Synchronous Objects, Choreographic Objects, and the Translation of Dancing Ideas

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A broad range of new projects are happening today at the intersection of dance research and digital media and concerned with the re-articulation and transmission of bodily knowledge in contemporary dance practices. A few recent examples include The Forsythe Company's *Motion Bank* project focusing on the work of Bruno Beltrão, Jonathan Burrows, and Deborah Hay; Wayne McGregor's work with Scott deLahunta, Philip Barnard and others on choreography and cognition; Emio Greco's interactive installation and DVD *Capturing Intention* created with Bertha Bermudez, Chris Ziegler and other collaborators; Steve Paxton's DVD *Material for the Spine* created by Contredanse; the ambitious online digital archive for Siobhan Davies' work created by Sara Whately and her team in the UK; and my own work in this arena, a web-based collaboration with William Forsythe entitled *Synchronous Objects for One Flat Thing*, *reproduced* that is the subject of this essay.[1] With very different outcomes, each of these projects is concerned with the idiosyncratic nature of choreographic knowledge and with discovering new possibilities for tracing and transmitting ideas contained within the specific dance practices of each artist. These are in depth creative and analytical endeavors undertaken by teams of re-

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1 For more information on: *Motion Bank*: http://motionbank.org/en/; Wayne McGregor's work: http://www.eng.cam.ac.uk/teaching/urops/projects-08.html; Emio Greco's *Capturing Intention*: http://insidemovementknowledge.net/context/background/capturing-intention; Steve Paxton's DVD: http://www.contactquarterly.com/ce/ce06.html#dvd-sp; Siobhan Davies' archive: http://www.siobhan-daviesreplay.com.

searchers that integrate empirical curiosities with post-positivist politics of particularity.

Published online, *Synchronous Objects* is a collaborative choreographic visualization project that flows from dance to data to objects. The dance is William Forsythe's *One Flat Thing, reproduced* (Frankfurt, 2000) a contrapuntal ensemble piece exhibiting an exquisite chaos that is tightly structured by its three interlocking systems of organization. The data are numeric translations of the choreographic structures/systems in the dance. And the objects – animations, graphics, computer applications – are visual expressions of those structures. They are communicative (we wanted to share and transmit information and invite responses), investigatory (we wanted to examine Forsythe's choreographic thinking starting from his questions and interests), exploratory (we wanted to find out how to visualize those interpretations as artists and scientists working in close collaboration with Forsythe and his company), and ultimately creative (we wanted to catalyze the creation of new ideas and new works of art using the ideas in the dance).

In *Synchronous Objects* and the other projects mentioned, research is a creative interdisciplinary pursuit. I am one of the creative directors for *Synchronous Objects* along with William Forsythe and Maria Palazzi. We made the project with many international consultants and collaborators including members of the Forsythe Company and a large interdisciplinary team of students, faculty and staff researchers from the Advanced Computing Center for the Arts and Design (ACCAD) who contributed their collective intelligence to the work. These are not objective studies carried out by seemingly detached scholars but instead are subjectively informed endeavors. And they do not attempt to preserve the live moment nor do they attempt to represent all of dance and choreography. This is not dance documentation for repertory or reconstruction although it certainly could contribute to those types of endeavors. But our work begins from a different point. Instead we ask, what else is there? Or as Forsythe said often during our collaboration "What else might this dance look like?" and "What else, besides the body, might physical thinking look like?". We are working with the difficult but also generative problem of making dance knowledge explicit and sharing it not only on stage and in the studio (as dancers are accustomed) but also through media objects.

These artists (Steve Paxton, Emio Greco, Wayne McGregor, Siobhan Davies, William Forsythe …) are participating in (and often initiating) collaborative projects with groups of researchers designed in part to define their own legacies but also with the hope of strengthening the field as a whole. The products of each are particular to the artist and to the team of researchers who come together to create

them and are focused on specific aspects of dance knowledge. In our case, *Synchronous Objects* focuses explicitly on choreographic structure in Forsythe's work and on his interest in mobilizing choreographic ideas beyond the body into myriad other interdisciplinary manifestations that he calls 'choreographic objects' (described below). Together these projects and the many others that continue to emerge are the beginnings of what I hope may become a lively discursive space, placing dance at the center of interdisciplinary knowledge exchange about embodiment and physical thinking.

