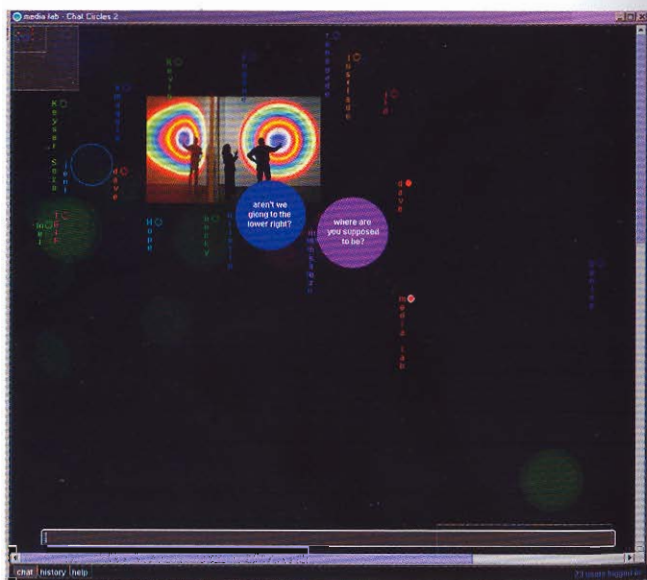




165. Warren Sack, *Conversation Map*, 2001–present. Participants in the conversation are represented as little nodes, and their exchanges are displayed as lines connecting them (proximity of the nodes indicates the amount of messages that have been exchanged between them). A menu of discussion themes lists the most commonly discussed topics in hierarchical order, and an overview panel presents the history of all messages exchanged over a given period of time. Terms in the conversation that are synonyms or have similar meaning are connected in a semantic network.

Dynamic visualizations of processes are not only created for different forms of data: they can also chart our own interactions, interventions, and communication as a community. E-mail and online chat have created new forms of communication environments, but most of them are lacking crucial information about the social interaction occurring during these conversations. With the development of more elaborate filtering and interfaces, the visualization of communication processes has become increasingly sophisticated and a field for artistic exploration. American artist Warren Sack's *Conversation Map* (since 2001) is one example of a possible mapping of communication: the *Conversation Map* is a browser that analyses the content of large-scale online e-mail exchanges (such as newsgroups) and uses the results of the analysis to create a graphical interface that allows users to see different social and semantic relationships. An earlier, well-known graphical representation of large-scale communication is *Chat Circles* by Judith Donath and Fernanda B. Viégas. Each person connected to the chat environment is represented as a coloured circle with the person's name attached to it. If users post a message it appears within their respective circle, makes the circle grow, and then gradually fades as time passes. In all likelihood, these types of dynamic maps of communication will increasingly become part of websites and networked environments that rely on online conversations.



166. Judith Donath and Fernanda B. Viégas, *Chat Circles*, 1999. Activity within the communication environment is indicated through changes in the size, colour, and location of the graphics. While users see all the other participants in the system – that is, they see their circles – they need to be physically close to be able to ‘read’ their conversation. Users outside the person's ‘hearing’ range are rendered differently: their circles appear as outlines.

Beyond the book: text and narrative environments

The electronically linked environments one now encounters in digital art and on the Internet are mostly mixed forms, incorporating text, images, and sounds and allowing users to manipulate them in various ways. While the WWW may be the most advanced actualization of Ted Nelson's dream of hypertext so far, his concepts of hypertext became a field of experimentation before there was a WWW, particularly in the writing community. One of the most popular hypertext environments is Storyspace, distributed by Eastgate Systems, who have published numerous titles of fiction and non-fiction created with the software since the early 1990s. Electronically linked environments have already had a profound impact on how we think about reading and writing by emphasizing the position of words in a contextual and referential framework. As electronically linked, nonlinear text, hypertext both embodies and tests aspects of postmodern critical theory, particularly those concerning textuality, narrative, and the roles or functions of reader and writer. With its webs of linked

text segments and networks of alternate paths, hypertext favours a plurality of discourses and blurs the boundaries between reader and writer. The author creates a map of the text with alternate paths and various options; readers assemble the story by choosing their routes through it (or even rewriting the text) and thus create an individual version of it. Since the reading process is nonsequential, the author can only to a certain extent predict which path readers will follow (or if they can follow at all). The author and reader of hypertext and hypermedia become collaborators in the mapping and remapping of textual, visual, and aural components.

