On the Technological Conditions of the Representation of Movement:

Dance Notation Systems & Annotation Practices as Gestures

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Abstract

This thesis critically compares dance notation systems and annotation practices, explaining why we might want to look more closely at their technological conditions and how we may do so by drawing from media theory. Accordingly, this thesis is concerned with the different methods of notation and annotation practices as well as with their effect on the ways we think about movement. Asking what the main differences are based on, it investigates the impact that technological conditions have on the representation of movement. Specifically, this thesis approaches dance notation and annotation practices as gestures–gestures that promptly shape modes of thinking. By addressing Vilém Flusser and Nicolas Salazar Sutil's theories, this thesis proposes that notation systems be critically examined according to their medium specificity and, consequently, the material conditions of movement representation they provide. For the scope of this examination, this thesis develops a conceptualisation of the notating and annotating action as the gestures of notating and annotating.

By examining the gestures of notating and annotating this thesis firstly demonstrates how the technological mediation of movement, depending on its materialisation through alphabetic or post-alphabetic signs, affects movement representation. Then, it discusses how the technological conditions of the representation of movement affect movement interpretation processes and the understanding of the temporality of movement. To this end, the case studies employed in this thesis demonstrate the diverse structures and intentions of notation and annotation processes and provide the ground for an examination of different gestures and their modes of thinking. The examination of the gesture of notating is performed by addressing four traditional dance notation systems, namely: the *Renaissance Tablature Letter Systems*, the *Beauchamp-Feuillet*, the *Stepanov*, and *Labanotation*. Finally, the gesture of annotating is explored by analysing three case studies of annotation practices, namely, *Mediathread*, *RAM*, and *Piecemaker*.

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Introduction

The starting point of this thesis came after a long interest of mine in observing movement. Possibly because of my dance background, from early on I had the tendency of watching videos over and over again in order to examine and analyse ballet movement. This passion led to my encounter with motion documentation systems and, more specifically, dance notation systems. This encounter resulted in this thesis, which is principally concerned with dance notation systems and annotation practices. This thesis critically compares dance notation systems and annotation practices, explaining why we might want to look more closely at their technological conditions and how we may do so by drawing from media theory.

Accordingly, this thesis is concerned with the different methods of notation and annotation practices as well as with their effect on the ways we think about movement. Asking what the main differences are based on, it investigates the impact that technological conditions have on our movement interpretation processes. Specifically, this thesis approaches notation and annotation practices as gestures; gestures that promptly shape modes of thinking. By addressing Vilém Flusser's theory of gestures and writing, as well as Nicolas Salazar Sutil's distinction of recording technologies and time-control instruments, I propose that notation systems be critically examined according to their medium specificity and, consequently, the material conditions of movement representation they provide. In addition, the examination of the gestures of notating and annotating demonstrates how the technological mediation of movement, depending on its materialisation through alphabetic or post-alphabetic signs – affects movement representation. Furthermore, drawing upon the arguments of both Flusser and Salazar Sutil, this thesis demonstrates how the technological conditions of movement representation affect movement interpretation processes and the understanding of the temporality of movement. To this end, the case studies I employ in this thesis demonstrate the diverse structures and intentions of notation and annotation processes and provide the ground for an examination of different gestures and their modes of thinking.

Theoretical Framework

In aiming to investigate the medial technological conditions of dance notation systems, this thesis understands notation and annotation practices as gestures. More specifically, the processes of notation and annotation are understood as the gestures of notating and annotating. This conceptualization, which will be followed in the course of this thesis, is based on Flusser's theory of gestures. For reasons that will be discussed thoroughly in the following chapters, the gesture of notating is based on – and shares the same characteristics with – the gesture of writing. The notion of the 'gesture of writing' holds great importance for this thesis because, as explained later, it shapes the conditions for an alphabetic representation of movement. As argued by Flusser, the gesture of writing consists of written signs that enable the expression of ideas by arranging them – that is, by putting them in a specific order. Inspired by Flusser's theory, the 'gesture of writing' will first be

explained as the facilitator of a linear mode of thinking and as that which gesturally encourages the awareness of time as linear movement.

Among the reasons for choosing to work with Flusser's theory is that his approach towards media in culture stands out significantly from others'. In regard to developing an approach towards writing as medium, Flusser, in particular, examined writing as a concept that plays a central role in culture, and not as an arbitrary tool for the expression and representation of thoughts or sounds (Poster 2011, xiii). This approach will be readily compared with the approaches that philosophers such as Ferdinand de Saussure, Charles Sanders Peirce, and Jacques Derrida took towards the concept of writing.

In addition, by looking at Flusser's theory of the 'gesture of writing', one can discern several significant notions that develop from it. A crucial notion for the gesture of writing is its ability to produce a rational mode of thinking. For Flusser, this claim is supported by the notions of 'alignment' and 'arrangement' that underlie the gesture of writing. An equally important notion for the gesture of writing is its effect on the awareness of time as linear movement. According to Flusser, written texts unfold in a linear mode, they follow a sequence of steps that are narrative in nature, moving from start to finish (Poster 2011, xvi). That said, it is precisely this linear progression of steps that bears consequences on an understanding of temporality. Similarly, cultural theorist Nicolas Salazar Sutil, although originating from a different strand of theory, associates written language with linearity and rational thought. Salazar Sutil takes this theoretical starting point one step further and argues that "rational thought is only one portion of the entire thought production of the human brain" (2015, 59). Moreover, he stresses the possible need for a multidimensional writing technology, that is, multidimensional tracewriting. According to Salazar Sutil, multidimensional writing – which is a mixture of different technologies of writing – would function as a script that combines various technologies of inscriptions and not only handwriting (2015, 60). Nevertheless, what is important for the argument of this thesis, is that he also, similarly to Flusser, conceives linear thinking as based on the alphabetic thought.

The meeting point for the theories of Flusser and Salazar Sutil is the examination of material and/or technological conditions of the medium of writing. While Flusser examines the medium of writing, Salazar Sutil examines the medium of writing movement. A synthesis of these two theories allows and encourages my examination of notation and annotation as gestures based on their technological distinctions in several ways. First, Flusser builds a theory around gestures and then, Salazar Sutil allows me to work with this theory while at the same time he validates the grounds of this examination. Throughout his book *Motion and Representation (2015)*, Salazar Sutil examines motion representation by comparing alphabetic and post-alphabetic inscription technologies. More specifically, Salazar Sutil bases his argument on a distinction between media of movement notation and media of data-processing technologies and later on, discusses their effect on the understanding of movement.

Beginning the research for this thesis, I maintained the belief that conventional dance notation systems promote highly a linear understanding of movement. However, that was a feeling and an observation based solely on my experience and research on the field, which I could not

correlate with any publication on dance notation. However, when my supervisor Maaike Bleeker suggested to me Nicolas Salazar Sutil's book *Motion and Representation* my thoughts finally found resonance. Salazar Sutil's book was of vital importance for this thesis. That is because Sutil's interdisciplinary research was the first study I came across that examined dance notation and annotation practices through a media lens. Moreover, while reading *Motion and Representation* I happily discovered that also Salazar Sutil enacted his research by a distinction of alphabetic and post-alphabetic inscription technologies. In fact, Salazar Sutil also understands traditional notation systems to be based on the alphabet, in his words as "alphabetic ways of understanding, determined by linearisation" (2015, 147). In that way, Salazar Sutil gave me the grounds and enabled me to continue my research by having another piece of literature (in such an uncharted discipline) sharing similar thoughts and concerns.

Moreover, Salazar Sutil's theory is of vital significance for my examination because it validates the first hypothesis that this thesis is based on, that is: the gesture of notating can be read as the gesture of writing. That is to say, for Salazar Sutil, dance notation systems are based on letter alphabets and, therefore encourage an alphabetic way of understanding movement, which is determined by linearization (2015, 147). Additionally, Salazar Sutil argues that dance notation systems have been under the hegemony of an alphabetic tradition of movement knowledge and stresses that "the trouble is that alphabeticism is not only a way of ordering units according to a particular standards: it is also a way of thinking language in relation to linearization, to speech, to spoken discourse" (2015, 151). Therefore, considering my description of traditional dance notation systems and Salazar Sutil's arguments regarding them, the gesture of notating will be explained as sharing the same principal characteristics with the gesture of writing.

That said, it can be noted that an additional connecting point between Flusser and Salazar Sutil is their argument that technological conditions affect the understanding of temporality and the ways we think about movement. As will be explained later on, Flusser maintains that the gesture of writing, along with its material conditions affect the awareness of time and the formation of historical consciousness. Similarly, Salazar Sutil claims that the technological conditions of storing and recording movement have an immediate affect on motion representation and our spatiotemporal understanding of it. More specifically, following his comparison between recording technologies and time control systems, Salazar Sutil argues for a post-alphabetic understanding of movement and its possibilities.

Considering the above foundation, I wish to underscore that a major point of emphasis in this thesis will be that it is a matter of necessity to examine dance technologies through their material and technological conditions. Hitherto, with the exception of Salazar Sutil's book *Motion and Representation (2015)*, there has not been a major critical body of work that responds to the practices of notation and annotation, and especially to their medial nature. With that in mind, this thesis proposes a reading of dance and annotation practices through their technological conditions and calls for further research and theorisation on movement representation and its consequences.

Therefore, this thesis considers that new questions arise when motion documentation systems are examined through a more technological perspective and that new connections emerge

between dance practices and media theory. Additionally, this thesis argues that when motion documentation systems are studied through a technological lens, a thorough analysis of their multifarious purposes and possibilities is able to emerge. It is my inclination that a study of how human movement "enters the orbit of cultural expression through different historical conditions of technical and technological representation" (Salazar Sutil 2015, 1) provides a refreshing approach to the complex relationship between technology and movement. Concurrently, this thesis closely investigates the technological possibilities of motion representation and demonstrates significant distinctions and different purposes that notation and annotation practices serve and maintain. Thus, this thesis, performs as a comparative and historical examination of notation and annotation dance practices and proposes a reading of these inscription technologies through their technological conditions. To conclude, my personal concern is to reflect on how "technological intervention transforms the representation of movement and how representation, in turn, transforms the way we move or what we understand by movement" (Salazar Sutil 2015, 1).

A Note on Method

This thesis investigates the technological conditions of dance notation and annotation practices. For the scope of this examination, this thesis develops a conceptualisation of the notating and annotating action as the notating and annotating gesture. This conceptualisation, which will be followed throughout the course of this thesis, derives from Vilém Flusser's theory of gestures. Flusser develops the theory of gestures in the book *Gestures ([1991] 2014),* in which he delves into a spiralling examination of different aspects of gestures ([1991] 2014, x). In eighteen short essays, Flusser reflects on specific movements of the human body, such as the gesture of photographing and the gesture of searching, among others. These essays aim to provide the reader with an understanding of the multiple grids that underlie different gestures. Flusser approaches the topic from diverse angles and analyses each gesture as the expression of a particular form of consciousness. However, Flusser does not provide a general definition for his concept of gesture; therefore, a general explanation of the flusserian concept of gestures is rather complicated. The most comprehensive and general definition provided is: "a gesture is a movement of the body or of a tool connected to the body for which there is no satisfactory causal explanation" ([1991] 2014, 2). Although this definition is by no means sufficient to comprehend what a gesture is, I believe that an in-depth investigation of the general flusserian concept of gestures is beyond the scope of this thesis.[1] Nonetheless, what is beneficial for this thesis is to critically engage with a specific gesture which is thoroughly examined by Flusser and seems to be the most prominent for his theory: the gesture of writing.

One of the most significant reasons for choosing to work with the gesture of writing is that it resolves a methodological issue. As will be explained, notation and annotation do not exactly represent equivalent actions. Regarding dance notation and annotation, the process of notating refers to traditional dance notation *systems*, while the process of annotating refers to (digital)

[1] *Instead, see* (Krtilová 2016); (Marcantonio 2015); ("Flusser Studies" n.d.).

annotation *practices* and not to a universal method of annotation. In order to respond to this issue, this thesis conceives the notation and annotation practices as gestures, as the gesture of notating and the gesture of annotating. Through this conceptualisation, the issue of comparing two different practices is resolved as the examination shifts from a comparison of dissimilar actions to a comparison of two different types of gestures. That way, by working with a theory of gestures, the examination is able to focus on the performed actions of notating and annotating, respectively.

More specifically, when Flusser argues for a theory of gestures he urges readers to ask how we understand the world and why we understand it in a certain way. Flusser's media philosophy of gestures is performative; as he iterates, there are performing gestures of thinking, which are in the world, and not standing above looking at the world from an objective viewpoint (Krtilová 2016, 1). Through a theory of gestures, philosophy becomes for Flusser a way of thinking in gestures and suggests to readers to think in gestures, too. It is in this way that the theory of gestures inspired and sparked my conception of a 'gesture of notating' (including its subsequent connection with the gesture of writing) and 'a gesture of annotating'. Flusser's suggestion to think in gestures made me speculate on dance notation systems in a different way. That is, by shifting the focus to the process we follow during notation and by igniting speculation of what this gesture is and what implications it affords. In fact, after reading 'the gesture of writing', I realised how interconnected writing and dance notation systems are. If, as Hutchinson claims, "dance notation is the translation of four-dimensional movements into signs written on two-dimensional paper" (1984, xiv), then I contend that the characteristics of this translation and representation process as well as, the consequences of this inscription technology on the perception of movement should be put under investigation.

I therefore believe that the conceptualisation of the notating and annotating action as the gestures of notating and annotating, respectively, facilitates a different mode of thinking about each of them. In other words, the gestures of notating and annotating encourage the shift of focus on the act; on the processes and purposes of notation. In fact, as will be explained in detail in following sections, I maintain that by focusing on the process of notation, we can see how the mediation of writing for movement shapes the conditions for a linear but also intermittent understanding of movement's temporality. Respectively, by focusing on the process of annotation it can be observed how practices of digital annotation shape and argue for conditions that suggest an alternative and transparent experience with movement.