ON CHOREOGRAPHIC OBJECTS

"One could easily assume that the substance of choreographic thought resided exclusively in the body. But is it possible for choreography to generate autonomous expressions of its principles, a choreographic object, without the body?" (Cf. WilliamForsythe.de)

The idea of a choreographic object allows for the transformation of a dance from one manifestation (the performance on stage) into an array of other possibilities (such as information, animation, or installation). Choreographic objects enact a form of translation but not translation only. Like any good literary translation, a choreographic object stays true to the original thinking space of the maker while allowing for new comprehension of the work. And as in all translation, there are gains in communication there are losses as well. One can never fully comprehend German poetry in English and one can never fully comprehend dance without live performance. But we translate the poetry in order to give more people an experience of it; and we translate dances into choreographic objects in order to generate new expressions of the form.

Choreographic objects therefore are never about abandoning live performance. The idea is not to either have live performance *or* have choreographic objects. Just as in the translation of a poem from German to English one does not assume that the German original will be abandoned but that the translation will enable new forms of engagement with the work. The point here is to assert the value of live performance and the kinesthetic communication that is dance by also asserting the possibility of a multiplicity of other manifestations of choreographic thinking. As Forsythe says in his essay on the subject, "a choreographic object is not a substitute for the body, but rather an alternative site for the understanding of potential instigation and organization of action to reside. Ideally, choreographic ideas in this form would draw an attentive, diverse readership that would eventually understand and, hopefully, champion the

innumerable manifestations, old and new, of choreographic thinking." (Id.) Choreographic objects are, in part, translations of the instigations, instructions, and methods of organization that choreographers use to create action. They create additional modes of communication and exchange.

At the same time, this work goes beyond the purview of translation. Translation implies a close adherence to the original but in the creation of a choreographic object, ideas are allowed to jump and swerve out of familiar territory into new spaces. There is rigorous analysis and in-depth study of a source in order to bring forth its attributes but then the outcome becomes a new work in its own right. For example, *Synchronous Objects* can be understood as a choreographic object or a collection of 20 choreographic objects that function together to communicate the ideas in the dance via animations, interactive tools, and so on. This act of translation took place not only in the creation of data from the dance but also in the close collaboration between the research team and Forsythe to learn from him how the dance works and its conceptual foundations. Moving beyond translation then, the choreographic objects in *Synchronous Objects* integrate the information learned through the labors of translation into new creative outcomes. They are closely linked to the dance, they issue forth from it (as does any translation) but they also step out into parallel virtual incarnations or transformations.

The concept of choreographic objects is active in *Synchronous Objects* but it can also be illustrated through examples from Forsythe's installation works. For example, in the late 1980s/early 1990s, Forsythe collaborated with architect Daniel Libeskind on a project called *The Books of Groningen N7*.[2] Libeskind was commissioned to mark the city boundaries of Groningen and he collaborated with Forsythe on one of them, *N7*. Forsythe and Libeskind planted a row of trees and then connected wires from concrete posts to different branches of each tree thereby influencing their growth over time. What else might physical thinking look like? In this case, it looks like the life span of a tree. They are choreographing growth. In another example, *Scattered Crowd* (Frankfurt, 2002), Forsythe suspends 4000 white balloons in large architectural spaces. The visitors to the space choreograph the balloons and the environment they encounter influences their actions. What else might physical thinking look like? In this case, it looks like the interactions between balloons and the movement and choices of the visitors to the space.

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2   My knowledge of this project comes from conversations with William Forsythe at the Ohio State University during the creation of *Synchronous Objects*. More info is available here: http://www.williamforsythe.de/installations.html (March 30, 2011).

