Understanding Hybid Media

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The Invisible Revolution

In the second part of the 1990s, moving-image culture went through a fundamental transformation. Previously separate media—live-action cinematography, graphics, still photography, animation, 3D computer animation, and typography—started to be combined in numerous ways. By the end of the decade, the "pure" moving-image media became an exception and hybrid media became the norm.

Here are a few examples.[i] A music video may use live action while also employing typography and a variety of transitions done with computer graphics (video for "Go" by Common, directed by Convert/MK12/Kanye West, 2005). Or it may embed the singer within an animated painterly space (video for Sheryl Crow's "Good Is Good," directed by Psyop, 2005). A short film may mix typography, stylized 3D graphics, moving design elements, and video (*Itsu* for Plaid, directed by the Pleix collective, 2002[ii]).

In some cases, the juxtaposition of different media is clearly visible (video for "Don't Panic" by Coldplay, 2001; main title for the television show *The Inside* by Imaginary Forces, 2005). In other cases, a sequence may move between different media so quickly that the shifts are barely noticeable (GMC Denali "Holes" commercial by Imaginary Forces, 2005). Yet in other cases, a commercial or a movie title may feature continuous action shot on video or film, with the image periodically changing from a more natural to a highly stylized look.

Such media hybridity does not necessary manifest itself in a collage-like aesthetics that foregrounds the juxtaposition of different media and different media techniques. As a very different example of what media remixability can result in, consider a more subtle aesthetics well captured by the name of the software that to a large extent made the hybrid visual language possible: After Effects (first released in 1993). If in the 1990s computers were used to create highly spectacular special effects or "invisible effects,"[iii] toward the end of that decade we see something else emerging: a new visual aesthetics that goes "beyond effects." In this aesthetics, the whole project—whether a music video, a TV commercial, a short film, or a large segment of a feature film—displays a hyper-real look in which the enhancement of live-action material is not completely invisible but at the same time it does not call attention to itself the way special effects usually

tended to do (examples: Reebok I-Pump "Basketball Black" commercial and *The Legend of Zorro* main title, both by Imaginary Forces, 2005).

Although the particular aesthetic solutions vary from one video to the next and from one designer to another, they all share the same logic: the simultaneous appearance of multiple media within the same frame. Whether these media are openly juxtaposed or almost seamlessly blended together is less important than the fact of this copresence itself.

(Note that each of the examples above can be substituted by numerous others. You can easily find examples of all the various aesthetics I will be discussing in this essay by simply watching television in most countries and paying attention to the graphics, going to a club to see a VJ performance, visiting the websites of motion-graphics designers and visual-effects companies, or opening any book on contemporary design.)

Today, hybrid visual language is also common to a large proportion of short "experimental" and "independent" (i.e., not commissioned by commercial clients) videos being produced for media festivals, the web, mobile media devices, and other distribution platforms.[iv] Many visuals created by VJs and "live cinema" artists are also hybrid, combining video, layers of 2D imagery, animation, and abstract imagery generated in real time.[v] And as the animations of Jeremy Blake, Ann Lislegaard, and Takeshi Murata demonstrate, works created explicitly for art-world distribution similarly often choose to use the language of hybridity.

In contrast to other computer revolutions, such as the fast growth of World Wide Web in the second part of the 1990s, the revolution in moving-image culture that took place around the same time was not acknowledged by the popular media or by cultural critics. What received attention were the developments that affected narrative filmmaking—the use of computer-produced special effects in Hollywood feature films or the inexpensive digital video and editing tools outside of it. But another process that happened on a larger scale—the transformation of the visual language used by most forms of moving images outside of narrative films—has not been critically analyzed. In fact, although the results of these transformations were fully visible by about 1998, at the time of this writing (spring 2007), I am not aware of a single theoretical article discussing them.

One reason is that in this revolution no new media per se were created. Designers were making still images and moving images just as they had in the previous decade, but the visual language of these images was now very different. In fact, it was so new that, in retrospect, the postmodern imagery of the 1980s, which at the time looked strikingly radical, now appears as a barely noticeable blip on the radar of cultural history.