Another reason for working with the gesture of writing, is that it provides the means for an examination of notation and annotation depending on their technological conditions. The theory of the gesture of writing puts the emphasis on the technological conditions that mediate the symbolic representation of ideas. It examines how "setting up and ordering written signs" (Flusser [1987] 2011, 6) functions, and reflects on the consequences of it. More specifically, the gesture of writing puts under inspection: how are written signs engraved into objects or carried on surfaces of objects, and are there differences if a stylus is used for inscription or a brush for writing things down ([1987] 2011, 17)? One of Flusser's early responses to the above questions is that:

> There is a complex feedback loop between technology and the people who use it. A changing consciousness calls for a changing technology and a changing technology changes consciousness. (Flusser [1987] 2011, 17)

With the above questions and arguments, this thesis will put the emphasis on the technological conditions that mediate the documentation and representation of movement and will pose similar questions to notation and annotation practices by conceptualising them as gestures. More specifically, this thesis speculates on the relationship between movement notation and its technological conditions: how is movement stored in media and are there differences if movement is stored through the medium of writing or through digital media? As explained in the next section "Dance Notation Literature Review," these questions have not been sufficiently challenged or answered by the current scholarship. It is on this basis that I wish to introduce the theory of gestures for dance notation research. The introduction of the gesture of notating and the gesture of annotating will enable a discussion around the technological means of movement recording and representation.

Dance Notation Literature Review & Contribution of the Research

This thesis provides a study of a vastly uncharted field and wishes to pose questions that could deepen and broaden future research. Over the course of my research master's programme, I was involved in several research projects about dance notation and its applications. However, I was continually confronted with a certain amount of difficulty when it came to finding literature about this quite specific field of research. It appears that the current scholarly research on notation and annotation does not sufficiently provide a comprehensive analysis of what dance notation is. The explanation for this may be that although there is published research, it is usually limited to the description of how these systems work. Additionally, the majority of the research examines dance notation systems from a very specific point of view. For instance, studies on notation systems usually focus on only one or two systems and either describe them in detail or describe the notating/annotating process along with a relevant case study. Therefore, it seems that there is significant need for a body of work which provides an overview and comparison of dance notation systems.

To the extent of my knowledge, the most notable research on dance notation was made by Ann Hutchinson Guest, whose study seems to be the only one that provides a detailed overview of notation systems. Hutchinson's monogram *Dance Notation: The Process of Recording Movement on Paper* (1984), remains the most helpful piece of work for understanding the history of dance notation. However, it should be taken into account that Hutchinson's work maintains a rather traditional perspective towards dance notation. In particular, it shows a great preference towards the Laban Movement Analysis (LMA) system (probably, because she was trained in it) and holds quite a negative stance towards video and digital methods. The explanation for this may be that her most comprehensive articles were published in the 1990s, and thus, she does not examine the digital aspect of dance notation, with the exception of Merce Cunningham's work *DanceForms*. Nonetheless, the advantages of consulting Hutchinson's monogram outweigh the disadvantages, as the delineation of dance notation history she achieves is absolutely necessary to consult when one wishes to comprehend how the methods and aims of notation have evolved throughout the centuries.

Another great contribution to dance notation studies are Mark Franko's texts, especially *Writing for the Body Notation, Reconstruction, and Reinvention in Dance* (2011), which explores the history of dance notation from Renaissance to postmodern dance and examines the tension between text and oral tradition in western dance practices. Franko's work is rather refreshing, as it engages in a more comparative and critical perspective with dance notation research. An additional considerable source for notation studies is the *Oral Site* platform, which hosts the *What's the Score? Publication on Scores and Notations in Dance* (Imschoot, Engels, and Brande 2012). *What's the score?* is an expanded publication on scores and notation systems; it provides several examples of notation practices employed in contemporary dance and performance. It should be mentioned that during my research on dance notation literature, I encountered significant texts from multiple authors, such as Jonathan Burrows, Emilie Gallier, Nara Keyna, Myriam van Imschoot, and others. However, although their work makes a valuable contribution to the field, their studies focus mostly on the process of notating or annotating and engage more with specific practices.

Taking the above into consideration, one could conclude that with the exception of Hutchinson's and Franko's work, dance notation systems have not been examined enough historically and have not been theorised sufficiently. More specifically, although traditional dance notation practices have been examined historically, their investigation is limited to a descriptive analysis which does not take into account the consequences that the notating process bears on the representation and understanding of movement. On top of this, contemporary annotation practices are an even more uncharted and complex cultural field. Currently, it is not even clear what can be accepted as annotation or score or what distinguishes the two (Blades 2015, 31). Contemporary research on annotation investigates how annotations can be useful for making choreographic structures and how they can expand our knowledge on a choreographed piece (Blades 2015, 31). Whilst this type of investigation is crucial and truly beneficial to the field, on deeper reflection, it should be underlined that research on annotation lacks theorisation. Currently, the majority of scholarly research examines contemporary research projects that in some way incorporate annotating processes. However, it appears that research stays limited to the description of a research object or project and does not provide a more general theoretical framework that reflects on the methods and aims of annotation.

To this end, this thesis addresses the above issues and limitations that dance notation and annotation studies face and suggests ways to overcome them. If, as Salazar Sutil claims, "the quest for representable movement and technologically recorded movement is an ancient one as well as a contemporary historical one," (2015, 235) then, the importance of enacting research which further pursues this academic expedition can be considered a step closer to the demystification of the relationship between movement and technology. Accordingly, this thesis does not appeal only to motion and notation researchers but also to readers concerned with the perplexing relationship between human movement and technology. It argues that a study on dance notation systems can – or should – be a study on the technological conditions of writing movement. This type of research demonstrates how "technological intervention transforms the representation of movement," as well as, how representation transforms our understanding of movement (Salazar Sutil 2015, 1). Taking this one step further, this thesis contends that a close study on dance notation systems can readily

show that motion and human movement, in general, and dance, in particular, are in an immediate relationship with their technological means. To put it another way, this thesis argues that the technological conditions of inscribing movement transform the ways we think about movement.

Moreover, this thesis contributes to the discourse on traditional notation systems, by posing two questions. It inquires (a) which systems are considered to notate in a traditional – and as will be discussed later – linear mode, and (b) what that means for the understanding of movement. Regarding annotation practices, this thesis suggests a theoretical framework that enables the theorisation of annotation. By working with the theory of gestures, this thesis aims at creating a lens that encourages reflection on the methods and purposes of annotation processes. Finally, a significant contribution of this thesis is the suggestion for a study of movement through the technological conditions of the representation of movement. As explained previously, theoretical and/or historical notation research frequently focuses on the textual analysis of dance performances or on close investigations of research projects. However, these studies revolve around human figures and their contribution to the field of research. For this reason, this thesis aspires to contribute to the discourse on notation practices by focusing not on human figure/genius but on the technological means through which the inscription of movement is achieved. It takes its inspiration from Salazar Sutil's plea, "for a different history, one that runs its course closer to Friedrich Kittler's history of the technology of inscription" (2015, 5). To conclude, this thesis contributes to the field by suggesting a theory for the study of notation and annotation processes that takes into account their historical trajectory, their technological conditions, and their consequences.

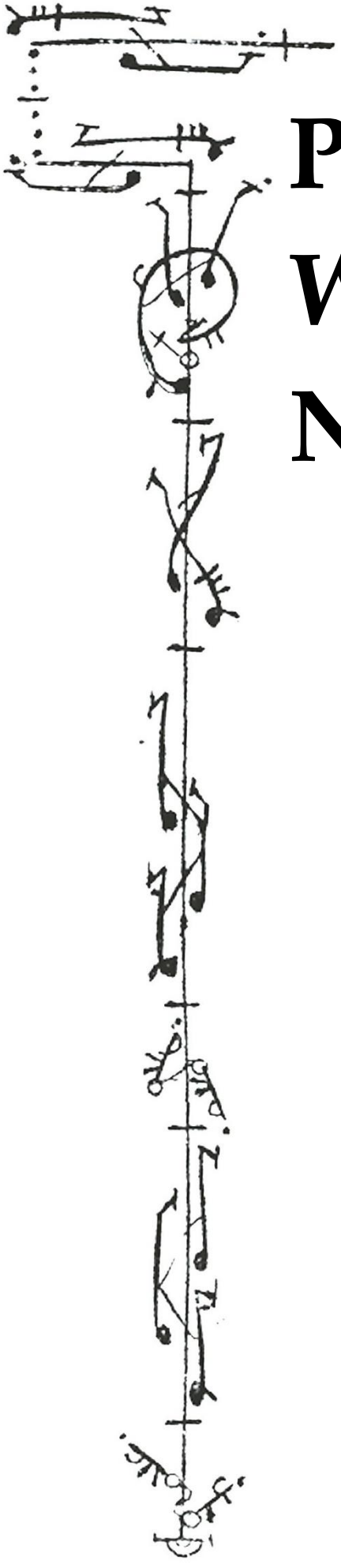
Outline of the Thesis

Throughout the course of this thesis, several terms and concepts will be employed, all of which may be fairly unfamiliar to an uninitiated audience, such as dance notations systems, annotation practices, and so forth. However, as mentioned previously, these concepts have not been analysed and theorised adequately. This considered, this thesis begins by delving into an examination and discussion of these concepts through a close reading of Flusser's theory of gestures. I maintain that for the purposes of this thesis it is more constructive to first critically engage with these concepts prior to the introduction of the case studies. The reason for this is twofold: on the one hand, by first addressing these concepts, a more efficient basis for the subsequent comparative examination of the case studies can be provided. On the other hand, by putting under investigation the hitherto employed definitions, a theory for annotation practices can be suggested, fulfilling the aim to contribute to dance notation research.

Part One of this thesis justifies the gesture of notating through the gesture of writing and makes this a methodological starting point for the analysis that follows. The first chapter of Part One performs a close reading of Flusser's gesture of writing. It begins with a brief literature review of writing as medium, in order to position Flusser's theory in relation to other theorists that have previously worked on the concept of writing. Next, it presents Flusser's gesture of writing and discusses how it is formed, how it functions, and its consequences.

Building on this foundation, the second chapter of Part One explores my first hypothesis; which is that the gesture of notating is based on – and shares the same characteristics with – the gesture of writing. The validation of my hypothesis will be achieved through an extensive description of traditional dance notation systems in coalescence with Salazar Sutil's arguments. More specifically, the first section addresses the term 'notation' and then, moves on to explaining 'dance notation' and its relation with writing. Following this discussion, the next section presents the gesture of notating by relating it to Flusser's gesture of writing, and demonstrates their common characteristics. The subsequent section presents and describes the traditional dance notation case studies (*Renaissance Tablature Letter Systems*, *Beauchamp-Feuillet*, *Stepanov*, and *Labanotation*). Then, in an effort to demonstrate the linear and alphabetic structuring of movement knowledge, "Dance Alphabets" discusses the characteristics and the functions of traditional notating. More specifically, it examines the process with which traditional dance notation systems code and document information by addressing each system individually. Finally, "Discussion" describes the purposes of dance notation systems and demonstrates the gesture of notating in each system. The chapter concludes by discussing the disjointed experience notation systems encourage and by contemplating the consequences of the gesture of notating in the awareness of movement's temporality.

Part Two, then, presents a state of the art on annotation practices for the purpose of addressing annotation's place in the digital age and setting the stage for its theorisation. In addition, it argues for a conception of the annotating action as the gesture of annotating. This conceptualisation will not only unfold how different annotation practices function through different means but will also set the ground for a critical comparison with the gesture of notating, that is, traditional dance notation systems. To this end, Part Two begins with addressing the use of the terms 'notation', 'score', and 'annotation' in scholarly research. Following this, it explains the way and the reasons the terms 'notation systems' and 'annotation practices' are employed for this thesis. The subsequent section presents and describes three case studies of annotation practices, namely, *Mediathread*, *RAM*, and *Piecemaker*. The examination of these annotation practices is performed through the lens of three purposes, 'annotation', 'interaction-generation', and 'transmission'. Finally, Part Two concludes by exploring and defining the 'gesture of annotating'. The conclusion of this thesis lastly provides a comparison between the gesture of notating and the gesture of annotating.



Part One: Writing and Notating

If we think of choreography as writing, it may be because the very concept of dance depends in some measure on the notion of a trace in which the body, language as sign, and the gesture of drawing coincide as the very definition of what dancing means.

—Mark Franko, Writing for the Body

On Directional Thinking

In aiming to investigate the medial technological conditions of dance notation systems, this thesis develops a conceptualisation of the notating and annotating actions as the gestures of notating and annotating. This conceptualisation, which will be followed throughout the course of this thesis, derives from Vilém Flusser's theory of gestures. Flusser develops the theory of gestures in the book *Gestures ([1991] 2014),* in which he delves into a spiralling examination of different aspects of gestures (2014, x)([1991] 2014, x). As explained in the introduction, this thesis will critically engage with the gesture of writing which seems to be the most prominent gesture of Flusser's theory. Through a close reading of the gesture of writing, *Part One* posits the first hypothesis of this thesis, which is that the gesture of notating is based on – and shares the same characteristics with – the gesture of writing. Subsequently, the validation of this hypothesis is achieved through an extensive description of traditional notation systems in coalescence with Salazar Sutil's arguments.

In order to proceed to the conceptualisation of the gesture of notating and the hypothesis of this thesis, the first chapter of Part One performs a close reading of Flusser's gesture of writing. As will be explained, the notion of the 'gesture of writing' holds great importance for this thesis because it shapes the conditions for an alphabetic representation of movement. The three main topics that environ Flusser's gesture of writing are writing, technology, and gestures. Through a discussion that evolves these three concepts, Flusser traces a connection between writing and history for the purpose of describing the formation of historical consciousness. For the purposes of this thesis, and to prove my hypothesis regarding the gesture of notating, I intend to examine this connection. That considered, this first chapter of Part One is organised in the following way. To begin, I first address a few theories and philosophies that have developed around the medium of writing in order to better contextualise Flusser's theory. More specifically, this is done through a brief literature review on the concept of writing as a medium which includes Saussure, Peirce, and Derrida's ideas on the subject. Following this discussion, I present Flusser's gesture of writing and discuss its formation and functions.

Writing Literature Review

I would like to begin the discussion about the medium of writing by referring to some of the most classic philosophies that have evolved around it. My intention with this brief literature review is to position Flusser against the backdrop of other theorists that have previously worked on the concept of writing. In addition, I maintain that this brief discussion will facilitate an understanding of the functioning and elements of writing as a medium.