Like his stage works, Forsythe's choreographic objects hold his recognizable physical genius but they manifest it through media, inanimate matter, and the experiences of those encountering the work. The torque of the trees branches in *N7* and the organization of their movement (growth) into subtle forms of alignment can be likened to the extended épaulement so characteristic of Forsythe's style and the curious torque of the dancers' limbs. The instigations to action provided by a room full of responsive balloons and the acute, communal attention required of the visitors to *Scattered Crowd* evoke the performance state of dan-cers in his ensemble works and the complex, seemingly chaotic, but carefully crafted visual counterpoint of pieces such as *One Flat Thing, reproduced* (Frankfurt, 2000) and others. In fact, Dana Caspersen (Forsythe's wife and a long time dancer in the Company) describes *Scattered Crowd* as "an air-borne landscape of relationship, of distance, of humans and emptiness, of coalescence and decision"[3], a phrase that could be used to define counterpoint as it is practiced in The Forsythe Company. And in *Synchronous Objects* several of the recurring choreographic principles of the Company are explained in the annotated videos that reveal alignments, cues, and the recombination of movement material as they play out in the piece, in tools that let users experience and create works from the principles themselves, and in our own imaginative reincorporations of the instigations to action that Forsythe used to make the original stage work.

DANCE, DATA, AND OBJECTS

In *Synchronous Objects* we explore the question 'what else might physical thinking look like?' by delving deeply into the systems that organize one dance. We translate those systems into data and conceptual frameworks and then generate new manifestations of the dance in the form of visual objects/screen-based media. The dance is our choreographic resource, the source from which everything else emanates. The objects are re-articulations of the dance via the data and our own research/artistic interests. They are both creative and analytical. Some help reveal patterns and allow the eye to see or 'read' the dance differently, others use the patterns and ideas in the dance to generate new animated forms, and still others are tools that allow for interaction with the same ideas. The three areas of our process flow in and out of each other, at times line-

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3   Press materials for *Scattered Crowd*. Example available here: http://archive.kfda. be/2005/en/projectdetail.action-projectid=7473&id=331.htm (March 30, 2011).

ar, at times circular and layered. The data are indications of what we (the research team and Forsythe) chose to prioritize. They are numeric translations of the choreographic structures in the piece. The process of decoding the dance was a creative dialog that dilated between insider accounts and outside observation, analytical needs and aesthetic interests. It was a profoundly collective endeavor conducted over several years in close collaboration with William Forsythe and dancers Jill Johnson, Christopher Roman, and Elizabeth Waterhouse. As we came to fully understand the counterpoint that unfolds in the dance we worked to devise methods for quantifying it in the data and expressing it in the objects. This effort produced two key sets of data: spatial data taken from our source video of the dance and attribute data gleaned from dancer accounts.

Our goal in gathering spatial and attribute data was to discover patterns of organization that we could use to create the objects. We were not concerned with documenting or reconstructing the dance for the stage, nor were we concerned with purely scientific questions. Instead we worked with the Forsythe Company to unearth the choreographic building blocks of the piece, quantify them, and repurpose this information visually and qualitatively. As in many forms of inquiry, quantification requires a reductive process that necessarily obscures certain aspects of knowledge (performance quality, and kinesthetic awareness) in order to reveal others (in this case, choreographic structure). Drawing from the methodologies of many disciplines – dance, design, computer graphics, geography, and statistics – we intentionally privileged the inside view of the dance and used this to drive our process.

In many ways I would liken our data gathering process to the ecological research methods I learned as an undergraduate in environmental science. I remember well the way we were taught to analyze the river and estuarine ecosystems we were studying. The first day was always spent in situ, looking, sensing, and trying to discern patterns. Where did the grass end and the trees begin, what trees where on the edge of the grass and which were deeper in the groves? Why were there patterns of certain grasses in clumps and patches of bare earth? What patterns of life could be discerned through more in depth analysis such as testing the acidity of the water, analyzing samples for microbial life, and identifying specific flora and fauna? When did we need to seek out and reference other expert analyses of this particular ecosystem? We treated the dance in much the same way one might encounter an estuary where the salty water mixes with the fresh and the slightest imbalance or lack of attention can have ripple effects through the entire system. The focus of the researcher brings acute attention to the dance as a phenomenon while simultaneously holding a broad focus to the patterns of connection rippling over its surface. This too can be a form of attenti-

on one brings to the audience experience. If upon entering the theater one en-counters a dance as if encountering a new culture or a cherished landscape, what patterns, details and discoveries will surface? And then the next step is to imagine how those discoveries may be shared.