Postmodern and poststructuralist theory would argue that textuality is by nature open-ended and the reading process is never sequential. Readers do not progress from word to word, line to line, page to page until they have finished the text. Rather they *perform* a text within referential frames and make multiple connections and associations while reading. Since the 1960s, reader-response criticism has emphasized the role of the reader in the construction of the text (is there a text without a reader?). However, the stability of traditional texts is both physical and psychological. The physical, stable presence of a text printed in a book or paper tends to deny the intangible, psychological text the reader attempts to construct. Hypertext and hypermedia abandon the physical stability of the printed text itself by adding technologized conventions: due to the mechanism of links, it is not predominantly the reader's interpretation of the text that changes but the text itself. Hypermedia applications strive to mimic the brain's ability to make associative references and use these references in order to access information. Hypertext fuses the reader and writer in a visible, surface-level manner that emphasizes the very qualities – the play of signs, intertextuality, the lack of closure – posed as the ultimate limitations of literature and language by the theory of deconstruction.

Digital technologies have induced an increased flexibility and instability of the printed text – from typography to the book and the construction of narrative – which has become a large field of artistic exploration. The artworks addressing these issues range from hypertext novels, which often combine text with visuals and sound, to experiments with typography and notions of the book. Masaki Fujihata's *Beyond Pages* (1995) is a classic of this genre, a project that explicitly juxtaposes traditional reading conventions with the possibilities brought about by the digital medium. In the installation, images of a leather-bound tome are

167 Masaki Fujihata, *Beyond Pages*, 1995. The apple and stone can be rolled and dragged across the page while sounds emulate the motion against the paper. Each object is accompanied by its name in Japanese script and if readers select a syllable of the script, a voice reads it.

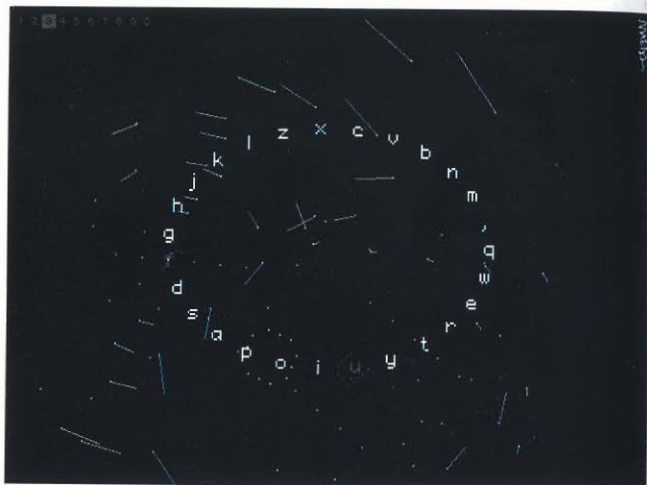


projected onto a table. Readers can activate the book by means of a light pen, animating the objects named in it, among them stone, apple, door, light. *Beyond Pages* materializes the metaphor of words becoming alive on the page, and part of its magical beauty resides in the fact that it visibly transcends the physical limitations of the book. A similar magical effect is achieved by *Text Rain* (1999), an installation by American artist Camille Utterback and Romy Achituv that enables users to physically interact with floating text. Users stand and move in front of a large projection, which shows their shadow image as well as a colour animation of letters that seem to be falling like raindrops. Since the letters are stopped by anything darker than a certain colour value, they 'land' on peoples' shadows and can be caught, lifted, or let fall through the movement of the users' hands, arms, and bodies. The participants thus literally construct the text through their movement, becoming 'bodies' that both inhabit the same space and interact with each other. Concepts of reactive graphics, interactive text, and typography have most consistently been developed by John Maeda (b. 1966). Blurring the boundaries between art