Vilém Flusser (1920-1991), was a Czech philosopher who lived for a long period of time in São Paulo (Brazil) and later in France. The majority of his oeuvre is written in German and Portuguese, but he also wrote in English and French. Until the late nineties, translations of his texts were rare and because of that, he is only now becoming more widely known in the English speaking academia (Poster 2011, ix). Flusser's writings are usually characterised by a short and provocative

style and they usually relate significantly to each other. That is to say, that he intensely worked over certain topics such as aesthetics, migration, media and literature, the history of symbolic language, the technical image, the history of Western culture, technology, writing, and other. Moreover, Flusser has been compared to major theorists and philosophers such as Marshall McLuhan and Jean Baudrillard, because of their study of the impact of media on culture (Poster 2011, xi). However, Flusser's approach towards media in culture stands out significantly from others'. As will be explained below, Flusser's alternative approach can be observed when compared with the approaches of Ferdinand de Saussure, Charles Sanders Peirce, and Jacques Derrida.

Saussure and Peirce not only worked extensively on linguistic signs and symbols but also speculated on the concept of writing.[2] However, unlike Flusser, they "commented on media only as a tool that amplified other institutions" (Poster 2011, xi). An underlying notion that encompasses the concepts of language and writing for Saussure and Peirce is the symbolic character of writing. For Saussure and Peirce, the symbolic character of writing is expressed in their respective models of what constitutes a sign. Their theories are based on the fact that "we make meaning through our creation and interpretation of 'signs' " (Chandler 2006, 20). Signs can acquire various forms, but meaning is given to them when we invest them with meaning (2006, 20). For instance, as Peirce declares, "nothing is a sign unless it is interpreted as a sign" (Peirce as cited in, 2006, 20). More specifically,

> language to Saussure is the combination of sound and concept; the written word has the power to evoke both a sound and an image. Saussure does point out that the linguistic sign used is arbitrary, but the fact that the sign is closely linked to the idea of symbol reinforces the idea of writing as symbolic. (Kilpatrick 2003)

Saussure points out the arbitrary character of the linguistic sign and then Peirce takes it a step further by claiming that a symbol is "a representation of its object only because convention has said it is" (Kilpatrick 2003). Both Saussure and Peirce define symbols as signs without meaning, which acquire value only in their mutual relations (2003). "Words and language are once again arbitrary symbols" (2003). In sum, it can be said that both Saussure and Peirce considered written words as symbolic or sign-based representations of real concepts and objects, without considering the role of written signs. Flusser's concept of writing, by contrast, consists of written signs which enable the expression of ideas exactly because of their order and arrangement. Thus, contrary to Saussure and Peirce, for Flusser, written signs hold a significant position in the process of language. In fact, they facilitate the gesture of writing which composes historical consciousness and directional thinking.

Jacques Derrida is another notable philosopher that worked extensively on the relationship between speech and writing. As will be explained below, surprisingly, Derrida and Flusser's theories of writing share quite a few philosophical tenets. According to Rainer Guldin, these similarities might stem from two moments in time. First, the mid-sixties, a period that "witnessed the attempt of concrete poetry to break away from linearity by using the page as a two-dimensional space for inscription. The second is the late eighties and early nineties, a time characterised by the onset of a progressive migration of writing from the book to the screen" (Guldin 2004, 2). Nevertheless, it

[2] *See*, (Saussure 1986, 15–16, 23–25, 119) *and* (Peirce 1974, vol. 3).

should be mentioned that although Derrida and Flusser's theories bear certain similarities, their antithetical understanding of temporality is crucial point of contrast for this thesis to acknowledge. This is because one of the forward-driving questions of this thesis is, whether the employment of different inscription technologies bears significant consequences on the way we conceive movement. Hence, Derrida's understanding of temporality (as will be explained below) could not be used for this thesis.

To begin with, it seems that the main common element shared between Derrida's and Flusser's theories is their approach towards the relationship between the spoken and written word within Western culture. As Guldin mentions, "both philosophers question the temporal precedence and consequent primacy of the spoken over the written word, developing from this a radical redefinition of the concept of writing, one that involves a criticism of the idea of linear progressive history and the inevitable ethnocentrism that goes with it" (2004, 1).

Another meeting point for Derrida and Flusser's theories is the work of Andre Leroi-Gourhan, who published two influential books on the evolution of technology, language and art under the shared title of *Gesture and Speech (*1964-65) (Guldin 2004, 2). On the one hand, though Flusser does not mention directly Leroi-Gourhan, Leroi-Gourhan's concept of graphism can be identified in Flusser's theory. Specifically, it can be seen in Flusser's argumentation about how writing lost its pictorial side to the simple one-dimensional logic of the line (Guldin 2004, 4). On the other hand, Leroi-Gourhan's influence in Derrida's argumentation is apparent as he devotes a large section of *Of Grammatology (1976)* to his work. More specifically, Leroi-Gourhan's work was among the initiating factors for Derrida's notion of 'archiécriture' which "implies that writing is not the representation of speech and that one can not ultimately distinguish between speech and writing in their origins" (Guldin 2004, 3). In fact, I would like to underline that Derrida's above quote is in direct opposition with Saussure's argument that "language and writing are two distinct systems of signs: the second exists for the sole purpose of representing the first" (1986, 23). Derrida, like Flusser, disagrees with this statement, he retorts

> writing is not derivative, artificial or secondary in relation to the primacy of speech. All signs, spoken or written, are already part of recognisable structures in a differential network, that is, instituted traces which do not stand in opposition to anything natural. (Guldin 2004, 3)

As mentioned previously, Flusser appears to agree with Derrida's arguments about the importance of the spoken and written word. In fact, in his discussion on the ontological differences of speaking and writing, Flusser points out that "in Western tradition speaking has generally been considered the primary, natural form of articulation and writing a secondary, artificial form of expression" (Guldin 2004, 3).

However, there is an essential differentiating factor between Derrida and Flusser's theories of writing, which is crucial for this thesis: the understanding of time. As will be explained in detail in the next section, the concept of temporality is of the utmost importance for Flusser's theory of gestures. Flusser's theory is based on a difference between writing and images, and, according to Flusser, one of the main distinctions between writing and images is the encouragement of a

different sense of temporality which is contingent upon their underlying interpretation processes.[3] More specifically, Flusser argues for the medium specificity of each information technology (e.g. writing, images) (Poster 2011, xv). Therefore, for Flusser, each medium shapes a special form of temporality. On the other hand:

> [Derrida] understands the temporal logic of writing as paradigmatic for all media — indeed, for all technology. As a result, deconstruction has difficulty distinguishing between media cultures such as between writing cultures and image cultures. (Poster 2011, xviii)

Consequently, as Bernard Stiegler also notes, "when Derrida theorises writing as 'archiécriture', he places technology in a register of temporality that loses the specificity of different media" (Poster 2011, xviii). As can be readily observed, this claim stands in opposition to Flusser's view that time is possible through the technical inscription of different cultural objects (Poster 2011, xviii). Therefore, a theory that does not take into account different temporal logics could not be used productively for the argumentation of this thesis.

The Gesture of Writing

As noted in the introduction, for the purposes of this thesis I chose to work with Flusser's gesture of writing for theoretical and methodological reasons. Unfortunately, as can be noticed from the presence of seven different versions of "The Gesture of Writing" in four different languages (Roth 2014, vii), Flusser's theory of gestures is not the most palpable and unequivocal theory. Therefore, through a close reading, this part aims to present and disambiguate as much as possible the gesture of writing. The intention of this close reading is first to detect and discuss the main characteristics of the gesture of writing and then to associate it with the gesture of notating. The investigation of the gesture of writing will particularly focus on the connection Flusser draws between writing and history for the formation of historical consciousness. Following that, it will present the distinction Flusser makes between a culture based on writing and another based on images and will examine its effect on the concept of temporality.

Before attending to the close reading of the gesture of writing I wish to briefly discuss the term 'writing'. The Oxford English Dictionary (OED) defines 'writing' in several ways, and three of them appear to be quite stimulating for my thinking: (a)"The action of one who writes, in various senses; the penning or forming of letters or words; the using of written characters for purposes of record, transmission of ideas;" (b) "Computing. The process of causing an item of data to be entered into a store or recorded in or on a storage medium;" (c) "Wording or lettering scored, engraved, or impressed on a surface; an inscription" ("Writing, N." n.d.). The first definition of 'writing' serves the parallelism that I wish to draw between the action of writing and notating. As will be explained later, the action of writing – the action of stringing letters one after another – will be defined as the gesture of writing, a gesture of inscribing information and setting ideas in lines. The second OED term should not be confused with the term 'computation', meaning the action of mathematical

[3] *For Flusser's historical phases and distinction between writing and images, see* ([1988] 2007) *and* ([1987] 2011).

calculation or mathematical thinking. But as the OED explains, it should be understood as 'a process of entering data' such as, "the art or practice of penmanship or handwriting" or the method of fashioning letters or other conventional signs ("Writing, N." n.d.). What is more interesting for my argument is the definition of writing as a process of scoring, recording, or storing data in a medium. This definition will prove useful for connecting this action with the gesture of notating, with reference to traditional dance notation systems. The third is about the creation of an inscription or notation. Comparing these two writing methods and answering the question "how is notation different from inscription, and what do we do when we write something down?" will be useful in consideration of the processes that we follow while notating motion on different media (Flusser [1987] 2011, 16).

Flusser begins *Does Writing Have a Future? (2011 {1987})* with the provocative phrase: "Writing, in the sense of placing letter and other marks one after another, appears to have little or no future" ([1987] 2011, 3).[4] It seems that the purpose of this phrase is twofold. First, it explains the concept of the gesture of writing for Flusser and second, it informs the reader that this gesture is in crisis. As will be discussed later, for Flusser, writing is in crisis because a new medium (images) is added to the old and takes priority over it in the culture (Poster 2011, xvi). But to begin, I wish to initially focus on Flusser's definition for the gesture of writing. According to Flusser,

> [Writing] is a gesture of setting up and ordering written signs. And written signs are, directly or indirectly, signs for ideas. So writing is a gesture that aligns and arranges ideas.… One writes to set one's ideas on the right path.… Writing is about setting ideas in lines, for unwritten ideas, left to their own devices, run in circles. (Flusser [1987] 2011, 6)

As explained by Flusser, one of the most crucial notions of the gesture of writing is its ability to produce a rational mode of thinking. As can be seen in the above quote, Flusser maintains that writing consists of written signs that enable the expression of ideas by arranging them, by putting them in a specific order. This claim presents the two most significant notions that underlie the gesture of writing: 'alignment' and 'arrangement'. More specifically, Flusser asserts that when someone writes they aim at setting ideas in an order, in a right path ([1987] 2011, 6). This is also why Flusser uses the term 'linear or directional thinking' in order to describe the gesture of writing as the facilitator of a linear mode of thinking. The gesture of writing directs ideas into rows while introducing writing consciousness.

An additional but rather complicated concept in Flusser's theory is the concept of writing consciousness or historical consciousness. As explained, the formation of the historical consciousness demonstrates the consequences that the gesture of writing bears on the experience of temporality. Leading into his argument about the formation of historical consciousness, Flusser

[4] However, later in the same book, Flusser expresses that writing will continue after all: "Even if we do accept it, the question whether programming will render all writing obsolete remains open. All instructions can be programmed, but things other than instructions will be written. Literature does not consist wholly of commandments, laws, and user's manuals, after all. And these other threads in the literary mesh may well not be programmable. So writing will continue after all" (Flusser [1987] 2011, 60). It seems that this is one of the cases where Flusser is deliberately provocative in order to put the emphasis of the discussion on a specific issue. As Guldin claims, Flusser was frequently playing with the way he employed language in order to have us "embark with him a dialogical partners on an ironical journey" (Guldin 2018).

claims that the gesture of writing composes writing consciousness, a one-dimensional way of expressing thoughts, feelings, desires, judgements etc. According to Flusser, the gesture of writing is the one which introduces logical thinking; the one that enables the arrangement of ideas into lines and the process of rational thinking. Here, Flusser develops the definitions that serve his connection between writing and history for the formation of historical consciousness. As Flusser remarks, because of the process performed while writing, the gesture of writing is defined as a mode of linear directional thinking. In other words, as a gesture that provides writing consciousness. However, 'writing consciousness' according to Flusser, should be referred to as 'historical consciousness' ([1987] 2011, 7).

> The matter is more radical than it seems, for it is not as if there were a historical consciousness capable of expressing itself in various codes, writing being one of them; rather writing, this linear alignment of signs, made historical consciousness possible in the first place. Only one who writes lines can think logically, calculate, criticize, pursue knowledge, philosophize— and conduct himself appropriately. Before that, one turned in circles. And the longer one writes lines, the more historically one can think and act. The gesture of writing produces historical consciousness, which becomes stronger and penetrates more deeply with more writing, in turn making writing steadily stronger and denser. This feedback between those who write and historical consciousness lends that consciousness a rising tension that enables it to keep pushing forward. That is the dynamic of history. (Flusser [1987] 2011, 7–8)

What is meant here by Flusser is that history is not possible without writing and that history begins with the invention of writing. More specifically, for Flusser, "history is a function of writing and the consciousness that expresses itself in writing" ([1987] 2011, 8). Henceforth, it is an error to suppose that there has always been history because things have always happened, rather it is more appropriate to consider as historical time the period in which people recorded events in writing ([1987] 2011, 8). As he explains, before the rise of writing "nothing happened; rather things merely occurred" ([1987] 2011, 8). After the invention of writing – or otherwise the gesture of stringing one letter after another – we became able to talk about history, to document historical events, and to form historical consciousness.

An equally important notion for the gesture of writing is its effect on the awareness of time as linear movement. Flusser's argumentation about the linear character of the gesture of writing in conjunction with the concept of the historical consciousness leads to his argument about the temporality of writing. As a starting point, Flusser stresses the fact that the gesture of writing is linear, and that one thing necessarily comes after another (Poster 2011, xiv).

> Linear codes demand a synchronization of their diachronicity. They demand progressive reception. And the result is a new experience of time, that is, linear time, a stream of unstoppable progress, of dramatic unrepeatability, of framing, in short, history. (Flusser 2002, 39)

To reiterate, for Flusser, written texts unfold in a linear mode, they follow a sequence of steps that are narrative in nature, moving from start to finish (Poster 2011, xvi). It is precisely this linear progression of steps that bears consequences to the understanding of temporality. That said, the gesture of writing encourages the awareness of time as linear movement.