## SEEING, TRANSLATING, AND REPURPOSING COUNTERPOINT IN *ONE FLAT THING, REPRODUCED*

The dance at the core of our research is *One Flat Thing, reproduced (OFTr)* choreographed by William Forsythe and premiered by the Ballet Frankfurt in 2000. Of the hundreds of possibilities to focus on in this 15 minutes 30 seconds piece for seventeen dancers, our emphasis is on its choreographic structures or systems of organization. This emphasis came from Forsythe's interests and the instigating questions he asked at the inception and throughout the collaborative creation of the project.

Upon first viewing the dance, structure is elusive. Viewers watching a video of the dance often report feeling 'a sense of structure' but struggle to name it. They note that there are occasional moments of unison and/or similarity in the movement material and that there seems to be cause and affect relationships among the dancers. They want to know if the piece is choreographed or improvised and they are intrigued by its complexity. Like many contemporary works, the dance is open to multiple interpretations and ways of seeing. This is true even as *Synchronous Objects* seeks to be explicit about particular aspects of the work and ways of seeing patterns as the choreographer devised them and the dancers enact them. While we invite an infinite proliferation of questions and curiosities in relationship to the work we can also answer the questions that most often arise and share insights that we hope will catalyze new inquiry and creative activity. After many years of research and discussion with Forsythe and the Company, the systems of organization in the dance were distilled into three intersecting categories – movement material, cueing, and alignments – which work together to create the visual counterpoint of the work.

Movement Material Recombination System

While the urgency and immediacy of the dance can make it appear improvised, *OFTr* is a carefully choreographed and tightly crafted work. Members of the company most often refer to the different segments of fixed movement as 'themes'. The 25 main themes are repeated and recombined over the course of the dance in their full and partial forms. Online in *Synchronous Objects* they can be explored individually in a *Movement Material Index* that gives a short clip of each theme and they are outlined in the graphic below (figure 1). In the graphic, dancers names are listed on the left and the themes are listed across the bottom. When themes are performed in full a hash mark is made above the line, and one is marked below when a theme is performed in fragment. This graphic shows that many different dancers perform several of the themes over the course of the work such as T1, T3, and T12. Some themes like T2 and T6 are only performed by certain dancers and very few times. It also shows the recombination of patterns of the work where T1 is performed only once in full but a total of 44 times in fragment by 14 different dancers and so on. This graphic can be understood as a translation of the work making the thematic structures legible. But it also can be used to devise a new dance, animation, or artwork. What if the full and fragment patterns were used to make an architectural form that related to the theme occurrences but also allowed users to recombine the elements in an extension of the choreographic principle that the graphic elucidates? This is precisely what the architectural collaborators on *Synchronous Objects* explored as part of their engagement with the work but it also could be re-explored and re-imagined by visitors to the site who take up this information into their own disciplinary contexts.

*Figure 1: Theme and theme fragment occurrences by dancer.*
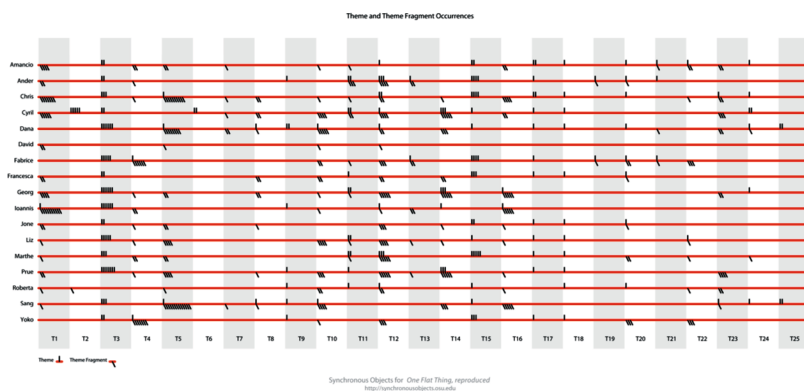
Graphics: Synchronousobjects.osu.edu

In addition to the themes and their interpretation, there are improvisation tasks in *OFTr* that ask dancers to translate specific properties of other performers' motions into their own. The dancers observe each other and make these translations in real time, producing different results in each performance of the work. Improvisations are tightly structured and are most often movements to get from one table to another, tasks in which the dancers wait for a cue and gaze intently at different performers, or alignment improvisations, which are explained later. The *Synchronous Objects* site shows these improvisations in the *Movement Material Index* and in the *Explanatory Video* for the *Index*. The themes and structured improvisations are the building blocks of the work and once the viewer becomes familiar with them, become a visible pattern throughout the work. I personally know them so well now that seeing each theme come and go is like seeing friends surfacing and receding as the dance progresses.

