

A NETWORK IN FLUX
IDENTIFYING CENTRAL ARTISTS OF THE 1960S FLUXUS MOVEMENT

by

Matthew Miller



2013 Matthew Miller

A thesis
submitted in partial fulfillment
of the requirements for
the degree of Master of Science
(History of Art and Design)
Within the joint degree M.S./M.S.L.I.S. program
School of Art and Design
Pratt Institute

May 2013

A NETWORK IN FLUX
IDENTIFYING CENTRAL ARTISTS OF THE 1960S FLUXUS MOVEMENT

by

Matthew Miller

Received and approved:

Dr. Steven Zucker (Thesis Advisor)

Date_____

Dr. Dorothea Dietrich (Department Chair)

Date_____

Acknowledgements

I would like to thank Dr. Steven Zucker, my thesis advisor. Dr. Chris Alen Sula and Dr. Ed Decarbo for their feedback on my thesis proposal. Dr. Dorothea Dietrich and Dr. Cristina Pattuelli for their valuable advice and recommendations.

I would also like to thank Amelia Catalano, my parents JoAnn and Griffin, and my siblings Corinne, Kevin, Patrick and Conor for their love and encouragement.

Table of Contents

List of Illustrations	iii
Chapter 1 – Modeling Fluxus	1
Chapter 2 – Methodology	32
Chapter 3 – Networks	39
Conclusion	60
Bibliography	66

List of Illustrations

- 1 George Maciunas, Dick Higgins, Wolf Vostell, Benjamin Patterson, Emmett Williams performing Phillip Corner's *Piano Activities*, Wiesbaden Fluxfest, 1962.
- 2 Dick Higgins *Danger Music No. 2*, 1962.
- 3 George Maciunas. *Fluxus (Its historical developments and relationship to avant-garde movements)*. 1966.
- 4 Dick Higgins, *Intermedia chart*, 1995.
- 5 Ay-O, *Finger Boxes*, 1964.
- 6 Ken Firedman & James Lewes, Fluxus Community Chart (excerpt), 1992.
- 7 La Monte Young, *Composition 1960 #7*, 1960.
- 8 La Monte Young, *Composition 1960 #10*, 1960.
- 9 George Brecht, *Solo for Violin, Viola, Cello, or Contrabass*, 1962.
- 10 Nam June Paik, *Zen For Head*, variation on La Monte Young's *Composition 1960 #10*, 1962.
- 11 Dick Higgins, *Fluxus Chart*. 1981.

Chapter 1 – Modeling Fluxus

It's not always productive to consider things in terms of form. Some things have to be taken as individual members of a galaxy, or as points on a spiral, the form that's important is the form of the whole to which they contribute.

—George Brecht, *A conversation with George Brecht*

In 1962, a small group of like-minded artists gathered together in Wiesbaden Germany, a town just outside of Frankfurt, to stage a series of performances. The resulting event, known as the first Fluxus Festival, unofficially marked the start of the Fluxus movement and its complex subsequent history. As with many modern and contemporary artistic movements, the attributes that comprise Fluxus—artists, aesthetics, and chronology—are not clearly defined. Such uncertainty makes studying the Fluxus movement a daunting art historical challenge. Since the late 1980s, retrospective exhibitions have taken up this difficult task and presented Fluxus artists and their works. It has been these events, and scholars' reaction to them, that has driven our understanding of the movement in an art historical context. The past few decades has seen the Fluxus movement defined in a number of ways. In general, these classifications have shifted from a narrow definition of Fluxus and its artists to a more encompassing view of the movement. Fluxus has been described as: a neo-avant-garde art collective,¹ an expanded community of artists,² an international art laboratory or

¹ A good demonstration of thinking of Fluxus as a small neo-avant-garde collective can be seen in the exhibitions in the 1980s of works from the Gilbert and Lila Silverman collection curated by Jon Hendricks. These exhibitions focused on a select group of works and present Fluxus as a fairly cohesive object-based movement under the leadership of George Maciunas. See Jon Hendricks, *Fluxus Codex* (Harry N. Abrams, 1988), 21-27; and Clive Phillpot, Jon Hendricks, and Museum of Modern Art New York, *Fluxus: selections from the Gilbert and Lila Silverman collection* (New York: Museum of Modern Art, 1988), 17-20.

² Institutionally, Fluxus was explored in a slightly wider context in such exhibitions as the 1993 Walker Art Center's *In the Spirit of Fluxus*. See Elizabeth Armstrong, "Fluxus and the Museum," in *In the Spirit of*

college,³ and as a state of mind or attitude⁴ —among various other descriptions. Such a range of interpretations indicates the inherent difficulty historians encountered trying to describe the Fluxus movement over the last three decades. It is also clear from the descriptions above, that these different categories enumerated represent models of the Fluxus movement. These numerous models move between the historical, theoretical, and social realms. Yet, it is the social aspect that seminal Fluxus artist Dick Higgins emphasizes in his poetically concise definition of Fluxus:

Fluxus is not:
—a moment in history, or
—an art movement.

Fluxus is:
—a way of doing things,
—a tradition, and
—a way of life and death⁵

By invoking the word tradition, Higgins has entrenched the social aspect of the Fluxus movement as its most important facet. This thesis will review the overlapping models used to interpret the Fluxus movement, to demonstrate the importance of this social component. It will be argued that one of the most important social relationships is an instance of co-performance, representing collaboration between two Fluxus

Fluxus: Published on the Occasion of the Exhibition, edited by Elizabeth Armstrong, Simon Anderson, and Walker Art Center (Walker Art Center, 1993), 14-20. Yet Fluxus scholars were already exploring a broader view of Fluxus since the early 1980s, for example Ken Friedman and Peter Frank, "Fluxus: A Post-Definitive History: Art Where Response Is the Heart of the Matter," *High Performance* 7, no. 27 (1984), 56-61.

³ Ken Friedman, "Fluxus: A Laboratory of Ideas," in *Fluxus and the Essential Questions of Life*, edited by Jacquelynn Baas (Hood Museum of Art, Dartmouth College, 2011), 35-40.

⁴ Owen F. Smith, *Fluxus: the history of an attitude* (San Diego, CA: San Diego State University Press, 1998), 225-245; Hannah Higgins also takes an alternative non-historical approach by describing Fluxus as experiential in *Fluxus Experience* (Berkeley: University of California Press, 2002).

⁵ Dick Higgins, *Modernism Since Postmodernism: Essays on Intermedia* (San Diego State University, 1997), 160.

artists. These co-performance occurrences can then be arranged into a complex network, resulting in the creation of a social network of Fluxus artists. The second chapter of this thesis will document how such a model can be built, and reviews the precedent of utilizing network analysis in an art historical context. The final chapter will employ this network model to examine the Fluxus movement of the 1960s.

Yet what exactly is to be learned by reviewing the Fluxus movement through a complex network model? Pierre Bourdieu describes the benefit of modeling a group of individuals sharing similar values and goals (*habitus*) and their social interactions:

The mere fact that social space described here can be presented as a diagram indicates that it is an abstract representation, deliberately constructed, like a map, to give a bird's-eye view, a point of view on the whole set of points from which ordinary agents...see the social world. Bringing together in simultaneity, in the scope of a single glance—this is its heuristics value—positions which the agents can never apprehend in their totality and in their multiple relationships...⁶

A complex network model of the Fluxus movement allows for the introduction of a degree of abstraction. Abstraction, in this definition, enables viewing the entire movement through actions of the individual artists. The actions of the artists—in this purposed model, an occurrence of co-performance—equates to their position in what Bourdieu defines as a field:

The literary or artistic field is a *field of forces*, but it is also a *field of struggles* tending to transform or conserve this field of forces. The network of objective relations between positions subtends and orients the strategies which the occupants of the different positions implement in their struggles to defend or improve their positions (i.e. their position-taking), strategies which depend for their force and form on the position each agent occupies in the power relations.⁷

⁶ Pierre Bourdieu, *Distinction: a Social Critique of the Judgement of Taste* (Harvard University Press, 1984), 169.

⁷ Pierre Bourdieu, *The Field of Cultural Production: Essays on Art and Literature* (Columbia University Press, 1993), 30.

Bourdieu evokes combative terminology in his description, which may seem mismatched to the notion of artistic collaboration. Yet the overarching message remains true: Actors in a field, in this case the Fluxus artists, have varying positions in that field, the Fluxus movement, based on their interrelationships. Having varied positions in the field also indicates that a hierarchy exists. Some artists are more central to the movement than others. These central figures shape the field of the Fluxus movement as a whole.

The question of centrality translates into an important art historical question for the complex Fluxus movement. Ken Friedman, Fluxus artist and art historian, clearly states this problem, writing:

The lack of consensus regarding who the Fluxus people are or were leads to three problems in historiography and criticism. The first problem involves the understanding the community of people know as Fluxus. The second problem involves understanding their actions. A third problem arises as we attempt to learn “who done it” in the first place.⁸

By identifying the central figures in the Fluxus movement, or as Friedman asks, “who done it,” we come to better understand the movement as a whole as well as its components.⁹ Although, this is not a simple task as Friedman writes: “However, the issue of key participation by central artists is a subject of dispute, and has been for years.”¹⁰

As Friedman suggests, this is not a new problem, as every historian, critic and Fluxus artist has their opinion of central figures based on their experience and observation. The goal is then, to develop a method of identifying the central figures of

⁸ Ken Friedman, “The Literature of Fluxus,” *Visible Language* 40, no. 1 (January 1, 2006), 91.

⁹ Ibid, 92-93.

¹⁰ Ken Friedman and James Lewes, “Fluxus: Global Community, Human Dimensions,” *The Development of Fluxus as a Community of Individuals* 26 (Winter/Spring 1992), 160-161.

the Fluxus movement, using a more organic model. Such a model would be based less on objective histories, by scholars and historians, and more on the members of the movement and their actions.

This task takes on a more important role as time passes and the movement's members grow older. While there exists a group of artists who associate with the Fluxus movement even today,¹¹ unfortunately the number individual artist still alive who were participating in the 1960s continue to decline. This is loss of important figures in the history of the Fluxus movement, and the continued aging of Fluxus in general, is leading to what Friedman and historian Owen Smith frames as a question of legacy.¹²

However there is a simultaneous warning against trying to re-interpret the Fluxus movement ignoring the historical discourse.¹³ Friedman states "Fluxus permits and encourages multiple views and interpretations. Multiple interpretations are one thing. Statements of fact are another."¹⁴ With this warning in mind, we can begin to examine the different approaches to the Fluxus movement, and construct an alternative model of artists central to Fluxus throughout the 1960s.

Up until as recently as fifteen years ago, the historical narrative of the Fluxus movement had been largely undefined. This led to a clouded history based mostly on

¹¹ The Fluxus movement is unusual in that it was continually reinvigorated by new artists who self-associated with Fluxus over the past fifty years. While the movement does go on to have a rich history, especially in the 1970s, this look at Fluxus is concerned with the 1960s era.

¹² Ken Friedman and Owen F. Smith, "The Dialectics of Legacy," *Visible Language* 40, no. 1 (January 1, 2006): 4–11.

¹³ Friedman, "The Literature of Fluxus," 104.

¹⁴ Ibid, 109. In these two statements Friedman is primarily concerned with re-interpretation of the Fluxus movement through conceptual or aesthetic institutional curation, but it is important to keep in mind this risk when developing a model of the movement.

myth, rumors and repetition of inaccurate information. The lack of a document-based history was corrected in 1998, when Owen Smith published his monograph on the history of Fluxus, a publication that Ken Friedman describes as reorienting the field of Fluxus scholarship.¹⁵ Yet even this straightforward historical approach was not a simple task. Smith describes the problems using documents from Fluxus events and performances:

These documents list the pieces to be performed and, often, who was to perform them. In actuality, however, the festivals never followed the printed programs...Newspaper reviews or accounts of the performances are often plagued by inaccuracies as a result of the incongruities between the written documents and the actual presentations.¹⁶

Smith incorporated interviews, primary source documents, and letters written between the Fluxus members to recount a history of the Fluxus movement.¹⁷ But more specifically, Smith approaches the history of Fluxus via the seminal figure George Maciunas. This Maciunas-based perspective is considered limiting to the overall understanding of the Fluxus movement, but as Smith argues it was an important aspect of Fluxus history. Indeed, it is a useful foundation for understanding alternative models of the Fluxus movement as well as a good vehicle for grasping the basic historical narrative.

¹⁵ Friedman, "The Literature of Fluxus," 105.

¹⁶ Smith, *Fluxus : the history of an attitude*, 5.

¹⁷ The sources Smith draws upon, and which are cited in this historical review, come from two major collections of Fluxus documents. The first, Hans Sohm Archive in Stuttgart Staatsgalerie Germany and the second is the Gilbert and Lila Silverman Fluxus Collection located in Detroit. The Museum of Modern Art has since acquired the Silverman collection in 2009. (see http://press.moma.org/wp-content/press-archives/PRESS_RELEASE_ARCHIVE/FluxusFinalRelease.pdf) At the time of this writing the collection, which contains over 4000 documents, such as correspondences between artists, was still being processed by the museum archive and unfortunately not yet made available to researchers. This collection is expected to be made available by late 2013 or early 2014.

There is no underestimating the important role Maciunas played in the development of Fluxus. A Lithuanian-born artist, Maciunas acted as chief organizer, publishing house, and quite often, primary financier of the movement throughout the early years of Fluxus. Maciunas' involvement, which would lay the groundwork for a more cohesive Fluxus movement, began in New York in 1961, a period often defined as Proto-Fluxus. Frustration in the lack of venues to perform his work, as well as the work of other artists he knew, led him to establish of an art gallery called AG Gallery. Dick Higgins noted the significance of AG Gallery:

The situation in 1961 was, then, that work existed for which there was no outlet... Maciunas wanted his AG Gallery to sponsor a series of festivals of the avant-garde of all kinds and in all media, as opposed to the purely visually-oriented work being promoted by the galleries. Of course we all jumped for joy and arranged to do performances.¹⁸

Maciunas' role as enabler for such performances becomes a familiar occurrence, providing outlets for work that otherwise had no venue. Through his gallery and work in New York, Maciunas became involved with a number of artists that would go on to become affiliated with the Fluxus movement. Many of these artists, such as Dick Higgins, George Brecht, Al Hansen, Jackson Mac Low, and LaMonte Young knew each other from their participation in John Cage's experimental music course, taught at The New School for Social Research.¹⁹ This connection oriented Maciunas and the future Fluxus movement closely with the emerging generation of avant-garde artists.

At the same time Maciunas was providing a performance space for the new works, he was also working on publishing projects. In collaboration primarily with artist LaMonte Young, he helped work on a collection of experimental music scores,

¹⁸ Smith, *Fluxus : the history of an attitude*, 33.

¹⁹ Higgins, *Fluxus Experience*, 2.

essays, poetry and performances scores by various artists. Named *An Anthology*,²⁰ Smith writes it was “...significant for the formation of Fluxus because it helped solidify the growing relationships among a group of artists interested in experimental work,” many of which would become initial members of the Fluxus movement.²¹ Historian Estera Milman, in an interview with artist Alice Hutchins, also articulates the social component of such publications:

EM: This was a distribution mechanism for new works, in the same way that *An Anthology* was (and some of the Fluxus publications), a kind of strategy for distributing the work and also a strategy for connecting the people. When you put a bunch of people between covers, you, in a sense, make a community.

AH: That’s right. And it was friends that you asked, or friends of friends. It was like an alternative gallery...²²

An Anthology was also important in that it spurred Maciunas into wanting to work on a second publication of new works. Maciunas hoped to name this second publication “FLUXUS Magazine,” consequently coining the name of the movement.²³ This desire to publish work was a constant throughout the history of the movement, and Maciunas was always working on various publishing projects.²⁴ The majority of

²⁰ George Brecht and La Monte Young, *An anthology of chance operations* (New York: H. Friedrich, 1970).

²¹ Smith, *Fluxus : the history of an attitude*, 39; Smith also talks at length about the importance of *An Anthology* in “Proto-Fluxus in the United States 1959-1961: The Establishment of a Like-minded Community of Artists,” *Visible Language* 26, no. 1/2 (1992), 52–55.