Since the end of the 1990s, the new hybrid visual language of moving images has dominated global visual culture. While narrative features still mostly use live-action footage, and videos shot by "consumers" and "prosumers" with commerical video cameras and cell phones are similarly usually left as is (at least, for now), almost everything else is hybrid. This includes commercials, music videos, motion graphics, TV graphics, dynamic menus, graphics for mobile media content, and other types of animated, short nonnarrative films and moving-image sequences being produced åaround the world today by media professionals, including companies, individual designers and artists, and students. I believe that at least 80 percent of such sequences and films follow the aesthetics of hybridity. (This includes practically all "motion graphics," i.e., animated nonnarrative sequences that appear as parts of longer pieces.)

Today, narrative features rarely mix different graphical styles within the same frame. However, a number of recent films have featured the kind of highly stylized aesthetics that would have previously been identified with illustration rather than filmmaking: Larry and Andy Wachowski's *Matrix* series (1999–2003), Robert Rodriguez's *Sin City* (2005), and Zack Snyder's *300* (2007). These feature films are a part of a growing trend to shoot a large portion of the film using a "digital backlot" (green screen).[vi] Consequently, most or all shots in such films are created by composing the footage of actors with [or: making a composite of the footage with actors and] computer-generated sets and other visuals.

These films do not juxtapose their different media in as dramatic a way as what we commonly see in motion graphics. Nor do they strive for the seamless integration of CGI (computer-generated imagery) visuals and live action that characterized the earlier special-effects features of the 1990s, such as *Terminator 2* (1991) and *Titanic* (1997) (both by James Cameron). Instead, they explore the space in between juxtaposition and complete integration.

Matrix, *Sin City*, *300*, and other films shot on a digital backlot combine multiple media to create a new stylized aesthetics that cannot be reduced to the already familiar look of

live-action cinematography or 3D computer animation. Such films display exactly the same logic as motion graphics, which at first sight might appear to be very different. This logic is the same one we observe in the creation of new hybrids in biology. That is, the result of the hybridization process is not simply a mechanical sum of the previously existing parts but a new "species"—a new kind of visual aesthetics that did not exist previously.

Media Hybridity in *Sodium Fox* and *Untitled (Pink Dot)*

Blake's *Sodium Fox* and Murata's *Untitled (Pink Dot)* (both 2005) offer excellent examples of the new hybrid visual language that currently dominates moving-image culture. (To be more precise, we should call this language a *metalanguage* since it includes numerous grammars and styles.) Among the many well-known artists working with moving images today, Blake was the earliest and most successful in developing his own style of hybrid media. His video *Sodium Fox* is a sophisticated blend of drawings, paintings, 2D animation, photography, and effects available in software. Using a strategy commonly employed by artists in relation to commercial media in the twentieth century, Blake slows down the fast-paced rhythm of motion graphics as they are usually practiced today. However, despite the seemingly slow pace of his film, it is as informationally dense as the most frantically changing motion graphics such as one may find in clubs, music videos, television station IDs, and so on. *Sodium Fox* creates this density by exploring in an original way the basic feature of the software-based production environment in general and programs such as After Effects in particular, namely, the construction of an image from potentially numerous layers. Of course, traditional cel animation as practiced in the twentieth century also involved building up an image from a number of superimposed transparent cels, with each one containing some of the elements that together make up the whole image. For instance, one cel could contain a face, another lips, a third hair, yet another a car, and so on.

With computer software, however, designers can precisely control the transparency of each layer; they can also add different visual effects, such as blur, between layers. As a result, rather than creating a visual narrative based on the motion of visual elements through space (as was common in twentieth-century animation, both commercial and experimental), designers now have many new ways to create visual changes. Exploring these possibilities, Blake crafts his own visual language in which visual elements positioned on different layers are continuously and gradually "written over" each other. If we connect this new language to twentieth-century cinema rather than to cel animation, we can say that rather than fading in a new frame as a whole, Blake

continuously fades in separate parts of an image. The result is an aesthetics that balances visual continuity with a constant rhythm of visual rewriting, erasing, and gradual superimposition.

Like *Sodium Fox,* Murata's *Untitled (Pink Dot)* also develops its own language within the general paradigm of media hybridity. Murata creates a pulsating and breathing image that has a distinctly biological feel to it. In the last decade, many designers and artists have used biologically inspired algorithms and techniques to create animal-like movements in their generative animations and interactives. However, in the case of *Untitled (Pink Dot)*, the image as a whole seems to come to life.