The data for the themes and improvisations is visualized in the manner explained above (diagrams, annotated video and so on) but it is also re-purposed in other ways as in the *Generative Drawing Tool* (figure 2). In this tool, the actions of moving brushes on the screen are organized by the choreographic data (such as the occurrence of themes and their fragments) from the dance.

Figure 2: Generative Drawing Tool within Synchronous Objects. This tool takes data from the dance and allows users to map that data to the actions and attributes of various brushes that move on the screen and create a drawing.
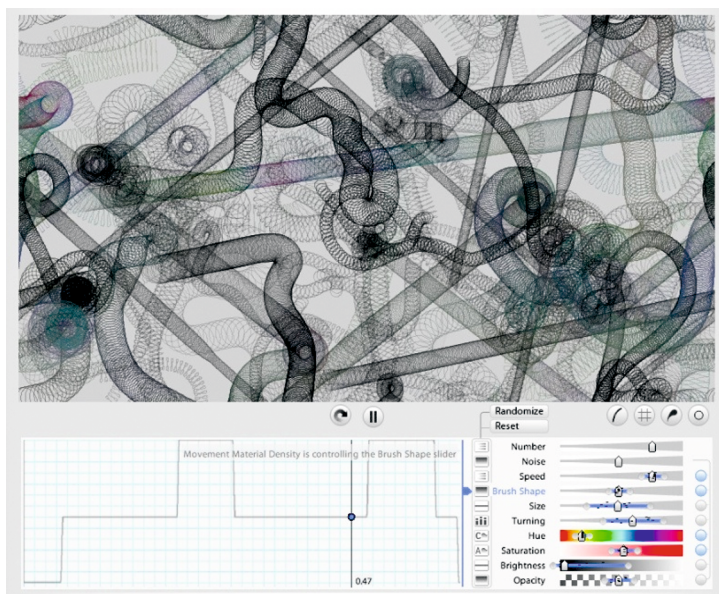
Where the *Movement Material Index* helps reveal structure in the piece, the *Generative Drawing Tool* begins to answer the question: 'what else this dance might look like'. The algorithms for the moving brushes allow them to be directed by the data but also to move based on a broader set of action choices. In this way, like the dancers, they could perhaps be seen to be doing both choreographed movement and structured improvisation. And both objects might inspire new scholarly and creative activity and invite audiences into a closer more attentive readership of choreographic form. For example, rather than looking only for unison as an indicator of structure, viewers might begin to watch this dance and others for the fleeting instances of similarity and the patterns of repetition that build over longer periods of time.

Cueing System

The timing of the dance is influenced by the choices made in the short instances of improvisation and in how the dancers perform the set movement material. But the true internal clock of the dance is the elaborate cueing system that Forsythe

and the dancers created over many years. The musical score by Thom Willems does not direct the timing of the dancers' motions. Instead they wait for and give cues in a constantly shifting network of attention. While cues are common in live performance, the volume in this piece, more than 200 total cues in just over 15 minutes, is unusual. The cueing system also gives the feeling of cause and effect that audiences often note. In *Synchronous Objects* the cues became a vital form of information from the dance about time and the networks of attention and responsibility between the dancers.