²² Estera Milman, “Circles of Friends: A Conversation with Alice Hutchins,” *Visible Language* 26, no. 1/2 (1992), 205.

²³ Larry Miller, “Interview with George Maciunas,” in *The Fluxus reader*, edited by Ken Friedman (Chichester, West Sussex; New York: Academy Editions, 1998), 187,

²⁴ These early publishing projects ranged from poetry, event and concert scores to newspapers. But Maciunas’ eventual goal was to produce multiples, physical objects, to be published along with printed materials packaged in boxes. Called Fluxus Year Boxes they were to be anthologies with examples of Fluxus works with the needed materials to reproduce the events included. Maciunas was eventually able to produce two series of these publications, Fluxus 1 and Fluxus Year Box 2. See Simone Anderson, “Fluxus Publicus,” in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*, 54-56; Jon

these projects were never realized, however they were important aspects of Maciunas' planning in conjunction with the many Fluxus festivals he went on to organize.²⁵

Due to financial difficulties, the AG Gallery was shuttered and Maciunas, also a talented graphic designer, took a position as designer of printed materials for the United States Air Force in the fall of 1961. The position required he relocate to a small Air Force base in Wiesbaden, West Germany.²⁶ Similar to his experience in New York, Maciunas became involved with emerging avant-garde artists around Europe at the time, such as Nam June Paik, Emmett Williams and Wolf Vostell. Similar to John Cage's class in New York, the activity and artists Maciunas was involved with in Europe partly emerged from their experience with German composer Karlheinz Stockhausen and his wife Mary Bauermeister.²⁷ Bauermeister's atelier in Cologne served as a venue for early events, connecting artists that would become associated with the Fluxus movement.

Late 1961 through 1963 marked a period of high activity for Maciunas and the increasingly cohesive Fluxus movement. By September 1962 Maciunas had organized the first ever official Fluxus Festival in Wiesbaden Germany. This event consisted of a number of artists performing over two weekends. The performers included Ben Patterson, George Brecht, Philip Coner, Name June Paik, Wolf Vostell, Emmett Williams, among others, with Dick Higgins and Alison Knowles traveling from America to

Hendricks goes into great detail describing the Year Boxes in "Uncovering Fluxus – Recovering Fluxus," in *Fluxus* (Thames & Hudson, 1995), 121-128.

²⁵ Owen Smith, "Developing a Fluxable Forum," in *The Fluxus reader*, edited by Ken Friedman (Chicester, West Sussex; New York: Academy Editions, 1998), 13.

²⁶ It is thought that Maciunas took this position in order escape his mounting debit in the United States. Financial problems would plague Maciunas throughout his life mostly due to his commitment to the Fluxus movement and his use of his own funds to support its development. For a biographical look at Maciunas' life see Emmett Williams, Ay-o, and Ann Noël, *Mr. Fluxus: a collective portrait of George Maciunas, 1931-1978* (New York, N.Y.: Thames and Hudson, 1998); and Hollis Melton, "Notes on SoHo and a Reminiscence," *Visible Language* 26, no. 1/2 (1992): 180-201.

²⁷ Higgins, *Fluxus Experience*, 11-12.

participate. From a historical, Maciunas-based point of view, this was a watershed moment. Maciunas considered himself, and the artists invited to perform, as moving into a post-Cage, more concrete aesthetic of performance. Smith writes that Maciunas “...wanted the works presented to be more event-based and that there should be less new music...”²⁸

The desire to put distance between the Cagean method and a new aesthetic of performance was one of the defining characteristics of the works presented at the Wiesbaden festival. The most assertive examples of this push take the form of what could be described as iconoclasm. Philip Corner’s “Piano Activities,” first performed at Wiesbaden, is best described as a group of performers attacking a piano with hammers, saws, and various other blunt instruments. (fig. 1)

²⁸ Smith, *Fluxus : the history of an attitude*, 67.



1. George Maciunas, Dick Higgins, Wolf Vostell, Benjamin Patterson, Emmett Williams performing Phillip Corner's *Piano Activities*, Wiesbaden Fluxfest, 1962

The resulting sounds produced by the piano's destruction comprised the performance.²⁹ The literal and symbolic destruction of a music instrument is a powerful message of Fluxus moving beyond traditional musical performance.

Although solo works were not uncommon, Corner's "Piano Activities" demonstrates the collaborative nature of Fluxus performances. Yet this experiential quality extended beyond multiple Fluxus artists participating in a performance. Events often incorporated the audience or bystanders. This Fluxus aesthetic was also demonstrated at this early Wiesbaden event with Dick Higgins' "Danger Music No. 2 and No. 15" compositions. The interconnected works both begin with a hair cut:

Higgins entered and took a bow. He sat himself beside a bucket. His wife, Alison Knowles appeared with a pair of scissors. She began to cut his hair. Higgins looked content. After 15 minutes, the audience grew restless...Conversation took over. "I'm sure I don't know what it is all about or what it is supposed to mean," commented one of Germany's well-known abstract painters. "I tell you Higgins is performing a rare work," said Emmett Williams..."He could play a Chopin etude every night. But Higgins can't give another performance like this for six months, until his hair grows back."³⁰

With a disinterested crowd, Higgins suddenly rises and begins gently lobbing eggs, retrieved from his bucket, into the audience. For "Danger Music No. 2" instead of eggs, Higgins tosses political pamphlets. (fig. 2) Higgins' performance epitomized two Fluxus aesthetics discussed above: A shift to performance focused works, and the experiential or collaborative nature of such Fluxus performances.

²⁹ Although not performed specifically at the Wiesbaden festival, yet it was authored in 1962, is Nam June Paik's "One for Violin Solo," also an example of the iconoclastic aesthetics established in this early period. In Paik's performance he raises a violin above his head and quickly brings it down onto the surface of a table, shattering the instrument.

³⁰ Richard O'Regan, in *Stars and Stripes*. Quoted here from Kristine Stiles, "Between Water and Stone," in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*, 72.



2. Dick Higgins, *Danger Music No. 2*, 1962

The Wiesbaden festival was considered successful financially and in creating awareness of the Fluxus movement, even having portions of the event broadcast on German television. Publicity and public awareness were important to Maciunas for two reasons, the first being monetary. Maciunas thought that events such Wiesbaden could act as a viable source of funding, via public admission, for his various other publishing projects.³¹ The second is Maciunas desire to present the artists performing at the events and Fluxus in general, as a cohesive emerging movement.³²

After Wiesbaden, through 1962 and early 1963, Maciunas helped organize a number of Fluxus festivals across Western Europe. Occurring in Amsterdam, The Hague, Paris, Nice, and Düsseldorf with larger plans for Fluxus Festivals in more remote locations such as Japan and Russia.³³ The later plans never materialized but the European festivals did contribute in shaping the Fluxus movement. These satellite Fluxus festivals often emerged through the desire of a local artist to stage a festival. The local artist would contact Maciunas and begin to arrange the details for a possible Fluxus Festival.

³¹ Miller, "Interview with George Maciunas," in *The Fluxus reader*, 187. The events and festivals planned by Maciunas would never end up turning a profit. They would exacerbate his financial problems doing the exact opposite of his intention by slowing down his publishing activity.

³² Publicity was vital in Maciunas' opinion. Advertising upcoming concerts, events and especially Fluxus Festivals was seen as almost important as the event itself. This was largely accomplished though posting posters and handing out flyers before the event, but it also sometimes included having pre-event performances, such as street performances. Having experienced extremely low public turn out for his New York AG Gallery events, public awareness was a constant concern for Maciunas. Placing such importance on public exposure and opinion reveals Maciunas desire for Fluxus to be something other than just an artistic outlet. This desire will lead to problems within the Fluxus movement as will be discussed next.

³³ These performances consisted of a number of artists. It was often a mixture of core European Fluxus artists with Americans sometime able to travel to the event and local artists also participating. The rosters for these events were never static.

As the movement became more defined through these events, Maciunas' vision of Fluxus became clear. For example, Dick Higgins and Alison Knowles were interested in staging a festival in Stockholm in March 1963, at the invitation of artist Bengt af Klintberg. However, Maciunas responded in a letter that unless funds could be raised to bring specific performers to the festival, he could not approve it:

Don't do on any account a FLUXUS Festival on your own — it would be very incomplete & not at all representative of the FLUXUS COMMON FRONT — you may do an informal concert preview of "Higgins festival" but no FLUXUS FESTIVAL...³⁴

The key phrase, which Maciunas types in an underlined uppercase font is, "Fluxus Common Front." To Maciunas, Fluxus is a defined set of individuals producing works of art with a specific message, being conveyed as a unified group. Maciunas felt that the Fluxus movement should be working ultimately towards political goals.³⁵ This combination of Maciunas' increased desire to project the artists and their work as a unified front, as well as an increasingly political tilt, would ultimately lead to a rupture between himself and the rest of Fluxus.

Maciunas kept in contact with Fluxus members through his prolific letter writing. These communications took the form of personal letters to individual artists and what he called Fluxus newsletters. In these updates, he broadcasted the status of planning festivals and the progress of publishing ventures. However towards the end of 1962 he sent out *Fluxus News Letter No. 5*:

³⁴ Smith, *Fluxus : the history of an attitude*, 99.

³⁵ Maciunas' aligned his political objectives with the ideological goals of the 1929 Soviet Union Left Front of the Arts group (LEF). He stated that he wanted to eliminate fine art so the materials and human resources wasted on such efforts could be directed to more socially constructive ends. See Bertrand Clavez, "Fluxus: Reference or Paradigm for Young Contemporary Artists?," *Visible Language* 39, no. 3 (2005), 241-242; and Jacob Proctor, "Fluxus: A Laboratory of Ideas," in *Fluxus and the Essential Questions of Life*, 25-28.

Fluxus will require however, the following conditions to be met by the authors agreeing to have their works constantly published:

1. authors are to assign exclusive publication rights to Fluxus. They will not submit any works to any other publications without the consent of Fluxus.
2. Fluxus will undertake to publish all past and future works submitted by authors and obtain international copy-rights [sic] to protect the authors from unauthorized copy and performance. Failure on the part of Fluxus to meet these obligations will relieve the authors from their obligations.³⁶

Such a request for artists to surrender copyright to the Fluxus movement was not well received by the Fluxus membership. His desire to centralize Fluxus, even to the point of anonymizing artist's names into a catch-all "Fluxus" as author was met with hostility.³⁷ This tension was compounded in his next newsletter. In his preparations to return to the United States at the end of 1963, Maciunas began making plans for a festival to be held in New York City. *Fluxus News-Policy Letter No. 6* detailed how Maciunas thought awareness or publicity should be raised for the event:

Prearranged "break downs" of a fleet of Fluxus autos & trucks bearing posters, exhibits, etc. in the middle of busiest traffic intersections...

Clogging-up subway cars during rush hours with cumbersome objects (such as large musical instruments...long poles, large signs bearing fluxus announcements...)

Disrupting concerts at "sensitive" moments with "smell bombs", "sneeze bombs". Ordering by phone in the name of museum, theater or gallery [sic] for delivery at the exact or just prior [to] the opening, various cumbersome objects: rented chairs, tables, palm trees, caskets, lumber, large sheets of plywood, bricks...³⁸

Such activities carried obvious intentions of social-political demonstration. This communication elicited harsh criticism from the American members of Fluxus who did not share Maciunas desire for the movement to have a political agenda.

³⁶ Smith, *Fluxus : the history of an attitude*, 89.

³⁷ Maciunas did begin to partially obscure artist's names though a system of abbreviations that took the form of the word "Fluxus" and a series of two letters for each artist name, such as "Fluxus cc". These abbreviations would act as his organizational system and would appear in published works. Jon Hendricks explains this elaborate naming convention in his introduction to *Fluxus Codex*, 28-29.

³⁸ Smith, *Fluxus: the history of an attitude*, 112.

After returning to New York, Maciunas' relationship with many of the artists associated with Fluxus experienced continued strain. While he was able to help organize a New York festival in May of 1964, located in rented space he called the Fluxhall, disagreements between Fluxus members continued to grow. These contentions, or as historian Hannah Higgins calls them, "Fluxbattles," emerged for numerous reasons. There were philosophical differences on what the Fluxus movement should be, as mentioned earlier, but there were also very practical reasons for these conflicts. While Maciunas placed himself at the center of the Fluxus artists, he was increasingly unable to fulfill the obligations he had made. These commitments included organizing events as well as publishing materials for the various artists. The reasons for these failures range from his fragile health, lack of funds, and lack of assistance from the other Fluxus artists. These issues compounded as the movement's cohesiveness waned and the desire of the artists to associate with Fluxus diminished.

One event is often looked at as a culmination of this growing disharmony. In August of 1964 composer Karlheinz Stockhausen had been invited to perform a work called *Originale* at the New York Festival of the Avant-Garde. Many of the artists associated with Fluxus were also to perform at the event. Maciunas vehemently disagreed with Fluxus artists participating in what he now viewed as the antithesis of a Fluxus performance.³⁹ Hannah Higgins describes the result:

³⁹ Maciunas felt that Fluxus had moved past traditional experimental compositions with their anti-art event based performances. He also thought such performances were celebratory of the established art world, where in his opinion Fluxus goal was to overturn that model. Henry Flynt, who opposed "serious culture" and Stockhausen specifically as racist, influenced and contributed to this view. Flynt claimed that Stockhausen dismissed Jazz as primitive in a 1958 lecture, thus revealing his racist ideology, see Kristine Stiles, "Between Water and Stone," in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*, 77-78.

Originale's U.S. premiere took place at Judson Hall, a venue for experimental theater. The concert program lists as performers and/or exhibitors the Fluxus members Nam June Paik, Dick Higgins, Jackson Mac Low, Joe Jones, and George Brecht, along with Charlotte Moorman, Mary Bauermeister, Lette Lou Eisenhauer, Allan Kaprow, and Michael Kirby, who sometimes performed with Fluxus. Meanwhile, other Fluxus artists – Ben Vautier, Takako Saito, George Maciunas, and Henry Flynt – distributed a flyer at the concert protesting it. Contributing to the confusion at least three artists (Dick Higgins, Allan Kaprow, and Alison Knowles) both performed in and demonstrated against the concert.⁴⁰

This division of opinions on what Fluxus was, and what it should be, combined with Fluxus members increasing frustration with Maciunas, would lead to a collapse of the movement. In October 1964 Dick Higgins wrote:

Maciunas is gone. Joe Jones, George Brecht and Ay-O kicked him out of Fluxus. I was already out, so I couldn't help. Paik too. Maciunas and Flynt made the stupidest picket of Kaprow's "Stockhausen Originale" — very good Kaprow and more Kaprow than Stockhausen.⁴¹

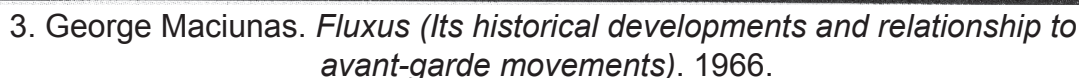
This brought to conclusion of what Hannah Higgins defines as the Maciunas-based paradigm by the end of 1965.⁴² This distinction is important in that it does not signify the end of the Fluxus movement in total. Throughout the rest of the 1960s, the same groups of individuals continued to collaborate together. This abridged review of the historical narrative of the Fluxus movement is intended to show the defects in thinking of the Fluxus movement in this historical model. This point is emphasized if we examine a diagram created by Maciunas in 1966 plotting the history of Fluxus (fig. 3).⁴³

⁴⁰ Higgins, *Fluxus Experience*, 72-74.

⁴¹ Smith, *Fluxus : the history of an attitude*, 161.

⁴² Hannah Higgins, "Fluxus Fortuna," in *The Fluxus reader*, edited by Ken Friedman (Chichester, West Sussex; New York: Academy Editions, 1998), 34.

⁴³ Maciunas created dozens of charts and graphs documenting everything from Russian history to a unified history of art. Astrit Schmidt-Burkhardt explores these documents as artworks and the insight they provide to Maciunas thinking in *Maciunas' Learning Machines: From art history to a chronology of Fluxus*.



