must, therefore, provoke its own exposure by means of built-in disruptions. In this case, appearances are maintained, which is, in fact, an important aspect of the work.

Schemat's *Wasser* and Rueb's *Drift* offer entirely different aesthetic experiences, despite the fact that they share the same exhibition site, technology, and core mechanics (walking and listening). Schemat works on a cultural and natural space by describing physical phenomena, imagined metamorphoses, memories, and stories. He sends us into a world that challenges the boundaries between fact and fiction. Rueb takes a different approach. She doesn't choose specific locations; rather, she stages the area as a landscape in which at best only temporary spacings can take place. She addresses this landscape both as a stage and as a metaphor for the challenges posed by the information society by synchronizing the physical experience of disorientation with the acoustic perception of literary texts dealing with that topic. She invites the visitor to actively explore the multiple links between floating data and texts and the rhythms of nature. Both works are based on an ambivalent relationship between materiality and signification. Whereas Schemat relates the landscape to a fictional story and metaphoric descriptions, Rueb presents it in its dual role as a physical location for walking and as an abstract metaphor both for our life's journey and for the challenges of today's information society. Rueb addresses the recipient as a contemplative wanderer whose receptiveness to questions about the goals of our journeys is heightened by the mingling of recorded texts and the real sounds of nature. Schemat immediately places the recipient in a fictitious role and gives him a task that will never be accomplished.

Wasser and *Drift* are based on different types of frame collisions that stage aesthetic experience as oscillations between materiality and signification, between immersion and distance, and between action and reflection. Although both works make use of a technology whose usual purpose is precise navigation and orientation, they nonetheless create an unsettling, disorienting experience. In *Wasser* this leads to reflection on the relationship between fact and fiction and the capacity of media to manipulate, but the primary aim of *Drift* is to encourage more intense self-reflection on the part of the recipient. At the same time, Rueb's work can as well be interpreted as a critical commentary on our expectations regarding the information society in general and media art in particular.

Case Study 5: Lynn Hershman, *Room of One's Own*

This case study analyzes a pioneering work in interactive art in which interaction is staged as real-time communication—or mutual observation. Lynn Hershman is an

Figure 5.9
Lynn Hershman, *Room of One's Own* (1990–1993/2006), installation view at LehmbruckMuseum, Duisburg (photo: Jürgen Diemer, © Lynn Hershman Leeson and Paule Anglim Gallery, San Francisco).

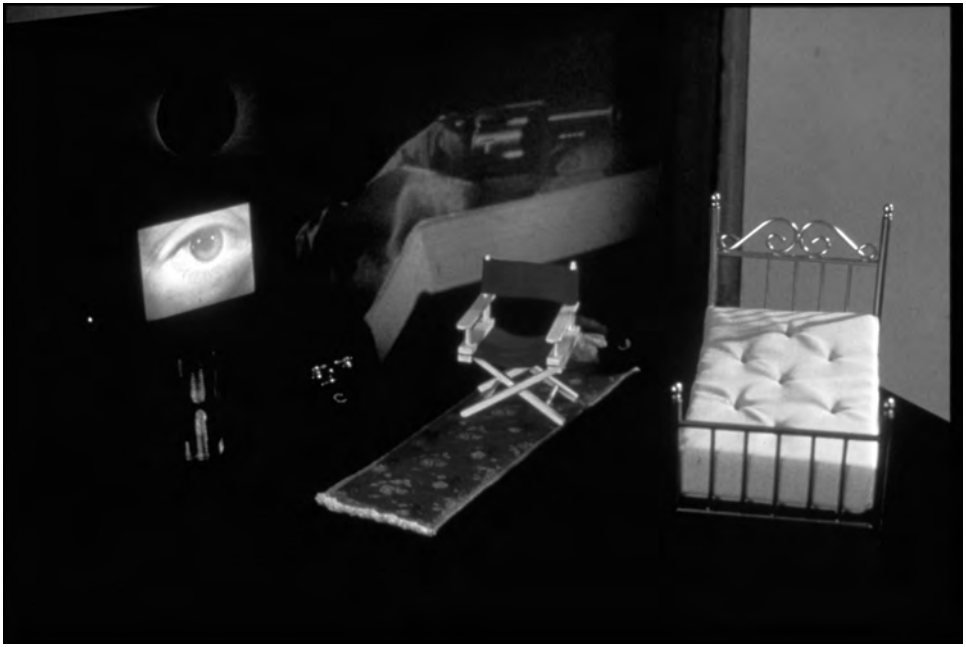

Figure 5.10
Lynn Hershman, *Room of One's Own* (1990–1993/2006), interior view (© Lynn Hershman Leeson and Paule Anglim Gallery, San Francisco).

artist and filmmaker based in California who has been working with new media since the 1970s. Her earlier interactive projects took the form of installations, but nowadays she often conceives Internet artworks.[24]

The interactive sculpture *Room of One's Own* was created between 1990 and 1993 in collaboration with Sara Roberts and Palle Henckel.[25] Four copies of the work were made. One is in the artist's possession; the other three are housed in the Lehmbruck-Museum (Duisburg), in the Donald Hess Collection (Napa, California), and in the National Gallery of Canada (Toronto). All four copies were restored in 2005 by Palle Henckel.[26]

The following analysis is based on personal explorations of the work conducted during several visits to the LehmbruckMuseum in 2007. In addition, I produced substantial video documentation of *Room of One's Own*, which I then used to support my description of the work. After viewing the work, I interviewed Gottlieb Leinz, the curator of the sculpture collection at the LehmbruckMuseum, and visited Hershman in her atelier in San Francisco. I also consulted the documentation of the work kept at the museum, and a 2005 film about the restoration of the work that describes its technical composition and its functioning in detail.

Visitors to the permanent exhibition at the LehmbruckMuseum in Duisburg hear, at irregular intervals, the sound of cheerful whistling, singing, and a woman's laughter. Those who seek the source of the sound end up in a small, slightly hidden room containing a box measuring about 30 centimeters wide and standing at eye level on a pedestal. The front of the box is fitted with a stainless steel cylinder that can be turned by a handle. A rectangular peephole allows one visitor at a time to look inside the box.

Moving closer to the box and peering through the viewing device, one sees a miniature room furnished with a bed, a carpet on which a few pieces of clothing are strewn, a director's chair, a table with a telephone, and a television. As soon as a recipient approaches the viewing device, a film begins to play on the back wall of the miniature room.[27] The protagonist of the film is a short-haired blond woman wearing a red leotard and sitting on a chair that resembles the director's chair in the miniature room. She is looking directly at the recipient. A woman's voice begins to ask questions: "Excuse me, what are you doing here? How did you get here? Would you please look away?" The last question is accompanied by the appearance of a close-up of a face on which the word "WATCH" is inscribed. The image of the blond woman then reappears, and more questions are asked.

The tiny room is bathed in a reddish light. There are small lamps affixed to the ceiling above each piece of furniture. Each time the recipient moves the viewing device so as to bring a particular object into his field of vision, the lamp above it lights up and a new film is played on the wall behind it. For example, when one looks at the bed on the right, the film in the background shows a woman lying on a bed, gripping the bars, and moving so vigorously that the mattress is squeaking. Both the image and the noises suggest that a sexual activity is taking place, although no other person can be seen. The film then cuts to a close-up of the face of the protagonist, who is now lying on the bed.

The film that plays when the recipient shifts his gaze to the carpet also shows the blond woman, this time wearing only underwear, tights, and boots. She looks at the recipient and begins to undress. The recipient is asked what he is doing there and ordered to avert his gaze: "There is nothing in here for you to see. Look at your own eyes in the television."

When the recipient shifts the viewing device further to the left, toward the director's chair, he sees the woman sitting on the chair, as in the initial film, and the questions he hears are similar to those asked at the beginning of the interaction. Once again, a close-up of a woman's face briefly appears, but this time the picture it is overlaid with a crosshair followed by the words "ARE OUR EYES TARGETS?" The subsequent view of the face once again shows the inscription "WATCH." The film concludes with another shot of the woman sitting on the chair.

If the recipient looks further to the left, at the telephone, the film shows the woman interacting on the telephone. Together with her interlocutor, whom the recipient

cannot hear, she appears to be imagining an erotic encounter in a prison cell: "Finally, it's about time you called. It's been two weeks. . . . Well, are you all dressed up again? . . . I guess then we should begin, right? . . . OK? . . . Where are we? . . . Ah, we're in a prison cell." After she has described her clothing to her interlocutor, the film starts at the beginning again. Like all the film sequences in *Room of One's Own*, it is programmed to run as a loop.

If the recipient points the viewing device at the television in the left corner of the room, he sees—as anticipated by the voice—his own eyes on the screen. However, he can still see a film in his peripheral vision. It now shows a woman pointing a gun directly at him and firing.

The five film scenes described here are supplemented by bridging sequences between the middle three films. These are short film excerpts that show the protagonist walking from the chair to the carpet or to the telephone and back again. The visuals are accompanied by brief statements (e.g., "Excuse me, I have to get dressed"). At the same time, the film projection on the back wall of the room shifts from the previous point of view to the new one.

Hershman relates *Room of One's Own* to the kinetoscope, a device (developed in Thomas Alva Edison's laboratory in 1891[28]) that was used to project films that could be watched through a peephole. Hershman recounts that the kinetoscope was often used to show film scenes of seductive women, and that it was the prototype for the peep show.[29] The reference to the tradition of the kinetoscope manifests itself in several ways in *Room of One's Own*—in the media-based apparatus, and in the themes dealt with in the film scenes and in the red-light atmosphere.

However, parallels can also be drawn with a much older tradition of mediated mise-en-scène. The artist's creation of a miniature room that can be observed though a peephole is reminiscent of Dutch *perspectyfkas* (perspective boxes). These devices, which allow viewers to peer through a small eyehole into an interior scene depicted within a box, first appeared in the seventeenth century.[30] They are, first and foremost, vehicles of optical deception, in that they convey the illusion of great spatial depth and obscure the boundaries between three-dimensional built spaces and two-dimensional pictorial representations. At the same time, however, the invitation to observe domestic scenes also thematizes the issue of intrusion into the private sphere. The art historian Celeste Brusati focuses on the specific physical relationship between the observer and the miniature world depicted inside the box. She argues that the artifice of the peephole isolates the viewer's eye and thus creates in him the expectation of privileged visual access to a normally inaccessible world. At the same time, Brusati writes, the eye of the viewer is held captive at the juncture of its own world and the artificially crafted world. Thus, she continues, the *perspectyfkas* illustrate the potential of art to seduce and satisfy the eager eye by offering up a domestic scene and its female inhabitants to the curious gaze of a male voyeur. This interpretation is

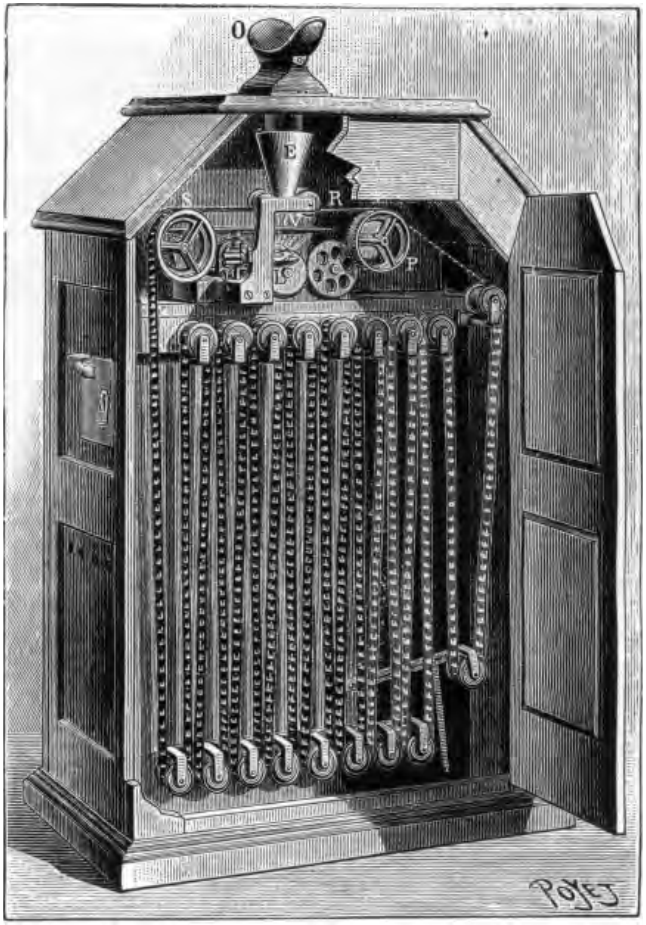

Figure 5.11
Schematic drawing of W. K. L. Dickson's kinetoscope, mid 1890s (source: Wikimedia Commons).

supported by the fact that Samuel van Hoogstraten, the creator of the most famous *perspectyfkas*, often thematized voyeurism by depicting a representative male voyeur inside the box.[31]

Brusati's considerations about the role of the observer can also be applied in many respects to Hershman's work. Here, too, a situation of voyeuristic observation is created using a special viewing device. In physical terms, the observer is both involved and excluded at the same time, and traditional role models are also scrutinized. However, there is no need to portray a representative observer in *Room of One's Own*, for the recipient is directly addressed and confronted with his own voyeurism. In this way,

Figure 5.12
Samuel van Hoogstraten, *A Peepshow with Views of the Interior of a Dutch House* (ca. 1655–1660) (National Gallery, London, presented by Sir Robert and Lady Witt through The Art Fund, 1924).