To create this pulsating, breathing-like rhythm, Murata transforms live-action footage (scenes from one of the *Rambo* films) into a flow of abstract color patches (sometimes they look like oversize pixels, and at other times they may be taken for artifacts of heavy image compression). But this transformation never settles into a final state. Instead, Murata constantly adjusts its degree. (In terms of the interfaces of media software, this would correspond to animating a setting of a filter or an effect). One moment we see almost unprocessed live imagery; the next moment it becomes a completely abstract pattern; the following moment parts of the live image again become visible, and so on.

In *Untitled (Pink Dot)* the general condition of media hybridity is realized as a permanent metamorphosis. True, we still see some echoes of movement through space, which was the core method of predigital animation. (Here this is the movement of the figures in the live footage from *Rambo*.) But now the real change that matters is the one between different media aesthetics: between the texture of a film and the pulsating abstract patterns of flowing patches of color, between the original "liveness" of human figures in action as captured on film and the highly exaggerated artificial liveness they generate when processed by a machine.

Visually, *Untitled (Pink Dot)* and *Sodium Fox* do not have much in common. However, as we can see, both films share the same strategy: creating a visual narrative through continuous transformations of image layers, as opposed to discrete movements of graphical marks or characters, which was common to both the classic commercial animation of Disney and the experimental classics of Norman McLaren, Oskar Fischinger, and others. Although we can assume that neither Blake nor Murata has aimed to achieve this consciously, in different ways each artist stages for us the key technical and conceptual change that defines the new era of media hybridity. Media

software allows the designer to combine any number of visual elements regardless of their original media and to control each element in the process. This basic ability can be explored through numerous visual aesthetics. The films of Blake and Murata, with their different temporal rhythms and different logics of media combination, exemplify this diversity. Blake layers over various still graphics, text, animation, and effects, dissolving elements in and out. Murata processes live footage to create a constant image flow in which the two layers—live footage and its processed result—seem to constantly push each other out.

Deep Remixability

It is a truism that we live in a "remix culture." Today, many cultural and lifestyle arenas—music, fashion, design, art, web applications, user-created media, food—are governed by remixes, fusions, collages, or mash-ups. If postmodernism defined 1980s, remix definitely dominates 2000s, and it will probably continue to rule the next decade as well. Following are just a few examples of the current diversity in remix practices. In his 2004–5 winter collection, John Galliano (a fashion designer for the house of Dior) mixed vagabond look, Yemenite traditions, Eastern European motifs, and other sources, which he collects during his extensive travels around the world. Over the last few years, DJ Spooky has been working on *Rebirth of a Nation*, a feature-length remix of D. W. Griffith's 1915 film *The Birth of a Nation.* In April 2006, the Annenberg Center at the University of Southern California ran a two-day conference on "Networked Publics," which devoted separate sessions to various types of remix cultures on the web: political remix videos, anime music videos, machinima, alternative news, infrastructure hacks, and the like.[vii] (In addition to these, the web also houses a growing number of software mash-ups defined by Wikipedia as "a website or application that combines content from more than one source into an integrated experience.")[viii]

Remixing originally had a precise and narrow meaning specific to music. Although precedents of remixing can be found earlier, it was the introduction of multitrack mixers in the 1970s that made remixing a standard practice. With each element of a song—vocals, drums, etc.—available for separate manipulation, it became possible to remix the song—to change the volume of some tracks or substitute new tracks for the old ones. Gradually the term *remix* became more and more broad, today referring to any reworking of already existing cultural work(s), whether visual projects, software, or literary texts.

Can we understand the new hybrid language of moving image as a type of remix? I believe so—if we make one crucial distinction. Typical remix combines content within the same media or content from different media. For instance, a music remix may combine music elements from any number of artists; anime music videos may combine parts of anime films and music taken from a music video. Professionally produced motion graphics and other moving-image projects also routinely mix together content in the same media and/or from different media. For example, in the beginning of the "Go" music video, the video rapidly switches between live-action footage of a room and a 3D model of the same room. The live-action shots also incorporate a computer-generated plant and a still photographic image of mountain landscape. Later, shots of a female dancer are combined with elaborate animated typography. Throughout the video, we also see the characters being transformed into abstract animated patterns. And so on.

Such remixes of content from different media are definitely common today in moving-image culture. But for me, the essence of the "hybrid revolution" lies in something else altogether. Let's call it "deep remixability." *What gets remixed today is not only content from different media but also their fundamental techniques, working methods, and ways of representation and expression.* United within the common software environment, cinematography, animation, computer animation, special effects, graphic design, and typography have come to form a new *metamedium.* A work produced in this new metamedium can use all the techniques, or any subset of these techniques, that were previously unique to these different media.