168. Camille Utterback and Romy Achituv, *Text Rain*, 1999



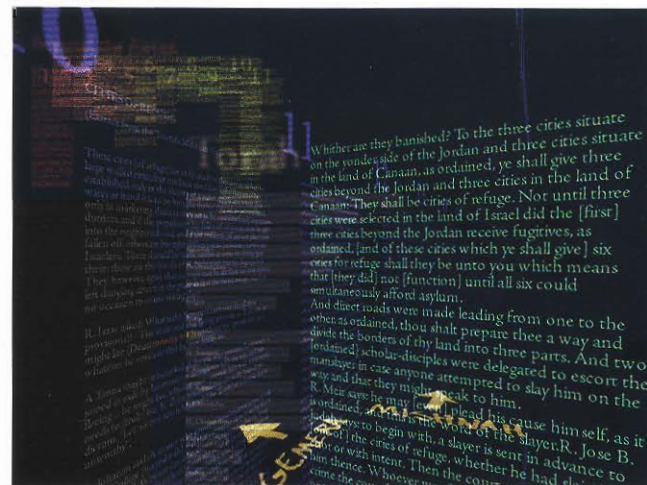
169. John Maeda, *Tap, Type, Write*, 1998



and design, Maeda has created a body of work that expands concepts of the desktop metaphor and of conveying information in digital and paper media. His project *Tap, Type, Write* (1998) creates a kind of typographic dance, in which letters move and rearrange themselves in ever-changing patterns, revealing the possible relationships between form and meaning. Maeda's digital works stand in the tradition of many famous typographers who investigated the nature of the letter's design as a carrier of meaning, and his intellectual and aesthetic rigour turns his investigations into spiritual rather than design exercises.

Through the lens of digital culture, books can be seen as information spaces with their own specific 'architecture'. Every form of writing is also a spatial practice, occupying and outlining space on paper or the screen and employing structural elements such as sentences, sections, and paragraphs. In his *Talmud Project* (1998–9), David Small (with Tom White) created a virtual reading space that both establishes connections to and transcends the information architecture of the book. Using a portion of the Talmud – the ancient book of Jewish religious law – as well as commentary on the Talmud by the French philosopher Emmanuel Levinas, Small created a narrative and reading space that makes all the text available in its entirety, yet allows readers to focus on specific sections without losing the contextual framework. Small and White approached the concepts of multiplicity from a different angle in their project *Stream of Consciousness/Interactive Poetic Garden* (1998), which quite literally establishes a connection to the 'stream of consciousness' technique of literary

170. David Small, *Talmud Project*, 1999. The text is 'stacked' in transparent layers and readers can shift scale and focus to make sections of the text readable while others fade to the back, becoming illegible yet staying in context. The architecture of the space becomes a metaphor both of the reading process – as layered and contextual – and Talmudic study itself.