Hershman's work seeks to reverse the theory of the male gaze as formulated by Brusati, among others.

Hershman combines the principle of the peep box with that of the kinetoscope by showing film scenes on the rear wall of the room. In contrast to the *perspectyfkas*, however, she is not interested in achieving a deceptively realistic transition between the three-dimensional miniature room and the two-dimensional (cinematic) image. An illusionistic blurring of the boundaries between the space of the miniature room and the film sequences to create one continuous scene is prevented by the changes in the size and the position of the cinematic images, in the colors (color versus black-and-white film), and in the sequence of images (insertions of close-ups and text sequences), not to mention the changing clothing of the protagonist. Furthermore, Hershman doesn't seek to create consistency between the space of the viewer and the space of the narrative. Even though the recipient may feel that he is directly involved from the very start, that is not the case for at least three reasons. First, he is looking through the viewing device into a miniature space (as in a *perspectyfkas*). Second, the person he sees is "only" a filmic projection and therefore is not "present" in the room. Third, the voice is not produced by the protagonist but comes from "off stage." The only scene in which the protagonist speaks is the one in which she is on the telephone, and in that scene she is not speaking to the recipient, but to the interlocutor on the other end of the line. But if, in the other scenes, it is not the protagonist who is speaking, how should this voice-over be interpreted?

The recipient (when he is not looking through the viewing device) can clearly see perforations on the exterior of the box, indicating that the loudspeakers are facing outward.[32] The sound is not coming from inside the room, but from the exterior of the interactive sculpture. Consequently, the utterances made by the voice can be interpreted not only as statements made by the protagonist of the film scenes but also as "statements made by the work." On this interpretation, the voice wouldn't belong to the diegetic domain of the filmic fiction, but to the work as an active entity. The work itself would then ask why the recipient is looking at it, and what he expects of it. It would complain that the viewer is annoying and tell him to turn away. Hershman herself provides a clue that supports such an interpretation, although it is rather vague and at the same time somewhat poetic. Hershman explains that she deliberately separated the voice from the film scenes and compares it to the voices of the sirens in Homer's *Odyssey*.[33]

The staging of the situation of the art recipient (who exhibits himself while contemplating artworks) in allusion to a peep show has illustrious precursors in twentieth-century art—especially in the work of an artist that had intensely interested Hershman: Marcel Duchamp. His last work, *Étant Donnés* (1946–1966), is an installation concealed behind a wooden door. Only by peeping through a small eyehole can the viewer see the naked female body lying in the grass behind a destroyed wall. Because of the

disconcerting position of the woman's body, and the fact that it appears to be life sized, Duchamp's installation has a more direct impact than Hershman's media-based work.[34] Nonetheless, the way in which the observation situation is staged in the exhibition space is similar. Both works—like the *perspectyfkas* before them—use their hermetic external form to stage the act of observation. The recipient becomes part of the staging as an actor who can be observed, in turn, by other visitors. All three works, by thematizing voyeuristic behavior, place the observer in an ambivalent situation. Voyeurism is considered to be unseemly behavior. Usually it is carried out in secret because discovery would be extremely embarrassing. By contrast, the viewing of artworks in the exhibition context is a socially accepted, expected, and even appreciated type of behavior. The fact that in these works the recipient is forced to combine the two behaviors in a single action makes frame collisions practically inevitable—he is coerced into an ambivalent experience of the work.

Hershman also turns the tables by contrasting the act of observation *by* the recipient with an active observation *of* the recipient—in both technical and symbolic terms, starting with the possibility of the recipient's being observed by other visitors. If the recipient engages with the work, he is initially enticed, but is then berated, asked for an explanation, and ordered to look away. If he immerses himself in the fictitious world of the protagonist, he should—as a polite fellow human being—immediately leave his place at the viewing device as she has requested. However, if he wants to examine the work in detail—as a conditioned museum visitor—he will have to defy the protagonist and ignore her demands.

This active questioning of the work's status as an exhibit can be analyzed more closely in comparison with yet another media art installation. The video artist Tony Oursler, renowned for exhibiting dolls on whose pillow-like faces he projects filmed images of actors' visages, staged a similar situation in *Getaway #2* (1994). Oursler's protagonist is lying beneath a mattress and appears to be in an extremely difficult situation. And yet her contact with visitors consists only of demands that they leave her in peace and get out of the room, followed by foul insults. But whereas in Oursler's work the encounter between the doll and the visitor is not commented on further, Hershman directly thematizes the implications of observation as well as the conflicting nature of the gaze. On the one hand, the questions of the female voice continuously thematize the observation situation. She doesn't limit herself to simply insulting the recipient; rather, she asks him whether he expects her to do something and whether he would behave in the same way if she were a man. In addition, she lectures him that it would be polite to look away.

But Hershman goes a step further by staging a reversal of the observation in technical terms, too. One of the orders given to the recipient is "Look at your own eyes in the television." If the recipient points the viewing device at the tiny television in the miniature room, he will see his own eyes, images of which are being transmitted to

the screen via a closed circuit. At the same time, in his peripheral vision he can see a film scene projected onto the wall beside the television in which a woman is pointing a gun directly at the viewing device—and thus at the recipient—as though she intends to shoot him in the eyes.[35] A shot rings out and a pane of glass shatters. In other words, as soon as the recipient looks at himself, he is attacked. This is the culmination of what was hinted at in the inscriptions on the film sequences accompanying the director's chair. As has already been recounted, a close-up of a face with the inscription "WATCH" was followed by a still in which another close-up was overlaid by crosshairs and the words "ARE OUR EYES TARGETS?" Thus, eyes are addressed here not only as a means of observation, but also as its target. In this way, Hershman demonstrates that every observer is potentially also being observed: "[T]he viewer's 'gaze' both determines the narrative and is captured in the act of surveillance." This is also why she calls the work a "reverse peep show."[36] Margaret Morse emphasizes the gender perspective of this interpretation; she argues that interactivity is potentially the most powerful and the most effective means of surveillance and social control over the user. In Morse's view, the work shows that neither looking through a camera nor looking at a television is one of the power positions postulated by theories of the "male gaze"; rather, both are particularly effective forms of subjugation to regimes of social control. Morse asserts that Hershman's interactive model of subjectivity socialized by media inverts the idea of looking as power into its opposite,[37] while Hershman herself refers to "feminist deconstruction of the male gaze—particularly as it occurs in media."[38]

This "deconstruction of the gaze" is just one component of a multi-layered media-based unsettling of the recipient. The interaction begins with an initial ascertainment of the presence of the visitor. The first effective interactive elements are thus the sensors that determine whether or not a visitor is standing in front of the work.[39] If no visitor is present, the loudspeakers emit the sound of a woman's laughter and cheerful whistling and singing. It is only when a viewer is present that a woman's voice begins to ask questions. In this way, two modes are staged. When it is unobserved and thus "undisturbed," the installation conveys a relaxed, happy mood; only its observation or disturbance triggers the annoyed tone of the questions asked by the woman. The work thus presents two different states: a self-contented state of satisfaction (symbolized by the cheerful voices) and an irritated state of disturbance. And yet this is only one possible description. If one switches from the diegetic perspective to one examining the technical characteristics of the work, the processuality of the system presents itself in a different light. Technically speaking, the difference is between a state of presentistic expectation and a state of recipient-controlled liveness (which begins when the visitor approaches the work). Although the cheerful sounds heard at the beginning by no means—at the symbolic level—represent an invitation to interact, the system is "present." It is waiting for input. Technically speaking, it is ready to interact, although the symbolic level suggests the very opposite.

As soon as the recipient approaches the installation, the presentness of the work turns into a liveness constituted by the interplay between the technological system and the human recipient. However, if one switches perspective once again and attempts to describe the work at a symbolic level, it becomes difficult to characterize the interaction between the protagonist and the recipient as "liveness," just as the experiential mode of communication is relevant here because of its ultimate frustration. What the work is really about is the failure of communication; the theme is mutual observation, perhaps even mutual mistrust.

Room of One's Own illustrates that the instrumental design of interactivity doesn't have to comply with the way interaction is staged diegetically. On the contrary, it is the very difference between instrumentality and signification (in this work, a clear contrast) that creates an inherent tension in the work, and that guides the recipient in exploring and reflecting on it.

Moreover, Hershman plays quite consciously with different levels of mediality and reality. The viewer's space is set against the miniature room and the individual spaces of the film sequences; the impression that the protagonist is addressing the recipient directly is called into question by the fact that the voice seems to be coming from outside the room; and the supposed television broadcast is staged as a closed-circuit installation. The artist is not interested in creating a seamless, immersive situation, either in the spatial sense or in terms of a perfect simulation of face-to-face communication.

The fragmentation of the filmic elements into sequences that can be activated separately supports the multi-faceted presentation of the work's theme. Neither the work nor the protagonist is consistent. A range of media are used—images, audio, texts, television, telephone, camera, cinema film—and the protagonist can be seen in different roles, wearing different clothes, and from different perspectives. Even the bridging sequences that guarantee a smooth transition from one visual position to another do not prevent the protagonist from being seen in the following scene in different clothing or from another perspective. Technical continuity and heterogeneity of content are thus in a productive conflict with one another. This is also evidenced by the built-in closed-circuit installation. Not only does it invert the positions of who is observing and who is being observed, as described above; at the same time, the medial transportation of the recipient into the domain of the film images further contributes to the multi-faceted reflection of the media and the human role models, which constitutes the core of this work.[40]

This corresponds to Hershman's approach in general, which doesn't address personality as a homogeneous subject, but as a multi-faceted construct that defines itself through its perception of self and its perception of the Other. Hershman thus also sees as the most important theme of *Room of One's Own* "the explosive effects that are attached to the social construction and media representation of female identity."[41]

The work may be said to belong to the tradition of (optical) apparatuses, which Jonathan Crary has called attention-manipulating media.[42] However, *Room of One's Own* is an artistic apparatus that stages its capacity to manipulate as a critical commentary on contemporary forms of control by media. Hershman's "optical apparatus" actively resists the recipient at both the discursive level and the aisthetic level. The recipient, when he encounters the work's resistance, may simply be amused or may be unsettled, but at the same he is invited to reflect on the (gender-specific) roles of the actors in media-based stagings of communication, be it in "real life" or in an artistic context.

Postscript: What about Virginia Woolf?

The title of Hershman's work is a reference to Virginia Woolf's 1929 essay "A Room of One's Own," in which a private space is used as a metaphor for the intellectual freedom of women. Woolf's essay presents the concept of a room of one's own as something positive—a room in which one can develop one's own character and follow intellectual pursuits. Hershman depicts a different kind of room—a room that is primarily a venue for sex and violence. Although in the main scenes the protagonist is alone in the room, she is intruded on from all sides: by the viewing device, by the telephone, and by the television. It is not clear whether she is hurt in some way by these incursions or whether she sets herself up for and provokes such injuries to herself.

Hershman's work challenges various aspects of female identity, staging, and role assignment, with a particular focus on corporeity and individuality. Although the work also deals with the fragility of the private sphere, Hershman doesn't portray the "room of one's own" as being associated with intellectual activities. Accordingly, Hershman herself sees only loose parallels with Woolf's text and has explained that she chose the title only after the work had been completed.[43]

Case Study 6: Agnes Hegedüs, *Fruit Machine*

Fruit Machine by Agnes Hegedüs is another early example of interactive media art. One of the earliest works to highlight the relationship between interactive art and games, it also stages and scrutinizes basic aspects of social interaction. *Fruit Machine* encourages recipients not only to interact with a technical system, but also to communicate with one another.

Hegedüs, a Hungarian artist, initially specialized in video art. She began to create interactive installations during her studies at the Städelschule in Frankfurt in the 1990s, and continued to do so while working at the Institute for Visual Media at the Zentrum für Kunst und Medientechnologie in Karlsruhe. At this writing, she lives and works in Australia.

Figure 5.13
Agnes Hegedüs, *Fruit Machine* (1991), installation view (© Zentrum für Kunst und Medientechnologie Karlsruhe and Agnes Hegedüs).

Fruit Machine was created in 1991 in collaboration with Gideon May (software) and Hub Nelissen (hardware). It is now in the possession of the ZKM's Media Museum, where it has been exhibited almost without interruption since the museum opened in 1997—usually together with other media artworks, but occasionally in the section dedicated to the history of computer games. In 1993, Hegedüs made a second version of the work, *Televirtual Fruit Machine*, which invites interaction from recipients located in two different places.[44] This case study concerns the 1991 stand-alone version and is based on my observations and experiences of the work during numerous visits to the Media Museum.

A large projection screen shows three pieces of a three-dimensional object floating freely in black space. In front of the screen are three consoles fitted with joysticks. Color filter glasses are provided so that recipients can view the images in 3D. The basic operational rules are thus immediately apparent, and there is a clearly evident objective to achieve: The three pieces must be slotted together like parts of a jigsaw puzzle, and the joysticks will serve that purpose. The deducible shape of the reassembled object (a half-octagonal cylinder) and the very conventional depictions of fruit on its surface bring to mind the rotating reels of a slot machine.