We may think of this new metamedium as a vast library of all previously known media techniques. But that is not all. Once all types of media met within the same digital environment—and this was accomplished in the second part of the 1990s—they started *interacting* in ways that could never have been predicted or even imagined previously.

For instance, while particular media techniques continue to be used in relation to their original media, they can also be applied to other media. Here are a few examples of this "crossover" logic: typography is choreographed to move in 3D space; motion blur is applied to CGI; algorithmically generated fields of particles are blended with live-action footage to give it an enhanced look; a virtual camera is made to move around a virtual space filled with 2D drawings. In each of these examples, the technique that was originally associated with a particular medium—cinema, cel animation, photorealistic computer graphics, typography, graphic design—is now applied to a diffirent media.

Such interaction among virtualized media techniques is a key feature of moving-image culture today. Therefore, I have decided to introduce a special term—*deep remixability*—to differentiate it from the simple remix of media content with which we are all familiar, be it music remixes, anime video remixes, 1980s postmodern art and architecture, and so on.

From Media to Algorithms

Why did the hybrid revolution take place? Why do the numerous moving-image sequences we see today use juxtapositions of media and hybrids of different media techniques as their basic aesthetic principle? We can identify many social and cultural factors that all could have played, and probably did play, some role since their emergence in the 1990s—for instance, branding, experience economy, youth markets, and the web. However, I believe that these factors alone cannot account for the specific design and visual logics that we see today in media culture. Similarly, they cannot be explained by simply saying that contemporary global consumption societies require constant innovation, novel aesthetics, and effects. This may be true—but why do we see these particular visual languages as opposed to others, and what is the logic that drives their evolution? I believe that to properly understand this, we need to carefully look at media design software and its use in production environments.

In the middle of the 1990s, relatively inexpensive graphics workstations and personal computers running image editing, graphic design, animation, video editing, compositing, special effects, and illustration software became commonplace and affordable for freelance graphic designers, illustrators, and small postproduction and animation studios. As we have seen, the results were dramatic. Within about five years, modern visual culture was fundamentally transformed. However, the makers of software used in production usually do not set out to create a revolution. On the contrary, software is usually created to fit into already existing production procedures, job roles, and familiar tasks. This applies to most media design software released in the 1990s.

But software is like various species within the common ecology—in this case, a shared computer environment. Once "released," they start interacting, mutating, and making hybrids. The invisible revolution that took place in the second part of the 1990s can therefore be understood as *the period of systematic hybridization between different software originally designed to be used by professionals working in different media.* By

1993, the key software applications were already available: Adobe Illustrator for making vector-based drawings, Adobe Photoshop for editing of continuous-tone images, Wavefront and Alias for 3D modeling and animation, and Adobe After Effects for 2D animation and visual effects. In the second part of that decade, software manufacturers gradually added technologies that made these programs compatible with one another. As a result, by the end of the 1990s, a designer could combine operations and representational formats such as a bitmapped still image, a vector image, a 3D model, and digital video within the same design project. I believe that the hybrid visual language we see today across moving-image culture and media design in general is largely the outcome of this new compatibility among key media design software.

While this language supports seemingly numerous variations as manifested in the particular media designs, its general logic can be summed up in one phrase: hybridization, or deep remixability, of previously separate media techniques and media languages. The crossover effect is one manifestation of this deep remixability. Another crucial effect relates to the changes in the way that separate media techniques can function. Yet another effect is the transformation of what were previously unavoidable artifacts of media technologies into new techniques for media design.

Let us look in detail at a particular example, which will illustrate the last two effects. What does it mean when we see depth-of-field effects in motion graphics, films, and television programs that use neither live-action footage nor photorealistic 3D graphics but have a more stylized look? Originally an artifact of lens-based recording, depth of field was simulated in 3D computer graphics when the goal was to create maximum "photorealism," i.e., synthetic scenes that could not be distinguished from live-action cinematography.[ix] But once this technique became available, media designers gradually realized that it could be used regardless of how realistic or abstract the overall visual style was—as long as there was a suggestion of 3D space. Typography moving in perspective through an empty space; drawn 2D characters positioned on different layers in a 3D space; a field of animated particles—any composition can be put through the simulated depth-of-field effect.