This chart is a representation of how Maciunas viewed the development of the Fluxus movement. It flows chronologically left to right, with years denoted at the bottom, starting in 1959 and ending in 1966. The top right quadrant of the chart shows the historical development of the Fluxus movement. Artists Maciunas thought significant to Fluxus are listed with a line extending from their name, signifying the length of their participation in the movement. Some individuals such as George Brecht extend the length of the history of Fluxus. Yet others, such as Dick Higgins, only make it to 1964 before their line comes to an abrupt termination, indicating the end of their association with Fluxus. Other names are completely removed from the Fluxus movement, such as Wolf Vostell, who presented at multiple Flux Festivals, yet he was relegated to the Neo Baroque Theater classification at the bottom of the chart.⁴⁴ Maciunas notes on the diagram that these individuals were excluded due to their “anti-collective attitude, excessive individualism, desire for personal glory and prima donna complex.” While this chart is obviously Maciunas’ highly subjective revisionist history of the movement, it is indicative of a larger problem. We are unable to define who was part of the Fluxus movement based solely on their interaction with Maciunas. Ken Friedman stresses this distinction when he states:

Discussions about Fluxus often focus on George Maciunas, and some ask who has continued to carry on in George’s role. George had a unique role, a unique way of doing things, and a unique place in the affections of everyone who knew him.

⁴⁴ This is surely the result of Maciunas’ personal problem with Vostell in which he accused him of sabotaging Fluxus publications by publishing material Maciunas had said he intended to include in his Fluxus Year Boxes. Such an example demonstrates the problem of framing the entire Fluxus movement through one individual’s account.

Thinking about George is central to Fluxus, but thinking of him as the central figure is a mistake.⁴⁵

Distancing ourselves from the Maciunas-based historical view of the Fluxus movement requires the use of another model. Dick Higgins created a list of nine qualities he thought best defined Fluxus: internationalism, experimentalism and iconoclasm, intermedia, minimalism or concentration, an attempted resolution of the art/life dichotomy, implicativeness, play or gags, ephemerality, and specificity.⁴⁶ This expanded view of the Fluxus movement shifts the focus from a historical context, to a thematic one. Such a numerous range of traits is needed, in order to encompass such a diverse range of artistic production.⁴⁷

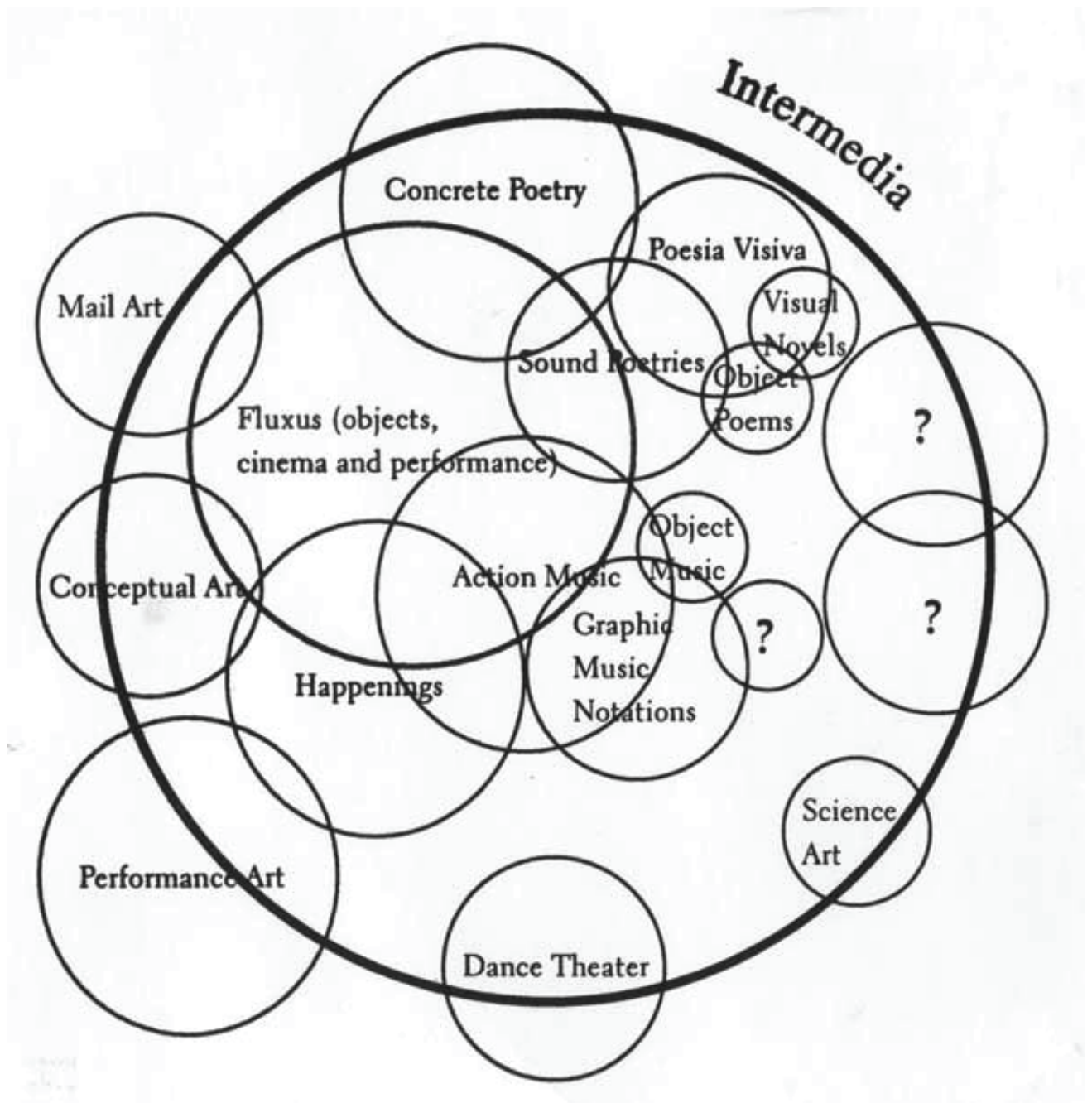
Many of the terms Higgins uses are self-explanatory, but “intermedia,” a concept central to Fluxus art production deserves a closer look. The medium an artist works in can be a useful factor in organizing artistic movements. However, work produced by Fluxus artists was described by Dick Higgins as intermedia. Higgins designates intermedia as a range of artistic practices, as modeled in his 1995 diagram (fig. 4). In his diagram, Higgins categorizes Fluxus art as a specific practice of performance, film and object production. However in his thematic description of the Fluxus movement as intermediary, he states that Fluxus members practiced artistic production throughout this entire range of mediums.

Such a complex and overlapping range of artistic activity makes it difficult to use as an arbiter of classification. This difficulty is especially true when we realize that the

⁴⁵ Ken Friedman, “Fluxus and Company,” *Lund Art Press* 1, no. 4 (1990), 297.

⁴⁶ Friedman, “Fluxus: A Laboratory of Ideas,” 36-37.

⁴⁷ This list of nine traits was updated by Ken Friedman to twelve: Unity of art and life, intermedia, experimentalism, change, playfulness, simplicity, implicativeness, exemplativism, specificity, presence in time, and musicality. However, both lists convey the idea of the diverse nature of the Fluxus movement.



4. Dick Higgins, *Intermedia chart*, 1995.

artistic output of the Fluxus movement shifted through this field of intermedia.

Emerging from a post-Cage experimental music practice, many of the Fluxus artists embraced a more performative “Event,” introduced by George Brecht.⁴⁸ A shift could be seen again in 1963 towards incorporating the production of multiples and an interest in the creation of objects, called Fluxkits, often in the form of games or event props. It would be incorrect to think that these shifts exclude any earlier favored medium. As the Fluxus movement grew, it encompassed this continually increasing range of production. By the end of the 1960s, Fluxus art could embody a diverse spectrum of work including film, newspapers, books, performances, symphonies, sculptures, sound poetry, dances, feasts, jokes, insoluble puzzles, games, and more.⁴⁹

Complementing the development of a thematic organization of the Fluxus movement is Hannah Higgins notion of experiential knowledge.⁵⁰ For Higgins, the idea of an artwork being experiential, meaning the understanding of the works derives from its interaction, is fundamental to understanding Fluxus artworks. The concept of experience plays heavily into many of Fluxus works. For example, George Brecht’s Event score *Drip Music*—which is performed by simply dripping water at a height, from one vessel to another—was intended to be performed by anybody in any environment, the experience of the event was the work. The experiential qualities of performance

⁴⁸ Geoffrey Hendricks, *Critical Mass: Happenings, Fluxus, Performance, Intermedia, and Rutgers University, 1958-1972* (Rutgers University Press, 2003), 183. The Event is term coined to describe the performance that became typical of the Fluxus performers. As Allan Kaprow created the “Happening” Geroge Brecht invented the “Event.”

⁴⁹ David Doris, “Zen Vaudeville: A medi(t)ation in the margins of Fluxus,” in *The Fluxus reader*, edited by Ken Friedman (Chicester, West Sussex; New York: Academy Editions, 1998), 91.

⁵⁰ As the daughter of Dick Higgins and Alison Knowles Hannah Higgins’ experiential outlook was likely influenced by growing up in the Fluxus movement. Higgins talks about this experience, along with other children of Fluxus artists in “FluxKids.” *Visible Language* 39 (2005): 248–277.

events are easily grasped, yet Higgins tells us that the experiential property extend to Fluxus objects as well:

For example, the most tactile pieces in Fluxus are undoubtedly Finger Boxes, by the Japanese Fluxus artists Ay-O. First produced in 1964, these works have subsequently been sold singly and in Fluxkits. The boxes contain various tactile elements ranging from nails to sponges, beads to cotton balls, and bristle brushes to hair. For all practical purposes the boxes look identical from the outside, which means the experience of these works occurs only when the user probes within: the realm of touch is supreme as, handled, they prick, cushion, roll against, squeeze, and wrap around an inserted finger. Merely to look at them is to experience them only partially.⁵¹ (fig. 5)

For Higgins the experiential quality of the artwork is an overarching framework in which it exists:

The Event and the Fluxkit argue ontologically for the value of primary experiences over secondary experiences — that is, interpretations or associations. Though present, secondary experience is not the point of the work: Fluxus is not a metadiscourse in the postmodern sense. To account for Fluxus as experiences, moreover, does not preclude making other claims for its importance. Rather, to insist that primary experience is paramount in Fluxus counters any move to assign specific and permanent meaning to the work.⁵²

The experientiality of Fluxus work implies the importance of interaction between individuals. Higgins states that the work “...has the capacity to offer ontological knowledge that connects people to a real world and to each other, expanding the individual’s sense of belonging to a place and a group.”⁵³

The two models of the Fluxus movement put forward, historical and thematic, emphasize two important points. The first, that Fluxus is best described as a group of artists working around the same time, interested in a diverse, yet related, range of concepts and methods of production. The second, that the works of the Fluxus related

⁵¹ Higgins, *Fluxus Experience*, 38-40.

⁵² Ibid, 59.

⁵³ Ibid.



5. Ay-O *Finger Boxes*, 1964.

artists demonstrate a specific experiential quality that highlights the importance of the relationship between the individuals and the group as a whole.

Shifting our focus to the relationships between the individual's associated with the Fluxus movement moves us towards a social or community based view of Fluxus. Fluxus scholars have stressed this social aspect of the movement for decades. Ken Friedman, for example, described the Fluxus movement as "...a community of people who see each other on a regular basis...they cooperate, they compete, they form friendships, antagonisms, loyalties and jealousies."⁵⁴ Friedman's community analogy would later develop into an "International Laboratory" metaphor to incorporate the diversity of the artistic production and exchange of ideas. Like Friedman, Owen Smith strongly expounds on the importance of the individuals and their relationships, writing: "...Fluxus does not refer to a style or even a procedure, but rather to the presence of a total of social activities. Any approach to Fluxus that disregards this central social aspect cannot hope to capture what Fluxus was."⁵⁵ A social emphasis becomes even more apparent when we realize that many of the Fluxus artists were married couples, leading Kristine Stiles to define the Fluxus movement as "clan-like."⁵⁶

Building on the community view of the Fluxus movement, Friedman, with Peter Frank, and later James Lewes, attempted to develop an overview and assessment of the Fluxus community. To accomplish this goal, they reviewed numerous retrospective exhibition catalogs for the inclusion of artist's names. Like previous models of the

⁵⁴ Friedman and Lewes, "Fluxus: Global Community, Human Dimensions," 159.

⁵⁵ Owen F Smith, "Teaching and Learning About Fluxus," *Visible Language* 39, no. 3 (2005), 223.

⁵⁶ Stiles, "Between Water and Stone," in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*, 91. At least seven couples belonged to the Fluxus movement.

movement, this overview was presented as a visualization. (fig. 6) James Lewes best describes it:

This chart is intended to provide an overview of consensus amongst a group of scholars, curators and critics concerning the core and periphery membership of Fluxus. To establish such consensus, a number of sources including George Maciunas' Fluxlist (published between 1964 and 1974), Jon Hendrick's four volumes and nineteen exhibitions have been used. Each artist is marked with an X under the relevant entries, and by tracking the artists across different entries, one is able to view at a glance where the scholars/curators have located him/her with regard to the core or periphery of Fluxus. The artists are listed alphabetically across the top of the chart and exhibition catalogs and Fluxlists are listed numerically and in chronological order on the left hand side.⁵⁷

From this analysis, the authors identified thirty-two core Fluxus members, categorizing their involvement based on the percentage of publications they were included in.⁵⁸ This is a powerful model for overcoming the varied thematic aspects of the Fluxus movement. Yet this model is dependent on the objective judgments of curators and scholars. While these judgments are necessary, it is important to consider that the Fluxus movement was primarily a social group. Similar to all social groups, Fluxus exercised a high degree of self-selection.

Self-selection, that is, the process of each artist choosing with whom they collaborate, is a fluid and organic process. Friedman writes that this collaboration is to be expected, especially in the early Fluxus period:

In the 1960s, the community involved fewer than a hundred people...were involved in a slightly larger community of several hundred people active in the relatively small sector of the art world that we might label the avant-garde. In this context it makes perfect sense that those who knew each other would bring other interesting people into a relatively small community interested in the same kinds of issues, people doing the same kind of work.⁵⁹

⁵⁷ Friedman and Lewes, "Fluxus: Global Community, Human Dimensions," 161.

⁵⁸ Friedman, "Fluxus: A Laboratory of Ideas," 36.

⁵⁹ Ken Friedman, "Working Together," in *Artistic bedfellows : histories, theories and conversations in collaborative art practices*, edited by Holly Crawford (Lanham: University Press of America, 2008), 141.

	Heussner	Ken Hickman	Juan Hidalgo (Zal)	Dick Higgins	E. F. Higgins III	Philippe Hiquily	Spencer Holst	Davi Det Hompson	Michael Horowitz	Dieter Hulsmanns	Alice Hutchins	Scott Hyde	Dorothy Iannone	Toshi Ichiyangi	Taka Imura	Isidore Isou	Tatu Izumi	Joern Janssen (Hi Red Center)	Dennis Johnson	Ray Johnson
1 G.M. List			⊗	⊗			⊗	⊗		⊗			⊗				⊗			
2 Happening &			⊗	⊗									⊗							
3 Fluxshoe	⊗	⊗	⊗				⊗			⊗										
4 International			⊗	⊗																
5 Most Radical			⊗	⊗			⊗			⊗			⊗				⊗			⊗
6 Phenomens				⊗																⊗
7 Hendricks	⊗			⊗		⊗	⊗	⊗	⊗	⊗	⊗		⊗		⊗	⊗	⊗	⊗	⊗	⊗
8 Weisbaten				⊗																
9 25 Years				⊗																
10 and Friends				⊗	⊗		⊗								⊗					⊗
11 Silverman				⊗						⊗										
12 & Happening				⊗		⊗				⊗										⊗
13 & Co.				⊗																⊗
14 continuum				⊗																
15 SPQR				⊗																
16 1990				⊗			⊗			⊗	⊗									
17 Subjektiv				⊗																
18 UBI		⊗	⊗				⊗			⊗		⊗								⊗
19 closing in				⊗						⊗										⊗
20 Pop Art				⊗													⊗			
21 Attitudes				⊗																

Even if we think back to the seemingly highly orchestrated Fluxus Festivals, they were more of a consensus rather than curation. Maciunas consulted with a number of other artists about who should perform at a festival. For example, in 1962 he wrote to Dick Higgins:

Are any of these good? (for FLUXUS) & Fluxus diagram?....
 John Chamberlain NYC...
 Jim Dine NYC...
 C. Oldenburg NYC...
 This is a list from John Goldsworthy, I don't know how trustworthy it is. Can you weed names out. Reduce it to just good ones?⁶⁰

Even then, Smith tells us the festivals "...generally came about as a direct manifestation of an ever-shifting network of associations, contacts and collaborations, many of which were more the result of chance than of forethought."⁶¹ Thinking beyond the festivals is important as well. It has to be taken into consideration that while there were only a handful of Festival events, there was continuous activity of performances and exhibitions among the large group of Fluxus related artists.