An additional way in which Flusser attempts to explain how writing affects a linear awareness of time is through the concept of medium specificity. He argues that each individual medium is associated with a special form of temporality (Poster 2011, xv). Flusser proceeds to this argumentation through an analysis based on his theory of the visual in which he draws a comparison between writing and images.[5] One of his most significant arguments is that the process of interpretation – the process of reading or scanning – images is different (Poster 2011, xvi). Flusser claims that the difference lies in the process we follow while decoding an image or a text. More specifically, on the one hand, in images, the message is first received and then decomposed, while written texts are decoded step-by-step (Flusser 2002, 23). Therefore, the main difference between images and texts is the temporality they encourage. Texts encourage a gradual awareness of time meanwhile suggesting a one-directional sense of decoding. That is, they encourage a specific step-by-step understanding of movement and time. On the other hand, images do not impose a specific hierarchy[6] during the interpretation process. They do not ask for a linear progression but instead for an ensembled mode of reading (Poster 2011, xvi).

To conclude, the text above briefly summarises the main Flusserian arguments about the gesture of writing that will be used as a theoretical framework for this thesis. As a basis, the 'gesture of writing', is defined as a progressive, orderly gesture that facilitates a linear mode of thinking. Building on that, the gesture of writing is claimed responsible for the production of 'historical consciousness.' As Flusser explains, the concept of historical consciousness was made possible because of the linear alignment of written signs ([1987] 2011, 7). The linear character that underlies the gesture of writing is rather emphasised by Flusser for several reasons. One of the most important is its consequence on the experience of time. Flusser states that each specific medium has a different effect on temporality and concludes that we experience time in a linear fashion because of the gesture of writing.

Summary

With this first chapter, I have positioned Flusser's concept of writing against the backdrop of other theorists as a medium that plays a central role in culture. In addition, I have underlined the importance written signs play in Flusser's theory about the *medium* of writing. I have also brought to bear the concept of temporality to demonstrate the importance of medium specificity for Flusser's understanding of time. Then, through a close reading, the gesture of writing was explained as a gesture which encourages a rational and/or directional thinking transpired by 'alignment' and 'arrangement'. Moreover, in this reading, the gesture of writing was demonstrated as a gesture which composes writing consciousness, a one-dimensional way of expressing thoughts, ideas, feelings, etc. In doing so, the effects of this gesture on the awareness of time were discussed. First, it was explained that the gesture of writing encourages the awareness of time as linear movement. Next, by examining the specificity of the medium of writing, the processes of coding and decoding

[5] *For Flusser's discussion around technical and traditional images, see* (Flusser [1985] 2011) *and* (Guldin 2004).
[6] Hierarchy or hierarchical for this thesis is understood as in *specific order*; as "a body of persons or things ranked in grades, orders, or classes, one above another" ("Hierarchy, N." n.d.).

information (during the gesture of writing) were defined as linear and hierarchical (as in encouraging a specific order, *see,* [6]). With this basis, the following section conceptualises the gesture of notating and makes it a methodological tool for the analysis that follows.

On Traditional Notating

The second chapter of Part One is dedicated to the concept of notating. Having as its foundation the gesture of writing, this chapter introduces the 'gesture of notating' and examines it by providing four examples of traditional dance notation systems. The intentions of this chapter unfold gradually. First, I wish to discuss and define the term notation and dance notation system. Then, I wish to address the relationship between writing and traditional notating. Following this, I wish to demonstrate how conventional dance notation systems have been under the hegemony of an alphabetic[7] tradition of movement knowledge. Moreover, I wish to examine how notation systems are based on the creation of dance alphabets and therefore, encourage an alphabetic way of understanding movement. In light of that, I demonstrate the gesture of notating in traditional dance notation systems by addressing first their purposes and then, their processes of coding and decoding information. Finally, with the above foundation, I discuss the consequences of the notating gesture on the understanding of movement, regarding the experience and the temporal sequence those processes provide.

That said this chapter is organised in the following way. To begin, "On Notation" addresses the term 'notation' and then, "Writing Dance" moves on explaining 'dance notation' and its relation with writing. Following this discussion, the next section presents the gesture of notating by relating it to Flusser's gesture of writing, and demonstrates their common characteristics. The subsequent section presents and describes the traditional dance notation case studies (*Renaissance Tablature Letter Systems*, *Beauchamp-Feuillet*, *Stepanov*, and *Labanotation*). These descriptions are organised in chronological order to show the progress and advancement of dance notation systems throughout the centuries. Then, in an effort to demonstrate the linear and alphabetic structuring of movement knowledge, "Dance Alphabets" discusses the characteristics and the functions of traditional notating. More specifically, it examines the process with which traditional dance notation systems code and document information by addressing each system individually. Finally, "Discussion" describes the purposes of dance notation systems and demonstrates the gesture of notating in each system. That considered, this chapter concludes by discussing the disjointed experience notation systems encourage and then, contemplates on the consequences of the gesture of notating in the awareness of movement's temporality.

On Notation

Before attempting to draw the connection between the writing and the notating gesture, I wish to first discuss the term notation. My intention with this is, first, to discuss the term notation and define how it will be employed in this thesis, and second, to place the concept of notation in the context of dance notation systems.

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[7] See, "

Dance Alphabets."

The term ‘notation’ has been put to use by a variety of disciplines such as mathematics, physics, chemistry, music, motion, and dance. Although several definitions were developed for the term ‘notation’ the majority became scarce as time progressed. Currently, the term ‘notation’ is mainly employed in the fields of mathematics, music, and dance (“Notation, N.” n.d.). According to the OED, the most dominant definition is, “the process or method of representing numbers, quantities, relations, etc., by a set or system of signs or symbols, for the purpose of record or analysis; (hence) any such system of signs or symbols” (“Notation, N.” n.d.). Additionally, the Index of the Chicago School of Media Theory (CMST) defines notation systems as, systems that document and visualise information through a wide array of media (Finston 2007).

Regarding the concept of notation systems in general, I would presently like to mention two essential functions of a notation system which this thesis is principally concerned with and which I will return to in due course. To begin, one of the most significant aspects of a notation system is the recording and/or documenting function. A primary purpose of a notation system is the creation of a physical object that can be studied. In most cases, a notation system is employed when temporal forms such as thoughts, motions, sounds etc., need to be captured. Moreover, the recording (or coding) process is the force responsible for the documentation of information; or in other words, the creation of an object of study. During the recording process, a (usually) ephemeral event is documented and turned into a physical object ready to be (re)observed, analysed, and reinterpreted. An additionally and equally significant characteristic of a notation system is the representing function. Firstly, as stated above, the visual representation of ephemeral information is of the utmost significance for the formation of an examinable object. Secondly, visual representation serves as one of the principal purposes of a notation system, the reproduction of information. The visual representation of an impermanent event plays a crucial role in the notating process as the interaction with it allows for a later reproduction. Considering the above, it can be said that a notation system should enclose (but is not limited to) the functions of capturing, storing, visualising, examining, and (possibly) reproducing information.

Writing Dance

In regard to dance notation systems specifically, the discussion becomes more convoluted. For this reason, this section addresses this issue by providing contextual information and a broad definition of dance notation systems attempting to hint to a resolution. The concept of dance notation obtained several definitions throughout the centuries. As counted by Hutchinson in 1984, there have been approximately 85 notation systems and they all have as primary functions: the representation, documentation, and better apprehension of human movement (1984, xi). According to their form, each notation system can provide a unique perspective on what dance is; for instance, a notation can be a floor-design or an air-design that describes directional points, time and/or dynamic patterns, anatomical descriptions, motion trajectories etc. (Hutchinson Guest 1984). However, the multiplicity of the term and the plethora of the examples have created greater confusion than clarification on what dance notation is.

During my journey to comprehend what dance notation is and what it entails, I came across several different definitions. When providing a definition of dance notation, scholars tend to start their examination by tracing back to the original term used for dance notation which was the term 'choreography.' For instance, Mark Franko (2011, 321), Ana Beatriz Cerbino (2016, 50), and Emilie Gallier (2012, 5), introduce their contributions by referring to the etymology of 'choreography':

> Writing (graphie, γράφω= to scratch, to scrape, to graze) and dancing (choreia or choros, χορεία= circular dance).

On the one hand, employing this definition can be useful for tracing the roots of the concept, and connecting it with the act of writing down dance. At its earliest use (1789), the word choreography referred directly to the written notation of dancing (Watts 2010, 9). However, the use of the term transformed significantly throughout the years and as Susan Leigh Foster records, 'choreography' did not exclusively signify the art of notating dances but both the art of dancing and the art of writing dances on paper (Foster 2010, 15). Therefore, when referring to contemporary dance notation practices, the term 'choreography' can no longer be of use as currently, it is used as the principal definition for the act of creating dance pieces. Nonetheless, tracing back to the original use of the term choreography and its etymology hints to the perplexity that underlies the concept of dance notation which can denote "both the score of a dance and the dance itself as perceived in real time and space" (Franko 2011, 321).

An additional effective way for dance notation scholars to pin down 'dance notation' and to explain how the term is used in their research is to provide definitions of dance notation. These definitions are rather interesting as they demonstrate how each theorist, choreographer, or notator can compose their own rendition of what dance notation is. Therefore, I wish to aggregate here the most insightful interpretations of dance notation which seem to really demonstrate its interesting and complex character.

Ann Hutchinson Guest:

> Movement notation is a **creative tool**, the means of communication in the language of dance.… The advent of a practical, functional dance notation system has been called 'a **Gutenberg revolution in the dance'**. (1984, xi)
>
> Dance notation is the **translation** of four-dimensional movements (time being the fourth dimension) **into signs** written on two-dimensional paper. (Note: a fifth 'dimension' – dynamics – should also be considered as an integral part, though usually it is not.) Dance notation is (or should be) to dance what music notation is to music and the written word to drama. (1984, xiv)

Key Nara:

> Dance notation is the **practice of preserving** dance though documentation on paper, which was developed throughout northern Europe since the Renaissance. (2015, 9).
>
> Notation **emancipated dance** from its short lifespan to a great extent. In fact, ever since its advent, dance notation attracted many choreographers because it opened the possibility to overcome the limitation of dance: ephemerality. (2015, 9)

Mark Franko:

> Notation generally conjures up the image of a **dance in preparation or a dance remembered**. (2011, 321)

> Notation as the **dance's outcome rather than as its conception** blurs the distinctions among movement, writing, and visual signs that underwrite the traditional understanding of dance notation. Notation is transformed into the **indexical trace of movement**. (2011, 332)

I believe that the above definitions reveal promptly the perplexity and multiplicity of the term dance notation. They demonstrate that the concept of dance notation reflects a wide range of bodies: it can be a system, a tool, a process of translation, a practice of preservation, a trace, an act of emancipation (referring to the ephemeral essence of movement), and so forth. Because of the multiplicity of the term and considering all the aforementioned points of view on the subject, I wish to note here a rather general and broad definition that could accommodate the majority of dance notation systems in case a general term is needed:

> Dance notation is the visual representation of human dance movement and/or form. The visual representation of movement can be achieved through a plethora of symbols such as letters, symbolic or numeric figures, graphic designs, and so forth.

To conclude, writing and traditional notating share an interesting deep-rooted relationship. As Franko mentions, besides the strong etymological connection between writing and choreography (as the original term for dance notation), their relationship can be observed in the history of traditional dance notation systems (2011, 322). As will be made explicit in the section "Traditional Dance Notation Systems," by examining the history of traditional notation the presence of writing is apparent. This strong association of traditional dance notation with writing in conjunction with the complex relation they seem to share made me investigate further *what does it mean to write dance*.

The Gesture of Notating

As acknowledged in the introduction, Flusser's theory of gestures inspired my conception of the 'gesture of notating' as well as the 'gesture of annotating'. Flusser's suggestion to think in gestures made me speculate on dance notation systems in a different way. That is, by shifting the focus to the processes we follow during notation and to subsequently think what this gesture is and what implications it affords. As will be explained, I maintain that the examination of the notating action through the gesture of notating provides the means to shift the focus on the act; on the processes and purposes of notation. With this in mind, this section discusses the gesture of notating by drawing a connection with Flusser's gesture of writing. My intention with this section is to demonstrate the inextricable connection between notation and writing. Here, I wish to already indicate that notation is categorically expressed through the gesture of writing. However, as will be explained, I could not argue for a 'gesture of notating' in regard to dance notation systems, without the following analysis. That said, this section starts by illustrating how I came to conceive the gesture of notating. Then, it begins drawing the connection between writing and notating by addressing their semantic meanings and their common purposes. Finally, it demonstrates how the gesture of notating shares the same characteristics and processes with the gesture of writing by revisiting key points of Flusser's gesture of writing.

Although Flusser dedicates a chapter in *Gestures* to the 'gesture of writing', the most significant texts for my understanding of this gesture were the "Superscript", "Inscriptions" and "Notation" chapters from the book *Does Writing Have a Future?* ([1987] 2011). Through these texts, Flusser builds his argument for the gesture of writing around how we inscribe information and with what material. The most significant distinction he makes between inscribing and writing and/or notating is a distinction of whether we write *in* or *on* material. As he explains, words for "write" in most Indo-European languages originally mean "carve, scratch, cut": Latin *scribere*, Greek graphein, glyphein (γράφειν, γλύφειν). Accordingly, writing was originally a gesture of digging ([1987] 2011, 11). That meant the process of digging into an object with something, for instance, a stylus. However, it can be said that this is no longer the common way as now for the biggest part now we are not creating inscriptions but rather notations, we are mostly writing *on* material and not *in*.

Flusser further expands this idea and shifts the focus to the technology and the material used during the process of writing by explaining that whether written signs are engraved into objects or carried on the surfaces of objects is solely a question of technology ([1987] 2011, 17).

> There is a complex feedback loop between technology and the people who use it. A changing consciousness calls for a changing technology, and a changing technology changes consciousness. Producing tools out of bronze rather than stone both expressed a changing consciousness and opened on to a new form of consciousness. One can justly speak of a Stone Age people and a Bronze Age people— or of a people that write in material and a people that write on it. (Flusser [1987] 2011, 17)

Here, Flusser clearly stresses the significant role that technology plays in the process of writing as well as its effect on thinking. This discussion on the feedback loop between technology and the people who use it led me to wonder, (a) whether technology has as strong an impact in the process of notating dance and (b) which technologies are worth considering in such an investigation. As will be discussed in detail later, through my research on traditional notation systems, I reached the conclusion that the technology which predominantly mediates for the documentation of movement is the medium of writing. In addition, according to major dance notation theorists, such as Hutchinson, dance notation is a process of translation.[8] With this in mind, and following Flusser's thinking, I decided to examine one process in particular: a process of translating movement into written signs by holding a pen that lays down ink in order to make something – in this case, movement – legible.