The fact that this effect is simulated and removed from its original physical media means that a designer can manipulate it in a variety of ways. The parameters that define what part of the space is in focus can be animated independently—for example, set to change over time—because they are simply the numbers controlling the algorithm and not something built into the optics of a physical lens. So while simulated depth of

field can be said to maintain the memory of the particular physical media (lens-based photography and film recording) from which it came, it developed into an essentially new technique that functions as a "character" in its own right. It has a fluidity and versatility not available previously. Its connection to the physical world is ambiguous at best. On the one hand, it only makes sense to use depth of field if you are constructing a 3D space, even if it is defined in a minimal way by using only a few or even a single depth cue, such as lines converging toward the vanishing point or foreshortening. On the other hand, the designer can be said to "draw" this effect in any way desirable. The axis controlling depth of field does not need to be perpendicular to the image plane; the area in focus can be anywhere in space, and it can also move quickly around the space.

As this example shows, computerization virtualized practically all media creating and modification techniques, "extracting" them from their particular physical medium of origin and turning them into algorithms. This means that, in most cases, we will no longer find any of these techniques in their pure original state. The media techniques became "supercharged" and amplified; their range and application were extended; and their controls were made explicit, formalized, quantifiable, and programmable.

The Variable Form

As the films of Blake and Murata illustrate, in contrast to twentieth-century animation, in contemporary motion graphics the transformations often affect the frame as a whole. Everything inside the frame keeps changing: visual elements, their transparency, the texture of the image, etc. In fact, if something stays the same for a while, that is an exception rather than the norm.

Such *constant change on many visual dimensions* is another key feature of animated sequences and short films produced today. Just as we did in the case of media hybridity, we can connect this preference for constant change to the particulars of software used in media design.

Digital computers allow us to represent any phenomenon or structure as a set of variables. In the case of design and animation software, this means that all possible forms—visual, temporal, spatial, interactive—are similarly represented as sets of variables that can change continuously. This new logic of form is deeply encoded in the interfaces of software packages and the tools they provide. In 2D animation/compositing software such as After Effects, each new object added to the scene by a designer shows up as a long list of variables—geometric position, color,

transparency, and the like. Each variable is immediately assigned its own channel on the timeline used to create animation.[x] In this way, the software literally invites the designer to start animating various dimensions of each object in the scene. The same logic extends to the parameters that affect the scene as a whole, such as the virtual camera and the virtual lighting. If you add a light to the composition, this immediately creates half a dozen new animation channels describing the colors of the lights, their intensity, position, orientation, and so on.

During the 1980s and 1990s, the general logic of computer representation—that is, representing everything as variables that can take on changing values—was systematically embedded throughout the interfaces of media design software. As a result, although a particular software application does not directly prescribe to its users what they can and cannot do, the structure of the interface strongly influences the designer's thinking. In the case of moving-image design, the result of having a timeline interface with multiple channels all just waiting to be animated is that they usually do get animated by the designer. If previous constraints in animation technology—from the first optical toys in the early nineteenth century to the standard cel animation system in the twentieth century—resulted in an aesthetics of discrete and limited temporal change, then the interfaces of computer animation software quickly led to a new aesthetics: the continuous transformations of all image elements and often the image as a whole.

This change in animation aesthetics deriving from the interface design of animation software was paralleled by a change in another field—architecture. In the mid-1990s, when architects started to use software originally developed for computer animation and special effects, including Alias and later Maya, the logic of animated form entered architectural thinking as well. As already noted, animation software conceptualizes form as being inherently and infinitely variable. Even more crucial was the exposure of architects to the new generation of modeling tools in the animation software of the 1990s. For decades, the main technique for 3D modeling was to represent a virtual object as a collection of flat polygons. But by the mid-1990s, the faster processing speeds of computers and the increased size of computer memory made it practical to offer another technique on desktop workstations—spline-based modeling. This new technique for representing form pushed architectural thinking away from rectangular modernist geometry and toward the privileging of smooth and complex forms made from continuous curves. As a result, since the late 1990s, the aesthetics of "blobs" has come

to dominate the thinking of many architecture students, young architects, and even already well-established "star" architects.

But this was not the only consequence of the switch from traditional architectural tools and CAD software to animation/special effects software. Traditionally, architects created new projects on the basis of existing typology. A church, a private house, a railroad station all had their well-known types—the spatial templates determining the way space is to be organized. Similarly, when designing the details of a particular project, an architect would select from the various standard elements with well-known functions and forms: columns, doors, windows, etc.[xi] In the twentieth century, mass-produced housing only further embraced this logic, which eventually became encoded in the interfaces of CAD software.