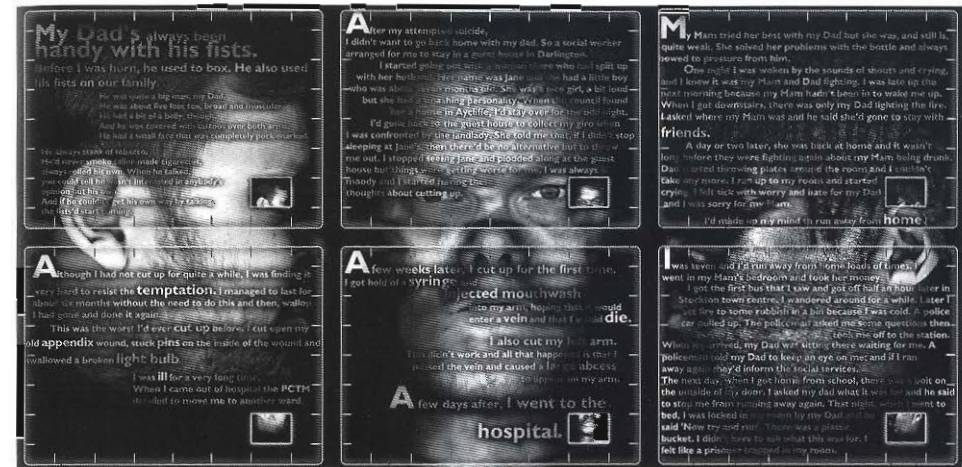


171. David Small and Tom White, *Stream of Consciousness/Interactive Poetic Garden*, 1998. The installation consists of a small, two-metre-square garden with water streaming down a series of cascades into a pool. Strings of words are projected onto the water's surface, flowing and whirling around, seemingly moved by the current. Users can interact with the words by touching the flow, blocking and dividing the words and arranging them into new connections. The flow and words are pulled into the pool's drain and pumped back to the spring where they start flowing down again.



modernism. Authors such as James Joyce and Virginia Woolf invented and perfected this technique by striving to locate their narratives completely within the thoughts and perceptions of their novels' protagonists. The *Interactive Poetic Garden* turns the 'stream of consciousness' into a natural, tangible phenomenon, extrapolated from the mind into an environment where text seemingly takes on its own life.

Projects addressing the 'physicality' of typography and writing spaces are complemented by the vast body of hypertext writings that consist of predominantly text-based, nonlinear narratives. While the hypertext writing community is quite large, relatively few of these writings have been recognized in an art context. Among them are Mark Amerika's *Grammatron* (1997), one of the first online hypertext novels, which tells the story of the creature Grammatron, a digital being encoded in a magic sorcerer-code called Nanoscript – the underlying code that transcribed the evolution of consciousness in a natural world. *Grammatron* aspires to be an electronic book of origins, a form of digital bible and consists of over a thousand text spaces, a soundtrack, as well as animated and still-life images. Hypertext reading and writing in many ways differ from the process of creation and reception of printed texts. A reader whose expectations and reading interests are fuelled by the question 'What is happening to whom, and when and why?' may be disappointed and frustrated. Since there is no fixed narrative sequence, a reader may not be sure why something is happening to a protagonist/narrator, or even what exactly is happening or when; a reader may even have doubts as to whom the narrator is – in the sense that the narration may seem to presuppose knowledge and information the reader will come across only later in his reading. Hypertext tends to obscure cause-and-effect relationships and requires structures that can function as a tool of orientation for the reader (such as underlying metaphors). The absence of a 'physical' ending, a last page, is another challenge unique to the hypertext medium. Readers may quit the text without an ending unless they supply the story with a form of closure themselves. All hypertexts are open-ended in the sense that the story can be endlessly reconfigured depending on the choices the reader makes while navigating it. Yet projects such as the ones mentioned above are still relatively closed systems in that the materials are provided by the author. Many hypertext projects have also been experimenting with narratives that are open to contributions by the public.



172. Graham Harwood, *Rehearsal of Memory*, 1996. Moving over body parts, many of them covered with tattoos, users uncover text fragments that tell the stories of the inmates – stories of revenge, violence, and self-mutilation. The multimedia collage successfully blends the surface of the body with its psychology, inscribing personal stories on the person's skin.

Most of the narrative projects in the realm of digital art are not primarily text-based but tell their stories in a hypermedia environment, connecting text with visuals and sounds. The term 'narrative' is obviously extremely broad and, in this context, is meant to refer to works that explicitly represent an unfolding story (as opposed to the story that is told by a picture, or cultural narratives that develop on a meta-level). Many projects mentioned within the interactive film and video section of this book – such as Toni Dove's interactive films or Grahame Weinbren's *Sonata* and David Blair's *WAXWEB* – are prime examples of hypermedia narrative.