I wish to begin drawing the connection between the gesture of writing and notating by addressing their semantic meanings. Starting the discussion by referring back to the OED definitions that I employed previously, it can be readily observed that the actions of writing and notating do not stand far apart. In particular, writing is defined as 'a process of scoring, recording, or storing data in a medium' while notation as 'a process of representing quantities, relations etc., by a set or system for the purpose of record.' In looking at these definitions side by side, it becomes apparent that the actions of writing and notating share two principal purposes: documentation and

[8] *See,* (Hutchinson Guest 1984, xiv).

transmission. The aim of documentation is achieved for both actions by causing an item of data to be entered into a storage medium. More specifically, through the means of recording, both actions aim to create a legible document or an examinable object. In addition, the second main purpose that the gestures of writing and notating share is transmission. In fact, transmission is enabled by documentation. That is to say, documentation enables the visualisation or representation of information, and subsequently, their transmission. Moreover, according to OED, writing is the action of one who uses written signs for purposes of transmission of ideas. That said, the same applies to the gesture of notating. As we will see in the examples of traditional dance notation, the transmission of ideas is one of the driving forces behind the gesture of notating.

Moving the discussion forward, I wish to also discuss the characteristics that the gestures of writing and notating share. Referring back to Flusser's theory, I will start with the statement that "notation is a critical gesture, leading to constant interruptions" ([1987] 2011, 20). In *Does Writing Have a Future?*, Flusser dedicates a chapter to notation in which he extensively describes the process of this action. He explains that notational writings are schematic and they convey a sense of haste ([1987] 2011, 19). Flusser claims that writing (and therefore notation) is loaded with unavoidable gaps and maintains that this occurs not only because of the materials used to write but also, due to the rules writing requires. More specifically, according to Flusser quills, pens, and even typewriters cannot provide an uninterrupted stream of ink. If that was possible, then, the surface of writing is not unlimited; when one is full, another should be inserted ([1987] 2011, 19). Flusser continues his argumentation by maintaining that even if the material issues were to be overcome, a continuous flow of writing would still not be possible ([1987] 2011, 19). He further expands on this argument by explaining that orthographic rules (logical or syntactic) require intervals to be inserted between the signs (between words, sentences, paragraphs, and chapters) and then concludes that "[t]he gesture of notation is staccato because the code of writing itself is particulate (discrete)" ([1987] 2011, 19).

Flusser builds his argumentation around the characteristics that underlie the gesture of writing with the intention to demonstrate how they relate with the consciousness of one who performs the action. Flusser speaks of a gesture encompassed by a hectic, stuttering, schematic, and therefore, critical character. Specifically, he claims that "we do write (and think) hastily and schematically (the full stop, rushing toward the future), but we write asthmatically. We always have to stop to catch our breath" ([1987] 2011, 19). That process, the inner dialectic of writing and its associated consciousness is called by Flusser 'critical thinking.' Flusser justifies this claim by explaining that while notating we are repeatedly forced to come up from the flow of notation in order to get a critical overview ([1987] 2011, 20). Finally, what Flusser wants to establish is that the gesture of writing – because of its discrete code – maintains a hectic character and cannot provide an uninterrupted flow. However, he recognises that it is precisely the intermittent and critical character of notation "that offers deep insight into a structure of thinking (and behavior) that is set up in lines" ([1987] 2011, 20).

As indicated, for Flusser, notation is categorically expressed through the gesture of writing. In fact, the most significant distinction he makes between inscriptions and notations is whether

they are written *in* or *on* material. However, I could not argue for a 'gesture of notating' in regard to dance notation systems, without delving into the above analysis. To reiterate, the interrelation of the gesture of writing and notating is apparent from the fact that they both are actions of a linear but also intermittent flow and record data into storage media with the purpose to document.

With this foundation, I wish to move forward by referring back to the principal notions of the gesture of writing and demonstrate how they are present in the gesture of notating. More specifically, I wish to showcase how the alignment, the arrangement, the step-by-step decoding of information, the linear awareness of time and so forth, can be detected in most traditional dance notation systems. How specifically these notions are present in the gesture of notating will be demonstrated with dance notation system examples in the following chapter. However, before that, I will close this section with a quote that made me wonder about the limitations of writing and the possibilities of the digital in regard to notation systems and annotation practices. Moreover, keeping this in mind could be useful to speculate on annotation and its relationship with real-time.

> It is beginning to become clear that continuous notation, continuous and accelerating progress, concerns apparatuses. It is enough to observe the breathless speed with which videotexts appear on terminals, for example. Apparatuses have no existential brakes: they don't exist, and they don't need to come up for air. And so we can leave progress, historical thinking and action, to apparatuses. They do it better. And we can free ourselves from all history, become mere observers of it, and become open to something else— to a concrete experience of the present. (Flusser [1987] 2011, 21)

Traditional Dance Notation Systems

This section discusses four examples of traditional dance notation, namely, the *Renaissance Tablature Letter systems*, the *Beauchamp-Feuillet*, the *Stepanov*, and the *Laban*[9] system. These systems were chosen because, collectively, they provide a comprehensive understanding of what traditional dance notation is and how it has progressed historically.[10] My aim here is to demonstrate their main characteristics and their notation processes in order to connect them in following sections with the gesture of notating and the medium of writing as their technological condition.

The Renaissance Letter Systems[11]

The earliest example of a dance notation system was discovered in the Municipal Archives of Cervera in Catalonia. The *Cervera* documents were most probably written in the middle of the

[9] Please note the difference between *Labanotation* and *Laban Movement Analysis* (LMA). *Labanotation* or else *Kinetography Laban* is the original dance notation system developed by Rudolf von Laban and published in *Schriftanz* at 1928. *See,* (Hutchinson Guest 2015). *LMA* or else *Laban/Bartenieff* movement analysis is a method and language for describing, visualizing, interpreting and documenting human movement. It is based on the original work of Rudolf Laban, but was developed and extended by Lisa Ullmann, Irmgard Bartenieff, Warren Lamb and others. *See*, ("Laban/Bartenieff + Somatic Studies International (LSSI)" n.d.).

[10] I decided to not include the *Benesh Movement Notation* because, although it was, and still is a popular notation system, its invention did not represent a ground-breaking method. Benesh includes a five-line stave and employs abstract symbols for the representation of movement. Through the notation examples I include it can be seen that a stave and symbolic abstract representation was already used substantially by the 1940s.

[11] I decided to put them all together as there is not that much information for each one but collectively they show the main characteristics of early notation and their range from letter systems to floor plans.

fifteenth century and they record movements of dances in signs of vertical and horizontal strokes and one sign which marks the beginning and end of a dance (Laban 1946, 92).

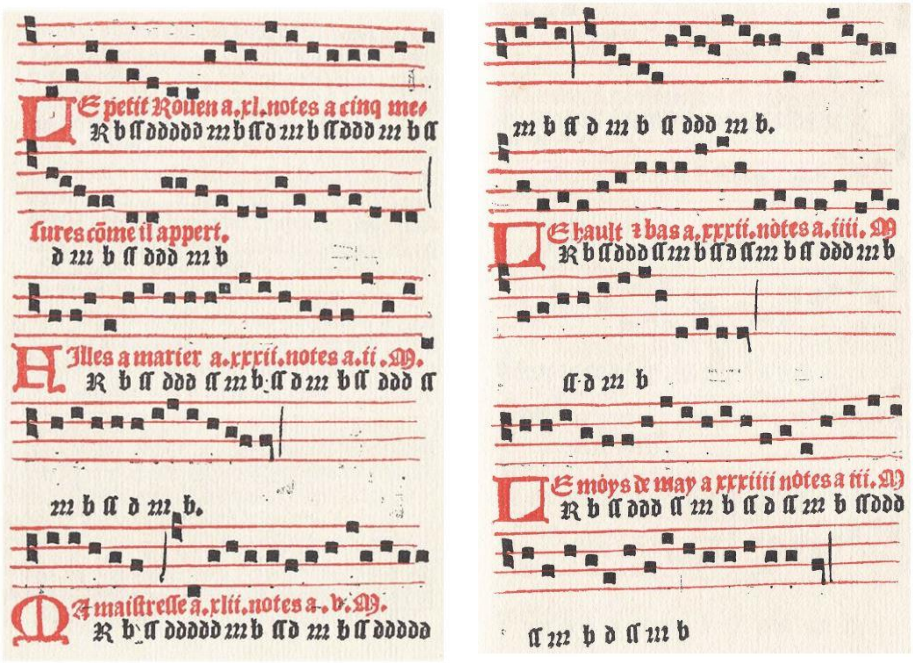

Figure 1: L'Art et instruction de bien danser, p.5-6, Michel Toulouse, Paris.

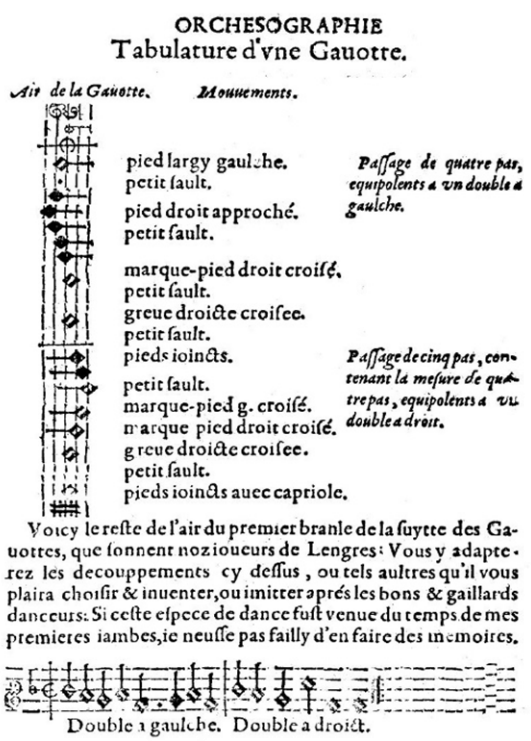

Figure 2: Tablature d'une Gavotte (1589), by Thoinot Arbeau in Orchesographie.

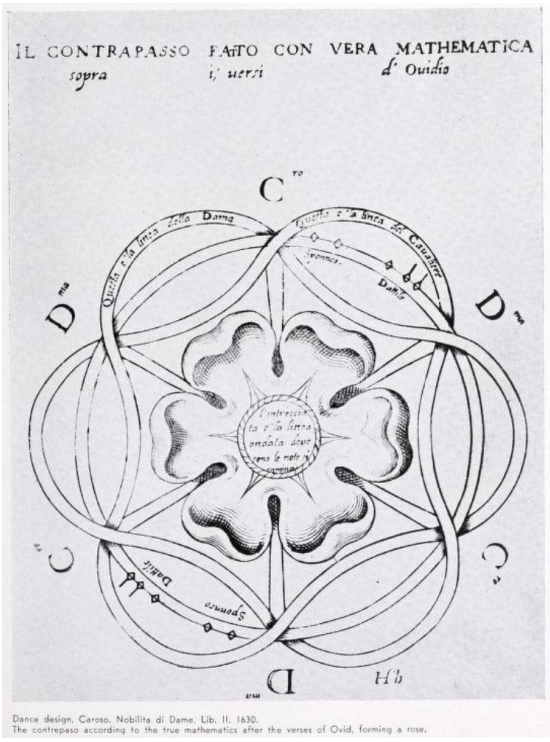

Figure 3: The Rose Pattern from Nobiltà di Dame (1600).

Unfortunately, the *Cervera* has not been deciphered but there is an effort for its decoding being led by Frederick Crane.[12] As Hutchinson Guests records, the most famous example of early dance notation was the *Renaissance Tablature Letter System* published in *L' Art et Instruction de Bien Danser* (circa 1496) (1984, 43). "*L' Art et Instruction* contains five pages of introduction, explaining the execution and rules on the basse danse (low or ground dance) and the manner in which the steps, simples, doubles, desmarches and branles are to be performed. Then eighteen pages of music follow with the notation of forty-nine basse dances" (Laban 1946, 92). This system included five letters (R, s, d, b, r) and each one of them described a specific sequence of movements (R – reverence, b - branle, s - single, d - double r - reprise) (Camurri et al. 1986, 102).

Another symbolic letter notation system was *Orchésographie* by Thoinot Arbeau. This system published in 1588, records in detail sixteen baroque dances and contains musical coordination instructions and verbal descriptions for several movements. Lastly, during the Basse Danses period (circa, 1550-1700) and by the Baroque era, there were more complicated paths that had to be followed by the dancers throughout the space; therefore, the first 'floor plans' were designed. The Rose Pattern, the first floor plan known was published in 1600 but unfortunately, I did not retrieve information on how this notation system was supposed to be decoded (Hutchinson Guest 1984, 49).

The Beauchamp-Feuillet System

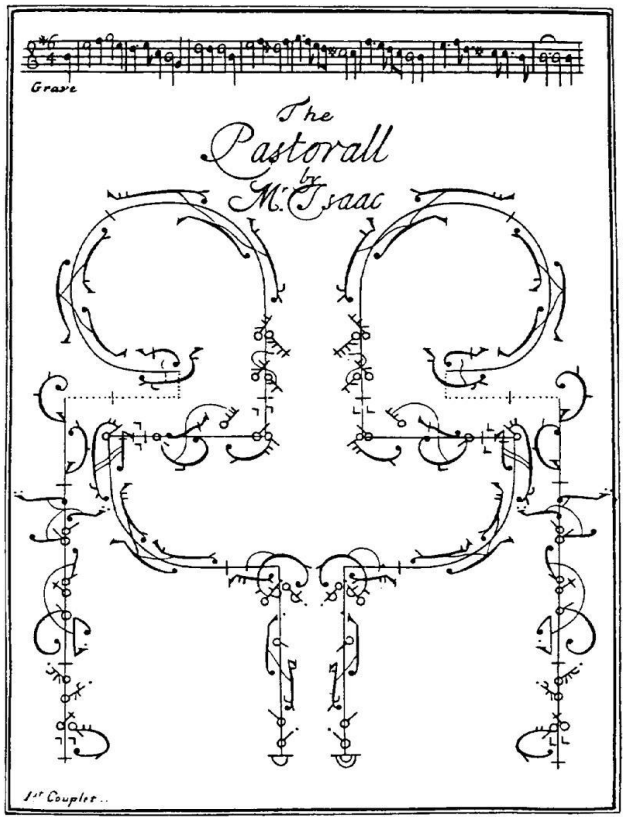

Figure 4: A page from Choregraphie; ou, l'art de décrire la danse (1700), by Raoul Feuillet, illustrates the dance notation system originated by Pierre Beauchamp.