But when, in the early 1990s, Gregg Lynn, Lars Spuybroek, the firm Asymptote, and other young architects started to use 3D software that had been created for other industries—computer animation, special effects, computer games, and industrial design—they found that this software came with none of the standard architectural templates or details. In addition, if CAD software for architects assumed that the basic building blocks of a structure are rectangular forms, 3D software came with different geometric primitives—smooth curves and 3D surfaces and solids made from such curves—which were appropriate for the creation of characters and products.

As a result, rather than being understood as a composition made up of template-driven standardized parts, a building could now be imagined as a single continuous curved form that can vary infinitely. It could also be imagined as a number of continuous forms interacting together. In either case, the shape of each of these forms was not determined by any kind of a priori typology.

(In retrospect, we can think of this highly productive "misuse" of 3D animation and modeling software by architects as another case of a crossover logic. In this case, it is a crossover between the conventions and the tools of one design field—character animation and special effects—and the ways of thinking and knowledge of another field, namely, architecture.)

Relating this discussion of architecture to our main subject here—animated graphics—we can see now that both fields were by the 1990s using computerization in a structurally similar way. In the case of animated images, until that decade, changes in

an image over time were limited, discrete, and usually semantically driven (connected to the narrative). After the switch to software, moving images came to feature constant changes on many visual dimensions that were no longer limited by the semantics. As defined by numerous motion-graphics projects of the 2000s, contemporary temporal visual form constantly changes, pulsates, and mutates beyond the need to communicate meanings and narrative. (The films of Blake and Murata offer striking examples of this new aesthetics of a variable form; many other examples can easily be found by surfing websites that collect works by motion graphics studios and individual designers.)

A parallel process took place in architectural design. The differentiations in a traditional architectural form were connected to the need to communicate meaning and/or to fulfill the architectural program.An opening in a wall was either a window or a door; a wall was a boundary between functionally different spaces. Thus, just as in animation, the changes in the form were limited and they were driven by semantics. But today, the architectural form designed with modeling software can change continuously, and these changes no longer have to be justified by function.

The Yokohama International Port Terminal (2002; fig. 00), designed by Foreign Office Architects, illustrates very well the aesthetics of variable form in architecture. The building is a complex and continuous spatial volume without a single right angle and with no distinct boundaries that would break the form into parts or separate it from the ground plane. Visiting the building in December 2003, I spent four hours exploring the continuities between the exterior and the interior spaces and enjoying the constantly changing curvature of its surfaces. The building can be compared to a Mobius strip, except that it is much more complex, less symmetrical, and more unpredictable. It would be more appropriate to think of it as a whole set of such strips smoothly interlinked together.

To summarize this discussion of how the shift to software-based representations affected the modern language of form: All constants were substituted by variables whose values can change continuously. As a result, culture went through what can be called the *continuity turn.* Both the temporal visual form of graphic cinema and the spatial form of architecture started to explore the new universe of continuous change and transformation. (The fields of product design and space design were similarly affected.) Previously, such an aesthetics of "total continuity" was imagined by only a few artists. For instance, in the 1950s, architect Friedrich Kiesler conceived a project titled *Continuous House* that is, as the name implies, a single continuously curving form

unconstrained by the usual divisions into rooms. But when architects started to work with the 3D modeling and animation software in the 1990s, such thinking became commonplace. Similarly, the understanding of a moving image as a continuously changing visual form, which previously could be found only in a small number of films made by experimental filmmakers throughout the twentieth century such as Fischinger's *Motion Painting* (1947), now became the norm.

The Aesthetics of Continuity

Today, there are many successful short films under a few minutes and small-scale building projects based on the aesthetics of continuity, but the next challenge for both motion graphics and architecture is to discover ways to employ this aesthetics on a larger scale. In architecture, a number of architects have already begun to successfully address this challenge. Examples include already realized projects such as the Yokohama International Port Terminal or the Kunsthaus in Graz (2004), as well as those that have yet to be built, such as Zaha Hadid's Performing Arts Centre on Saadiyat Island in Abu Dhabi, United Arab Emirates (2007).

What about motion graphics? Blake is one of the few artists who have systematically explored how hybrid visual language can work in longer pieces. *Sodium Fox* is 14 minutes; an earlier piece, *Mod Lang* (2001), is 16 minutes. The three films that make up *Winchester Trilogy* (2001–4; fig. 00) run for 21, 18, and 12 minutes. None of these films contain a single cut.