The deeply interconnected group of artists that made up the Fluxus movement is, as Smith describes, best thought of as network of collaborations. Indeed, it seems even from its inception, the best model of the Fluxus movement has been a network. As early as 1963 George Brecht wrote:

FLUXUS seems to be an anational, rather than an international, phenomenon, a network of active points all equidistant from the center. These points can proliferate, new points arise, at any place on earth where there is life..."⁶²

⁶⁰ Smith, *Fluxus : the history of an attitude*, 55.

⁶¹ Smith, "Developing a Fluxable Forum," 5.

⁶² Owen Smith, "Fluxus Praxis," in *At A Distance: Precursors To Art And Activism On The Internet*, edited by Annmarie Chandler and Norie Neumark (MIT Press, 2005), 132.

This model also reflects other network-like aspects of the group. As we saw with Maciunas, the group had a custom of prolific, or even obsessive,⁶³ letter writing between each other, enabling an established network of communication. Also, while not gone into depth here, the group had a fairly advance network of distribution, enabling the dissemination of their published works.⁶⁴ These combined characteristics make a convincing argument that a network model best describes the activity of the Fluxus movement.

Yet there exists no visual interpretation such as Maciunas' historical chart or Friedman's community table for a Fluxus network model. The difficulty arises when one tries to rectify the useful theory of a network model with the details of its construction. The simplest definition of a network is a fabric or structure of cords or wires that cross at regular intervals and are knotted or secured at the crossings. Using this definition, each nexus of interconnecting cords would represent a Fluxus artist in the larger overall fabric of the movement. However, the difficulty is determining what the cords connecting the artists represent.

If we return to our previous thematic and community models, we can assert that the most important aspect of these overlapping representations is experience, which can also be called participation, and self-selection, respectively. These two qualities best define the nature of the artists' relationships in this model. The type of work being

⁶³ Armstrong, "Fluxus and the Museum," in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*, 16.

⁶⁴ Smith, "Fluxus Praxis," 126-131. This distribution system includes not only the printing Maciunas did early on in the movement's history but also Dick Higgins' Something Else Press, which will be discussed latter, and also Geoffrey Hendricks' Black Thumb Press. Maciunas envisioned, although never really actualized, a distribution network with Fluxus warehouses across the world from which individuals could order Fluxkits and other Fluxus publications. However Maciunas did setup a Fluxshop in conjunction with his Fluxhall performance space in New York where one could go and buy Fluxus items in person.

produced is, as Hannah Higgins calls it, experiential. The work itself is based on experience or participation between the individual artists. The second quality, self-selection, regulates that interaction with the assumption that artists will collaborate with other artists they choose. The result is a network of artists connected by the instances of their mutual collaboration. Such a network is interesting in that it is based on the artists' behavior. As a result, the network would be self-organizing from the perspectives of the Fluxus members. This model would be the result of the artists' judgments instead of objective judgments of scholars and historians.

Such a model would also contribute an answer to the question that began this examination of Fluxus models, centrality. The first basic element of network analysis is the concept of degree. If we count an occurrence of collaboration between an artist and another artist in the group and give each a number, that value would represent the artist's degree in the network. The larger group an artist has collaborated with indicates a higher centrality in the network and as a result, the movement.

This model requires an analytical component to move from the realm of theory to producing results. This quantitative aspect is not novel in the examination of the Fluxus movement. If we think back to Friedman, Frank and Lewes' community model we see similarities. Just as they compiled, analyzed and visualized data collected from exhibition catalogs, this network model also requires application of specific techniques. To understand the results of employing a network model to investigate central artists of the Fluxus movement, we must first explore the methodology that enables us to do so.

Chapter 2 – Methodology

EXERCISE

Determine the center of an object or event.
Determine the center more accurately.
Repeat, until further accuracy is impossible.

—George Brecht, *Water Yam*, 1963

To model, visualize, and analyze the Fluxus movement of the 1960s as a network requires the adoption of techniques and methods established in the field of social network analysis. This rapidly growing discipline has its roots in the early twentieth century. Yet it was not until the 1970s, that the field matured into a highly technical and mathematically oriented methodology.⁶⁵ In the following decades, the technical methods of network analysis influenced the social sciences to explore the theoretical possibilities of relational theory. Rooted in sociology, network theory provided a new framework to address questions in a range of disciplines such as history, politics and economics. Social network analysis is two-pronged, consisting of practical methods and techniques as well as theoretical frameworks to examine individuals and their actions in social systems.

The theoretical side of social network analysis is well represented in art history. Seminal authors from the field have influenced art historians and theorist informing our understanding of artistic production. For example, the scholarship of Pierre Bourdieu and his work, *The Field of Cultural Production*, emerged partly from his participation in

⁶⁵ Ann Mische, “Relational Sociology, Culture, and Agency”, in *The SAGE handbook of social network analysis*, edited by John Scott and Peter J Carrington (London; Thousand Oaks, Calif.: SAGE, 2011), 81.

what is known as the New York School of Social Network Analysis in the early 1990s.⁶⁶ His theories have been influential on recent approaches to art history, such as Institutional Critique. Network theory can also be seen in art production itself, in the guise of relational aesthetics that also emerged during the 1990s among other artistic mediums.⁶⁷

The methodological facet of social network analysis has been employed less than the theoretical aspect, but it is an emerging trend. One of the leading proponents of the utilization of network analysis in art history is Maximilian Schich.⁶⁸ An example of Schich application of network analysis appears in his dissertation on ancient Roman architecture.⁶⁹ By organizing the documented depictions of ancient monuments into a complex network, Schich maps the reception and tradition of these monuments. Another case is the thematic analysis of over 10,000 Baroque Hispanic-American paintings of the 16th through 18th centuries.⁷⁰ By grouping the works into a network linked via thematic elements, such as the depiction of a specific saint, the authors noted the emergence of global communities and documented the waves of globalization between Spain and Latin America. Another example of this methodology in practice is Paul McLean use of network analysis to reveal the development of patronage in

⁶⁶ Ibid., 85.

⁶⁷ Other forms of artistic production can also be explored using network theory including mail art, Internet art, and the aesthetic of the network as art. Tatiana Bazzichelli explores these themes and even places George Maciunas and his charts and diagrams as a precursor in *Networking: The Net as Artwork* (BoD – Books on Demand, 2009).

⁶⁸ More information about Schich's research can be found at <http://www.schich.info>

⁶⁹ Maximilian Schich, *Rezeption und Tradierung als komplexes Netzwerk: Der CENSUS und visuelle Dokumente zu den Thermen in Rom* (Maximilian Schich, 2009).

⁷⁰ Juan Luis Suárez, Fernando Sancho, and Javier de la Rosa, "Sustaining a Global Community: Art and Religion in the Network of Baroque Hispanic-American Paintings," *Leonardo* 45, no. 3 (March 12, 2012): 281.

Renaissance Florence.⁷¹ One final example is the well-known work of the Getty foundation, with its program of employing network analysis to examine the nature of provenance and art markets.⁷² The growth of the application of network analysis in art history, can be seen in the emergence of annual conferences dedicated to the practice. For example, 2013 will mark the fourth annual Arts, Humanities, and Complex Networks Symposium, which present arts and humanities scholars employing network analysis in their research.⁷³

Beyond the discipline of art history, Paul DiMaggio documents that network analysis has been used for decades in the field of sociology to examine systems of cultural production.⁷⁴ This application of network analysis runs the gamut of artistic outputs: Relationships among literary authors and critics,⁷⁵ New York photographers and their gallery representation,⁷⁶ relationships between musical bands and their venues⁷⁷ and musical genre classification based on social networks.⁷⁸ These examples

⁷¹ Paul McLean, *The art of the network : strategic interaction and patronage in Renaissance Florence* (Durham [N.C.]: Duke University Press, 2007).

⁷² Anne Helmreich, "Network Analysis and the Art Market," in *Digital Art History: Challenges, Tools and Practical Solutions* (presented at the Digital Art History, Málaga, Spain, 2011), <http://digitalarthistory.weebly.com/abstracts.html>.

⁷³ Proceedings of these conferences are published in Maximilian Schich, Roger Malina, and Isabel Meirelles, eds., *Arts, Humanities, and Complex Networks* (Cambridge: Leonardo/ISAST and MIT Press, 2012). A Living companion to the book is also available at <http://www.ahcncompanion.info/>.

⁷⁴ Paul DiMaggio "Cultural Networks," in *The SAGE handbook of social network analysis*, 287-288.

⁷⁵ W de Nooy, "Stories and social structure: A structural perspective on literature in society," in *The Psychology and Sociology of Literature: In Honor of Elrud Ibsch* edited by Elrud Ibsch, Dick H. Schram, and Gerard Steen, (John Benjamins, 2002), 359-377.

⁷⁶ Katherine Giuffre, "Mental Maps: Social Networks and the Language of Critical Reviews," *Sociological Inquiry* 71, no. 3 (2001): 381-393.

⁷⁷ Pacey Foster, Stephen P. Borgatti, and Candace Jones, "Gatekeeper Search and Selection Strategies: Relational and Network Governance in a Cultural Market," *Poetics* 39, no. 4 (August 2011): 247-265.

⁷⁸ Charles Kirschbaum and Flávio Carvalho de Vasconcelos, "Tropicalia: Strategic Maneuvers in Networks of Musicians," *Revista De Administração De Empresas* 47, no. 3 (September 2007): 1-17.

are a small sample of work exploring cultural production through network analysis, but demonstrates an established history of its use.

In network terminology a system is comprised of two elements, nodes and edges. A node is an entity in the network—in this analysis a Fluxus artist. An edge is a connection between two nodes; it represents a relationship between the two artists. As mentioned earlier, in this model, an edge represents a verified collaboration between two artists, specifically a co-performance in an event together. This co-performative edge is a relatively new, yet recognized, type of social connection in social network analysis. Referring to it as an actor-collaboration network, DiMaggio describes its application in a number of studies, ranging from movie actors and jazz musicians to online social networks such as Myspace.⁷⁹ This prior use demonstrates the application of a co-performance edge relationship is an established methodology.

In the simplest terms, network analysis can be thought of as consisting of two components: A dataset and a selection of algorithms applied to that data. The data for this analysis comes from Ken Friedman's *The Fluxus Reader*.⁸⁰ Included in the publication is an exhaustive chronology of Fluxus activities, performances and exhibitions, from 1960 through the early 1990s. My study is indebted to this compilation of information, without which it would have not been possible. Each entry in the chronology gives a date, event title, location and participants. To produce a network model from this data, each entry for 1960-1969 was entered into a custom

⁷⁹ Paul DiMaggio "Cultural Networks," in *The SAGE handbook of social network analysis*, 289.

⁸⁰ Friedman, *The Fluxus reader*. Friedman generously and freely released this publication in 2012 under the Creative Commons Attribution CC-BY 3.0 Unported license in celebration of the 50th anniversary of the Fluxus movement. Until its open release the out of print monograph was difficult to acquire. The online version of the book is available at <http://hdl.handle.net/1959.3/42234>

software system that stores and organizes the data focused on the individuals and their participation.⁸¹ The chronology contains both performance and exhibition. For this analysis, only the performance events were selected to contribute to the network model. This decision is based on the desire for the model to reflect the experiential choices of the artists. It has been shown that Fluxus performance events were highly organic and self-selecting. A curated exhibition of object-based work would be less likely to demonstrate such qualities. The result of this compilation is an undirected network,⁸² spanning ten years and consisting of 483 artists and 7836 co-performance relationships.

The concept of degree, which was briefly introduced earlier, indicates the number of relationships an artist has with the rest of the network of artists. The higher the degree indicates a larger count of collaborations among other artists. This model argues a higher degree represents a central role in the Fluxus movement.⁸³ It is important to clarify that frequency does not influence this specific model. If two artists collaborated multiple times throughout a given period, those instances are collapsed into a single degree. This approach values collaboration over prolific production. A good example is Joseph Beuys, who is documented as participating in twenty-three events in

⁸¹ This system is web-based and located at <http://padb.net/>. The development of this system represents a significant effort in the progress of this project. The website serves as a digital companion to this document and retains and distributes under a Creative Commons license the data used for this project including the raw data, the network models, the network renderings and other digital assets employed. This site will be maintained as long as possible but these files can also be found on the media included with this thesis.

⁸² Undirected, opposed to directed, means the co-performance relationship is reciprocal between the two artists. This distinction is important in network analysis, as not all types of relationships are reciprocal and require difference approaches in their analysis.

⁸³ There are many types of centrality measurements, this study only utilizes the simplest of centrality, degree centrality. For other types of centrality see Robert A. Hanneman and Mark Riddle, "Concepts and Measures for Basic Network Analysis", in *The SAGE handbook of social network analysis*, edited by John Scott and Peter J. Carrington (London; Thousand Oaks, Calif.: SAGE, 2011), 363-367.

the 1960s. However, about half of those events were collaborations with only one other artist. Beuys was prolific, but his degree in this model is average, due to the smaller size of his collaborations. This approach also reflects the Bourdieuan notion of cultural capital or currency. The increased number of collaborations an artist has within the network indicates a likely increase in their influence on the network as a whole.

The second technique used in this analysis, in addition to degree centrality, is known as partitioning. This process organizes the network based on similar edges linking individuals.⁸⁴ The result is the grouping of artists together into communities algorithmically based upon their mutual relationships. The following graphs can be interpreted noting that the size of the node indicates the degree while the color assigned to the node designates the partitioned community.⁸⁵

The two techniques described are fairly basic, when compared to the full arsenal of methods and algorithms employed by researchers in the field of social network analysis. Yet even from these simple methods, a compelling model of the 1960s Fluxus movement can be created. However, as with any model, it is important to state its possible shortcomings and where it could be improved. This model is based on the co-performance relationship. Expectedly, the results will favor artists that were more performance based in their artistic production. This bias is minimal, as the Fluxus artists were highly intermediary, but it is worth noting that an object-oriented artist

⁸⁴ Linton C. Freeman, "The Development of Social Network Analysis – with an Emphasis on Recent Events", in *The SAGE handbook of social network analysis*, 32-33. This analysis uses a modularity partitioning algorithm with a resolution of 1.0, provided in the Gephi software suite as described in Vincent D. Blondel et al., "Fast Unfolding of Communities in Large Networks," *Journal of Statistical Mechanics: Theory and Experiment* 2008, no. 10 (October 1, 2008): P10008.

⁸⁵ All graphs in this analysis employ the Force Atlas 2 force network graph provided in the Gephi software suite. This algorithm is based on a modified Fruchterman Reingold algorithm by Mathieu Jacomy described in http://www.medialab.sciences-po.fr/publications/Jacomy_Heymann_Venturini-Force_Atlas2.pdf

will not be situated as prominently in the network. This shortfall could be alleviated by expanding the model to include cooperative object production as an additional relationship.⁸⁶ Likewise, many of the Fluxus artists produced written works that were jointly published. Adding co-publication as another type relationship would enrich the network. Similarly, if written correspondences between Fluxus artists were compiled and added to the network it would contribute an additional dimension to the model. Also, frequently events consisted of many smaller performances. This granularity at the performance level is not accounted for in the current model. Nonetheless, the co-performance based network presented here is a good departure point for modeling the complex Fluxus movement as a network.