Each of the joysticks is connected to one of the three pieces of the object, which can be moved in all three dimensions. When three volunteers engage with the work together, they usually all begin to move "their" pieces at the same time. But it quickly becomes apparent that this strategy is not ideal, for it is much more difficult to fit three moving objects together than to slot them one after another into an immobile piece. Completing the task thus requires agreement among the recipients, and not just activity, but also requires passivity and patient waiting until it is "one's own piece's turn." Several observations of recipients engaging with the work revealed that one

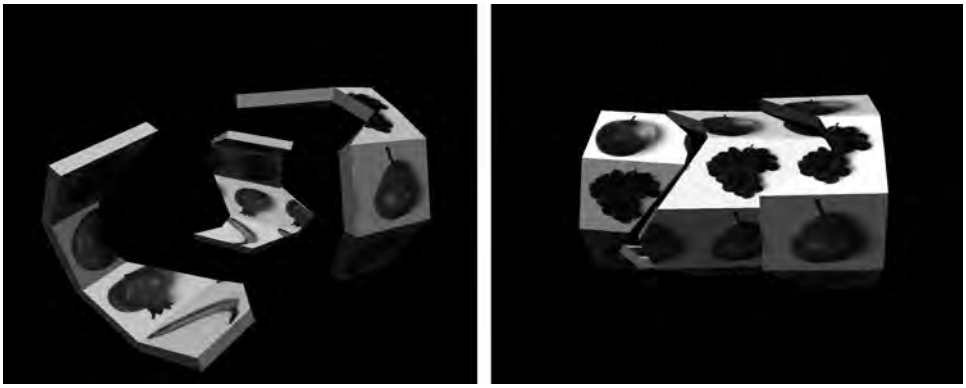

Figure 5.14
Agnes Hegedüs, *Fruit Machine* (1991), projection details (© Zentrum für Kunst und Medientechnologie Karlsruhe and Agnes Hegedüs).

participant often took charge of the proceedings, occasionally even taking the place of others in order to help them. When the recipients succeed in fitting the parts together, the half-cylinder disappears from view and a cascade of congratulatory coins fills the screen.

Fruit Machine has a minimalistic appearance; it has no particular spatial context and is not embedded into any kind of narrative. The material setup in the exhibition space is purely functional and is spatially quite independent from the virtual half-cylinder, although the 3D animation techniques are intended to create the impression that the cylinder is floating in the room. The work's simple appearance may be attributable primarily to its very early date of origin, but it is also conceptually interesting from today's point of view because it clearly pushes the process of interaction to center stage. The minimalism also gives a special significance to the jackpot moment, which may be stereotypical in its manifestation, but is nonetheless rich in detail, dynamically filling the entire screen. The jackpot creates an element of surprise, similar to the coveted moment at a slot machine when a win is rewarded by a shower of coins. Compared to the rest of the graphics its visual impact is truly spectacular. The jackpot moment also receives special attention because it is the only cinematic interlude in this otherwise entirely reactive work. In this process-intensive project, the joysticks immediately signal that the system is present and awaiting input. In the absence of input, the pieces remain frozen on the screen. The work's minimalistic visual appearance thus places the focus on the process of interaction itself and also reinforces the contrast with the more sophisticated visuality and cinematic quality of the jackpot.

One might, at first, be inclined to classify *Fruit Machine* as a normal computer game. According to Salen and Zimmerman's definition, a game is a system in which players engage in an artificial conflict that they seek to resolve while abiding by certain rules, and the solution must be a quantifiable outcome (in other words, its accomplishment must be clearly recognizable to all players). *Fruit Machine* is also based on a conflict—a task to be solved, where the required outcome is plainly evident. The broken object must be pieced together again, and the arrangement of the installation indicates clearly that the joysticks should be used to this end. The recipient's scope for action is prescribed by the technical set-up: on the one hand, he must operate the joysticks; on the other, the constituative rules determine exactly how he can use them to move the virtual objects. What remains unclear, however, is how the participants should best proceed in order to arrive at the required objective. There is no predefined sequence of actions, nor is there any indication whether or not three visitors must participate at the same time. The negotiation of the best strategy is left entirely up to the recipients.

Although it has much in common with games, *Fruit Machine* cannot be characterized as a ready-made, functioning game that has been taken out of the context of the entertainment industry and exhibited in the context of a media art collection in order

to heighten sensitivity to its structure and workings. If it were a game, *Fruit Machine* would be a commercial failure because the conflict to be resolved is not a conflict between competing players, only one of whom can achieve the defined objective and thus win the game. The task can only be completed through cooperation. And when the goal has been accomplished, the outcome—the reward—is purely symbolic. The work is reminiscent of a pedagogical training program for cooperative skills or of the "new games" movement of the 1970s, rather than of conventional games. The most appropriate characterization seems to be that it is a "test scenario" that allows observation of the negotiation of roles in a communication situation. Whereas Florian Rötzer (who exhibited the work in an early show titled Künstliche Spiele, meaning Artificial Games) argues that *Fruit Machine* is a game displayed in an art context, and that it challenges the reception habits of art, Hegedüs is convinced that it could not function as a game even if it were housed in an amusement arcade. In Hegedüs' view, *Fruit Machine* is an artwork that—in part—makes use of gaming strategies: "In other words, this artwork adopts the operating mode of video games as its own mode of interactivity."[45] Hegedüs sees the thought-provoking potential of the work in the following characteristics: First, she uses traditional elements of games of chance in the context of a game of skill, and thus examines the relationship between chance and strategy. Second, she turns what would normally be a game contested by three players into a cooperative game, and thus provokes reflection on game mechanics: "Contrary to its ancestry, this new fruit machine is not a game of chance but a game of skillful coordination and cooperation between the three players."[46]

The attraction of a slot machine is that the player has a certain feeling of agency in what is, in reality, purely a game of chance. At the same time, the action is rendered appealing by the wagering of money. The only motivation to play is the outcome of the game. *Fruit Machine*, by contrast, has nothing in common with a game of chance. It is based on dexterity and cooperation, and a reward is given only symbolically, or rather the reward consists in the shared joy at having accomplished the task. Rötzer believes that the work could be played "as a game without ever thinking of art."[47] Recipients could, in fact, conceivably focus their interaction entirely on achieving the clearly attainable goal. This is just as true for *Fruit Machine* as it is for other goal-oriented projects presented for reception in artistic contexts, such as *Pain Station* by //////////fur//// or Blast Theory's *Can You See Me Now?* (2001). These works function as games, but then again they do not, because they also counteract certain conditions of games, such as their goal-orientedness, the integrity of the players, and the concept of competition. The distinctive feature of these projects is that they contain disruptions that give pause for reflection.[48]

However, observations of various recipients interacting with *Fruit Machine* showed that the collaboration required doesn't always proceed entirely without competitiveness. In the exhibition context, the actions of the players take place in public and are

often observed by onlookers. The recipients' participation becomes a performance in which the collaboration is negotiated in the public space, active and passive roles can be assumed, and destructive or domineering behavior is just as possible as cooperative interaction. Different ways of organizing communication can be tested. The players must actively reach agreement with one another and at the same time demonstrate in public how well they are able to maneuver the joystick and how good their visual thinking skills are. Spectators may intervene by offering tips or making suggestions as to how the task should be best accomplished, by cheering the players on, by commenting on their progress or on their mistakes, and by celebrating when the puzzle has been completed.

The communication between the players—and its potential observation by spectators—is a central aspect of the aesthetic experience of this work. In a kind of model situation, actions are described, feelings are verbalized, and roles are negotiated. The aesthetic experience is a result of the creation of temporary relationships and role allocations—processes of identification with and distancing from others that become observable because they are negotiated in an artistic context. These phenomena are not staged or presented for the recipients, as they would be in theater or in painting. They are performed by the recipients themselves, who are motivated and channeled by the interaction system. The work literally orchestrates emotions that range from intense concentration to impatience, frustration, and indifference. It generates groups and lone wolves. Some people take charge; others follow orders. The work is still fascinating today not because of its (simple and now outdated) graphics and programming, but because of the constantly changing behavioral situations it generates. They are accentuated by their presentation in an artistic context and the resulting artificiality of the action, and they are staged as potential sources of aesthetic experience. In this work, social interaction in the form of face-to-face relations really is a central element of the aesthetic experience. The work requires social interaction and at the same time invites recipients to reflect on the relationship between art and play.

Case Study 7: Tmema, *The Manual Input Workstation*

This case study and the next describe works in which the primary focus is on multimodal experience. Both of these works were displayed in the exhibition See This Sound—Promises of Sound and Vision, shown at the Lentos Kunstmuseum in Linz in 2009 and 2010, and both were documented, like the last of the cases studies presented here, in the context of research projects carried out at the Ludwig Boltzmann Institute Media.Art.Research.

Golan Levin and Zachary Lieberman have been working as media artists since the late 1990s. Levin focuses on audiovisual software; Lieberman is renowned for including magical effects into his works. Between 2002 and 2007 the two artists collaborated

Figure 5.15
Tmema (Golan Levin and Zachary Lieberman), *The Manual Input Workstation* (2004–2006), visitor interactions at Lentos Kunstmuseum, Linz, 2009 (© Tmema).

under the name Tmema, creating several audiovisual art projects. Levin has also studied audiovisual software intensively at the theoretical level, and in 2000 he submitted a master's thesis titled "Painterly Interfaces for Audiovisual Performance."[49]

In New York, in 2004, at a Whitney Biennial evening dedicated to the topic of performing technology, Levin and Lieberman presented a performance titled *The Manual Input Sessions*, which subsequently became an interactive installation. *The Manual Input Workstation* has been exhibited in a variety of different locations, including the Ars Electronica Center in Linz. In the autumn and the winter of 2009–2010, the work was on view at the See This Sound exhibition at the Lentos Kunstmuseum in Linz. It was during that exhibition that Ingrid Spörl and I carried out a research project, with Lizzie Müller as a collaborator. The project included an in-depth interview with Levin (who was responsible for the Linz installation) and observations and interviews with several recipients using the method of video-cued recall.

The Manual Input Workstation is an interactive installation that allows users to create and manipulate images and sounds. At first glance, it resembles a normal overhead projector with some cut-out cardboard shapes lying next to it. Visitors can place the shapes on the glass top so that shadows of the shapes are projected onto the facing wall. But the work does more than simply project the shadows—it also records them with a video camera attached to a computer. The software analyzes the video data, then generates sounds and animated objects corresponding to the shapes, which are superimposed via a beamer onto the overhead projection. Thus, the visitors seethe silhouettes of the shapes overlaid by computer animations and accompanied by sounds. Most visitors quickly realize that they can create images using not only the shapes that have been provided but also other objects—especially their own hands. In fact, visitors can use hand movements and gestures to discover more sophisticated ways of creating dynamic shapes.

In Linz, the installation offered three different program modes. The NegDrop mode invites the recipient to create closed contours that the system then fills with colored shapes. If the contour is opened, the shape inside drops to the bottom of the screen and bounces repeatedly, each time triggering a sound. The sounds vary, depending on the size, the form, and the fall speed of the shape. The second mode, Rotuni, generates sound-image formations based directly on the shadows created by the recipient. Starting from the center of the shape and extending only as far as its contours, a green radar arm rotates at a steady rhythm in clockwise direction. Each advance of the arm generates a tone, whose pitch is determined by the length of the arm (which depends, in turn, on the extension of the contours of the underlying shape). In addition, the entire shape lights up briefly when a very high note sounds. The third mode, InnerStamp, is again based on shapes that the system generates in order to fill out contours created by the user, but in this case the new forms are immediately sonified. As a result, the sounds can be modified in real time by altering the shapes. A large shape

generates a low tone, a small shape a high tone. Squeezing the shape changes the pitch and modulates the frequency, whereas moving the shape alters the stereo quality of the note. When the shape is "released" from its contours, the sound sequence and the animation that have been created are repeated in a loop.

The possibility of manipulating the sounding objects in real time allows the recipient to observe the interplay between shape and sound precisely. The factors that contribute to the generation of notes (volume, pitch, and timbre) are directly assigned to the characteristics underlying shapes (volume, contours, and position). Thus, the manipulation of shapes and sounds in real time enables the recipient to reflect, via exploration, on basic visual and acoustic phenomena.