Sodium Fox and *Winchester Trilogy* use a variety of visual sources, which include photography, old film footage, drawings, animation, type, and computer imagery. All these media are weaved together into a continuous flow. As I have already pointed out in relation to *Sodium Fox*, in contrast to shorter motion-graphics pieces with their frenzy of movement and animation, Blake's films contain very little animation in a traditional sense. Instead, various still or moving images gradually fade in on top of each other. So while each film moves through a vast terrain of different visuals—color and monochrome, completely abstract and figurative, ornamental and representational—it is impossible to divide the film into temporal units. In fact, even when I tried, I could not keep track of how the film got from one kind of image to a very different one just a couple of minutes later. And yet these changes were driven by some kind of logic, even if my brain could not compute it while I was watching each film.

The hypnotic continuity of these films can be partly explained by the fact that all visual sources in the films were manipulated using graphics software. In addition, many images were slightly blurred. As a result, regardless of the origin of the images, they all acquired a certain visual coherence. So though the films skillfully play on the visual and semantic differences between live-action footage, drawings, photographs with animated filters on top of them, and other media, these differences do not create juxtaposition or stylistic montage.[xii] Instead, various media seem to peacefully coexist, occupying the same space. Thus Blake's films can be said to stage for us the functioning of the digital *metamedium* in general.

According to computer scientist Alan Kay, who proposed this term in the 1970s, we should think of the digital computer as a metamedium containing all the different "already existing and non-yet-invented media."[xiii] What does this imply for the aesthetics of digital projects? In my view, it does *not* imply that the different media necessarily fuse together, or make up a new single hybrid, or result in "multimedia," "intermedia," or a totalizing *Gesamtkunstwerk*. As demonstrated by Blake's films, *different media become compatible but at the same time they can preserve their distinct identities*. In his films, the visual elements in different media maintain their defining characteristics and unique appearances.

Blake's films expand our understanding of what the aesthetics of continuity can encompass. Different media are continuously added on top of each other, creating the experience of a continuous flow, which nevertheless preserves their differences. Ann Lislegaard also belongs to the "continuity generation." Her recent films involve continuous navigation or an observation of imaginary architectural spaces. Visually, we may relate her films to the work of a number of twentieth-century painters and filmmakers: Giorgio de Chirico, Balthus, the Surrealists, Alan Resnais (*Last Year at Marienbad*), Andrei Tarkovsky (*Stalker*). However, the sensibility of Lislegaard's films is unmistakably that of the early twenty-first century. The spaces are not clashing together as in, for instance, *Last Year at Marienbad*, nor are they made uncanny by the introduction of figures and objects (a practice of Réne Magritte and other Surrealists). Instead, like her fellow artists Blake and Murata, Lislegaard presents us with forms that continuously change before our eyes. She offers us yet another aesthetics of continuity made possible by software such as After Effects, which, as has already been noted, translates the general logic of computer representation—the substitution of all constants with variables—into concrete interfaces and tools.

The visual changes in Lislegaard's *Crystal World (after J. G. Ballard)* (2006; fig. 00) happen right in front of us, and yet they are practically impossible to track. Within the space of a minute, one space is completely transformed into something very different. And it is impossible to say how exactly this happened.

Crystal World creates its own hybrid aesthetics that combines realistic spaces (done with 3D computer animation), completely abstract forms, and a digitized photograph of plants. Since everything is rendered in gray scale, the differences between media are not loudly announced. And yet they are there. It is this kind of subtle and at the same time precisely formulated distinction between different media that gives this video its unique beauty. In contrast to twentieth-century montage, which created meaning and effect through dramatic juxtapositions of semantics, compositions, spaces, and different media, Lislegaard's aesthetics is in tune with other cultural forms. Today, the creators of minimal architecture and space design, web graphics,[xiv] generative animations and interactives, ambient electronic music, and progressive fashions similarly assume that a user is intelligent enough to make out and enjoy subtle distinctions and continuous modulations.

Lislegaard's *Bellona (after Samuel R. Delany)* (2005) takes the aesthetics of continuity in a different direction. We are moving through and around what appears to be a single set of spaces. (Historically, such continuous movement through a 3D space has its roots in the early uses of 3D computer animation in flight simulators and subsequently in first-person computer games and architectural walk-throughs.) Though we pass through the same spaces many times, each time the spaces are rendered in a different color scheme. The transparency and reflection levels also change. Lislegaard is playing a game with the viewer: while the overall structure of the film soon becomes clear, it is impossible to keep track of which space we are in at any given moment. We are never quite sure if we have already been there and it is now simply lighted differently, or if it is a space that we have not yet visited.