After the establishment of the *Académie Royale de la Danse* in Paris in 1661, higher standards were set for court dances and the need for creating and instructing new dances was apparent (Hutchinson Guest 1984, 62). These requirements laid the ground for the invention of the *Chorégraphie ou l' Art de Décrire la Danse* published in 1700, by Raoul Auger Feuillet. "The *Feuillet* system is based on a centre line which traces the dancer's path across the floor and hence it is referred to as a 'track' system" (Hutchinson Guest 1984, 64). The *Beauchamp-Feuillet* system consists of a floor plan that provides musical coordination and footwork description. For the most part, the *Beauchamp-Feuillet* notations do not contain information for arm gestures. However, a few notations

[12] *See,* (Crane 1968) *Materials for the Study of the Fifteenth-Century Basse Dance,* which was not available to me.

include some limited information about arm gestures such as taking or releasing hands between the dance partners.

The *Beauchamp-Feuillet* system was the predominant dance notation system for almost a century (Hutchinson Guest 1984, 66). Its downswing started following the French revolution and the decline of the old regime. Firstly, this is because "dance for the new middle class evolved into simpler forms" and secondly because theatrical dance evolved and created a rather challenging technique which demanded greater range of movement (Hutchinson Guest 1984, 66). Therefore, the *Beauchamp-Feuillet* system could no longer provide adequate information for bodily movement.

The Stepanov System

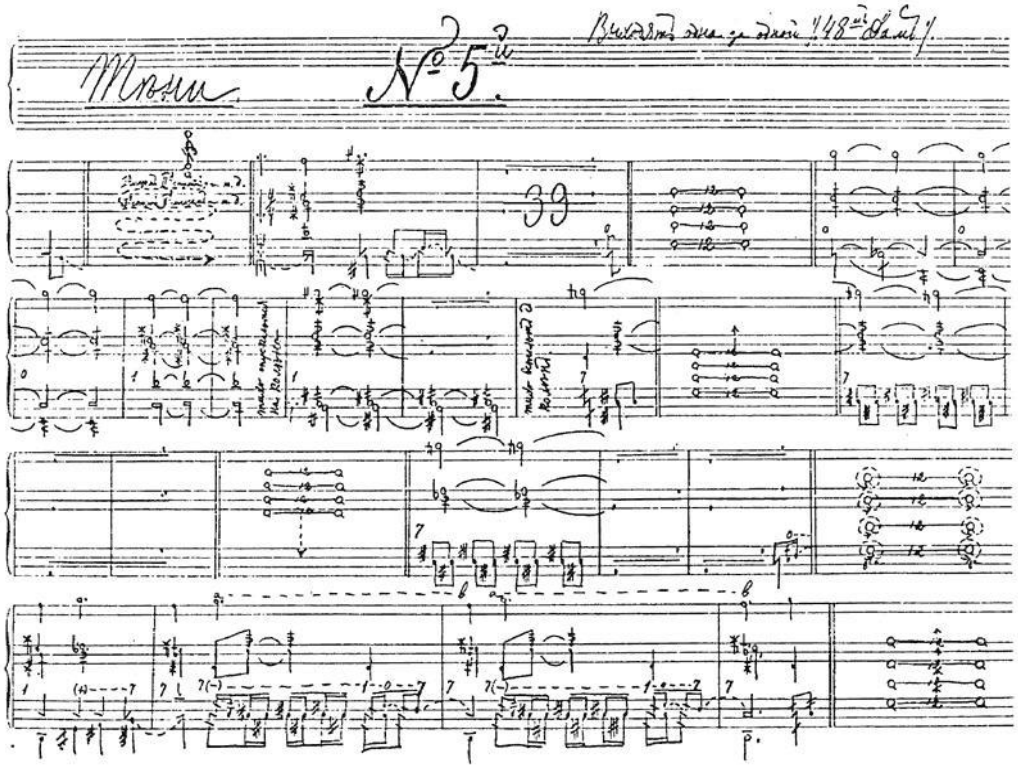

Figure 5: A page from Alphabet des mouvements du corps humain (1892), by Vladimir Ivanovich Stepanov, illustrating his dance notation system.

For the nineteenth century, the *Theleur* (1831) and the *Saint-Leon* system (1852) are considered great advancements, as the representation of movement was achieved through stick-figures. However, a groundbreaking notation system that was invented in the 19th century was the one conceived by Vladimir Ivanovich Stepanov, whose book *L'Alphabet des Mouvements du Corps Humain* was published in 1892. In fact, the *Stepanov* system was taught in the Imperial Ballet Academy of St. Petersburg and was the first system to base movement notation on the anatomical structure of the human body (Hutchinson Guest 1984, 73). It included thorough indications for leg, arm, and torso movement which were corresponding to the musical accompaniment. A great innovation of this system was its symbolic method representation of movement. Stepanov not only

adopted music notes as the basic signs for notation but also used the stave (musical pentagram) to indicate which body parts should be moved.

Stepanov died young (at the age of 29), and his work was continued by Alexander Alexeievitch Gorsky and Nicolai Grigorevich Sergeyev who put the systems to use (Hutchinson Guest 1984, 74). Sergeyev who became the principal notator for the major works of St. Petersburg repertoire, fled Russia after the Bolshevik revolution (1919), taking the scores with him. Therefore, there were no other sources left for futures revivals or research in Russia; and this is how ballets such as *Swan Lake* and *Sleeping Beauty*, arrived at the Royal Ballet as 'original' productions (Hutchinson Guest 1984, 74).

In addition, what is of great importance for the Stepanov system is the fact that it primarily functioned as a memory aid for Sergeyev and not as a syllabus that had to be followed precisely (Hutchinson Guest 1984, 76). However, there are recollections by Ninette de Valois and Margot Fonteyn that during rehearsals Sergeyev faced difficulty understanding or re-enacting some of the steps. This happened either because there were not enough details or because there were multiple variations noted. On one hand, multiple variations of a choreography derived from the tendency that notators had to not document arm movement. In classical ballet, arm gestures that accompany leg movement were considered standard, and for this reason, the notators did not care for their documentation. On the other hand, choreographers tended to adjust the choreography on a dancer's technical abilities. This means, that a difficult step could be avoided because the ballerina would not be able to execute it or vice versa – another step could be added. However, according to Hutchinson, it is a rather significant notation system because it preserved the majority of the most significant classical ballet choreographies and provided valuable material for comparative research (Hutchinson Guest 1984, 76).

Micromotion Studies

The notation system that had the greatest impact during the twentieth century was *Labanotation*. However, before proceeding to *Labanotation*'s description I would like to include in the examples of movement notation, the micromotion studies as they appear fundamental for the invention of *Labanotation*. Micromotion studies is a fascinating example of highly detailed motion documentation which I wish to include in this thesis as it is not an object of common knowledge to the scholarly dance notation field. In fact, I came across it while studying early cinema and, in the process, discovered the influence it had on the Labanotation system, specifically in motion representation.

In the last two decades of the nineteenth century an American mechanical engineer, Frederick Winslow Taylor, laid the foundations of 'scientific management', a theory of management that analyses industrial workflows in a standardized manner in order to maximize productivity and

efficiency.[13] In Taylor's method, 'time study', work is divided into its basic components, a human observer records the duration of the entire work process and each component individually with a stopwatch (Kanigel 1997, 2). Although his idea that standard procedures and scientific research can improve management had a massive impact both on how corporations actually operated and management theory, his 'time study' method was quickly heavily contested, not only by trade unions for objectifying and exhausting workers, but also by many of his disciples for not being objective enough (Price 1989, 11). In this context, the engineer and Taylor's associate Frank Bunker Gilbreth and his wife, Lillian developed the motion study in response to time study's shortcomings.[14]

The Gilbreths shortly tried to distinguish themselves from Taylor's techniques and build their own career in scientific management. The Gilbreths differentiated from Taylor by employing photography and chronophotography in their working methods. Gilbreths' motion studies involved the employment of photographs and films in order to record the workers' movements and later on their close examination and analysis. For what Gilbreth called *micromotion studies,* motion pictures were utilised. These films included capturing the workers' operations against a cross-sectioned background while a chronometer recorded the time. "By examining the film through a magnifying glass, Gilbreth could determine the times of each of the worker's motions to one-thousandth of a second" (Price 1992, 60). In addition to the films, three types of chronophotographs were employed: the cyclegraph, the chronocyclegraph and the stereochronocyclegraph.

But what can be seen as having the greatest relevance with the Labanotation are two other great innovations by the Gilbreths: the *therbligs* ("Gilbreth" reversed, with a small concession to euphony) and the *SIMO Charts*. The *therbligs* were employed for the analysis of the micromotion films and the chronophotographs, and were later transferred into data sheets for their graphic display. Frank Gilbreth claimed that all work motions could be reduced in sixteen varieties and the therbligs were their alphabet: search, find, select, grasp, position, transport loaded, assemble, use, disassemble, inspect, preposition (for next operation), release load, transport empty, wait (unavoidable delay), wait (avoidable delay), and rest (for overcoming fatigue) (Price 1992, 64). In this way, all movement actions that were considered important for Gilbreth's efficiency goals could be codified to a corresponding therblig. On top of this, following the recording of the films, Gilbreth would submit them to repeated viewings so that he could document in data sheets the types of movement and their duration. These data sheets were called SIMO charts (Simultaneous-Motion Cycle), and they were able to graphically compare the kind and amount of work of each hand (Curtis 2009, 62).

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[13] The aim of time study is to identify the most efficient method of carrying out a specified task under controlled conditions by rearranging the sequence of basic components. By counting and calculating, management techniques become highly structured and standardized, and thus, according to Taylor, 'scientific'.

[14] Frank Gilbreth was an already established contractor working on his Bricklaying System, a motion study that was trying to renovate bricklaying methods so as to reduce the bricklayer's motions from as many as 18 to as few as 4-1/2.4 (Price 1989, 89) Although Frank Gilbreth's name receives ample mention for the development of motion studies, he was not working alone. His wife Lilian, who held a Ph.D. in psychology was his active partner and an equal contributor for the motion studies books and the completion of the experiments. While working with Taylor, the Gilbreths were trying to distinguish themselves from his techniques and to build their own career in scientific management. They commenced their installation career at the New England Butt Company of Providence, Rhode Island, armed with a new motion study technique they named micromotion study.

The SIMO chart listed horizontally the parts of the body – arms, legs, trunks, and head – with subdivisions (for example, arm could be dissected into upper and lower arm, wrist, thumb, fingers, and palm). The vertical axis displayed elapsed time. By assigning each therblig a colour and symbol, Gilbreth could chart each body part's fundamental motion against time, producing a clear visualization of the relationships between the therbligs employed in any job. SIMO charts enabled Gilbreth to discern whether, for instance, one arm was actively working while the other was merely passive during the motion cycle. If so, he could redesign the operation with an eye to actively employing both arms simultaneously while shortening the times for movements made by placing tools and parts closer to the worker's grasp (Price 1989, 7).

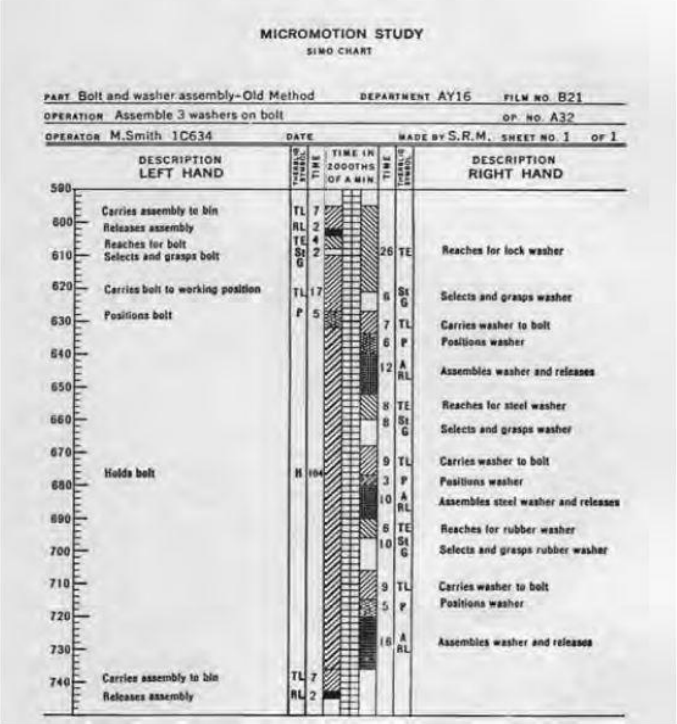


Figure 6: Gilbreth's simultaneous motion (SIMO) charting system displays graphically the work of each hand for a given task (n.d.).

Keeping in mind the image of a SIMO chart and of a vertical stave, the next section will show how Micromotion studies highly affected *Labanotation*'s invention of a vertical stave.