⁸⁶ Many such cooperative objects are documented in Jon Hendricks, *Fluxus Codex* (Harry N. Abrams, 1988).

Chapter 3 – Networks

Lettuce shape
 Lettuce dig the possibilities
 Lettuce combine life and art, overlap and interpenetrate them
 Lettuce understand as much as possible

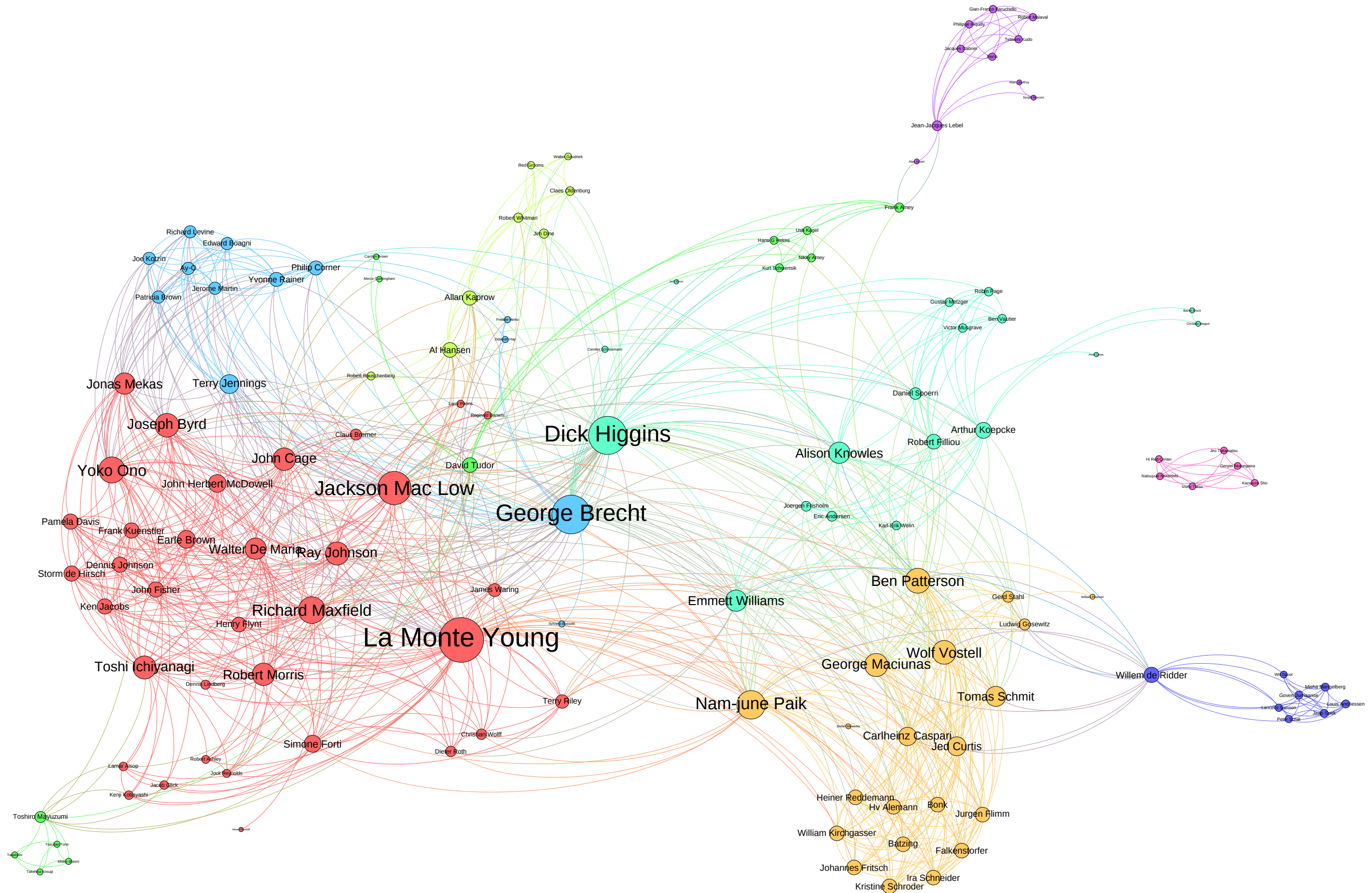
—Al Hansen, excerpts from *Lettuce Manifesto*, 1966

The 1960s Fluxus movement can be organized into three periods: proto and early Fluxus 1960-62, high Fluxus 1963-65 and late Fluxus 1966-69. These ranges represent three phases of the Fluxus movement, each with a distinct network structure.⁸⁷ Reviewing each network graph for these periods will reveal the central figures for each stage in the movement's history. A final review of the graph for the entire decade will give an overview of 1960s Fluxus.

The periods defined as proto and early Fluxus, 1960 through 1962, mark a formative phase of the movement. One of the principle characteristics of Fluxus is its international membership. Artists from United States, across Europe and Japan collaborated together. However, geography is a difficult hurdle to overcome, even more so in the 1960s. The results of this limitation are nexus of collaborations based on the artists' geographic location. This is especially the case for the proto and early Fluxus period. These divisions are made visible if we look at the 1960-1962 graph.⁸⁸ (Graph 1)

⁸⁷ These divisions are made along historical developments in conjunction with the number of performance events that occurred in each period. The number of performances in the 1960s resembles a bell curve with higher performance activity in the middle tapering off at the beginning and end of the decade. The year ranges selected are not arbitrary, but a conscious decision, reflecting the argument this thesis puts forward of the development of the 1960s Fluxus movement.

⁸⁸ It is important to note that the positions of the artist's nodes in the graphs are algorithmically determined based on similar relationships (using the methods cited in the previous chapter), with no curated positioning applied.



Graph 1. Fluxus Movement 1960-1962

Occupying the left region of the graph are the New York based artists from this period. Artists such as Jackson Mac Low, Richard Maxfield, Ray Johnson and Yoko Ono represent the collaboration occurring among of the New York avant-garde in the early 1960s. Situated on the right side of the graph are European based artists such a Ben Patterson, Wolf Vostell, Nam June Paik and George Maciunas — who, as we have noted, had moved to Europe in late 1961. These artists were based primarily in Germany. We also see smaller pockets of geographically isolated artists, such the group of dark blue nodes on the far right that represent Dutch artists connected to the Fluxus movement through Willem de Ridder. Some Fluxus aligned artists are so geographically remote that by the end of 1962 they had not yet performed with artists within the larger sphere of activity. Such is the case for the disconnected group of pink nodes on the far right representing Japanese artists such as the Hi Red Center collective.⁸⁹ However, international collaboration is beginning to emerge in this early period. Towards the center of the graph individuals such as Emmett Williams, Nam June Paik, Dick Higgins, George Brecht and La Monte Young, having performed both in the US and Europe, act as intermediaries between the two groups.

Young, Brecht and Higgins have the highest degree of collaboration by a large margin in this early period. As reviewed previously, all three artists participated in John Cage's Experimental Composition class, which fundamentally influenced the aesthetics of the Fluxus movement. Additionally, all three were looking to move beyond

⁸⁹ It is important to note that while groups like the Hi Red Center are disconnected from the Fluxus co-performance network, there are other forms of interaction that bring them into the Fluxus movement. This analysis is only considering co-performative relationships. If mail correspondence were the edge relationship, or some other form of interaction, such groups would not be so isolated.

experimental music into new forms of expression. This push to discover the new is epitomized by La Monte Young.

As early as 1960 Young was trying to move beyond the Cagean method, proclaiming that the only value he approved in art was newness.⁹⁰ Young's series of compositions from 1960 reveals a shift from musical composition to conceptual action. Young's *Composition 1960 #7* (fig. 7) gives instruction to play a note and that it is "to be held for a long time." While Young's *Composition 1960 #10* (fig. 8) asks the performer to simply "Draw as straight line and follow it." In 1960, Young participated in a series of concerts hosted by Toshi Ichiyanagi, he performed a variation of his *Composition #10*:

Toshi Ichiyanagi wanted to write a piece for La Monte and took his pen and piece of card and drew on it up and down in a continuous line until the whole card was covered in scribbles with a general up and down motion. This he gave to La Monte. La Monte puzzled over the card and sought an interpretation. Eventually he hit on the following: he would take a piece of rough board and sandpaper it until it was clean. The sandpapering would follow the motion of the line, but keep on until the board was smooth. In the performance it took an unexpectedly long time to sand the board smooth. At one point a member of the audience shouted in protest "Hey, La Monte, we *know* you're a genius." But La Monte kept on. Sandpapering. Until the board was clean.⁹¹

Young was pushing the boundaries of what could be considered new music into the realm of performance.⁹² This early work by Young contains many of the hallmarks of future Fluxus performances, such as: Actions based on the variation of a set of instructions (the Event score). Collaboration among other artists or the audience during

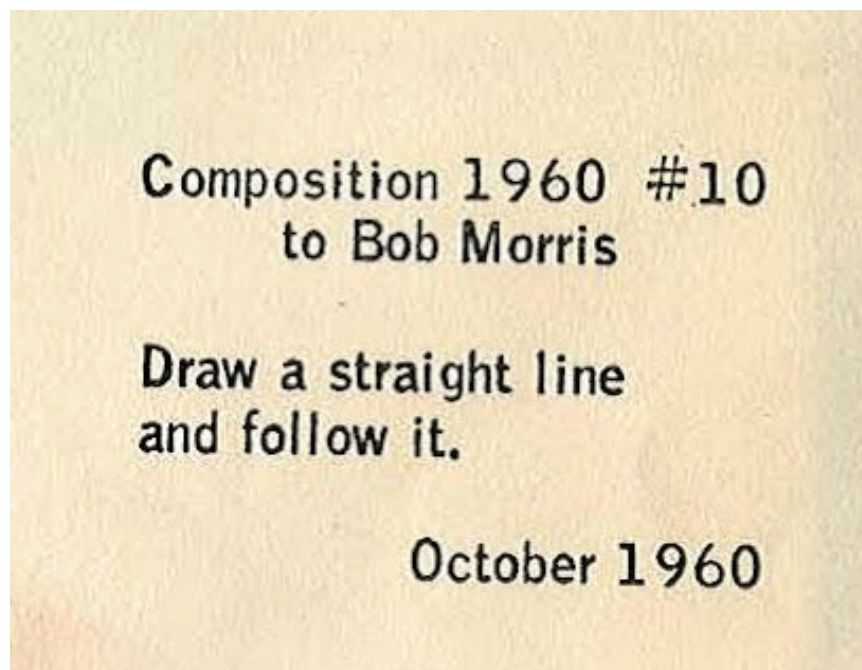
⁹⁰ Henery Flynt, "La Monte Young in New York, 1960-62," in *Sound and light: La Monte Young, Marian Zazeela* edited by William Duckworth and Richard Fleming, (Lewisburg, Pa.; London; Cranbury, NJ: Bucknell University Press ; Associated University Presses, 1996), 53.

⁹¹ Ibid, 58.

⁹² Douglas Khan explores the deep relationship between avant-garde music and Fluxus in "The Latest: Fluxus and Music," in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*.



7. La Monte Young, *Composition 1960 #7*, 1960



8. La Monte Young, *Composition 1960 #10*, 1960

the performance (with Ichiyanagi preparing his score) humor or absurdness, as Young is “playing” a piece of wood with sandpaper,⁹³ and finally, the long length of the performance and the level of concentration demonstrated by the performers.⁹⁴

George Brecht performed a strikingly similar composition in 1962 with his *Solo for Violin, Viola, Cello, or Contrabass*. (fig. 9) It is not possible to say if Brecht—who is credited for developing the Event Score in 1959⁹⁵—was aware of Young’s 1960 performance. However, in Brecht’s work, the Event score simply reads “polishing.” The resulting performance was Brecht sitting on stage with a violin and a bottle of varnish, carefully applying it to the instrument. Brecht’s work demonstrates many of the characteristics contained with Young’s performance—most notably, the playing of an instrument in an unorthodox fashion. However Brecht’s work, and Fluxus works in general, are more direct than Young’s *Composition 1960 #10*. The conceptual placeholder of a block of wood to be worked upon with sandpaper is replaced with a symbolic musical instrument. Brecht is more forcefully questioning the nature of performance and his work conveys a sense of iconoclasm. The Fluxus desire to move

⁹³ In this case, any humor is likely unintentional on Young’s behalf. Henery Flynt in “La Monte Young in New York, 1960-62,” 59, points out that Young was very serious about his compositions to the point of putting a disclaimer in the flyers for his performances which read “THE PURPOSE OF THIS SERIES IS NOT ENTERTAINMENT.”

⁹⁴ Hanna Higgins remarked that the level of concentration of the Fluxus performers was often striking. Higgins, *Fluxus Experience*, 55.

⁹⁵ Although Brecht is credited with inventing the Event score, a year before Young’s *Compositions 1960*, they are often discussed together as they were working in similar circles around the same time. Julia Robinson looks at the emergence of the Event score from Brecht’s point of view but also discusses Young’s contribution in “From Abstraction to Model: George Brecht’s Events and the Conceptual Turn in Art of the 1960s,” *October* (March 1, 2009): 77–108.



9. George Brecht, *Solo for Violin, Viola, Cello, or Contrabass*. 1962

beyond the Cagean method was also less subtle than Young, resulting in performance events with titles such as, “Après John Cage.”⁹⁶

Young’s influence on the emerging Fluxus movement can also be seen in his representation, in absentia, at the first 1962 Fluxus Festival in Wiesbaden. Although Young did not travel to Germany to participate in the event, five of his 1960 Compositions were performed.⁹⁷ Perhaps the most spectacular rendition was Nam June Paik performance of his *Composition 1960 #10*. In Paik’s variation, which he named *Zen For Head*, Paik dipped his head into a bowl of ink and tomato juice and dragged his ink-laden hair the length of a thirteen-foot roll of paper. (fig. 10) The result is part abstract expressionism and part calligraphy, but wholly a documentation of Young’s *Composition 1960 #10*.