In this process-intensive work (there are no recorded sequences of images or sounds), the constituative rules play an essential role in the interaction process. The software on which the system is based not only analyzes the shadows projected onto the wall and then recorded on video camera; it also generates the animated shapes and accompanying sounds in real time, then superimposes them on the shadows. The software determines exactly how the system should react in the different modes to changes in shape, position, or size. It also has a pattern-recognition feature to manage the switch from one mode to another. The cardboard shapes provided for visitors include the numbers 1, 2, and 3, which refer to the three different modes of the work. As soon as the recipient places one of these numbers on the projector, the system recognizes its shape and activates the appropriate mode. The change in mode is thus built into the constituative algorithm, but can also be generated operationally; the numbers act as a tool for switching between the different modes. Whereas in earlier manifestations of the work the visitors were left to grasp this function for themselves, for the See This Sound exhibition Levin decided to render the rule explicit by writing on the respective numbers the instruction "Place on the projector in order to switch to Scene 2" (or 1 or 3). In fact, Levin went even further in the explicit formulation of operational rules. He informed visitors that they could engage with the work by programming it to project the words "Please Interact" onto the wall whenever there was an absence of input, because he thought that instruction was necessary in the specific context of the Linz exhibition. In the first place, he observed, because the installation was displayed in a closed-off white cube, it wasn't likely that visitors would be able to watch earlier interactions by other visitors that might provide pointers for their own interaction. Second, the exhibition included only a few interactive works, so visitors could not be expected to realize that this was an interactive installation. Third, the fact that it was presented in a museum for contemporary art, rather than, for example, at the Ars Electronica Center, meant that the visitors would not necessarily be familiar with interactive art.[50]

However, there is also another reason for the need to explain the mode change: the dual function of the number shapes. The number shapes are analyzed by the

system as abstract forms, which are animated and sonified, as are all the other shadows that are generated. But these three shapes also act as interpretable signs that bring about a change in mode. They operate both aesthetically and discursively. In Levin's view, the availability of different program modes (he calls them "scenes") is an important feature of the work because the artists were interested in presenting variations on a theme. In fact, each of the three modes of the work approaches the theme from a different angle.[51] However, Levin allows that the mode changes might lead to interruptions of flow experiences.[52] He thus sees the mode-change function as a flaw in the work that is a consequence of its history. In the original performance version, he recounts, switching from one mode to the next by laying down numbers worked very well because it was perceived as integral to the general workings of the system and was immediately comprehensible to the audience. In the installation version, however, Levin sees that the fact that the numbers react differently to all the other shadow forms that can be created causes irritation. Levin feels that his decision to write instructions about the mode changes on the numbers is a sort of capitulation.[53]

The research project showed that the aesthetic experience of the work is significantly influenced by the dual functionality (discursive and aisthetic) of the numbers, and that this is true whether the operational rules are made explicit or not. The explicit formulation of the operational rules did not, in fact, guarantee that they would be unconditionally observed. Whereas one of the recipients reported that he saw the numbers but did not use them until he was reminded to do so by the camera team (when he was about to leave the work), another visitor had also noticed the shapes, but was so fascinated by the creative possibilities offered by her own gestures that she didn't make use of the numbers until much later.[54] In addition, placing the numbers on the projector doesn't always lead to a mode change, for the pattern-recognition feature works only if the number can be recognized for long enough as a solitary shape. (If the number is held by the recipient's hand or is touching other shapes, the system cannot recognize the pattern.) Another visitor, a media theorist experienced with interaction systems, immediately grasped the dual function of the numbers, but was then mainly interested in exploring whether these numbers could open up emergent potentials in the work. He reported that he initially interpreted the number shapes as actual orders of magnitude that might indicate a gradual increase in the complexity of the interactivity or of the audiovisual output. He dedicated a large share of his interaction time to the numbers, whereas the other two visitors were less interested in their special function.

One visitor, who described himself as musical, was initially attracted mainly by the acoustic phenomena.[55] When he arrived, the work was in Rotuni mode, and he immediately began to move his fingers in time to the sounds, as though he were plucking the strings of a guitar. Observing himself on video afterward, he said he had found the overhead projector to be a physical hindrance, and he was surprised to see how

little he had moved. He also explained that he had found it difficult to coordinate his two hands with the mirror-inverted projection, a problem he had also often noticed in his job as a teacher.[56] Such individual self-observations reveal not only how greatly aesthetic experiences can vary from one visitor to another, but also how much they depend on formative influences and previous experiences on the part of the recipients.

While formulating his reflections retroactively during the video-supported self-observation, the teacher said that while interacting he had mainly felt immersed in the work. His evident enthusiasm for the process of interaction was confirmed by the fact that while watching the recording of his interaction he spontaneously commented on the shapes he was creating with the words "Looks cool!"[57] A female recipient was also enchanted by the constellations that emerged: "That was fascinating, when all these little things fell down and I knew they were coming from my hands, I liked that very much, I just liked the colors and I saw them falling, I didn't think so much about the music then, it was more the colors, the shapes that were fascinating me, so I tried them very often because I thought it was really nice."[58] Like the visitor cited above, she started the interaction by making shapes with her hands. The acoustic elements of the work were, she said, of secondary importance to her, in contrast to the teacher. Her full attention was captured by the work's visual potentials. This visitor's focus was on the creation of visually perceptible shapes, not on physical activity. Both of these visitors also experimented with placing other objects (eyeglasses and a ring) on the projector. Generally speaking, their approach can be described as experimental exploration led more by intuition then by a quest for analytical understanding. They both allowed themselves to be guided by spontaneous ideas and to be enthralled by the shapes that were created. The female visitor even declared that she could have continued for hours.

The media theorist, on the other hand, explored the workings of the different modes in great detail. For example, he characterized the Rotuni mode as the least interactive of the three because all it did was set off an automatic process.[59] It quickly became clear in his self-observation and self-description that he was used to dealing with interactive art. He was able to apply appropriate strategies when he explained how he approached the work ("I think my first approach was to try and figure out how it worked more or less and then to use it as an expressive device. That's what I was hoping to do."[60]) and when, after about three minutes of interaction, he described the situation as follows: "Up until now I was really laboring a lot to try and figure out, ok, what are the rules of interaction and hopefully they will be more interesting than something you just do once and then it's over."[61] At another point of the recording, he recalled that his main aim had been to find the most efficient way to achieve something new "as opposed to sort of repeating the same thing over and over again."[62] Thus, his self-description focused on the exploration of the system's functionality, and he was also interested in discovering the limits of the work. For example, he spent a

lot of time trying to find out whether there were interim steps between two modes or whether such steps could be created, with the intention of making the Rotuni mode more interesting: "Here again I am perhaps too stubbornly insisting on trying to do something different with mode number two."[63] He also verbalized the difference between immersing himself in the activity and reflecting on it: "This is like an interesting tension between, on the one hand, trying to deal with it in a sort of right-brain kind of way, as here for example, just sort of playing with it, and then, on the other hand, sort of a left-brain kind of way, to try to figure out what some of the algorithmic logic and intuition there is."[64] Whereas this visitor explicitly verbalized the oscillation in the aesthetic experience between exploration, creativity, and immersion, the other two visitors tended to reflect on single aspects of their experience, such as their gestures or their focus on either acoustic or visual creations.

The statements of the visitors also show how the process of exploring the system repeatedly turned into a sense of creativity. The female visitor described this feeling as follows: "You are creating . . . not something important but something nice. . . . I know I don't create, but in this moment, I am creating."[65] Such statements suggest that the question about the ontological status of interactive artworks discussed in chapter 4 deserves closer examination concerning this installation. As a process-intensive installation designed for the production and manipulation of abstract shapes and sounds, *The Manual Input Workstation* has quite a lot in common with musical instruments. In fact, Golan Levin says that his work is hugely motivated by the desire to develop new types of instruments: "The idea that these things can be both visual instruments and musical instruments was a core motivating factor."[66] Likewise, when asked if the installation could be considered a musical instrument, one visitor agreed that it could because it allowed the recipient to control pitch and rhythm, especially in NegDrop mode.[67] The media theorist called the system an instrument within an instrument, comparing the projector to a music theater in which the modes were the instruments and the shapes the music.[68]

We should therefore investigate the parallels with musical instruments in more detail. Owing to the use of human gestures, there is no distancing interface between input and output. The shapes are generated directly by hand. The artists themselves emphasize the novelty of the system, "in which the hands are used to simultaneously perform both visual shadow-play and instrumental music sound."[69] As the observations show, however, one mode of perception or the other tends to predominate in actual experience. Whereas one visitor moved his fingers in time to the sound, another said that she hardly noticed the sounds at all.

Unlike works that seek to activate the recipient's entire body (for example, Cillari's *Se Mi Sei Vicino* and Rokeby's *Very Nervous System*), in *The Manual Input Workstation* the interaction is focused on the recipient's hands, a part of the body often used for performing symbolic acts. The reduction of the gestures to two dimensions in the shadow

play also shifts the focus more to (bodily) expression than to embodied perception in this project. And yet the recipients' hands are not used to create conventional symbols. The recipients do not express commands, make choices, or enter concepts as input; what they do is invent shapes. (The only exception is the use of the number shapes to change modes.) But although the recipients operate the system directly by hand, there is no direct physical or mechanical causality between their gestures and the animations and sounds they elicit. The relationship is based exclusively on programmed settings. The position of a shape could just as easily be mapped to the pitch as to the timbre of a sound. Technically speaking, this system is another black box. It interprets the gestures visually and sonifies them, but the gestures do not physically create the sounds and animations. However, the animations imitate physical causalities; rather, they behave *as if* a shape were squeezed by a hand, *as if* it were to fall to the ground because of its weight, and *as if* a sound were created by the impact. As a result, recipients can ignore the mediating role of the apparatus, believing that the audiovisual results are in fact directly created by gestures. This would correspond to the situation characterized by Coleridge as "willing suspension of disbelief," because the recipient ultimately knows that the animations result from complex calculations. Nonetheless, the recipient may sense an immediacy in the relationship. On the other hand, the existence of the different modes—which the artist himself describes as variations on a theme—encourages the recipient to reflect on the arbitrary nature of the mapping.

As was explained in chapter 4, Dieter Mersch identifies imagination and figuration as basic parameters of creative productivity—in the sense of new, inventive creation, on the one hand, and in the sense of manipulation and combination of existing forms, on the other. One could thus argue that, whereas Tmema leaves a share of the figuration work up to the recipient, this figuration work is based on a figurational apparatus which has been created by the artist. But one could just as easily argue that it is the recipient who first uses his own gestures to create shapes in complete autonomy, and that the shapes are then interpreted and refigured by the artistic apparatus. The fact that the two descriptions are simultaneously valid is a factor in the aesthetic experience of *The Manual Input Workstation*. The act of exploring the system responds to the creative concept of the artist, which is conserved in the apparatus of the interaction proposition. The recipient's shadow play emerges from an interplay between action and reaction. The recipient bases his actions on the reactions of the system in order to understand the algorithms that guide the process of mapping shapes and sounds. Even if this process is similar to musical improvisation, it is different in that the user is not familiar with the way the system works. The better the recipient understands these processes, the better he can productively "counter the resistance of the apparatus" and actually use the system as an instrument and achieve virtuosity in playing it. However, despite the relatively long time visitors spent interacting with the installation, and despite their detailed discussions of the processes of interaction in the

follow-up video-cued recall interview, neither their statements nor the video recordings suggest that they had internalized the specific workings of the different modes (which in fact follow clear constituative rules) enough to use them in a controlled manner to create specific animations or acoustic compositions. On the contrary, it seems that they were not really interested in penetrating the work to such an extent, or rather that their interest in penetrating the work was secondary to their attempt to discover the limits of the system.

Levin and Lieberman emphasize the importance of a combination of simplicity and complexity for a successful interaction between human beings and audiovisual systems: "[T]he system's basic principles of operation are easy to deduce and self-revealing; at the same time, sophisticated expressions are possible, and true mastery requires the investment of practice."[70] This is why these artists develop systems that react consistently to input from users but are nonetheless boundless because they register the smallest variation in the input. Thus, from the first moment on, the structure of the system enables a rich experience. The recipient can interact intuitively with the system, and can explore its functionality on different levels by means of direct audiovisual feedback which is clearly related to his actions.

The recorded reactions of visitors show that this concept is fruitful. For example, one visitor recounted that he had made clear progress, remarking that "now I could spend days and weeks with it."[71] The media theorist summed it up as follows: "The artist was able to keep . . . me very engaged in that liminal space between looking for something that I was trying to play with, so I could understand a certain functionality . . . , on the one hand, and, on the other, keep it sufficiently open ended that I didn't become bored by it too quickly, and a number of interesting surprises like these little apparitions, for example, came up, as well as certain things that I was sort of going after, but never achieved . . . for example the idea of trying to get two modes to interact at the same time."[72]

Thus, this work does, indeed, allow for a certain degree of emergence, because the recipient's own creativity can elicit audiovisual configurations from the work that the artists perhaps had not anticipated. Thus, visitors can experience a feeling of agency concerning their own creative potential, even if they have not understood the workings of the system so well that they are entirely in control of the emerging audiovisual configurations. The artists themselves have shown in their performances—which preceded this installation version—that it is possible to master the operation of the system. Mastering it requires an amount of practice time that would be difficult to arrange in an exhibition context, however. If mastery could be achieved, then (according to the arguments presented in chapter 4) the ontological status of the work would change, for the recipient's perception would be focused not on experimental exploration but on achieving a certain result. The work would become an instrument for audiovisual performance. However, a performance of this kind, too, if it is to be

convincing, requires that the apparatus be visible. Its effect is not based on the audio-visual composition alone, but also on the observable ways and means with which the sounds and images are created. The apparatus and the way the user handles it are always components of the manifestation. Levin makes this clear when he emphasizes that the point is not primarily visual or acoustic splendor, but the nature and the quality of the reaction: "The work is not about the relationship of sound and image but about the relationship of sound and image together to gesture."[73] This is why it is important for Levin that the public at the performance version of the piece was also able to understand the interaction processes, "making sure the audience understands that it is not canned."[74]

Tmema's installation is an example of an interactive work that uses multi-modal interplays in a process-intensive system to support feelings of agency on the part of the recipients. More than the other works discussed here, it places the experience of expressive creation at center stage. However, this doesn't mean that media-reflective interpretations and insights are excluded. On the contrary, the work invites the recipient to reflect—whether incidentally or consciously—on media-based interrelations of visual, acoustic, and gestural formations.

Case Study 8: David Rokeby, *Very Nervous System*

David Rokeby is a Canadian media artist who began specializing in interactive art while he was studying experimental art in the early 1980s. His installations and environments look at the relationship between humans and digital technology, also with respect to visions of artificial intelligence and the implications of surveillance technology.