The *Cue Annotations Object* shows the cues as they play out with the video of the dance. These animated drawings are didactic in that they 'teach' cueing in the dance. But they also demonstrate the mixture of quantitative and qualitative, analytical and creative work that is central to the project. To make the marks, attribute data from the personal accounts of each of the dancers was cross-referenced and cleaned until a precise network of cues given and received could be constructed. The accuracy of the dancers' accounts was remarkable with only a handful of discrepancies between the accounts that can be attributed to the many changes in the dance over the ten years of its development. As that data set was compiled the iterative animation design process evolved until the lines had the right organic feeling, combined with visual clarity that we wanted (the *Synchronous Objects* Process Catalog for this object shows samples from this development). The animated lines have a kinesthetics of their own that translates a hidden structure in the work that could be sensed but not seen before this process was undertaken. The lines seek to communicate the way in which information is flung out into space with precise but qualitatively inflected actions and received because of the acute physical attention of the recipient who then transforms the cue into new action. Forsythe describes these annotations (and the alignment annotations) as a picture of the dancers minds – what they are intending and the quality of their attention. For example, in figure 3 it is noticeable that the cue network is spread across the entire company with many dancers giving cues to many different people. It is immediately clear that Georg and Sang give more cues than the others and to more people. In this way, the graphic is also a map of responsibility in the dance. Unlike a translation, these forms of information revealed by graphics and data were not available in the original source.

Figure 3: All Cues Given graphic from Synchronous Objects. Shows all of the cues given by each dancer and to whom.

An information graphic from Synchronous Objects for *One Flat Thing, reproduced*
http://synchronousobjects.osu.edu
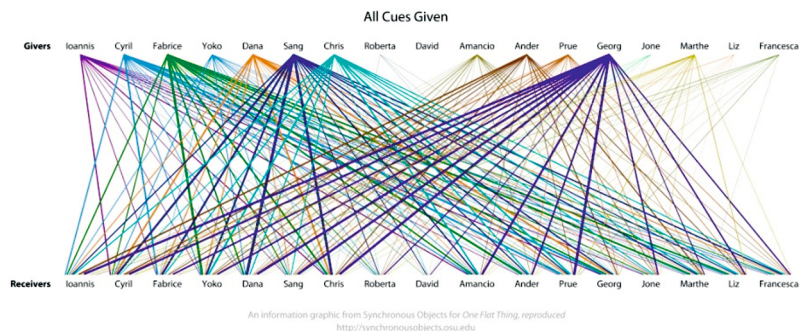
Alignment System

The last system, and the most important for unlocking structure in the dance, is the system of alignments. Alignments are moments of synchronization between the dancers when their actions share some but not all attributes. On a spectrum from unison to difference, alignments are closer to difference. Within the field of complex action that is *One Flat Thing, reproduced*, alignments are those flickering moments of shared directional flows, similar timing, and analogous shapes that the eye catches but can't hold. Alignments are patterns; they are forms of relationship that can be understood as a kind of visual agreement. They occur in every moment of the dance and are constantly shifting throughout the group. The term alignment emerges from the working practices of the Forsythe Company but it is not the only word they use, other terms include hook-ups, agreements, and isometries.

Like the cues, alignments are visualized in *Synchronous Objects* with different degrees of abstraction from the original dance. They can be seen in direct relation to the dance as a form of structural translation (or revelation of hidden information), a step away from dance when the video is subtracted from the annotations, and as an independent set of ideas as in the *3D Alignment Forms Object* (figure 4).

Figure 4: 3D Alignment Forms Object within Synchronous Objects. This object takes a sampling of two dancers' alignments into three-dimensional space and lofts volumes between them creating new spatial configurations.
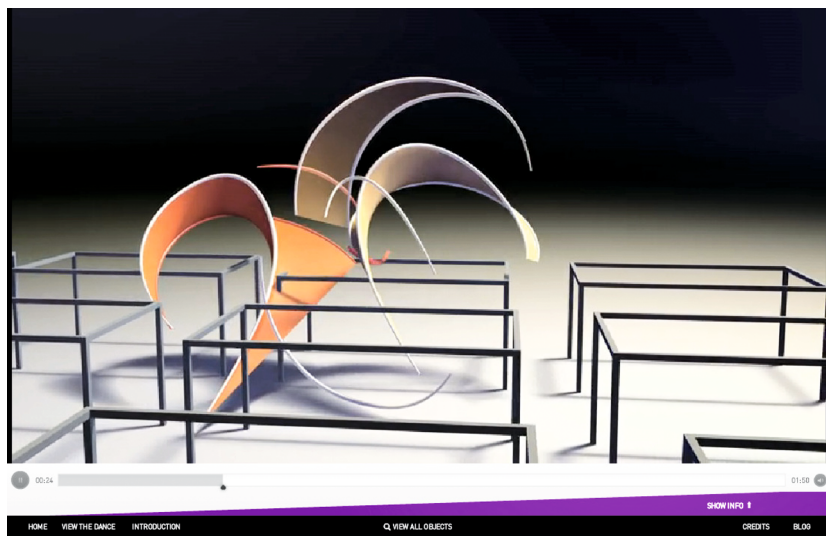
Counterpoint