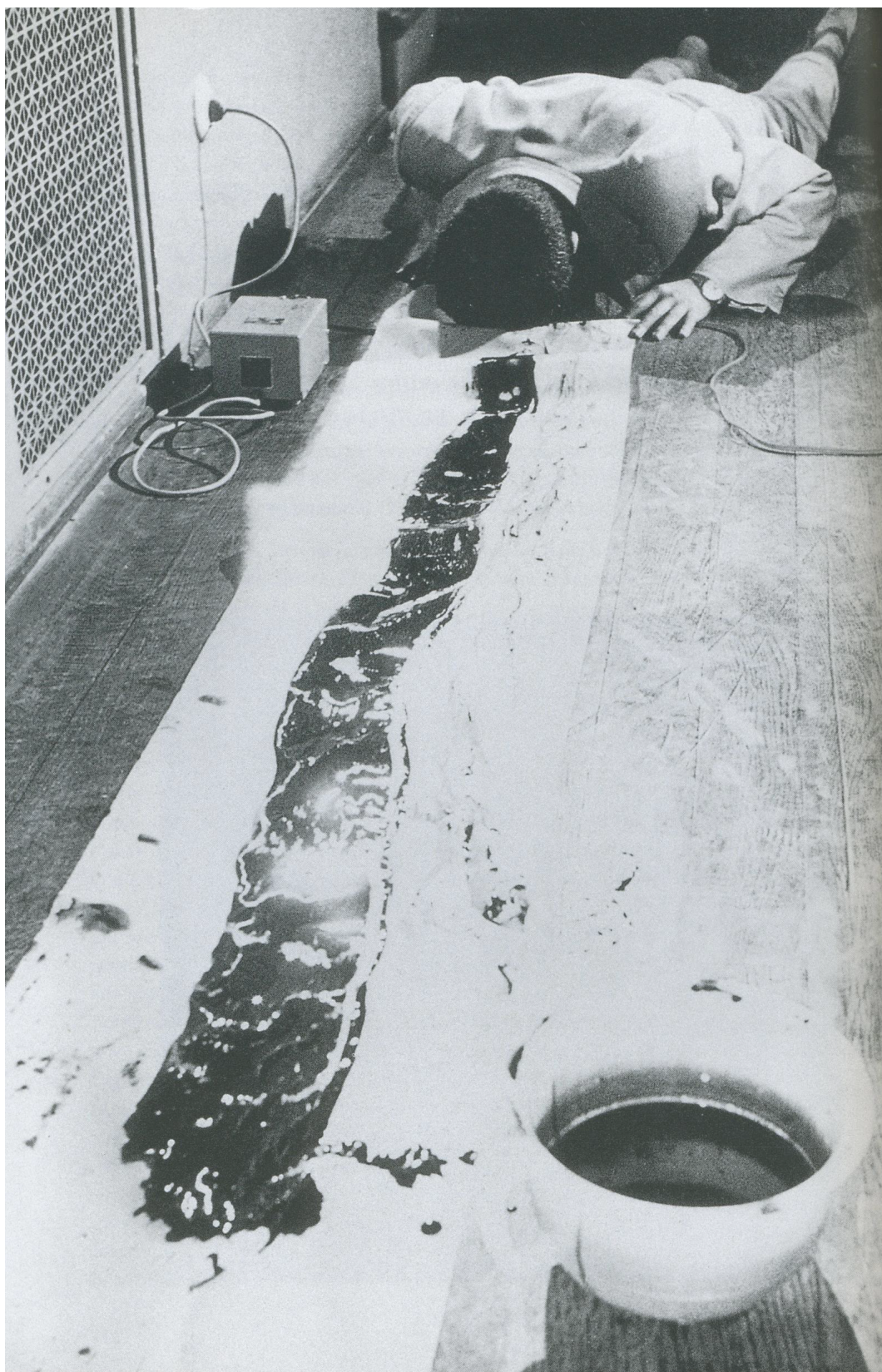
Young’s influence on the early Fluxus movement also emerged from his editorial and organizational efforts, in the first few years of the 1960s. As discussed before, Young was the catalyst, with the assistance of George Maciunas, for the publishing of the first Fluxus compilation, *An Anthology*. Young was also responsible for the organization of the Chambers Street Loft Series, a seminal event parallel to the concerts being held at the AG Gallery.⁹⁸

Young’s highest degree of centrality in the 1960-62 model, reflects his important conceptual influence on the Fluxus aesthetic and organizational role. This model places him as the central figure of the proto and early Fluxus—followed by Brecht and Higgins.

⁹⁶ Après John Cage was an early Fluxus concert held at Galerie Parnass, in Wuppertal, Germany in June of 1962.

⁹⁷ Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge University Press, 2002), 54.

⁹⁸ Miller, “Interview with George Maciunas,” 185-186.



10. Nam June Paik, *Zen For Head*, variation on La Monte Young's *Composition 1960 #10*. 1962

While Young did continue to collaborate in Fluxus events, during the later periods of the 1960s, his centrality declines. This decline is likely due to his continued role as musician in contrast to the thematic development of Fluxus into a highly performance and object-based practice post-1962. Young's history paints a portrait of a highly independent artist and his eventual distancing from Fluxus,⁹⁹ can be related to the same reasons his predecessor, John Cage, also distanced himself from the movement. Ellsworth Snyder interviewed Cage in 1991:

ES: Why didn't you become more involved in Fluxus?

JC: For the same reason that Marcel Duchamp didn't become more involved with DADA. I don't like organizations, and I don't think any artist really does. And when a term gets to be an umbrella, a person who want to remain free of organizations, moves out from under the umbrella. I'm not opposed to Fluxus, but I'm opposed to being in an institution or part of an organization.¹⁰⁰

The 1960s proto and early period of the Fluxus movement marks a period of development and initial collaborations. Artists with the highest degree, the largest number of relationships, are individuals responsible for shaping and interconnecting the early Fluxus movement. By the end of 1962, multiple Fluxus Festivals have occurred across central Europe. In the following period, this growing trend of collaborative performance sees a dramatic rise.

The high Fluxus period, defined as 1963 through 1965 in this thesis, represents an explosion in Fluxus related performances and collaboration. In comparison to the previous three years, the number of artists involved in the Fluxus sphere of activity between 1963 and 1965 double. The increase in collaborations among these artists also shows a dramatic rise, with a quadrupling of the number of relationships from the

⁹⁹ Thomas Kellein, *Fluxus*, 14.

¹⁰⁰ Ellsworth Snyder, "John Cage Discusses Fluxus," *Visible Language* 26, no. 1/2 (1995), 60.

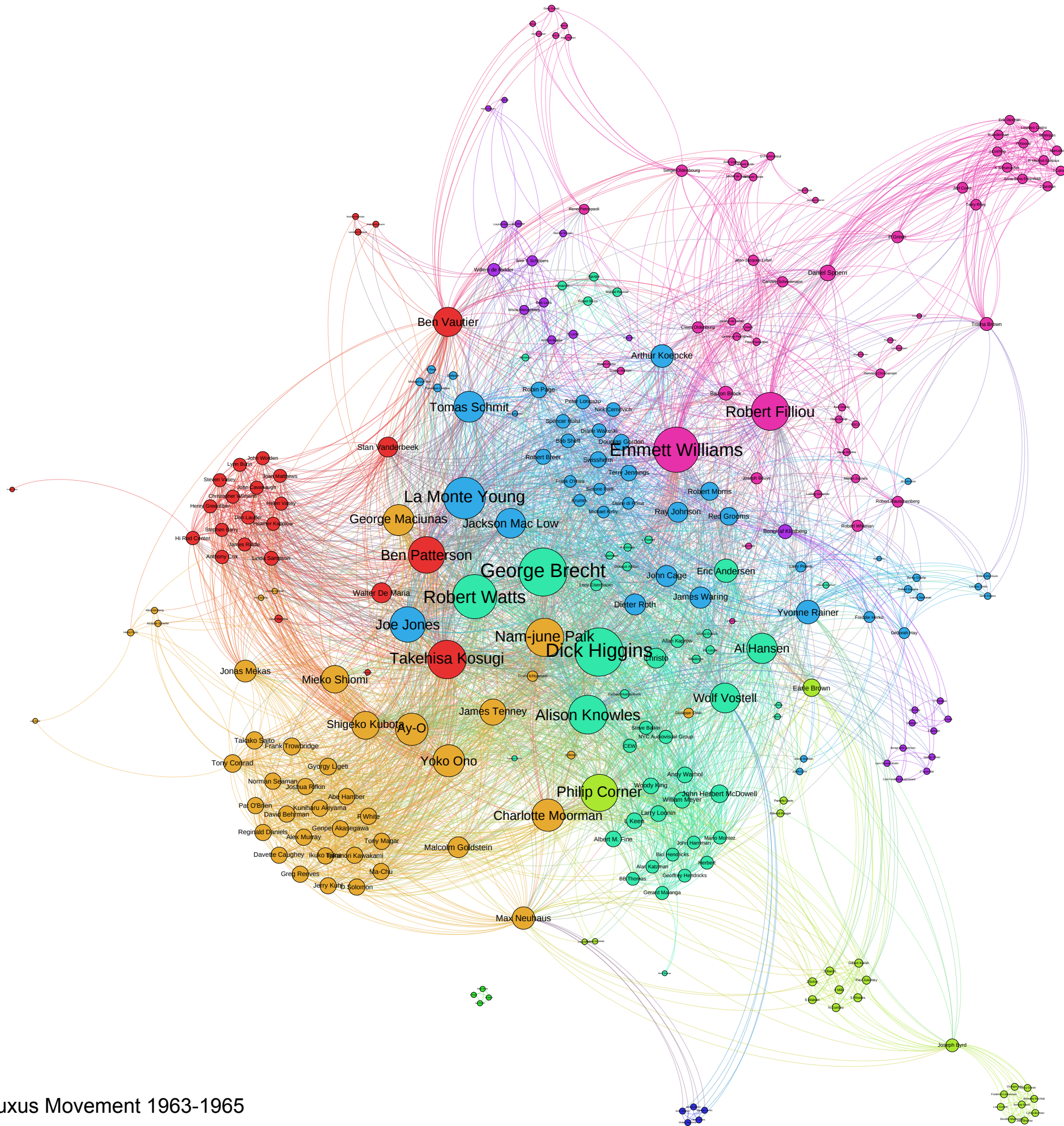
previous period.¹⁰¹ This large jump in co-performance relationships indicates an increase in the number of events enabling collaboration. The graph also demonstrates more cohesion among the artists. This attribute can be measured through the change in the average degree of the network. The average degree in the proto and early model is fourteen, while in the high Fluxus period, the average degree doubles to twenty-nine. The increase in average degree indicates that the artists in the network are more interconnected than in the previous period. The graph also visually communicates this cohesion with a tight clustering of high degree nodes on the interior, with communities of artists spiraling off this central structure. (Graph 2)

In addition to the increased level of activity and interconnectedness, this three-year span contains many high degree artists. The top five percent of these artists organize in three groups, with descending levels of degree.¹⁰² The highest group is Dick Higgins and George Brecht. The second group of highest degree artists are Emmett William, Robert Watts and La Monte Young. The final group contains Alison Knowles, Takehisa Kosugi, Name June Paik, Robert Filliou, Philip Corner and Joe Jones.

As with the previous period, Higgins and Brecht are the central figures of this three-year phase. The earlier review of the historical model of Fluxus noted this period as the breakdown of Maciunas' central influence over the movement. One of the major reasons for this breakdown was Maciunas' inability fulfill his publishing commitments. Lacking any way to disseminate his, and other artists written material, led to Dick

¹⁰¹ In 1960-62 the number of nodes were 132, and the number of edges were 961. In the 1963-65 model the number of nodes is 275 and the edge count is 4014.

¹⁰² These levels represent a pattern of degree where artists with similar high degrees would group together with the next closest artist representing a significant drop in degree. Three such patterns, or levels, exist in the top five percent of high degree artists for this period.



Graph 2. Fluxus Movement 1963-1965

Higgins' establishment of Something Else Press in 1964.¹⁰³ Higgins' Press, along with other emerging publications, such as Wolf Vostell's *Dé-coll/age magazine*, became the primary means of distribution for many Fluxus artists.¹⁰⁴ When Higgins' Press filed for bankruptcy in 1973, it had published ninety-five monographs.¹⁰⁵ Higgins work with Something Else Press, combined with his—and wife Alison Knowles—prolific participation in the movement, explains Higgins high degree of centrality. Estera Milman writes:

Higgins was one of the most prolific participants in the Fluxus movement and has since attained the position, with the group's sanction, as Fluxus' theoretician. His publishing house, Something Else Press, Inc. , although often described as a Fluxus offshoot, was one of the most influential underground publishing organs of the period and probably, in its own right, far surpassed Fluxus in its impact upon the period.¹⁰⁶

Brecht's centrality, as with the previous period, is due to his high activity as well as his importance to the aesthetic development of the movement. Not only did Brecht invent the Event Score, but he was also the most prolific creator of these performance-based works. By the start of this high Fluxus period, 1963, Brecht had authored about 150 Event Scores.¹⁰⁷ In this three year span, Brecht performed in almost thirty events, second only to Higgins' count of thirty-eight.

While the graph has become more complex compared to the earlier period, geography still has a large influence on how it is partitioned into communities. This

¹⁰³ Dick Higgins and Hannah Higgins, "Intermedia," *Leonardo* 34, no. 1 (February 1, 2001), 52.

¹⁰⁴ Bertrand Clavez, "Fluxus: Reference or Paradigm for Young Contemporary Artists?," *Visible Language* 39, no. 3 (2005), 238.

¹⁰⁵ Dick Higgins, "Two Sides of a Coin: Fluxus and the Something Else Press," *Visible Language* 26, no. 1/2 (1992): 146.

¹⁰⁶ Estera Milman, "Historical Precedents, Trans-historical Strategies, and the Myth of Democratization," *Visible Language* 26, no. 1/2 (1995), 27. In addition to Fluxus publications, Something Else Press also published works for authors such as Marshall McLuhan and Gertrude Stein.

¹⁰⁷ Jill Johnston, "George Brecht, the Philosopher of Fluxus" 94, no. 4 (2006), 112.

explains why Emmett Williams, while having a very high degree of centrality, is pushed to the upper right section of the network, away from the other high degree artists.¹⁰⁸ The light purple nodes represent a community consisting mostly of European artists. Williams, who lived in France, but participated heavily in events in the United States, connects these individuals who would not have interacted with the New York based nexus of activity.

The high Fluxus period represents a phase of unparalleled activity in the 1960s Fluxus movement. Not only where the artists from the previous period more prolific, but their increased collaboration brought many new artists into the Fluxus community. This growth demonstrates a maturing of the Fluxus artist community, as well as the establishment of what could be called the Fluxus sensibility or aesthetic.

Historically, the later Fluxus period 1966 though 1969, represent a slowdown in performance activity of earlier Fluxus artists. This decline stems from a shift in focus to published works and exhibitions. The late 1960s also marks a dissemination of the Fluxus movement, from a relatively small group of individuals to the larger contemporary art world. Peter Frank frames this shift in his look at the thematic influence of Fluxus in this later period:

We can cite the dispersion of the original Fluxus group to Europe, upstate New York, New England and California...as the factor most directly responsible for the "fluxification" of the vanguard Western art in the late 1960s and early '70s. Fluxus had as profound an impact on the avant-garde in New York itself, but the general nature and specific manifestations of this localized impact were more diffuse and less acknowledge in Fluxus' "hometown."¹⁰⁹

¹⁰⁸ It is also worth noting that Williams was a co-owner of Something Else Press with Dick Higgins, another likely factor contributing to Williams' high degree of centrality.