Rokeby's early interactive environment *Very Nervous System* is a complex system for interaction between human motion and sound. Since its creation in the 1980s, the system has been exhibited on numerous occasions in many different international locations. In 1991 it was awarded the Golden Nica for Interactive Art at the Prix Ars Electronica. The work has been modified several times. This case study is based on a research project carried out during the presentation of the work at the See This Sound exhibition held in 2009 and 2010 in the Lentos Kunstmuseum in Linz, during which Caitlin Jones, Lizzie Muller, and I interviewed visitors (using the video-cued recall method) and conducted a detailed interview of the artist.[75]

Visitors who enter *Very Nervous System* encounter an empty, silent space. As soon as they move, however, they hear sounds—either the timbres of different musical instruments or everyday noises such as human breathing or gurgling water. The system records the visitor's movements via video camera, analyzes them digitally, and responds to them by emitting sequences of sound. In the Linz presentation, the curators allocated the work a space measuring three by three meters which was accessed through

Figure 5.16
David Rokeby, *Very Nervous System* (since 1983), visitor interactions at Lentos Kunstmuseum, Linz, 2009.

a narrow corridor. The room was painted entirely in white and dimly lit from an indirect light source. It was empty except for a white box (containing the hardware) standing to one side and two loudspeakers and a camera attached to the wall. Many recipients who walked into *Very Nervous System* were surprised at first and took a while to realize that there is a connection between their movements and the noises. Some of the participants interviewed in Linz recounted that they were initially astonished not to find any objects or visual compositions in the room. However, most of them quickly began to explore the work by moving around the room, trying to understand its spatial limits and the structure of the sound.[76] One participant explicitly recounted that she was trying to "find" sounds.[77] Rokeby clearly understands the interaction as a spatial acting out when he describes the work's radius of action as having a sculptural presence.[78] The system has a presence that can be described as an immaterial materiality of acoustic configurations in space. Although this spatial extension of the sound is pre-programmed into the interaction system, it is only elicited and thus rendered perceptible by the actions of the recipient. As in the works by Schemat and Rueb, it can only be perceived as a reactive sound event, but in contrast to those two works—which use headphones—the sound waves fill the entire room. Rokeby, who has installed this work several dozen times in numerous different locations, comments that there are different possibilities for good spatial settings, whether the work is positioned in a closed-off area of a larger space or in a self-contained room. In Rokeby's view, what is important is that the space convey a pleasant atmosphere and that the number of visitors expected (which he calls "people flow") be appropriate to the size of the space.[79]

Rokeby emphasizes the significance of every single component of the spatial setting, and their individual importance is confirmed by observation of visitors. Owing to the material minimalism of the installation, close attention is played to each and every detail. The recipients not only examined the light and the visible technical components to see what significance they had within the work; they also scrutinized the white box that was used in the Linz manifestation merely to conceal the required hardware. This illustrates that it is not always easy to distinguish the aesthetically effective elements of a work from its exterior framing. The fact that the box was stored inside the action space led many recipients to spend a considerable amount of time wondering whether it was aesthetically relevant. In reality, Rokeby had accepted the position of the box as a compromise dictated by the exhibition situation. In this case, the resulting irritation constitutes an obstacle to the aesthetic experience of flow, which, as we will see, is actually the state that Rokeby seeks to achieve with this interactive work.

In the Linz manifestation of the project, Rokeby installed two sound compositions that were activated in alternation with one another. If a recipient remained motionless at length, or if a new visitor entered the installation, the composition being played

was changed. The first piece was oriental in style; the second consisted of a combination of metallic sounds that might be described as clinking, jangling, grating, grinding, and tinkling. Rokeby considers the latter composition, the second in order of creation, to be the less intense of the two. Whereas one could immerse oneself completely in the first composition and become so enthusiastic that a critical reflection would be prevented, he says, the second composition allows room for critical distance.[80] This statement demonstrates that, although Rokeby sees the generation of flow effects as the main objective of the work, at the same time he wants to allow for critical reflection. He specifically seeks to enable the recipient to oscillate between the two states, and considers both the volume and the quality of the sound as important for the achievement of this effect. Rokeby explains that the work requires a certain volume because below a specific threshold the recipients can no longer really feel the sounds in their bodies.[81] The second composition consists of sounds that are reminiscent of everyday noises. Recipients are inclined to attribute them to particular events, such as crushing a tin can, rattling a bunch of keys, or dragging rocks. A critic who viewed the work in 2004 in the Ontario town of Oakville wrote that rapid, impulsive movements created a sound effect that reminded her of a kitchen cabinet falling over and losing its contents. Subtler movements, she observed, led to effects that resulted in particular associations: "Standing very still and fluttering the fingers of one hand, I provoked a low, purring growl, like the sound of a lion at rest. Stepping back, I heard a screeching sound, like the ripping up of packing tape."[82] Other noises reminded her of eating crunchy potato chips or smashing a beer bottle.

Observation of visitors showed that willingness to engage intensively in exploring the effects of different movements varied greatly from one person to the next. Many recipients were more comfortable exploring the sounds by moving through space than by specifically moving individual body parts. Such movements were mostly limited to swaying back and forth, crouching down, or carefully raising one's hands. Other recipients, one of whom was a theremin player, explicitly experimented with moving individual limbs.[83] One visitor explained in detail that not only had he wanted to explore the boundaries of the interaction space; he was also trying to find out which movements created which sounds, and trying to reproduce the same sounds again and to deliberately trigger individual sounds.[84]

Rokeby emphasizes that his interest in interactivity is not focused on straightforward and intellectually comprehensible control of processes. He objects to interpretations of interaction as control. His aim is to create a system based on intuitive bodily actions in order to challenge the image of the computer as a logical machine with no connection to the body. He is interested not in control but in resonance, not in power but in the recipient and the system adjusting to one another.[85] He describes an imaginary ideal recipient as someone who "tries to control it . . . hard to tell . . . then lets go of that and starts to relax into the piece. . . . Sound moves against her body."[86]

Ideally, Rokeby explains, "the body starts to lead in a way that does not seem to be guided by consciousness. So the body is responding to sounds that are produced by movements you still haven't taken possession of consciously."[87] Rokeby uses the word "resonance" to emphasize the way that the recipients' actions can take place unconsciously. As soon as recipients allow themselves to react spontaneously to the sounds of the system, the recipients are "played by the installation . . . allowing the music of the system to speak back through one's body directly, involving a minimum of mental reflection."[88]

Rokeby even wants the change in the recipients' perception to last beyond the time spent in interaction with the system, so that even after leaving the installation they will still have the feeling that the sounds they hear around them are directly connected to their movements.[89] Rokeby has had this experience himself, which he calls "aftereffects": "Walking down the street afterward . . . the sound of a passing car splashing through a puddle seems to be directly related to my movements."[90]

The elaborately calibrated technical system on which *Very Nervous System* is based is the result of a long period of conceptual and experimental development. As was mentioned in chapter 4, an early version of the installation reacted only to Rokeby's own movements. As Rokeby explains, he had adapted his movements to the system: "I had evolved with the interface, developing a way of moving that the interface understood as I developed the interface itself."[91] Rokeby also recounts that he initially tried to incorporate as many parameters into the feedback processes as he could, mapping separate sound parameters to the velocity, the gestural quality, the acceleration, the dynamics, and the direction of each physical movement. But he was forced to concede that he was overwhelming the recipient: "Ironically, the system was interactive on so many levels that the interaction became indigestible."[92] As was discussed in chapter 4, what Rokeby addresses here is his experience with what Noah Wardrip-Fruin calls the Tale-Spin effect—the fact that audiences might not be able to cope with extremely complex interaction systems.

In reference to an earlier manifestation of the system, Rokeby describes the testing attitude that some visitors adopted, when they entered the installation, by using strategic behavior to systematically explore the constituative rules. The first gesture, repeated several times, embodied the question "What sound will you make?" As soon as the recipient saw that he could create a certain sound with this gesture, he repeated it again, but this time as a command: "Make that sound!" But the change in intention had altered the gesture to such an extent that it led to a distortion in the response of the system. Rokeby explains that body movements can be read either semantically or formally. However, Rokeby's system doesn't interpret the semantics; rather, it reacts to the formal dynamics of the gesture: "The questioning and commanding gestures were semantically similar but quite different in terms of physical dynamics."[93] Though it would be possible to filter out such dynamics, Rokeby deliberately refrained from

doing so. He wanted to develop a system that was programmed to resist conscious control. The result is a situation that responds to the recipient, but at the same time is too complex to be cognitively understood. Consequently, the recipient can have a sense of agency only if he gives in to this circumstance, whereas any attempt to control it is doomed to failure.[94] In fact, two of the participants in the research project pointed out that it was not really possible to control the work. Nonetheless, neither of them, contrary to the artist's intention, seems to have entirely abandoned herself to this situation. They simply limited themselves to further exploring the functioning of the system. One of the two described her attitude toward the installation as intellectual, as opposed to a potentially more emotional approach.[95]

The conscious prevention of control in Rokeby's work differentiates it from musical instruments, such as the theremin, that are built to allow controlled generation and manipulation of sounds by means of hand movement. Tmema's *Manual Input Workstation*, which invites the user to engage in creative exploration and is based on investigation and gradual cognitive understanding of the functionality of the system, takes a different approach. Recipients of *The Manual Input Workstation* use gestures to intentionally create figurations, whereas *Very Nervous System*, when it invites the visitor to use body movements, gives higher preference to the subconscious than to mental control.

Rokeby describes every sound that can be activated as a behavior—that is, an electronic personality that observes the recipient and selects its actions accordingly. For example, a sequence of sounds might tend to play on offbeats or to switch rhythms when a recipient accelerates his movements.[96] Rokeby emphasizes the fact, discussed in chapter 4, that the recipient's perception of the interaction processes can deviate substantially from the work's technical processuality. He recounts that many recipients tend to synchronize their movements with the rhythms of the system but perceive this synchronicity as a response by the system to their movements. According to Rokeby, the feedback processes of the real-time interaction are so rapid that it is no longer possible to ascertain who is controlling whom: "[T]he intelligence of the human interactors spreads around the whole loop, often coming back in ways they don't recognize, causing them to attribute intelligence to the system."[97] He sees this effect as being further reinforced by the fact that physical reactions take place more quickly than cognitions. This immediacy is also a result of the fact that the interface in *Very Nervous System* offers no physical resistance. This is a further difference between the work and traditional musical instruments. When Philip Alperson writes that it is often difficult when playing musical instruments to grasp where one's body ends and where the instrument begins, he is referring to the physical causal chain that leads from body movements or air supply via the keys, strings, or sound box of an instrument to the resulting note.[98] The visual tracking technology used by Rokeby and Tmema, by contrast, create what seems an almost magical way for the body to influence sounds and images, because it happens without any physical resistance whatsoever. But this also

means that the sound emitted in each case is ultimately arbitrary. Predetermined in advance by the artist, it has no direct physical relation with the movement of the recipient.

The observations of recipients and the subsequent interviews with them using video-cued recall provide more examples of the many different ways in which recipients of interactive art can oscillate between reflection and flow, and of different ways of verbalizing the associated aesthetic experiences. One visitor experienced the difference between Rokeby's installation and traditional artworks as a feeling of closer proximity to the work. He believed that this depended on the invitation to actively participate, but also on the fact that the work did not require interpretation in the usual sense. This recipient explained that this work had a very low entry threshold and he found it simply fun to interact.[99] At the same time, he mentioned several times that he had tried to find out how the system worked and where its spatial boundaries lay. Nonetheless, he experienced the exploration as playful and enjoyable. Another visitor also tried to investigate how the installation responded to her, but entirely ignored its technical workings. (She reported that she never understood how it worked at all throughout the entire interaction.) However, it was also clear from the interview that understanding the work was not important to her. She actually experienced the interaction as at least a potential resonance with the system: "I didn't quite find out whether the sounds wanted to make me move or not, but it was more enjoyable all the time."[100] At another point she described how her own movements merged with the sounds of the system, speaking of a sense of abandoning herself to the sounds. Other participants compared their enjoyment of the interaction with that of a child trying out a new toy[101]; still others described the meditative effect of the installation, which they said had made them slow down.[102]

Thus, the epistemic potential of Rokeby's *Very Nervous System* is primarily based on possibilities for cathartic transformation, in the sense of a self-knowledge achieved through new forms of experience. These are found on the boundary between physical and cognitive awareness and on the boundary between conscious control and unconscious reaction. Experimental exploration of the system of this work doesn't result in increasing mastery over it; in the ideal case, it becomes an interplay whose attraction is the very fact that it presents an alternative to the interpretation of interaction with media as communication or control. The work has practically no consciously implemented disruptions that seek explicitly to provoke an oscillation between reflection and flow by means of frame collisions or ambivalent signification. On the contrary, the system is presented as an autonomous media-based interlocutor, and the interaction draws its aesthetic potential from the fact that the recipient can experiment with novel forms of feedback whose effect becomes manifest neither as control nor as communication, but as resonance.

Case Study 9: Sonia Cillari, *Se Mi Sei Vicino*

Like Rokeby's *Very Nervous System*, Sonia Cillari's *Se Mi Sei Vicino* (If You Are Close to Me) focuses on physical activity and self-awareness. However, in this work a performer is used as an interface, so that the relationship between humans and machines is dealt with in quite a different way.