All three of these systems together – movement material, cueing, alignments – combine to create the tapestry of visual counterpoint that is *One Flat Thing, reproduced*. We define counterpoint in this dance as 'a field of action in which the irregular and intermittent coincidence of attributes produces an ordered interplay'. This definition assumes as a starting point 'a field of action' with a high degree of difference within which 'irregular and intermittent' patterns can be recognized. Imagine the play of light on the water, the intersection of branches in a tree canopy, or the motions of pedestrians on New York City streets. Each of these phenomena presents the eye with complexity but also presents irregular patterns of interaction that can be discerned and highlighted. Those patterns are the ordered interplay. This is not unlike counterpoint in music although it is much more difficult to quantify and that is a subject for another essay.

Another way to understand counterpoint is to imagine it on a spectrum with *One Flat Thing, reproduced* on the left and a marching band on the right. In a marching band structure is obvious, it is clear how they are related, they are all literally marching to the same tune. The primary visual effect is unity. But

underneath the surface is a deep structure of difference, diversity and even disagreement. The marchers have different politics, different training, they come from different home lives, and they may or may not get along when they are off the field. Counterpoint is the exact inverse. In counterpoint, difference and dissonance is the primary visual effect. It is at the layer of the deep structure that the relationships, alignments, and forms of agreement are at work. For contemporary society in which there is very little unity and marching to the same tune too often connotes times of violence and repression, counterpoint may be a very necessary metaphor for living.

What if we were to encounter those instances of disagreement or difference in our work lives, in our schools and on our streets with contrapuntal attention? Rather than forcing things into the marching band what if we brought heightened sensitivity to our connections as the cueing system in the dance demonstrates so clearly? What as yet unseen structures of agreement, fleeting instances of relationship and alignment of ideas might be percolating under the surfaces of our lives? Since the publication of *Synchronous Objects* in 2009, the story of counterpoint, has surfaced as one of the most important aspects of the work. We speak about it, we demonstrate it in the dance and our visualization objects, we teach it in workshops using dance improvisation and the interactive tools on the site, and we continue to explore it in our interdisciplinary working methods, in other dances, and in other aspects of our lives. In closing, I suggest that our objects are perhaps most of all manifestations of the exuberant exchange of ideas we experienced in their creation. Our creative process moved in a constant dilation between independent and collective intelligence, between the known and the unknown, chaos and order, focus and an always shifting network attention. In short, our process was is in itself a form of counterpoint.

REFERENCE

Forsythe, William: "Choreographic Objects: Essay", http://www.william-forsythe.de/essay.html (March 30, 2011).

WEBSITES

CUED – UROP Projects, http://www.eng.cam.ac.uk/teaching/urops/projects-08.html (March 30, 2011).

Contact Collaborations – Contact Editions, http://www.contactquarterly. com/ce/ce06.html#dvd-sp (March 30, 2011).

Inside Movement Knowledge » Capturing Intention, http://inside movement-knowledge.net/context/background/capturing-intention (March 30, 2011).

Home │ Siobhan Davies RePlay, http://www.siobhandaviesreplay.com (March 30, 2011).

KunstenFestivaldesArts – Projects, http://archive.kfda.be/2005/en/project-detail. action-projectid=7473&id=331.htm (March 30, 2011).

Motion Bank │ a context for moving ideas, http://motionbank.org/en (March 30, 2010).

Synchronous Objects, http://synchronousobjects.osu.edu (March 30, 2011).

William Forsythe Choreographic Objects: Works & Projects, http://www williamforsythe.de/installations.html (March 30, 2011).