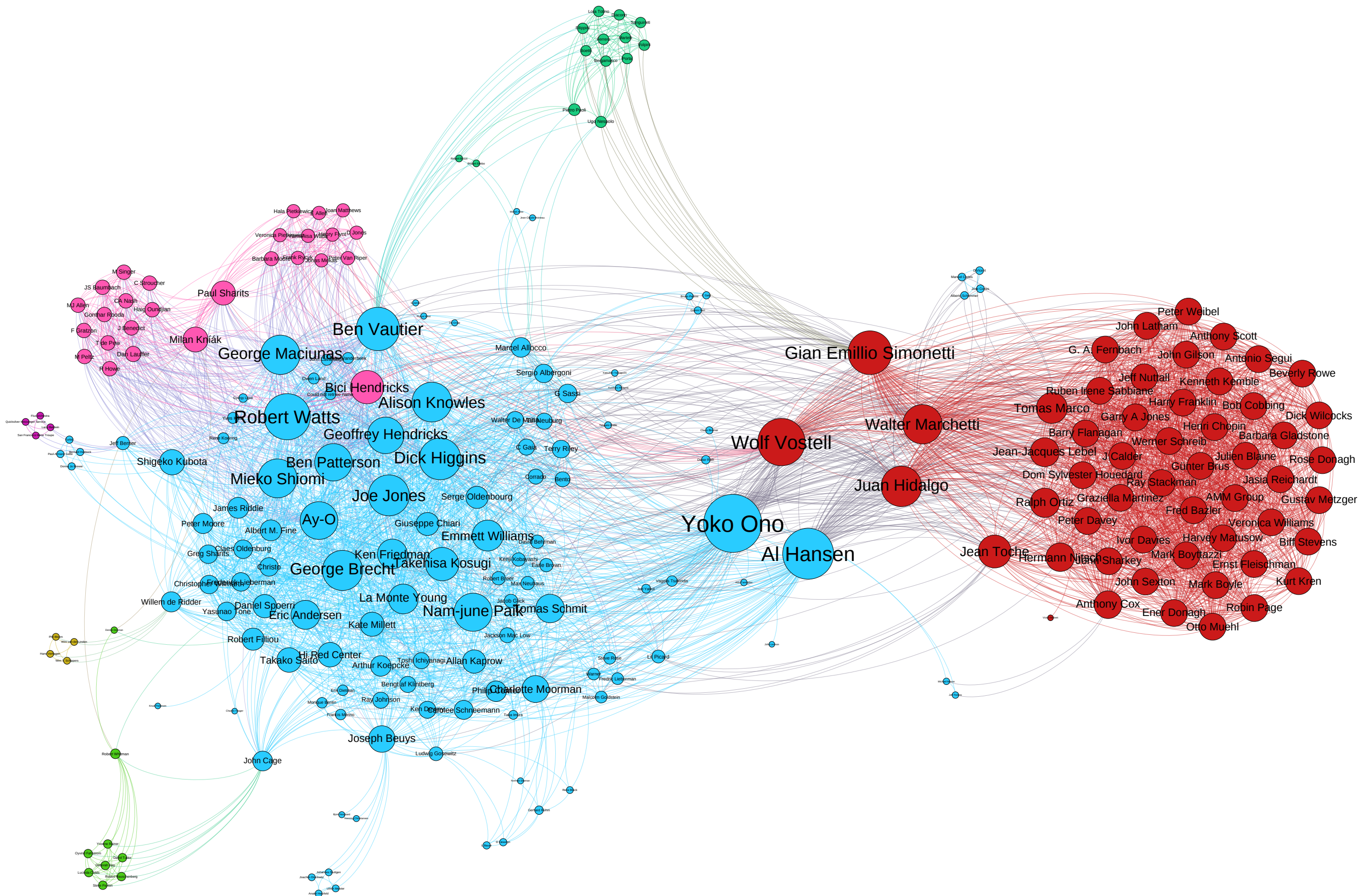
¹⁰⁹ Peter Frank, "Fluxus Fallout: New York in the Wake of the New Sensibility," *Visible Language* 26, no. 1/2 (1992), 212; and Stephen C. Foster places the Fluxus as a modernist movement, regardless of how

The most striking feature of the network model for the late Fluxus period, is that this Fluxus interaction with the contemporary western avant-garde is clearly visible. (Graph 3)

The large blue grouping on the left represents the majority of what could be called the traditional, or reoccurring, members of Fluxus. These individuals included artists from the early period such as Higgins, Brecht, Paik, Maciunas, and artists that became active mid-decade such as Ay-O, Geoffrey Hendricks, Charlotte Moorman, and Mieko Shiomi. This group would perform occasionally together throughout this period, with activity tapering off in 1968 and 1969. The red group on the right side of the graph can be seen, as Frank describes, as many of the western avant-garde artists in the late 1960s. The two groups interacted, but not in an integrated fashion. Some key Fluxus artists participated in larger international art events resulting in collaboration with these artists. Fluxus artists such as Yoko Ono, Al Hansen and Wolf Vostell had the most participation at large events, such as the Annual New York Avant-Garde Festival and the 1966 Destruction in Art Symposium in London. This participation not only brought these outside artists into the Fluxus sphere of activity, but also causes Ono, Hansen, and Vostell to have the highest degree for these years.

This later period of the Fluxus movement echoes the structure of the proto and early period: Two groups of artists, interconnected by a few prolific individuals. However, in the later period, this division is not between an emerging cohesive group separated by geography. Instead the division is between a fairly established group of

problematic that may be, and in doing so activates it as influence on modern and contemporary art in "Historical Design and Social Purpose," *Visible Language* 26, no. 1/2 (1992), 42-43.



Graph 3. Fluxus Movement 1966-1969

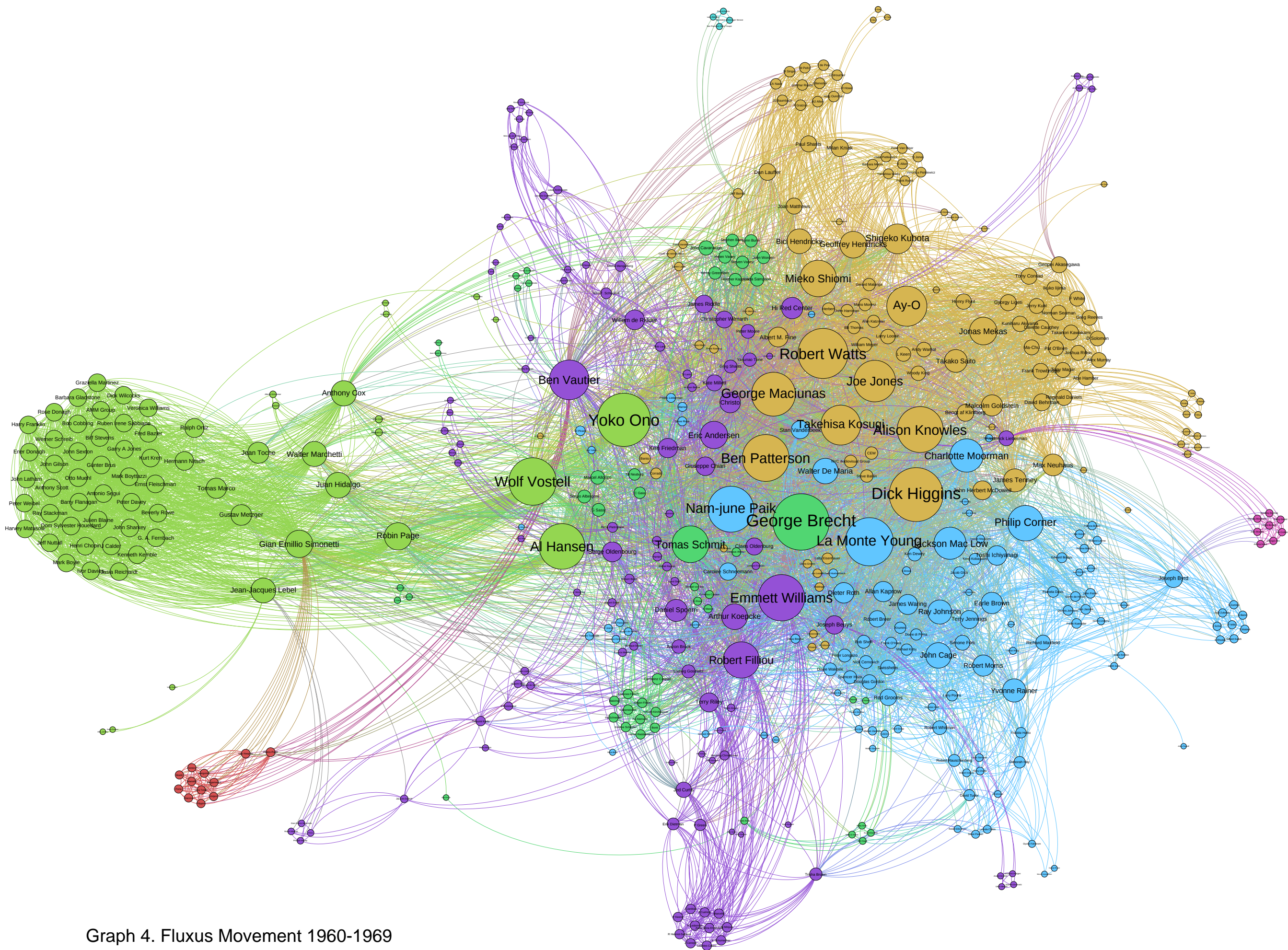
Fluxus related artists, and the late 1960s western avant-garde. This period demonstrates the influence of the Fluxus movement as Fluxus artists begin to impact the larger group of late 1960s and 1970s contemporary artists.

If the previous three periods are combined, a model of the entire decade is created. (Graph 4) The resulting network—consisting of close to 500 artists and nearly 8000 relationships—is understandably complex. Similar structures appear, such as the avant-garde off shoot discussed in the previous period, however the majority of the graph truly fits Owen Smith’s definition of Fluxus: A non-hierarchical density of experience.¹¹⁰ We can extract some order from the network by returning to the examination of the degree centrality values for this model. The most useful approach is to compare the degree results to the Friedman, Frank and Lewes’ community model of central Fluxus members.

Table 1 lists the top sixty artists by degree, in descending order for the entire decade. The mark in the Friedman column indicates if that artist was identified in the community model as a core Fluxus artist. Direct comparison between the two models is problematic.¹¹¹ However, there are some clear results. The major Fluxus figures are well recognized in both models. Yet we quickly run into discrepancies between the two models for less prominent figures. For example, Charlotte Moorman participated in over thirty Fluxus related events in the 1960s. Yet due to her underrepresentation in

¹¹⁰ Smith, *Fluxus : the history of an attitude*, 11.

¹¹¹ Friedman explains that their model does not identify some core Fluxus members, such as Jackson Mac Low, due to the nature of his work. As the model is based mostly on exhibition catalogs, Mac Low, a poet, would be underrepresented in the model. See Friedman and Lewes, “Fluxus: Global community, human dimensions,” 163-164. There are also many other problems with a direct comparison such as timeframe difference between the two models. The point is not to disprove Friedman and Lewes’ model but to show the opportunities possible in using a co-performance network approach.



Graph 4. Fluxus Movement 1960-1969

Degree	Artist	Friedman	Degree	Artist	Friedman
1	223 George Brecht	X	31	88 John Cage	
2	212 Dick Higgins	X	32	88 Walter De Maria	
3	209 Yoko Ono	X	33	87 Anthony Cox	
4	195 Robert Watts	X	34	86 Walter Marchetti	
5	187 La Monte Young	X	35	85 Jean-Jacques Lebel	
6	184 Wolf Vostell	X	36	85 Bici Hendricks	
7	181 Ben Patterson	X	37	82 Ray Johnson	
8	179 Emmett Williams	X	38	78 Yvonne Rainer	
9	177 Nam-june Paik	X	39	77 James Tenney	
10	177 Alison Knowles	X	40	76 Takako Saito	X
11	176 Al Hansen	X	41	73 Daniel Spoerri	X
12	168 George Maciunas	X	42	72 Max Neuhaus	
13	158 Joe Jones	X	43	70 Earle Brown	
14	152 Ay-O	X	44	70 Hi Red Center	
15	151 Takehisa Kosugi	X	45	69 Robert Morris	
16	150 Ben Vautier	X	46	69 Malcolm Goldstein	
17	137 Tomas Schmit	X	47	69 Jean Toche	
18	136 Mieko Shiomi	X	48	67 Gustav Metzger	
19	135 Robert Filliou	X	49	67 Christo	
20	132 Philip Corner	X	50	66 Dieter Roth	
21	122 Charlotte Moorman		51	65 Allan Kaprow	
22	117 Jackson Mac Low		52	65 Tomas Marco	
23	107 Shigeko Kubota	X	53	64 James Waring	
24	97 Jonas Mekas		54	63 Willem de Ridder	
25	96 Eric Andersen	X	55	63 Serge Oldenbourg	
26	96 Robin Page		56	63 Albert M. Fine	X
27	96 Gian Emilio Simonetti		57	62 Toshi Ichiyanagi	
28	93 Geoffrey Hendricks	X	58	61 Ken Friedman	X
29	89 Arthur Koepcke	X	59	60 Ralph Ortiz	
30	89 Juan Hidalgo		60	59 John Herbert McDowell	

Table 1. Degree Table, Fluxus Movement 1960-1969

exhibition catalogs examining the Fluxus movement, she is categorically excluded. Instead, this degree centrality model offers a range of participation based on the artist's collaborations. This model introduces a level of granularity that is simply not possible in a categorical view of the movement.

Reviewing the three phases of the 1960s Fluxus and the decade as a whole, has shown the Fluxus movement in a slightly different light. Each period valued different facets of individual artists based on the movement's phase. The proto and early stage valued La Monte Young the highest for his contribution to the development of the Fluxus aesthetic. The mid-decade period, the years of highest activity, valued Dick Higgins and George Brecht for their prolific collaboration. With the final period, the late 1960s, valueing artists such a Yoko Ono, Al Hansen and Wolf Vostell for their collaboration with a wider audience of artists.

Perhaps the most controversial aspect of this model is the assignment of George Maciunas to a lower level of influence. Out of the top twenty central artists, in this model, he falls into twelfth place. It could be argued that in the range of intermedia production, Maciunas was more interested in objects, publications, and film,¹¹² rather than performance. However it could also indicate, as argued earlier, that the Maciunas-based paradigm overrepresents the influence he had on the movement.

When possible, an art historical narrative has been matched to the model to establish its validity, and show that it truly reflects reality. Very often the model produces possible questions rather than clear answers. For example, why do Ono,

¹¹² Maciunas became very interested in film production post-1964, see Bruce Jenkins, "Fluxfilms in Three False Starts," in *In the Spirit of Fluxus: Published on the Occasion of the Exhibition*, 127; and Jonas Mekas, "Notes on George Maciunas' Works in Cinema," *Visible Language* 26, no. 1/2 (1992), 129.

Hansen and Vostell serve as the unifying artists in the later period? The network model forces the obvious question to compare the three. In doing so it is tempting connect the artists through aesthetic or conceptual similarities. However the real reason is more likely to be straightforward or even simply chance. It is important not to interpret the model's results without a convincing art historical narrative, which this analysis has strived to ensure.

Principally, this model has shown the fluidity of the 1960s Fluxus movement. While there were common individuals throughout, each period examined showed an ever-changing cast of central figures. Arguably the success of co-performance network model is that it was able to adapt to this constant flux and provide insight to the reason behind the change.

Conclusion

There will, however, no doubt come a time when some well-meaning, academic type will come along and can Fluxus. In being canned, it will be preserved for all time but will lose much of its flavour.

—Hannah Higgins, *Fluxus Fortuna*

The goal of this analysis is not an attempt to shoehorn the Fluxus movement into an ideal, canned model. Every exhibition catalog since the early 1990s has specifically warned its readers that what they are about to encounter represents only a single facet of the Fluxus movement. Art historians have given similar caution in their examination of Fluxus. In 1995 German art historian Thomas Kellein wrote:

Indeed, many young art historians seem to savour the systematic complexity of Fluxus, with its flurry of events, venues and aims, like a draught from a fresh spring...In order to keep up with the sheer quantity of data painstakingly archived from the very beginning, one must concentrate either on the products or the chronology or on the individuals involved—it is simply not possible to deal with them all together at the same time unless one takes a rather nostalgic delight in the pursuit of chaos.¹¹³

Yet prominent Fluxus scholars embrace the inherent chaos of the Fluxus movement. For example, Hannah Higgins chides an art critic for comparing Fluxus to “a messy drawer in the art kitchen” which needs “to be straightened out.”¹¹⁴ Higgins responds to this comparison by stating Fluxus is chaotic and messy by nature, not by defect. Likewise, from a historical point of view, Ken Friedman describes the movement as a nightmare for potential researchers.¹¹⁵ In the same thought however, Friedman explains it is this complexity that gives the Fluxus movement its richness.

¹¹³ Kellein, *Fluxus*, 9.

¹¹⁴ Higgins, “Fluxus Fortuna,” in *The Fluxus reader*, 41.

¹¹⁵ Friedman and Frank, “Fluxus: A Post-Definitive History: Art Where Response Is the Heart of the Matter,” 57.