A variety of hypermedia narratives has also been published on CD-ROM, many of them at a time when the WWW did not have an infrastructure to support complex visual experiments and when the average speed of computers and Internet connections were much slower. The CD-ROM *Rehearsal of Memory* (1996) by the British artist Graham Harwood, a member of the artists' collective Mongrel, creates its interface out of a collage of the skins of the inmates and staff of Ashworth Hospital, a hospital for the criminally insane in Liverpool where Harwood worked with a staff-patient artist group for several months. Harwood forces us to look into the face of a part of society we are inclined to forget, staging 'a rehearsal of memories not quite forgotten'. A very different type of collage interface was created by Jim Gasperini and Tennessee Rice Dixon *ScruTiny in the Great Round* (1996), a CD-ROM incarnation of a book of collage art by Dixon that was 'translated' into its new medium in a collaborative effort.



173. Jim Gasperini and Tennessee Rice Dixon, *ScruTiny* in the Great Round, 1996. In each of the scenes, the cursor can take a sun and a moon form, and users can journey into the symbolic realms of 'Romance', 'Pregnancy', 'Nesting', 'Recollection', 'Confrontation', etc., all of which have their incarnation on the sun and the moon level. *ScruTiny* develops a mythic, archetypal rendition of the cycles of life that seems to spring 'unfiltered' from the unconscious mind.

The basic structure is formed by a variety of scenes, each of them collages consisting of morphing images, animated sequences, and 3D elements. The CD-ROM is, as Dixon puts it, 'scrutinizing in the great round of life': the morphing images suggest seasons passing and cycles of death and birth, blending various symbols from Greek and Egyptian mythology and Buddhist religion, such as fertility symbols or mandalas. The structure of hyper-linked visual and textual environments – where readers look for 'clues' in assembling a narrative – is one of the obvious connections between hypermedia and games, which constitute a different form of narrative environment and have experienced an explosion since the advent of digital technologies.

Gaming

The gaming industry has been an important element in the 'digital revolution' and has become a billion-dollar enterprise that even exceeds the film industry. Artists have used and referenced games and game-like structures in multiple ways. Gaming references in digital art have occasionally been called a 'trend' or a

'new style' – a statement that neglects many of the inherent connections between the two realms. Games are an important part of digital art's history in that early on they explored many of the paradigms that are now common in interactive art. These paradigms range from navigation and simulation to linked narratives, the creation of 3D worlds, and multi-user environments. Games come in a variety of genres, such as strategic ones, shooters, god games, and action/adventure. The game *Myst* and its successor *Riven* are examples of elaborate environments that combine basic structures of hypertext and the detective game: players have to search for clues (sometimes consisting of notes and inscriptions) to navigate the world and solve the puzzle. Early text-based *Dungeons and Dragons* games found their extensions in MUDs and MOOs, and were expanded in more sophisticated, visual online games such as *Ultima Online* and *Everquest*.

Many, if not most, of the successful video games are extremely violent 'shooters' that seem antithetical to art. At the same time, these games often create very sophisticated visual worlds. It seems only natural that digital artworks would take a critical look at their interactive predecessors and counterparts and explore their paradigms in a different context. Among the often referenced classics in the pantheon of video games are *Castle Wolfenstein*, a World War II game named after Hitler's castle in which players have to escape a Nazi dungeon and fight the Third Reich, and *Quake* and *Doom*, where players fight as warriors on stages of harrowing landscapes or battle demons on the moons of Jupiter. One essential characteristic that many of these games share with interactive, digital art is that they are collaborative and participatory: players/users often have to collaborate with each other in order to win the game; they form guilds and communities, cooperative relationships. Another aspect of participation that games and digital art projects have in common is that of audience contribution: just as many artworks rely on audience input, be it in the forms of visuals or text, some games are open to expansions and contributions from the player, which might take the form of so-called 'skins' or 'patches'. Metaphorically speaking, skins are the 'clothing' that players/users can add to a character or scene, while patches are self-programmed extensions that actually modify the 'behaviour' of a game world or character. Role-playing is yet another crucial element that surfaces in both computer games and the digital art projects focusing on communities and allowing users to create virtual representations.