Cillari, an Italian artist and architect, lives in Amsterdam. She has been exhibiting her work—initially digital models and sculptures, subsequently interactive environments—since the beginning of the new millennium. In recent years, she began working—as in the project presented here—with a combination between interactive environment and performance. She explains that she came to media art through architecture, a field in which she had developed a desire to study human experience of space and to explore personal perception of internal and external worlds through the sensory organs. One of her current fields of research is "the body as interface."[103]

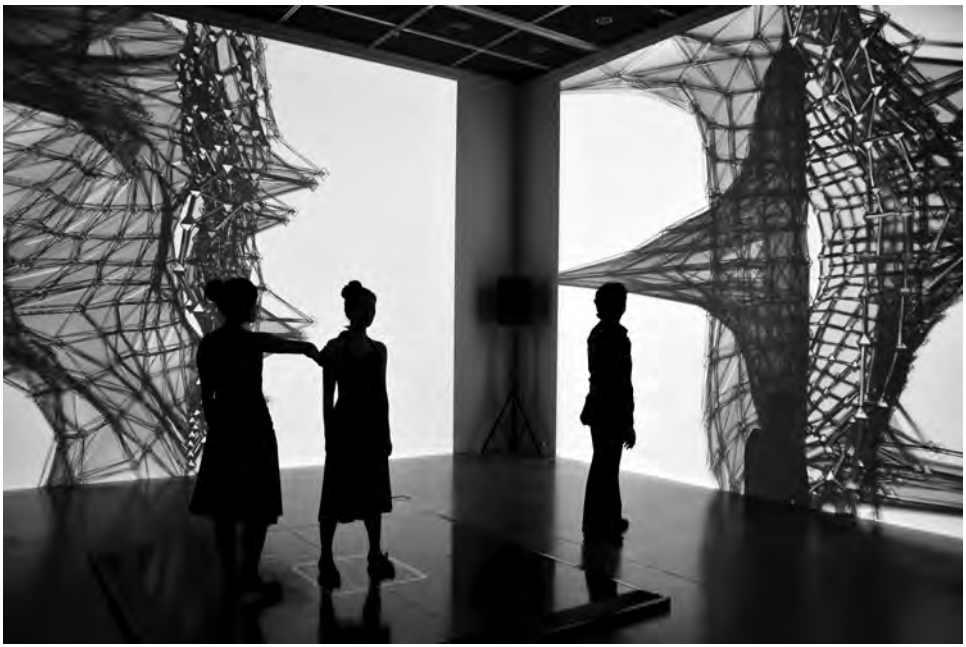

Figure 5.17
Sonia Cillari, *Se Mi Sei Vicino* (2006–2007; co-produced by Netherlands Media Art Institute and Studio for Electro-Instrumental Music; supported by Rijksakademie van beeldende kunsten, Amsterdam), installation view (Photo: Summer Yen).

Se Mi Sei Vicino was created in 2006 on commission for the Netherlands Media Art Institute, where it was also first exhibited.[104] It was produced in collaboration with the programmer Steven Pickles and the sound engineer Tobias Grewenig. The following description is based on a manifestation shown at the Ars Electronica Cyberarts exhibition in Linz in 2007, where *Se Mi Sei Vicino* received an honorary mention in the Interactive Art category of the Prix Ars Electronica. In the context of a joint research project between the Ludwig Boltzmann Institute Media.Art.Research and the Johannes Kepler University Linz, students of cultural sociology interviewed the artist and observed and interviewed visitors.[105] I interviewed the two performers who assisted in the Linz manifestation and spoke to the artist about the work on several occasions. My description below also draws on documentation of other manifestations of the project.[106]

On entering the dimly lit room containing the installation, the recipient's attention is immediately captured by a woman standing motionless in the middle of the room and by two large abstract graphics projected onto two of the walls. Each of the graphics depicts a three-dimensional vertical structure—a spindle-shaped, flexible grid that stretches from the bottom to the top of the projection area. While the upper and lower extremities of this structure are fixed and immobile, the grid itself is in a state of constant, wave-like motion. The nodes of the grid are highlighted as white triangles resembling force arrows. Cillari herself denotes these structures as "real-time algorithmic organisms."[107]

If the visitor looks down, he sees that the woman is standing in the center of a slightly raised square area covered with a black tarpaulin. Her exact position on the tarpaulin is marked inside a white frame. The woman is standing quite motionless and is thus clearly recognizable as belonging to the mise-en-scène. She will be referred to in the following as the performer, although, insofar as she is entirely immobile, her role in the interaction process initially seems to be characterized by complete passivity.

When a visitor walks onto the black mat and approaches the performer, an arrangement of metallic sounds with a muffled background of rumbling noise begins to play. At the same time, the grid begins to expand sideways and to sprout horizontal peaks. Touching the performer intensifies the effect. The spaces in the grid begin to fill up, first with gray tones and then with colors. The sounds become louder and turn into a sizzling reminiscent of newly lit fireworks. Thus, the audiovisual feedback can be interpreted as a representation of the performer—specifically, as a visualization and sonification of her reactions to people approaching her. These reactions are represented as a crescendo of sound, as structures that enter into motion, as uniform rhythms, and as momentary peaks or eruptions.

What we have here is a paradoxical situation in which the performer, despite her apparent passivity, is at the heart—in both spatial and processual terms—of the

interaction, and the visitors, who are much more active, only act as effectors. The performer is outwardly passive, like a puppet. But it is her body, not the visitor's, whose reactions are represented by the grid formations on the projection screens. When people approach her, this can be perceived only indirectly as a reaction or eruption of the audiovisual formations that represent the performer.

Moreover, the light in the room is dim, so other visitors can barely see the performer and the participating recipients against the bright projection screens. Thus, for the observers the physical activity taking place is overshadowed by the representational level of visualization and sonification. This mediation creates a sense of alienation. Notwithstanding the physical materiality of the human bodies, their presence is manifested for the observer primarily through the audiovisual feedback.

Observations of visitors and various documentations of the piece reveal that the recipients experiment with different ways of making contact with the performer—by touching different parts of her body, moving her arms, or executing sweeping movements or simple choreographies themselves—and observe the effects of their movements or approaches. However, the audiovisual feedback makes it is virtually impossible to isolate the precise effects of individual actions. The resulting effect has been described by Noah Wardrip-Fruin as the Eliza effect. The responses of the audiovisual feedback are experienced as being much more complex than they are in reality. The technical diagram for the work shows clearly, for example, that it makes no difference for the audiovisual feedback which part of the performer's body is touched, or whether or not parts of her body are moved.[108] Even minimal physical contact is visualized as a sizeable outswing in the graphics and a loud swell in the sound. As the artist explains, the system simply distinguishes three states of approach: low proximity, high proximity, and touch.[109] The grid usually bulges toward the point where the recipient is standing; however, smaller eruptions in the opposite direction are also often seen. Such irregularities in the reactions of the system make the constituative rules of the work appear more complex than they actually are. At the same time, they create leeway for different interpretations. If the grid is interpreted as an abstract representation of a body, the observer can conclude that the reaction to approaching recipients is not limited to the part of the body that has been touched, but concerns the entire body. Bulges in the opposite direction can also be interpreted as a power play between attraction and rejection, or as an emotional reaction located somewhere between inclining toward and drawing back. The graphics and the sound thus present a visualization and a sonification, respectively, of the relationship between human bodies. Their abstraction allows for a wide range of different associations and interpretations.

Furthermore, the work has a progressive structure. The acoustic composition and the movement and colors of the grid change over time, depending on how long visitors interact with the performer.[110] Again, the underlying constituative rules will remain unknown to most visitors because it is difficult to judge whether the changes

in audiovisual feedback are a direct reaction to a certain type of contact, movement, or gesture, or simply to the duration of the interaction. The progressive feature thus lends a variability to the system that makes it appear both animate and complex. This is all the more true as the attempt to explore the technical processes is inseparably overlaid in the recipient's perception by the desire to understand the role of the performer as a "human interface." Even if the performer remains completely passive, she still has considerable influence on the feedback processes. This is true in a physical sense because the work is based on the manipulation of electromagnetic fields. The body of the performer is under a weak electrical charge, so that the approach of a visitor alters the resulting electromagnetic field, which in turn informs the audiovisual feedback. But the central role of the performer is not reduced to a technical function. Her presence shapes the behavior of the recipients. Ultimately, the recipients are not able to ascertain the extent to which the audiovisual feedback is controlled by electromagnetic processes or by emotional, cognitive, or proprioceptive responses on the part of the performer.

The work reveals very little about its own technical functioning. All the observer can grasp from the feedback is that the distance between the recipient and the performer is measured somehow. The lack of cameras and the division of the black action area into two separate sectors can be taken as clues that electrical charges are being calculated, but it is mainly the audiovisual feedback that can be interpreted as an indication of the technical processes underlying the work. In fact, the sounds and shapes conjure up an atmosphere that might colloquially be called "electric." The graphics allude to connections and contacts; the sounds are reminiscent of ignition and electricity. At the symbolic level, therefore, associations with electromagnetic waves are awakened, suggesting that the work is based on this kind of technology. *Se Mi Sei Vicino* is an example of how abstract forms and sounds can function as signs alluding to invisible technical processes. If one looks more closely at the graphical structure projected onto the screens, one sees that it is not a solid entity with a specific volume, but a grid that can contract and expand. Looking closer still, one sees two separate grids, which are intertwined with one another when in their contracted state. When a visitor approaches or touches the performer, one of the grids shoots out to one side; the other either remains compact or expands in the opposite direction, leaving an empty space in the middle. Thus, the grid structure is not designed to represent the performer by creating bodily associations through an impression of volume, but through an image of an elastic surface that depicts (permeable) boundaries. It can thus be interpreted as a representation of the performer's skin—as the boundary between the body and the environment. This interpretation is supported by the artist's own descriptions. She claims to be particularly interested in sensations of physical proximity that do not depend on direct touch, specifying that "my concern was with realizing that the boundaries of self extend beyond our skin."[111] This

statement brings to mind Mark B. N. Hansen's observations (already discussed in chapter 2) about the human body reaching out into the environment. What Hansen is interested in, however, is a reaching out of cognitive processes and information flows into global data networks, whereas Cillari is attracted by the idea of an atmospheric presence, which she orchestrates here as a reciprocal referencing between human bodies. The human being doesn't relate to his surrounding space primarily through discourse, but by means of his physical presence. This relation is not only based on an active effect on the environment, but also on a kind of physical receptivity. Elsewhere, in fact, Cillari describes the performer as a human antenna. Here, she is highlighting the kinetic passivity of the performer, who nonetheless is highly responsive proprioceptively and exteroceptively.[112] During interaction, this passive presence is transformed into an affective, neuronal reaction, which is externalized, or at least represented, by the audiovisual formations.

The basic operational rules of *Se Mi Sei Vicino* can be discovered by exploring it, a task that is facilitated by the spatial arrangements. The layout of the room, with a clearly visible black tarpaulin on the floor and a white frame marking the inner section, clearly identifies the interaction space, while the fact that the performer stands immobile in the center of the room creates a situation of affordance. What could be the meaning of the much larger outer area on the sensor mat if not to invite the recipient to walk onto it, insofar as otherwise the installation appears to be in a kind of "at rest" state? Moreover, at the Linz exhibition most visitors, upon entering the room, were able to see other recipients already in action. The black mat doesn't cover the entire floor space, so space for observers is explicitly made available. Interestingly, the interaction space is smaller than the space filled by the full installation, so observers can sit or stand inside the environment delimited by the projections and still find themselves outside the "magic circle." Because the interaction processes are easy to observe in this work, the division of roles between trailblazers and imitators has great significance. It turns out that the recipients make a clear distinction between actively entering the "magic circle" of the black mat and observing from a distance. The fact that the action space is clearly marked means that walking onto the black mat indicates a conscious decision to actively participate, and this readiness is clearly visible to other people in the room.

However, the spatial setup only conveys that recipients can or should in fact enter the interaction area. It is not clear to them how they may behave, unless they have been able to draw their own conclusions by observing other visitors. In this work, the operational rules transmute almost seamlessly into implicit rules, because they concern human behavior toward another person. Perceiving the interaction as the mere operation of a technical system hardly seems appropriate when there is a human being serving as an "interface." The situation calls for the common rules of interpersonal behavior. The visitor must decide whether to treat the performer as a passive interface

or as a partner in social interaction. Once again, frame collisions are inevitable in this work. Conventions about how to approach interactive art conflict with conventions regarding interpersonal relations. As a visitor to an exhibition, the recipient assumes that detailed exploration of the exhibits is desired. As a social being—at least in the cultural context of Central Europe—the recipient avoids getting too close to strangers.[113] In order to find out which behavior is the appropriate one, the recipient must transcend the implicit rules of interpersonal behavior and touch the performer. This work certainly features the autopoietic feedback loop that Erika Fischer-Lichte sees as a fundamental condition of performativity—the ongoing negotiation of the relationship between two or more interaction partners. Admittedly, the feedback provided by the performer is actually a refusal to make any contact whatsoever. Her response changes only if certain social norms are breached—for example, if she feels attacked. And even then, as the Linz performers reported, an attempt was first made to clarify the situation through the intervention of an assistant, so that the performer did not have to become active herself.[114] In the interview with the two Linz performers, it became clear that some recipients tried to violate the setting created by the artist, either through aggressive or careless behavior toward the performers or by means of provocation such as concerted efforts to make eye contact. The performers had two explanations for this type of behavior. On the one hand, they were perceived not as human counterparts but as objects; on the other, they were vigorously provoked in the hope that they would abandon their role as a passive interface. At a personal level, they were comfortable remaining in the object role, which allowed them to feel more like a tool of the artist than like a self-determining actor.