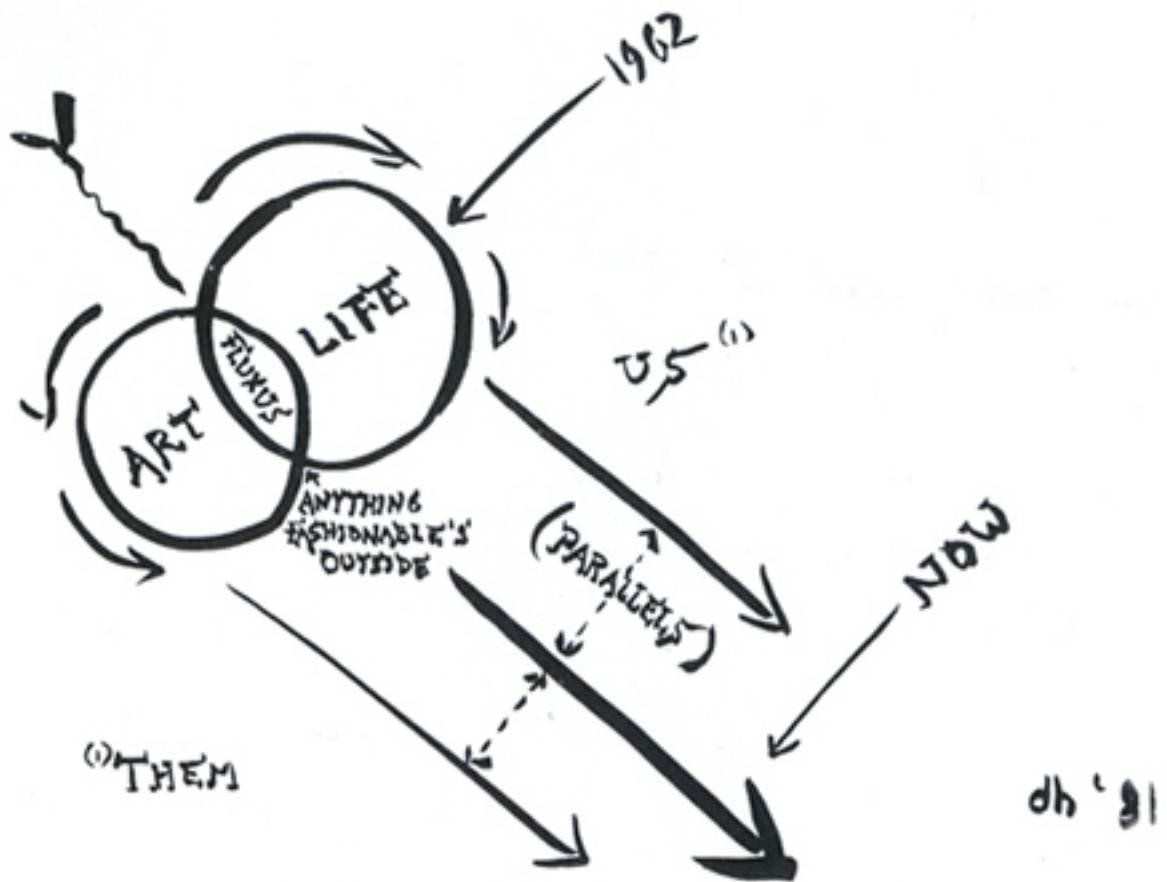
The source of this complexity is embedded in Dick Higgins' definition of Fluxus, which opened this thesis:

Fluxus is:
 —a way of doing things,
 —a tradition, and
 —a way of life and death

Higgins visually depicted this definition in a 1981 diagram. (fig. 11) For Higgins, the definition of Fluxus is simple: Fluxus is the overlap between life and art. Any review of the Fluxus movement has to acknowledge and accept the inseparable and inherently messy relationship between the two.

The goal of this analysis was to produce a model that is able to express the complexity of the Fluxus movement. Not necessarily to organize Fluxus aesthetics, chronology, and artists into a harmonious explanation—but to simply present a multimodal approach that can convey these attributes simultaneously. To accomplish this goal, the co-performance occurrences between Fluxus artists were compiled from a comprehensive chronology. These relationships were then arranged into a complex network. In network analysis terminology, the number of collaborations defines the artist's degree. Each occurrence of a unique collaboration between two artists increases that degree. A technique called degree centrality indicates how central an artist is, depending on the size of their degree. A larger degree indicates prolific collaboration with a wide range of other artists. This thesis argues that a large degree signifies a high centrality or significance to the 1960s Fluxus movement.

The resulting analysis of the complex network created, revealed new observations, as well as confirming previous theories put forward by Fluxus scholars. For example, using this co-performance model, it was demonstrated that La Monte



11. Dick Higgins, *Fluxus Chart*. 1981.

Young was the most central artist of the early Fluxus period. Young possessed the highest degree centrality in the network model. His high degree was attributed to Young's conceptual influence on the Fluxus aesthetic, and the organizational role he played in the early years of the movement. The model also visualized established theories, such as Peter Frank's argument that the Fluxus movement influenced the emerging western avant-garde in the late 1960s and early 1970s. In the analysis of the late Fluxus network model, the two separate groups, the Fluxus and the western vanguard, were clearly distinct, yet artists such as Yoko Ono, Al Hansen, and Wolf Vostell were the primary enablers of collaboration between the two groups. The final analysis, of the entire decade, demonstrated the benefit of using a granular system of identifying artists central to the Fluxus movement. A comparison was made to the community model, which is based mostly on the inclusion of artists in exhibition catalogs. The comparison showed that while notable Fluxus artists are easily recognized, the network model excels at identifying alternative artists important to the Fluxus movement based on collaboration, such as Charlotte Moorman.

The results of the co-performance network model are complex however, and not without opportunity for improvement. Three specific areas of that could be improved are: Adding additional types of relationships to the model, applying more sophisticated network analysis techniques to the model, and exploring the model's results using a focused art historical review.

The co-performance relationship could be supplemented with other types of artistic cooperation, such as the production of collaborative objects and co-publications. Augmenting the model with additional methods of artistic production would reduce the

bias in favor of performance based artists. Other, more social relationships could be added as well. For example, correspondence between artists, in the form of letters written, could be an additional relationship added. Combining these possible relationship types would make the model more robust and accurate.

This examination of the Fluxus movement relied on the very simplest of network analysis methods. Degree centrality was the primary method employed. Yet there exist many other centrality techniques that can be applied to this model to improve the results. Likewise, there exist other partitioning methods available—the algorithm used to divide the network into communities—which could provide more accurate results. Fortunately the network model and data are separate from the methods applied. This means that increasingly sophisticated techniques can easily be applied to further refine a networked view of the movement.

Finally, a further expanded art historical review of the results this model presented could advance the understanding of the Fluxus movement and its artists. For example, often the model has shown artists grouped together based on their relationships. The nature of that grouping is not always clear. This analysis has explained some of the more obvious cases, such as grouping due to geography. While it would be difficult to keep track of the biographies of the hundreds of artists represented in the model, a reduced analysis could be revealing. For example, if few individuals were followed throughout the three periods of the model, with a close attention paid to their histories and interactions, the reasons behind the grouping would become clearer.

While there is possibility for improvement, the co-performance model presented here has demonstrated the opportunity created by examining the Fluxus movement using network analysis. The complexity of the Fluxus movement epitomizes the breakdown of the boundaries that differentiates artistic production in the twentieth century. Straightforward divisions, such as medium, style, and chronology lack the sophistication necessary to convey the intricacy of modern and contemporary artistic movements. By applying multimodal approaches, such as the network model employed in this analysis, the simplicity of categorical definitions are traded, for what George Brecht describes as more important: The form of the whole to which they contribute.

Bibliography

- Anheier, Helmut K., and Jürgen Gerhards. "Literary Myths and Social Structure." *Social Forces* 69, no. 3 (March 1, 1991): 811–830. doi:10.2307/2579476.
- Armstrong, Elizabeth, Simon Anderson, and Walker Art Center. *In the Spirit of Fluxus: Published on the Occasion of the Exhibition ...* Walker Art Center, 1993.
- Baas, Jacquelynn. *Fluxus and the Essential Questions of Life*. Hood Museum of Art, Dartmouth College, 2011.
- Bazzichelli, Tatiana. *Networking: The Net as Artwork*. BoD – Books on Demand, 2009.
- Blondel, Vincent D., Jean-Loup Guillaume, Renaud Lambiotte, and Etienne Lefebvre. "Fast Unfolding of Communities in Large Networks." *Journal of Statistical Mechanics: Theory and Experiment* 2008, no. 10 (October 1, 2008): P10008. doi:10.1088/1742-5468/2008/10/P10008.
- Bourdieu, Pierre. *Distinction: a Social Critique of the Judgment of Taste*. Harvard University Press, 1984.
- . *The Field of Cultural Production: Essays on Art and Literature*. Columbia University Press, 1993.
- Brecht, George, and La Monte Young. *An anthology of chance operations*. [New York]: H. Friedrich, 1970.
- Chandler, Annmarie, and Norie Neumark. *At A Distance: Precursors To Art And Activism On The Internet*. MIT Press, 2005.
- Clavez, Bertrand. "Fluxus -- Reference or paradigm for young contemporary artists?" *Visible language*. 39, no. 3 (2005): 236.
- . "Fluxus: Reference or Paradigm for Young Contemporay Artists?" *Visible Language* 39, no. 3 (2005): 237–247.
- Crawford, Holly. *Artistic bedfellows: histories, theories and conversations in collaborative art practices*. Lanham: University Press of America, 2008.
- Duckworth, William, and Richard Fleming. *Sound and light: La Monte Young, Marian Zazeela*. Lewisburg, Pa.; London; Cranbury, NJ: Bucknell University Press ; Associated University Presses, 1996.

- Foster, Pacey, Stephen P. Borgatti, and Candace Jones. "Gatekeeper Search and Selection Strategies: Relational and Network Governance in a Cultural Market." *Poetics* 39, no. 4 (August 2011): 247–265. doi:10.1016/j.poetic.2011.05.004.
- Foster, Stephen C. "Historical Design and Social Purpose: A Note on the Relationship of Fluxus to Modernism." *Visible Language* 26, no. 1/2 (1992): 35–44.
- Frank, Peter. "Fluxus Fallout: New York in the Wake of the New Sensibility." *Visible Language* 26, no. 1/2 (1992): 211–220.
- Friedman, Ken. "Fluxus and Company." *Lund Art Press* 1, no. 4 (1990): 289–298.
- . "Fluxus: Global Community, Human Dimensions." *Visible Language* 26, no. 1 (1992): 155–79.
- . "Fluxus: The Collective That Might Have Been." 95–122. Melbourne, Australia: RMIT University, Design Archives, Design Research Institute, 2010.
- . *The Fluxus reader*. Chichester, West Sussex; New York: Academy Editions, 1998.
- . "The Literature of Fluxus." *Visible Language* 40, no. 1 (January 1, 2006): 90–113.
- Friedman, Ken, and Peter Frank. "Fluxus: A Post-Definitive History: Art Where Response Is the Heart of the Matter." *High Performance* 7, no. 27 (1984): 56–61.
- Friedman, Ken, and Owen F Smith. "The Dialectics of Legacy." *Visible Language* 40, no. 1 (January 1, 2006): 4–11.
- Giuffre, Katherine. "Mental Maps: Social Networks and the Language of Critical Reviews." *Sociological Inquiry* 71, no. 3 (2001): 381–393. doi:10.1111/j.1475-682X.2001.tb01118.x.
- Hardy, Melissa A., and Alan Bryman. *Handbook of Data Analysis*. SAGE Publications Ltd, 2009.
- Helmreich, Anne. "Network Analysis and the Art Market." In *Digital Art History: Challenges, Tools and Practical Solutions*. Málaga, Spain, 2011.
<http://digitalarthistory.weebly.com/abstracts.html>.
- Hendricks, Geoffrey. *Critical Mass: Happenings, Fluxus, Performance, Intermedia, and Rutgers University, 1958-1972*. Rutgers University Press, 2003.
- Hendricks, Jon. *Fluxus Codex*. Harry N. Abrams, 1988.
- Higgins, Dick. *Modernism Since Postmodernism: Essays on Intermedia*. San Diego State University, 1997.

- . "Two Sides of a Coin: Fluxus and the Something Else Press." *Visible Language* 26, no. 1/2 (1992): 143–153.
- Higgins, Dick, and Hannah Higgins. "Intermedia." *Leonardo* 34, no. 1 (February 1, 2001): 49–54. doi:10.1162/002409401300052514.
- Higgins, Hannah. "FluxKids." *Visible Language* 39 (2005): 248–277.
- . *Fluxus Experience*. Berkeley: University of California Press, 2002.
- Ibsch, Elrud, Dick H. Schram, and Gerard Steen. *The Psychology and Sociology of Literature: In Honor of Elrud Ibsch*. John Benjamins, 2002.
- Johnston, Jill. "George Brecht, the Philosopher of Fluxus" 94, no. 4 (2006): 112–118.
- Kellein, Thomas. *Fluxus*. Thames & Hudson, 1995.
- Kirschbaum, Charles, and Flávio Carvalho de Vasconcelos. "Tropicalia: Strategic Maneuvers in Networks of Musicians." *Revista De Administração De Empresas* 47, no. 3 (September 2007): 1–17. doi:10.1590/S0034-75902007000300002.
- McLean, Paul. *The art of the network: strategic interaction and patronage in Renaissance Florence*. Durham [N.C.]: Duke University Press, 2007.
- Mekas, Jonas. "Notes on George Maciunas' Works in Cinema." *Visible Language* 26, no. 1/2 (1992): 125–132.
- Melton, Hollis. "Notes on SoHo and a Reminiscence." *Visible Language* 26, no. 1/2 (1992): 180–201.
- Milman, Estera. "Circles of Friends: A Conversation with Alice Hutchins." *Visible Language* 26, no. 1/2 (1992): 203–209.
- . "Fluxus." *Visible Language* 26, no. 1/2 (1992): 11–15.
- . "Historical Precedents, Trans-historical Strategies, and the Myth of Democratization." *Visible Language* 26, no. 1/2 (1995): 17–34.
- Phillpot, Clive, Jon Hendricks, and N.Y.) Museum of Modern Art (New York. *Fluxus: selections from the Gilbert and Lila Silverman collection*. New York: Museum of Modern Art, 1988.
- Potter, Keith. *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass*. Cambridge University Press, 2002.
- Robinson, Julia. "From Abstraction to Model: George Brecht's Events and the Conceptual Turn in Art of the 1960s." *October* - (March 1, 2009): 77–108. doi:10.1162/octo.2009.127.1.77.

- Schich, Maximilian. *Rezeption und Tradierung als komplexes Netzwerk: Der CENSUS und visuelle Dokumente zu den Thermen in Rom*. Maximilian Schich, 2009.
- Schich, Maximilian, Roger Malina, and Isabel Meirelles, eds. *Arts, Humanities, and Complex Networks*. Cambridge: Leonardo/ISAST and MIT Press, 2012.
- Schmidt-Burkhardt, Astrit. *Maciunas' learning machines : from art history to a chronology of Fluxus*. Wien: SpringerWienNewYork, 2011.
- . "Net-Working with Maciunas." *Leonardo* 44, no. 3 (2011): 256–257.
- Schüppenhauer, Galerie. *Fluxus virus, 1962-1992*. Köln: Galerie Schüppenhauer, 1992.
- Scott, John, and Peter J. Carrington. *The SAGE handbook of social network analysis*. London; Thousand Oaks, Calif.: SAGE, 2011.
- Smith, Owen F. *Fluxus : the history of an attitude*. San Diego, CA: San Diego State University Press, 1998.
- . "Proto-Fluxus in the United States 1959-1961: The Establishment of a Like-minded Community of Artists." *Visible Language* 26, no. 1/2 (1992): 45–57.
- . "Teaching and Learning About Fluxus." *Visible Language* 39, no. 3 (2005): 228–235.
- Snyder, Ellsworth. "John Cage Discusses Fluxus." *Visible Language* 26, no. 1/2 (1995): 59–68.
- Suárez, Juan Luis, Fernando Sancho, and Javier de la Rosa. "Sustaining a Global Community: Art and Religion in the Network of Baroque Hispanic-American Paintings." *Leonardo* 45, no. 3 (March 12, 2012): 281. doi:10.1162/LEON_a_00374.
- Teitelbaum, T., P. Balenzuela, P. Cano, and Javier M. Buldú. "Community Structures and Role Detection in Music Networks." *Chaos: An Interdisciplinary Journal of Nonlinear Science* 18, no. 4 (October 14, 2008): 043105–043105–7. doi:doi:10.1063/1.2988285.
- Zell, Michael. "Rembrandt's Gifts: A Case Study of Actor-Network-Theory." *Journal of Historians of Netherlandish Art* 4, no. 1 (Summer 2011).
<http://www.jhna.org/index.php/past-issues/143-zell-rembrandts-gifts>.