Labanotation

As already mentioned, the most impactful notation system of the twentieth century was *Labanotation* or else *Schrifttanz* (Kinetography Laban) as introduced in 1928 by Rudolf von Laban. Labanotation is a system of analysing and recording movement which can describe movement in terms of spatial models and concepts. Its primary function is the ability to record movement sequences and aims to make the process of movement more precise by means of analysis, in order to liberate it from the vagueness that makes the language of dance unclear and monotonous (Herrmann 2002). By comparing it with previous notation systems, it is easily noticeable that *Labanotation* maintains two main characteristics of the *Beauchamp-Feuillet* system: (a) the

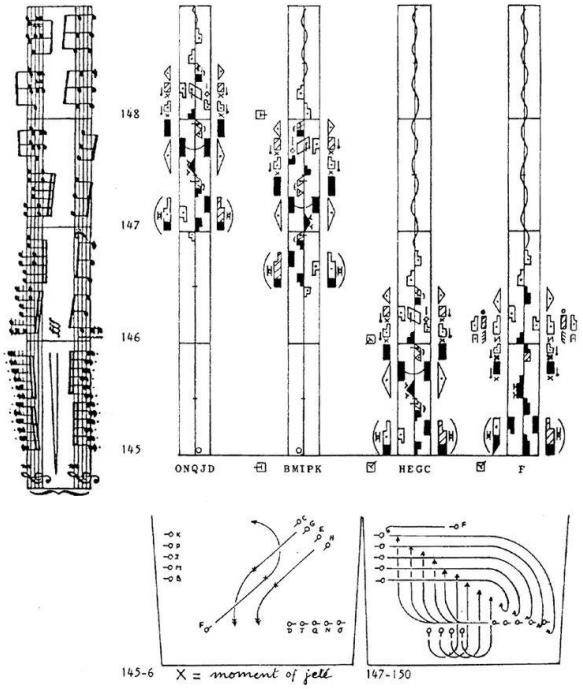


Figure 7: An example of Labanotation which also includes floor plans (1928), by Rudolf von Laban).

division of the body in left and right and (b) the placement of the bar lines on the centre line to coordinate with the music bars (Hutchinson Guest 1984, 82). However, even though this could be true, for reasons explained above, I maintain that *Labanotation* is majorly influenced by the Gilbreths with who he intensely collaborated (*see,* Figure 6). Among *Labanotation's* innovations is the introduction of a vertical stave, which helped to relinquish the idea that some sort of music-based staff should be used or that a dance score should move from left to right (Hutchinson Guest 1984, 82). Another great contribution was the pictorial representation of direction by symbols and the representation of body parts by families of symbols (Hutchinson Guest 1984, 83). In addition, the lengthening of the signs (blocks) indicated the depictions of longer movements and also shows where the movement begins and ends. The longer the movement; the longer the symbol, the shorter; the quicker (*see,* Figure 12).

What is of the utmost importance is that *Labanotation* is the first system able to combine features of previous notation systems into one. *Labanotation* is able to store and depict the: (a) direction and level of the movement, (b) part of the body doing the movement, (c) duration of the movement, and (d) dynamic quality of the movement (Hutchinson Guest 1984, 84).

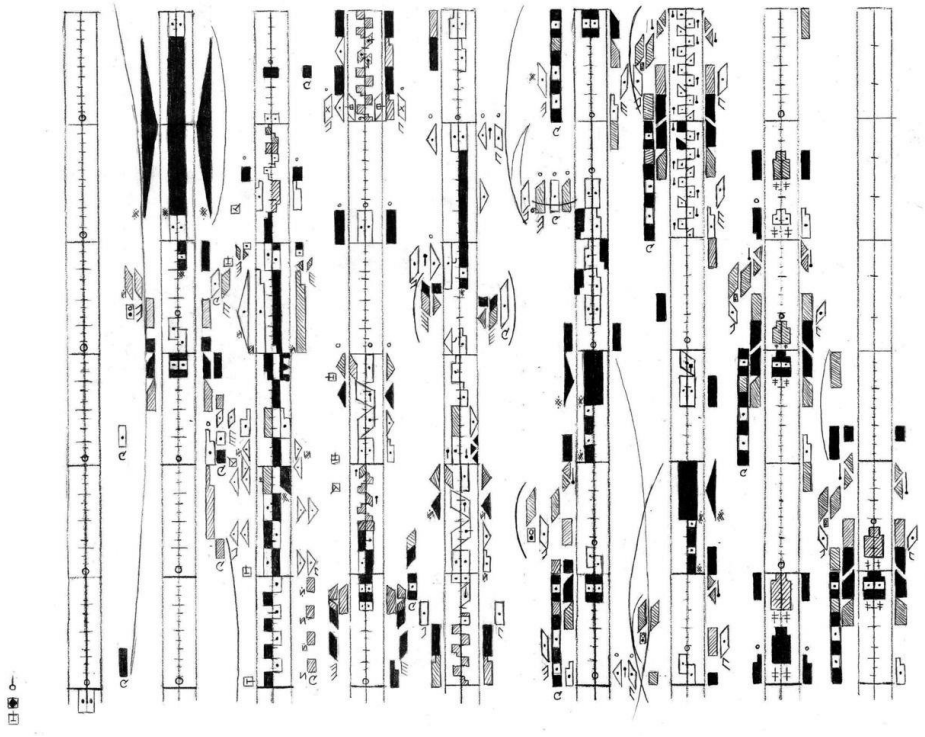


Figure 8: Example of Labanotation (n.d.).

Dance Alphabets

Following the description of the traditional dance notation systems, I wish to discuss and underline their main characteristics. The principal intention of this section is to demonstrate how conventional dance notation systems have been under the hegemony of an alphabetic tradition of movement knowledge. More specifically, this section examines how dance notation systems are based on letter alphabets and therefore, encourage an alphabetic way of understanding movement determined by linearization (Salazar Sutil 2015, 147).

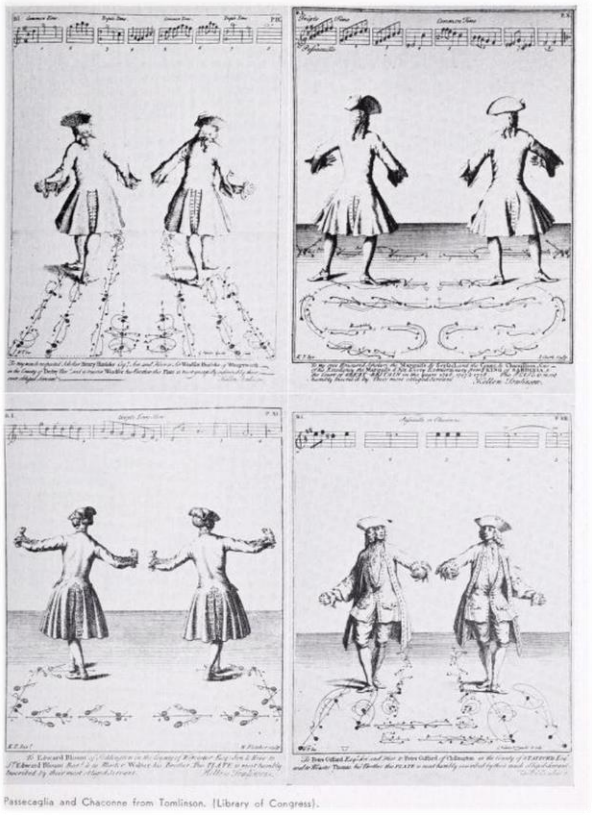
Before delving into this examination, I would like to briefly explain how the term alphabetic is employed in this thesis. Firstly, alphabetic is understood as "of, relating to, or employing an alphabet; employing or consisting of letters as opposed to syllabic characters, pictographs" ("Alphabetic, Adj." n.d.). Moreover, alphabetic, as used in this thesis, is not limited to the employment of letters but it also includes the orthographic structures and rules writing encourages (logical or syntactic). In the context of dance notation specifically, alphabetic notation includes letter-coded dance notation systems *and* any dance notation system based on the representation of movement through a finite list of symbolic units (Salazar Sutil 2015, 150). In other words, a collection of symbols which represents a finite set of human movements comprises a dance and/or movement alphabet (*see,* The Stepanov System and Labanotation).

Starting the discussion with the *Renaissance Letter Systems*, it can be said that the presence of alphabet letter systems as the principal symbols for the documentation of movement is quite apparent. For instance, the notation of *Les filles à marier* is accomplished by employing five letters of the alphabet (R, s, d, b, r), which describe a specific sequence of movements (*see,* Figure 1*)*. Additionally, the letters are inscribed in a linear way from left to right in accordance with what could be perceived as musical notes, resembling a musical stave (a set of five parallel lines on which a note is written to indicate its pitch).

Regarding *Orchésographie*, movement is documented in accordance with the music. For instance, in Figure 2 the musical accompaniment for a gavotte can be seen on the left side of the document. Then, next to each note, there is an explanation of what (mostly) the feet should perform along with margin notes that give further explanation about space and arm movement, or movement that could last less than the duration of the notes on the left side. Similarly, here, the presence of the gesture of writing is apparent. This documentation system, though it includes minimal figure drawings, is principally storing movement through descriptive remarks. Hence, its potential reenactment would be rather demanding. On the other hand, it should be mentioned that this is a system of documenting court dance, therefore, the dances meant to be recorded did not contain greatly complex movement.

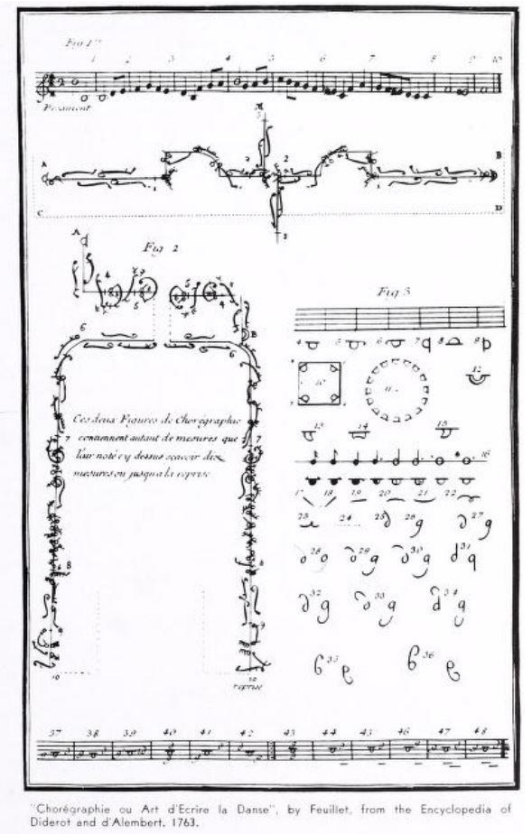
Contrary to the *Renaissance Letter Systems*, the relationship between the *Beauchamp-Feuillet* system and an alphabetic understanding of movement is not that obvious. However, as will be explained, the gesture of notating as a facilitator of linear thinking is apparent in the process of coding and then, decoding *Beauchamp-Feuillet* notations. *Beauchamp-Feuillet* is a system that records baroque dances and documents the floor plan of a dance (*see* Figure 4). The great

innovation of Beauchamp and Feuillet was that they "assigned footstep symbols to individual footsteps within the dance step and had these printed on either side of a track line" (Salazar Sutil 2015, 129). More specifically, the floor plan includes two lines which track and represent the spatial path followed by a pair of dancers (*see,* Figure 9). On the track lines, there are symbols that explain which foot should move and what movement it should perform (stepping, sinking, rising, turning, and other). For instance, in Figure 4, the first two marks on the left line indicate one step to the right and one to the left.



Passecaglia and Chaconne from Tomlinson. (Library of Congress).

Figure 9: This figure shows how a dancer was supposed to follow the steps of a Beauchamp-Feuillet (1730) by Canary Galliard in "The French Art of Dancing."



"Chorégraphie ou Art d'Ecrire la Danse", by Feuillet, from the Encyclopedia of Diderot and d'Alembert. 1763.

Figure 10: Examples of Beauchamp-Feuillet orthographic markings, tack paths, and musical accompaniment.

Similarly to *Beauchamp-Feuillet*, the alphabetic ordering of knowledge in the *Stepanov* system is not directly apparent. One of Stepanov's great innovations was to not encode dance movement with abstract symbols, but with musical notes. "Stepanov broke down movement into basic contrastive units, which could be represented in the form of music notation and a few supplementary symbols" (Salazar Sutil 2015, 150). Additionally, as can be seen in Figure 11, Stepanov employed the musical stave in order to document movement in accordance with the music accompaniment. It should be noted that the Stepanov system was meant to document classic ballet choreographies. Classic ballet in its most traditional form was considered to be composed by a set of finite number of movements that can be put in a different sequence to structure a new ballet choreography. Hence, by employing a set of symbols which represented specific ballet movements, the *Stepanov* system was perfectly reflecting the traditional view on ballet choreography. This

appears to be the most probable reason the *Stepanov* system managed to be the most effective and popular method of ballet documentation for over a century.

Although upon first glance it could be claimed that the *Stepanov* notation system represents movement in a symbolic way and therefore escapes the conventions of alphabetic arrangement, I maintain that this is not the case. As Salazar Sutil records, Stepanov's idea was to in fact create a dance alphabet: "[Stepanov] believed that the collection of symbols available in this system represented an alphabet, with the help of which one would be able to record with precision any position and any movement of the body" (2015, 150). Therefore, although the *Stepanov* system used a non-letter representation method, its conception and realisation was based on the wish for a dance alphabet and language. Considering this and as Salazar Sutil affirms, the Stepanov system "reaffirmed the idea that ballet could be dealt with as a language of movement, whose theoretical purview included an understanding of the grammar, syntax, and even the alphabetic ordering of balletic knowledge" (Salazar Sutil 2015, 150).

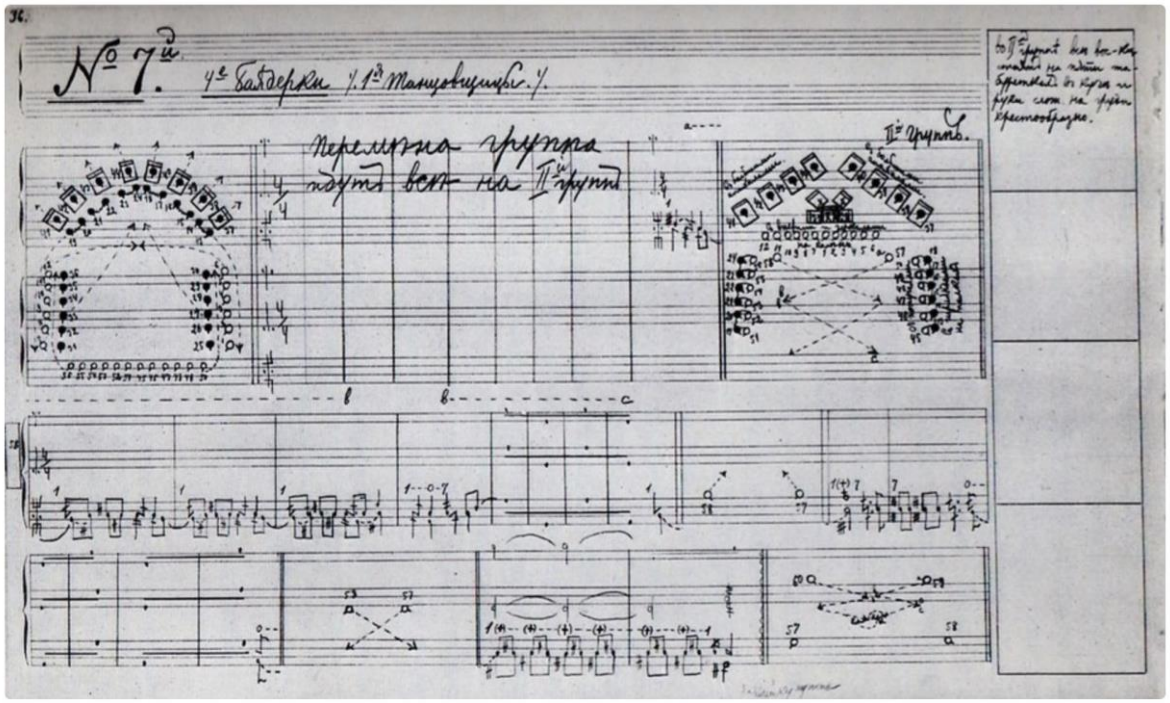


Figure 11: La Bayadère in Stepanov notation (circa 1900).