Making contact with the performer is not the only form of physical contact available to the visitor, however. Although no instructions are given in this respect, observations and documentations of the work show that often more than one recipient is in the interaction space at the same time. If several recipients are active at once, they often try to see whether touching one another also leads to audiovisual effects. In fact, such effects are generated only if one of the visitors is also touching (or at least approaching) the performer, because only the central area marked with the white frame, and thus the person standing on it, acts as a transmitter in the electrical circuit, while persons in the outer area act as receivers. Nonetheless, it is interesting to observe how an action of this kind takes place. Mostly, the two people seek eye contact with each other in order to make sure that they both consent to reciprocal touching. Although the recipients could conceivably speak to each other, the performer's refusal to speak almost seems to act as a rule that interactions must be carried out in silence. The eye contact between the recipients renders them accomplices. Autopoietic feedback loops may thus emerge in two respects: on the one hand, as an attempted negotiation of the relations between the recipient and the performer; on the other, as an agreement on interactions with other participants.

As was noted above, Cillari has a particular interest in using the human body as an interface. Technically, she achieves this by highlighting the skin as a point of contact between the recipient and the performer, and between electromagnetic and physical information. At the symbolic level, she represents this function of the body through an abstract depiction of a physical reaction to approach and touch, which has an intense emotional effect. Whereas Scott Snibbe's installation *Boundary Functions* visualizes the body's relationship to its environment as a consumption of space, which manifests itself first and foremost as a distancing from other people who are present, Cillari's work portrays physical and emotional reactions to proximity and touch. Cillari refers to the work of Henri Bergson and Francisco Varela when describing her interest in autopoietic processes and proprioceptive perception, in the inseparability of body and mind, and in the potentials of cognitive and physical knowledge. She says that her aim in *Se Mi Sei Vicino* was to "measure" human encounters by rendering closeness and distance visible and audible and by pursuing the idea of consciousness conveyed via the skin.[115]

Se Mi Sei Vicino hinges on the reciprocal interleaving of corporeity and interpretability, on the one hand, and of activity and passivity, on the other. Even if the negotiation of roles and the exploration of the workings of the system initially predominate, an immersive absorption in the audiovisual dynamics of the installation is still possible. Both the visualization and the sonification are highly abstract, but—or perhaps consequently—they are also extremely immersive. The artist has many years' experience in the conception of audiovisual structures that link abstract 3D graphics with sound, and emphasizes the immersive quality of these structures.[116] They strengthen the atmosphere of the installation not only because they can be interpreted as visualizations of the technical (electromagnetic) processes at stake, but also because they reinforce the emotional effect of the work.

Cillari challenges the conception of interactive art as apparatus by using a human being as the interface. Although, as in other interactive installations, a software program mediates between input and output on the basis of clear-cut constituative rules, awareness of the underlying technological processes is overshadowed by the interaction between human beings. In this work, too, the interaction system is a black box whose workings the recipient is unable to grasp because he is not able to ascertain which reactions are produced by the system and which by the performer. Only the artist (or a recipient who is familiar with the technical setup of the installation) can make this distinction with any degree of certainty. Thus, Cillari explains in an interview that she herself can elicit any audiovisual output she wants from the installation.[117] If an interaction focusing on the expressive creation of audiovisual formations is possible in this work at all, it remains a privilege of the artist.

The aesthetics of this work is mainly based on the contrast between the interpersonal situation (which evokes curiosity, intimacy, and vulnerability) and the abstractness

of the projected graphics (which oscillate between a scientific visualization and an immersive artificial world). The recipient can arrive at knowledge in the form of cathartic transformation (as a half-aware experience of intensive distance or proximity), but also by means of conscious reflection on the potentials of proprioception and the possibilities for embodied expression.

Case Study 10: Blast Theory, *Rider Spoke*

Blast Theory's *Rider Spoke* has many of the features discussed above, but it also invites recipients to partake in another form of interaction. Recipients are encouraged to record their own spoken word as they explore the public space by bicycle.

Blast Theory is a British artists' group (made up of Matt Adams, Ju Row Farr, Nick Tandavanitj, and various collaborators) whose "mixed reality games" (the best known are *Can You See Me Now?* and *Uncle Roy All Around You*) have attracted considerable interest, especially since the beginning of the new millennium. These projects are explicitly structured as games that have clearly communicated rules and goals and use public spaces as their playing field. Blast Theory uses mobile media, tracking technology, and digital communication networks to create a hybrid space that allows players to act simultaneously in urban space and digital space.

Rider Spoke is not conceived as a game, however. The project was first presented in London in 2007, and since then it has been hosted in different cities throughout the world, including Linz in September 2009. *Rider Spoke* is the result of a collaborative venture involving Blast Theory, the Mixed Reality Lab at the University of Nottingham, Sony Net Services, and the Fraunhofer Institute for Applied Information Technology under the EU research project IperG (Integrated Project on Pervasive Gaming).

The following description is based on documentation and interviews carried out in the course of an international research project when the work was presented in Linz. In a joint venture of the Ludwig Boltzmann Institut Media.Art.Research (represented by Ingrid Spörl and me), the Department of Drama of the University of Exeter (represented by Gabriella Giannachi), and the Mixed Reality Lab in Nottingham (represented by Duncan Rowland), nine recipients were filmed while participating in the project, and their GPS coordinates and sound data were recorded. Subsequently, each of the recipients was interviewed, as was Matt Adams of Blast Theory.[118]

The work starts at a stand located either inside an institution or, as in Linz, in a public space. A recipient is offered the opportunity to borrow a bicycle, the handlebars of which are fitted with an Internet-capable tablet computer, and a pair of earphones with an integrated microphone. After a quick briefing, a recipient is free to cycle in whichever direction he prefers. He soon hears an instrumental piece of music played over the earphones, followed by an introductory text spoken by a woman:

Figure 5.18
Blast Theory: *Rider Spoke* (since 2007), visitor interactions in Linz, 2009.

This is one of those moments when you're on your own. You might feel a little odd at first, a bit self-conscious or a bit awkward. But you're all right, and it's OK. You may feel invisible tonight, but as you ride this feeling will start to change. Relax, and find somewhere that you like. It might be a particular building, or a road junction. It might be a mark on the wall, or a reflection on a window. When you have found somewhere that you like, give yourself a name, and describe yourself.[119]

As with Schemat's *Wasser*, the operational rules of this work are communicated in two separate moments. At the beginning, general instructions are given by an assistant; later a recorded woman's voice gives further directions via earphones. Matt Adams explains that the exact moment when the artistically staged interaction begins—when the recipient "enters into" the work—is primarily a question of individual interpretation. The artists see the brief introductory moment as an integral component of the project. Indeed, they consider it to be particularly significant for the very reason that many of the recipients do not yet contextualize it as part of their experience of the work.[120] At this stage of the work, the frames assumed or constructed by the different actors (artists and recipients) are not identical, and this brief mismatch facilitates a special moment of interaction—a smooth transition from organizational preparation to the real experience of the work.

The request that a recipient give himself a name is an invitation either to emerge from anonymity and act under his own name or to record his input under a pseudonym. All the participants interviewed reported having used their own names. In fact, in this project, it proved to be much more difficult to create a role (that is, to think up a fictitious story in response to the questions) than to respond honestly—perhaps because of the way in which the questions and requests were formulated.[121] This doesn't mean that it was easy to answer all the questions honestly, however. A recipient's willingness—or refusal—to reveal personal details is a crucial aspect of the aesthetic experience of this work, and represents a difficult challenge for many participants. Why should I confide personal experiences to a digital storage system? How should I spontaneously find answers that are worth recording? How do I feel about the topics that are addressed? How will I behave if I am not willing to be truly honest?

The invitation to look for a place to stop and give oneself a name changes a participant's behavior. Now he no longer wanders aimlessly around the city; instead, he looks for an appropriate location in which to make his recording (or perhaps he cycles toward a place he already knows and considers suitable).

A recipient records his statement through his headset's microphone, using a simple recording function that can be controlled via the touch screen of the tablet. Once the recording has been completed, the recipient can choose on the touch screen between answering a further question and listening to the answers of other participants: "Do you want to hide again or look for others?"

The two possible activities proposed in the work are those of the game Hide and Seek. Although the analogy with that children's game is mentioned in the project descriptions, at Linz it was not at the focus of the participants' attention.[122] In that manifestation of the project, it was easy to find responses by other participants because it was not necessary to locate the exact places where they had recorded them, but only the general area. Furthermore, it is almost impossible to hide in the city with a bicycle, apart from the fact that it is not really clear from whom one should be hiding—from other recipients who might find the recorded answers at a later time, from passers-by who might listen in as the recording is made, or simply from distractions in the immediate surroundings. Moreover, the technical workings (that is, the constituative rules) of the project do not really support the idea of a game of Hide and Seek. The hiding place must have WLAN reception so that the system can generate tracking information for the answer. The result is a curious situation: One must be locatable in Hertzian space while being asked to hide in real space.

Although the aim really isn't to hide successfully, the search for a suitable spot may nonetheless influence a recipient's mood and his perception. The searching phase gives the recipient time to reflect and at the same time increases his awareness of the surroundings. Similarly, the very proposal to look for others affects the recipient: Even if I am not really looking for other people (or places where others have answered questions), the idea that other participants are present or may have been present in the same area evokes a certain awareness of the space around me. I am prompted to experience it as an environment that contains spaces for personal withdrawal and levels of meaning that are not directly visible, and which is also colored by the present, past, and future presence of people.

If a recipient decides to look for "others" and resumes cycling, his display soon shows the names of other participants who have recorded statements near his current location. These can be activated via the touch screen. If the recipient decides to hide once again, a new request is made—to talk about a party he remembers, for example, or to choose a place that his father would like:

> Please, will you tell me about your father? You might want to pick a particular time in your father's life, or in your life. Freeze that moment, and tell me about your dad. What they look like, how they spoke, and what they meant to you. And while you think about this, I want you to find a place in the city that your father would like. Once you find it, stop there and record your message about your father in that moment in time.

It becomes evident that the requests follow a particular style. The recipient is asked politely to do something or recount something as a favor to the speaker, almost as if it were a personal courtesy. It is made clear that the recipient's willingness to divulge his thoughts is highly appreciated. However, the requests are elaborated and formulated in different ways, offering different alternatives ("in your father's life, or in your

life" / "what they look like, how they spoke"). The repetitions and variations create a distinctively calm and concentrated atmosphere, and also leave the recipients plenty of scope to reply. The operational rules are thus enveloped in atmospherically or emotionally suggestive formulations, while at the same time their specific details are often deliberately formulated in a very open way. Moreover, spatial and temporal references are often included in the requests. There are references to past times and events, but also to the current time and place of the recording ("pick a particular time" / "find a place your father would like" / "that moment in time" / "once you find it"). Although the questions are very open, they nonetheless steer the recipient's thoughts in a specific direction, insofar as they emphasize the importance of temporal relations, on the one hand, and the possible emotional impact of certain places or the personal memories and associations they evoke, on the other, even though they do not refer to specific places or times.

The artists composed the texts with great care. In fact, apart from the general architecture of the system, text is the means available to Blast Theory for orchestrating the activity of the recipients and shaping the emotional environment and the potential experiences of the work. The artists shape the experience via the content, wording, and tone of the requests and questions, as well as the music (a piece by the band Blanket). They know that they are asking a lot of the recipients in this project. Not only are the questions themselves very personal; the fact that the recipients must verbalize the thoughts that have been provoked in them, speak them out loud, and store them in a more or less public computer system, doesn't make it any easier to comply.[123] Thus, the artists had to create an atmosphere that would facilitate active participation. Their hope was that the texts would stimulate an "internal monologue" in which recipients would review and reflect on the questions and verbalize their own reactions and responses to them.[124] After various attempts, they decided not to engage a professional speaker to read the texts, but to entrust the task to Ju Row Farr, a member of Blast Theory. She recorded the texts in the middle of the night in a specially constructed, acoustically isolated setting. The texts themselves were written collaboratively by the artists and often relate to their own experiences or memories.[125] Thus, in a sense, the artists made a kind of advance investment by not simply formulating demands but also linking them to their own lives and recollections, composing the texts carefully, and charging them (e.g., by means of the chosen voice and tone) emotionally and atmospherically.

The recipients considered the voice and the wording of the requests an essential component of the work. Some of them noted that the questions had been very personal, or commented that normally they wouldn't talk about themselves in public. Although all claimed to have answered honestly (only two reported that they preferred not to respond to one question), some said that they had had to find a balance between their true thoughts and what they were willing to divulge. They felt that the

speaker's voice had been particularly important. One recipient said "the voice made me think a lot,"[126] and another recounted that she had asked herself afterwards what had led her to answer such very personal questions, and had concluded "I think it was the voice."[127] The participants did not generally experience the voice as a direct partner in communication, but neither did they feel that they were receiving purely technical feedback. One participant reported having experienced the interaction as communication with the artists. He compared the situation to reading a book, which also conveys the feeling of listening to the author's voice.[128] Participants who said that they had been nervous or uncertain at the beginning of the work reported that they were able to relax after a while, in many cases thanks to either the music or the voice.

The philosopher Gernot Böhme agrees that a text can conjure up an atmosphere: "The peculiar thing about reading a story or listening to a story being read is this: it not only tells us that there is a particular atmosphere reigning in some other place, but it also summons or conjures up that atmosphere."[129] This observation can also be applied to *Rider Spoke*. The voice creates a particular atmosphere, even though there is no construction of a fictional story in which the recipient is given a role. The artists make use of this circumstance in order to set the mood. By means of texts and music, they create an atmosphere that optimally supports the experience of the work.