Bellona can be read as an allegory of "variable form." In this case, variability is played out as seemingly endless color schemes and transparency settings. It does not matter how many times we have already seen the same space, it always can appear in a new way.

To show us our world and ourselves in a new way is, of course, one of the key goals of all modern art regardless of the media. By substituting all constants with variables,

media software institutionalizes this desire. Now everything can always change and everything can be rendered in a new way. But, of course, simple changes in color or variations in a spatial form are not enough to create a new vision of the world. It takes talent to transform the possibilities offered by software into meaningful statements and original experiences. Lislegaard, Blake, and Murata—along with many other talented designers and artists working today—offer us distinct and original visions of our world in the stage of continuous transformation and metamorphosis: visions that are fully appropriate for our time of rapid social, technological, and cultural change.

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[i] I have drawn these examples from three published sources so they are easy to trace. The first is a DVD, *I Love Music Videos*, which contains a selection of forty music videos for well-known bands from the 1990s and early 2000s, published in 2002. The second is a *onedotzero_select* DVD, a selection of sixteen independent short films, commercial work, and a live cinema performance presented by the onedotzero festival in London and published in 2003. The third is a fall 2005 sample work DVD from Imaginary Forces, which is among most well-known motion-graphics production houses today. The DVD includes titles and teasers for feature films, TV show titles, television station IDs, and graphics packages for cable channels. Most of the videos I am referring to can be also found on the Internet.

[ii] Included on *onedotzero_select DVD 1*. Online version at http://www.pleix.net/films.html, accessed April 8, 2007.

[iii] *Invisible effect* is the standard industry term. For instance, the film *Contact*, directed by Robert Zemeck, was nominated for 1997 VFX HQ Awards in the following categories: Best Visual Effects, Best Sequence (The Ride), Best Shot (Powers of Ten), Best Invisible Effects (Dish Restoration), and Best Compositing. See www.vfxhq.com/1997/contact.html.

[iv] In December 2005, I attended the Impact media festival in Utrecht and asked the festival director what percentage of the submissions they received that year featured hybrid visual language as opposed to "straight" video or film. His estimate was about 50 percent. In January 2006, I was part of the review team that judged the projects of students graduating from SCI-ARC, a well-known research-oriented architecture school in Los Angeles. According to my informal estimate, approximately one half of the projects featured complex curved geometry made possible by Maya, a modeling software now commonly used by architects. Given that both After Effects and Maya's predecessor, Alias, were introduced in the same year—1993—I find this quantitative similarity in the percentage of projects that use new languages made possible by these software quite telling.

[v] For examples, consult Paul Spinrad, ed., *The VJ Book: Inspirations and Practical Advice for Live Visuals Performance* (Feral House, 2005); Timothy Jaeger, *VJ: Live Cinema Unraveled*, available from www.vj-book.com; and websites such as www.vjcentral.com and www.live-cinema.org.

[vi] http://en.wikipedia.org/wiki/Digital_backlot, accessed April 8, 2007.

[vii] http://netpublics.annenberg.edu/, accessed February 4, 2007.

[viii] http://en.wikipedia.org/wiki/Mashup_%28web_application_hybrid%29, accessed February 4, 2007.

[ix] For more on this process, see the chapter "Synthetic Realism and Its Discontents" in my book *The Language of New Media* (Cambridge, MA: MIT Press, 2001).

[x] Although the details vary among different software packages, the basic paradigm I am describing here is common to most of them.

[xi] I am grateful to Lars Spuybroek, the principal of Nox, for explaining to me how software-driven architectural design subverted traditional architectural thinking based on typologies.

[xii] In the "Compositing" chapter of *The Language of New Media,* I have defined "stylistic montage" as "juxtapositions of stylistically diverse images in different media."

[xiii] Alan Kay and Adele Goldberg, "Personal Dynamic Media," *IEEE Computer* 10, no. 3 (March 1977). My quote is from the reprint of this article in *New Media Reader*, ed. Noah Wardrip-Fruin and Nick Montfort (Cambridge, MA: MIT Press, 2003).

[xiv] See my article "Generation Flash," 2002, available at www.manovich.net.