A recipient can access other participants' responses to a question only if he has already answered the same question. Only after recording his own answer can he listen to other participants' responses. Many of the recipients we interviewed reported that they found it interesting to listen to other people's contributions, and some reported having been moved by particular responses.[130] Others were surprised by their own level of interest in the statements of strangers. Nearly all the recipients reported that other participants' responses had encouraged them to divulge their own thoughts. Matt Adams explains that the aim of the project was to create a "mutual supportive network of people talking in honest and intimate ways."[131] The artists wanted to give each participant the feeling that they belonged to a temporary community in which intensive communication could take place. They have repeatedly rejected the term "user-generated content" as applying to their works, for they believe that each of its words is too tainted with commercial connotations. For that reason, they prefer to speak of "publicly created contributions."[132] The participants in their projects would thus contribute in public to a collective project. But the participants' shared interest in something and their willingness to actively participate in it are at least as important as the archivable recordings.

Adams points out that the central theme of Blast Theory's work is social interaction, especially interaction between strangers in the urban context. The kind of interaction the group orchestrates is not based on face-to-face or real-time communication, however, nor does Blast Theory attempt to emulate these either in the relations between the recipients or by means of the pre-recorded texts. Even though the voice

addresses the recipient directly, it is clear that this is not an illusionistic simulation of real-time communication. In this project, communication takes the form of a general, asynchronous, and in a sense even anonymous exchange of reflections on and memories about one's own life and the city hosting the project. In accordance with the arguments by Nick Couldry discussed in chapter 4 above, Adams doesn't see this kind of communication as being in any way unusual. In fact, as social networks increasingly involve absence, distance, and technical mediation, this is becoming a more and more common everyday modality.[133] In the case of *Rider Spoke*, the asynchronous nature of the communication, together with the anonymity of the recorded statements, excludes the possibility of a direct reaction, which seems to make it even easier for some participants to divulge personal information.

The collection and the archiving of personal memories in *Rider Spoke* are reminiscent of oral history projects that view history as the sum of individual experiences and memories and therefore seek to document those experiences and memories authentically. Such projects are now also increasingly initiated by artists and directly linked by means of digital technology to significant places.[134] However, in *Rider Spoke* the focus is neither on the location of the recording nor on a particular historical or social theme. The project is about personal thoughts and recollections that serve more to create a kaleidoscope of human reflections and emotions than to document experiences of historical relevance. One could even argue that the content of the questions is of secondary importance. Whether the recipient is asked to talk about a party or an episode from his childhood, or about his father or some other close relative, the main purpose of the questions is always to encourage reflection on his own life and his social environment. The questions are designed to put the recipient in a certain mood—one in which the trip through the city is associated with personal thoughts and memories that are actively formulated and expressed. The texts are not so much operational demands as literary fragments that are supplemented in the context of the artwork by texts (or even thoughts) produced by the recipients. The result is the kind of intertextuality described by Roland Barthes. (See chapter 2 above.) The texts can be understood as elements of a network of expressed and consciously concealed, recorded and deleted, past, present, and potential thoughts that refer to one another in different ways.

Adams also points out that the main intention of the work is to give the recipient an opportunity to reflect on and talk about particular aspects of his life. However, it also offers the recipient the peculiar experience of being simultaneously very private and extremely public ("sliding across the line of entirely private and radio station broadcast to the entire population of a city").[135] The invitation to make a recording is also a means of encouraging the recipient to express personal thoughts out loud and in public.[136] The aim is not only to acquire utterances for storage that can be listened to by others, but also to induce the recipient to formulate them explicitly and to

express them in audible form, which, as speech-act theory points out, gives a statement a special status. The objective of this work may not be reality constitution in the sense of constitution of practical facts, but the participants' thoughts are nonetheless given linguistic and acoustic form. A survey of visitors conducted when the work was presented in London showed that this type of public self-expression was initially a challenge for many participants, no doubt also because the risk of being listened to by passers-by is much greater in a metropolis such as London than in a small city such as Linz, where it is easier to find places where one can be alone.[137]

Reality is also constituted in this project in the form of movement in real space, for the spatio-temporal setting of the work is another important element of the aesthetic experience. The spatio-temporal setting entails both the work's localization in public and urban space and the chosen time of day. For instance, the bicycles are not lent out until dusk, so the recipients experience the city in evening light and at a time of day when the streets are usually less busy, the pedestrians are less rushed, and the participants may be more at leisure to abandon themselves to the proposed experiences. Their experiences are significantly shaped by the combination of the movement through the city with the invitation to recall things. The mode of locomotion significantly influences the perception of space. On the one hand, cycling gives one a feeling of a direct physical presence in space. On the other hand, because the participants ride in a slightly elevated position and at cycling speed, there is a certain degree of distance between them and pedestrians. Cycling combines physical presence and distanced observation. The speed of locomotion can be varied, so that participants can perceive certain details thoroughly, if they wish, but can also quickly escape areas or situations they find uninteresting or frightening. Cycling encourages aimless wandering around the city. Because cyclists can get from one place to another relatively quickly, it is easy to decide spontaneously to change direction or to cycle into unknown areas. Matt Adams associates cycling with a feeling of freedom. He also believes that cycling has its own relationship with space and time, insofar as the length of a space-time unit amounts to about ten meters for a pedestrian but about fifty meters for a cyclist. His point is that cyclists cover a much greater distance than pedestrians between the intake or processing of different pieces of information or between two different strands of thought.[138]

Although cycling is not an unusual activity, the type of urban exploration proposed in *Rider Spoke* probably represents a novel experience for most of the participants. A bicycle is normally used either to reach a certain destination or for sport. And even people who are touring a city by bicycle usually follow either a guide or a map. They are usually not engaged in spontaneous and unguided exploration of the city or in the observation of details such as reflections in windows or marks on walls, as prompted in the introductory text. But the texts not only draw the recipient's attention to this type of detail; they also interpret the urban atmosphere and the events

located within it as potential triggers of personal memories or thoughts. Some participants were surprised themselves at this effect: "It is crazy how many memories come back just by going to places."[139]

Thus, the project is not concerned with actual places of public interest or buildings, nor is it a purposeful guided tour through urban space; rather, it focuses on the atmospheric potential of the city and on the recipient's experience of the city in the present moment. The interviews reveal that some of the recipients had decided in advance which locations they would like to visit, either because they particularly appealed to them or because they associated them with something special, but then in the course of the activity they spontaneously decided differently and ultimately tended to cycle aimlessly through the city and to stop in places that seemed to invite them to do so in the here and now. For example, one of the interviewees described the condition of "not knowing where I am going, even though I do" as a significant element of his aesthetic experience.[140] As a result, he succeeded in allowing himself to drift aimlessly through his native city. *Rider Spoke* enables a new perception of the urban space by means of purposeless action, which can be understood here in the spatial sense as non-directionality.

In addition to the intensive perception of the city and of details in the immediate environment, the project also invites recipients to observe strangers. One of the requests goes as follows:

> Will you be a voyeur for me? Please will you cycle back towards a busier place and look for someone who catches your eye? Stay back, don't intrude—just watch them and follow them. Think about who they might be, and where they might be going as you track them. Don't be afraid to make it all up. Then stop your bike, let them go, and tell me about them.

This request renders evident another strategy of the artists, one that further enforces the self-positioning of the recipient. The speaker sends the recipient onto the street as a spy. His job is to make observations on her behalf and then communicate them to her. In this moment, the recipient is working for an audience; he is invited to present something and thus to distance himself as an observer. The invitation to combine exploring the city with observing people can be interpreted as a statement about the basic components of a city. This project suggests that the (individual) perception of urban space is informed not only by buildings, scenic details, and objects, but also by the people who move within it. Thus, the project can be addressed as a successful manifestation of what Martina Löw calls synthesis—the arrangement of goods and people to form spaces by means of processes of perception, ideation, and recall.

The artists also point out that their projects differ from many other locative artworks in that they are not interested in a precise geographical characterization of a place, but in the encounter between spatial and social situations.[141] Thus, it is not

surprising that the interface doesn't provide a map of the area.[142] All it shows during the work is a deliberately simple comic-book-style drawing of a stereotypical city fringed by houses. The activity of hiding and the hiding places of others are symbolized by single houses, which also have no real connection to the city space.

However, the loose connection between both the interface and the texts and the actual surroundings irritated some of the Linz participants. They said that they would have expected a closer relationship between the requests and responses and specific locations, or that the participants' statements would refer more closely to the places they chose to make their recordings. In other words, these participants articulated typical expectations of a locative art project. But the artists call these expectations into question, also by means of the chosen technology. In fact, *Rider Spoke* doesn't use the GPS technology common to such projects; instead it uses "WiFi fingerprinting," which calculates the position of electronic devices by measuring the signal strength of the wireless networks available at their actual location so as to acquire an indexing "fingerprint" of the recipient's position. The result is a map of the action space that updates itself constantly as the positions and the succession of the different participants are recorded.[143] However, this tracking method also leads to substantial fluctuation in the evolving map, for wireless networks can be turned on and off, and transmission capacity varies depending on utilization levels. The consequence for *Rider Spoke* is that, although the responses of the players are indeed localized in the city, the positioning is based on a data network determined not only geographically but also socially. In other words, the technology of WiFi fingerprinting is the perfect companion to the perception of the city prompted by the texts as a place characterized by ephemeral situations and actions.[144]

The idea of staging an interactive artwork as a ride through a city is not a new one. Two of the pioneering works of interactive art were based on this concept: *Aspen Moviemap* (co-authored by a team of artists and engineers beginning in 1979) and Jeffrey Shaw's *Legible City* (1988–1991). However, each of those works consists of an interactive representation or simulation of a ride through the city, not a real activity in public space. Whereas Shaw, like Blast Theory, selects the bicycle as means of transportation, the authors of *Aspen Moviemap* select a car and (in a later version, *Karlsruhe Moviemap*) a tramway.

Nowadays, mobile technologies make it possible to stage such mediated forms of exploration in real space. Likewise, the participant's own movement through this space is no longer an illusion, but is real. Whereas the creators of the different versions of the *Moviemap* presented the chosen means of transportation via an interface featuring a typical control panel, Shaw created something that was at least comparable to the experience of cycling by using a modified bicycle, similar to a home trainer, as the work's interface. In *Legible City*, the recipient has to carry out the physical action

that an actual bicycle ride requires. The distance between the recipient and the virtual space is thus reduced; the physical movement simulates the real experience of cycling, which is supposed to be perceived as a trip through a model of a city.

In Blast Theory's work, a home trainer is no longer needed to make simulated locomotion seem more realistic, because the recipient really finds himself on a bicycle in the city. In addition to the physical experience of activating the equipment, he now also has the experience of locomotion in real space. As was noted above, the physical exertion of cycling has its own rhythm and even evokes a feeling of agency in some recipients.[145] Nonetheless, here, too, locomotion by bicycle leads to a distancing effect. Because everything is real, it is the bicycle that, as explained, causes a certain mental distance from the surrounding space, and this, in connection with the purposelessness of the movement, opens up the possibility of distanced observation.

Unlike the works described in the preceding case studies, *Rider Spoke* allows ongoing storage of assets on the part of the recipients. In addition to the texts recorded by the artists' group, the system stores personal memories, stories, and observations by the recipients. The project has a constantly growing archive of audio data that can be localized using a map that develops anew in each city, combined with an interface for recording and retrieving these assets.[146] It thus definitely has an emergent character, insofar as both the collection of texts and the map that shows where to find them take shape as they are referenced over the course of the project. Nonetheless, the concept of a growing archive doesn't adequately grasp the aesthetic potential of the work, insofar as the single recipient doesn't perceive the project primarily as an archival endeavor, but as an unrepeatable individual experience. This is based on the activity of cycling, on the atmosphere provided by the city space, and on the thoughts that the texts articulate and evoke. Although the realization of the interaction proposition can be described as a spatial activity (as a journey) or as a chronology (a succession of assets that are listened to, recorded, and retrieved), the aesthetic experience is constituted primarily through sensitization and self-reflection, which may be made possible by referenceable spatial and temporal activities but cannot be reduced to these. This is in accordance with the openness of the interaction proposition. Not only is the recipient entirely free to decide where he goes; he can activate or record texts or statements whenever he wants. The voice of the speaker makes suggestions about the perception of the city and prompts chains of thought, but then allows the participant time to reflect on these perceptions and thoughts. Although there is a time limit on the overall duration of the experience and on the duration of each single audio asset, the project only makes structural suggestions about the configuration of this time span and about the moment at which and the frequency with which assets are retrieved or recorded.

But what is it that frames the bicycle tour offered by *Rider Spoke* as a specifically aesthetic experience? On the one hand, aimless cycling around the city combined with

texts that heighten awareness leads to a more intense perception of the environment, including the notice of tiny details or momentary events. On the other hand, the speaker's requests encourage reminiscence, intense contemplation of one's own life, and an active self-questioning whose outcome—thanks to the invitation to speak aloud—is a perceptible manifestation. Both the atmosphere and the discursive intertextuality of the statements develop in an emergent process, insofar as ultimately neither can be controlled either by the interaction system or by the recipient alone. Matt Adams explains that Blast Theory's projects are challenging for recipients because they do not specify the framing conditions that apply to them—that is, where the boundaries should be set. Whereas recipients usually seek a clear distinction between art projects and their daily life, the artists try to circumvent these boundaries: "[T]hat sense of being imbalanced is an engine that sits at the heart of the work in some ways."[147] The realization of the work and its experience by the individual recipient oscillate in the borderline area between active commitment, distanced reception, and immersed participation, in the sense of being part of the atmospheric and intertextual emergence of the project. Again, in this work, not only may knowledge be achieved through conscious reflection on one's own experiences with the interaction proposition; knowledge can also be achieved through a cathartic transformation.[148] Exploration of the city becomes exploration of one's self—and vice versa.