Labanotation was the system that made it most difficult for me to detect the underlying gesture of notating. The gesture of notating as explained before is characterised by an alphabetic linear understanding of movement. With this in mind, when I first examined *Labanotation* I thought that it was a notation system that did not make use of language or linguistic symbols. This thought can be explained by the abstract symbols and the innovative vertical stave *Labanotation* incorporates and which initially seem far from linearly ordered text or signs (*see,* Figure 8). However, as I will reveal, this first impression does not appear to be true.

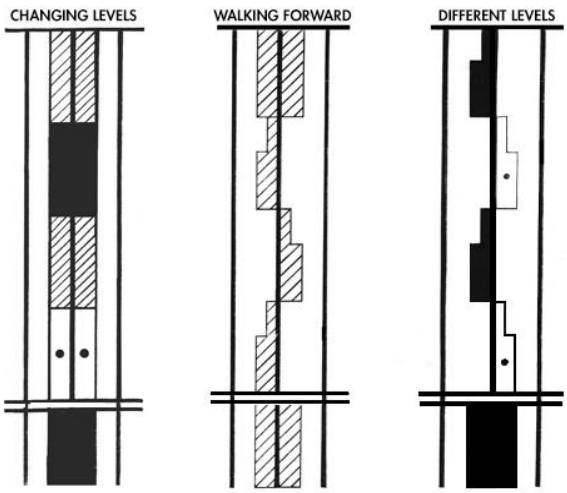


Figure 12: Three examples of Labanotation

One of the most significant innovations attributed to *Labanotation* is the shift from a horizontal stave to a vertical one. However, as mentioned before, the change from a horizontal to a vertical stave should be first attributed to the Gilbreths with whom Laban collaborated (*see* Micromotion Studies). Similarly, *Labanotation*'s abstract symbols on the vertical stave which represent the duration of the movement and provide movement-time synchronisation are highly influenced by the abstract symbols on the SIMO charts. Nevertheless, the employment of a vertical stave does not rule out a linear reading of movement but it shows that "the reading orientation of a Laban score is from bottom to top" (Salazar Sutil 2015, 131).

This argument made by Salazar Sutil made me realise that *Labanotation*, similarly to *Beauchamp-Feuillet* and *Stepanov*, records and represents movement in a linear path. More specifically, *Beauchamp-Feuillet* employs track lines, *Stepanov* uses horizontal staves and likewise, *Labanotation* uses vertical staves. Salazar Sutil explains how *Labanotation*'s vertical stave is indeed determined by linearization and the rules of writing through a connection he draws between Lacan's theory of language and Laban's stave:

> The spatiality and temporality of staved language is broken into letters or words, into notes or beats, into body parts or movement beats. Language is always a breakdown of thought.… In seeking to stave off the writing of multidimensional movement, Laban seems to be echoing Lacan's theory of language as a linear chain of signification, a linear logic of component parts that make up, in Laban's case, a syntax and a grammar of movement. (Salazar Sutil 2015, 132)

Considering the above arguments, I realised that the issue of dance movement being recorded and represented in linear ways does not solely depend on the use of letter alphabets or symbols. In fact, the hegemony of movement by alphabetic structures has to do also with the representation of movement through a finite list of symbolic units:

> The problem with alphabeticism is not that it uses letters of the Roman or some other alphabet to encipher human movement, but that this system breaks down a language of movement into an arbitrary number of indivisible primitives. Even though Stepanov does not use letters, his system is still alphabetic. (Salazar Sutil 2015, 150)

Discussion

In this section, I wish to re-address the gesture of notating and establish its presence in traditional dance notation systems. More specifically, I wish to reiterate that the technology which predominantly mediates the traditional documentation of movement is the medium of writing and that it encourages a linear step-by-step decoding of information and delineation of time.

This section is split into two subsections: the first subsection describes the purposes of notation (documentation, transmission, reconstruction) and then examines each in the *Renaissance Tablature Letter Systems*, the *Beauchamp-Feuillet*, the *Stepanov*, and the *Labanotation*. Then, by focusing specifically on the reconstruction purpose and the processes of coding and decoding (as explained in "Dance Alphabets") it demonstrates the gesture of notating in each system. Finally, the second subsection contemplates the experience that the gesture of notating provides and its consequences on the temporal understanding of movement through a synthesis of Flusser and Salazar Sutil's theories.

Purposes and Processes of Traditional Notating

The gesture of notating can be detected in the purposes and processes of traditional notating. However, it should be mentioned that we cannot speak of universal purposes and methods of traditional dance notation. One of the earliest observations one can obtain through research on dance notation is that each system maintains its own assumptions on what can or should be notated. In addition, the formation and purposes of a dance notation system depends on multiple factors such as, the assumptions of 'what dance is', the desire of 'which dance is to be documented', the value of 'what should be preserved', the technical abilities of 'what can be recorded', and so forth. Therefore, the creation of a dance notation system can be seen as an assemblage of diverse aims and methods with various visual results; which can also be demonstrated by the plethora (more than 100) of dance notation systems discovered. Nevertheless, three shared principal purposes can be identified: 'documentation', 'transmission', and 'reconstruction'.

As explained in detail in "Dance Alphabets," in all the examples of traditional notation provided the documentation of movement is performed through the medium of writing. In particular, the *Renaissance Letter Systems* employ letter systems, *Beauchamp-Feuillet* employs track lines and orthographic markings, *Stepanov* uses an alphabet letter system comprised of musical symbols and a horizontal stave, and *Labanotation* a set of specific abstract symbols and a vertical stave. Consequently, all the aforementioned systems achieve the purpose of documentation and preservation of dance movement with alphabetic systems through different types of writing.

The second common purpose of traditional notation systems is transmission. Following the successful documentation of movement, the transmission of a notated dance can be accomplished. More specifically, through the documentation of movement, a choreographed piece is transformed into signs written on two-dimensional paper (Hutchinson Guest 1984, xiv). Subsequently, a legible, examinable object which represents a dance piece is created and is able to be transmitted to other artists, choreographers, dancers, etc. Therefore, it is evident that the gesture of notating – the action

of translating movement into written signs in order to make it legible – transpires both purposes of traditional notation systems.

An additional common purpose of most traditional dance notation systems is reconstruction.[15] For most of the provided examples, the purpose of reproduction appears to be the conclusive intention of traditional notation and depends on two processes: the process of coding (documentation) and the process of decoding movement information. As I will explain, it is my contention that the gesture of notating is specifically apparent in the 'process of coding' movement information, and its consequences become noticeable in the 'process of decoding' dance notation. Firstly, as already explained in "Dance Alphabets," traditional dance notation systems accomplish the purpose of movement documentation by following alphabetic structures and rules. In other words, during the process of coding, traditional notation systems record movement data using a finite set of symbolic units and represent movement in a linear fashion. Secondly, the gesture of notating and its consequences can be even more noticeable in the process of decoding and reconstructing a conventionally notated choreography.

Regarding the *Renaissance Letter Systems*, due to insufficient research material, it cannot be claimed with absolute confidence that the purpose of reconstruction was all along deliberately aimed for. However, as Emma Lewis Thomas claims, it seems that the notators were indeed documenting the most popular and 'danceable' dances in order to reconstruct them (1978, 1). Nevertheless, even if reconstruction was not an initial purpose of renaissance systems there have been efforts to decode and interpret fifteenth-century Italian dance manuscripts by quite enough scholars, namely, Emma Lewis Thomas (1978), W. Thomas Marrocco (1978), and Crane (1968). These modern efforts to decode and reconstruct renaissance notations help with detecting the gesture of notating. More specifically, the intermittent and linear gesture of notating is noticeable in the process of decoding and reconstructing renaissance notations. For instance, it can be noticed in Thomas' research that in order to decode notated movement they[16] first had to understand and learn a specific vocabulary. In fact, "Appendix A." of their research includes an impressive glossary which explains in detail the step vocabulary of several renaissance dances.

> R cc ss d d cc d d cc r d ss(rt. beg.) d(rt. beg., rt. 1/2 turn) mv(rt.) r r cc sasa d r asa d r(rt. beg.) d d R (Appendix A. Thomas 1978, 27).

Therefore, it can be noticed that the purpose of reconstruction and the process of decoding renaissance notations require meticulous study of a specific vocabulary. In order to reconstruct, as precisely as possible, a renaissance dance they had to: decode and understand the meaning of each individual symbol, interpret it to movement, and then, reorganise the movement according to the syllabus above. That means that before even trying to reconstruct the dance, someone has to learn the meaning of the alphabetic signs and then, try to step-by-step assemble all of the movements together to create the choreography.

[15] The term 'reconstruction' was chosen between other terms such as, reenactement and reproduction. However, these terms have been used with specific meanings, hence, after consulting (Dickason 2010) I decided to choose 'reconstruction'.
[16] Joined research by Emma Lewis Thomas and W. Thomas Marrocco.

Regarding the *Beauchamp-Feuillet* system, it can be said with certainty that reconstruction was an intentional purpose. One the one hand, in the *Beauchamp-Feuillet* notations there is advice on how to follow court rules and detailed descriptions of how to re-stage the dance.[17] On the other hand, the drawn track lines and footprints were specifically made so that someone can follow the markings and reconstruct them. Additionally, *Beauchamp-Feuillet* (and as will be gradually shown all of the provided examples of traditional notation), requires an a priori knowledge of a movement vocabulary which can be used later to decode and reassemble the pieces of the choreography. Considering the above and the description of how *Beauchamp-Feuillet* records movement in "Dance Alphabets," the gesture of notating in this system is noticeable in the process of coding and decoding movement information: (a) with linear orthographic markings (coding) and (b) step-by-step reconstruction of the dance (decoding).

In the *Stepanov* system, the purpose of reconstruction had a principal function and is readily evident. As mentioned previously, *Stepanov* was invented with the intention to record classic ballet choreographies and consequently preserve and reconstruct them. In fact, *Stepanov* notations primarily functioned as memory aid for Sergeyev. Moreover, the *Stepanov* system required a rather trained notator who could record and understand the notated movement. As a matter of fact, Stepanov notators were professional notators trained at the imperial Imperial School of Ballet (Hutchinson Guest n.d.). In addition and as explained previously, Stepanov coded ballet movements by using a specific set of musical symbols. Consequently, the activity of reading the dance script is interrupted as each symbol needs to be decoded individually and then, be put in an order. Hence, *Stepanov* shares with the *Renaissance Letter Systems* and with *Beauchamp-Feuillet* the fact that their decoding process requires the beforehand knowledge of a dance vocabulary. Thus, *Stepanov*'s gesture of notating is evident in the creation of a dance alphabet (as explained in "Dance Alphabets") and in the process of decoding the recorded dance.

Labanotation's purpose of reconstruction and process of decoding fall in the same line with the aforementioned systems. However, a differentiating factor that should be noted is that Laban did not create *Labanotation* in order to reconstruct specific dances but he conceived it as means of analysis. More specifically, *Labanotation* was able to record every aspect of human motion as precisely as possible and is not connected to a singular, specific style of dance ("Introduction to Labanotation" n.d.). Nevertheless, Labanotation scores have been very much used in order to reconstruct or retrieve past choreographies. As explained in "Dance Alphabets," *Labanotation* codes information in a linear fashion by using a set of abstract symbols. Consequently as all aforementioned systems, in *Labanotation,* the process of decoding with the purpose of reconstruction requires an a priori knowledge of the symbols' meaning. Similarly to *Stepanov*, *Labanotation* is a rather difficult system and a notator would have to be professionally trained in it. Thus the gesture of notating in *Labanotation* is again evident in the process of coding and decoding movement information. First, one has to learn the meaning of the abstract signs and then, assemble step-by-step all of the movements together to reconstruct the choreography.

[17] *See* (Harris-Warrick 1986).

To briefly summarise, the text above presents the three common purposes of traditional notation systems (documentation, transmission, reconstruction). Moreover, it demonstrates specifically how the process of coding for the purpose of documentation and transmission (a) creates a legible examinable object which represents a dance piece, and (b) records movement intermittently and linearly. Then, by focusing on the process of decoding for the purpose of reconstruction it explains how dance alphabets encourage a linear and step-by-step reconstruction of the dance.

Consequences of the Gesture of Notating

With the above in mind, I would like to discuss the consequences of the notating gesture on the understanding of movement through a synthesis of Flusser's and Salazar Sutil's theories. First, through Salazar Sutil's observations, I wish to discuss the fragmented and disjointed experience conventional systems provide. Then, with Flusser's argumentation on temporality, I describe the linear but interrupted awareness of movement's temporality. It should be mentioned that these effects do not necessarily possess a negative connotation, in fact, they can be rather beneficial for research purposes.

Considering the process of decoding as explained above, it can be noticed that before reconstructing a notated dance many steps have to be first followed. For example, before reaching the reconstruction of a dance one needs to be able to understand and read notated movements. As explained previously, in the majority of the cases one needs to be professionally trained in specific notations systems in order to read them and even more notate them. For instance, even though I studied conventional dance systems in depth, I can hardly understand the notated movements, and I am even further from being able to notate or reconstruct dance notations. With the above in mind, a split between the notator and the dancer can be noticed. According to Salazar Sutil, there is a shift of agency from the 'one who moves' and the 'ones who write' (2015, 135). As he further clarifies, although these two could be the same person "a fundamental change of agency occurs, since notation is a medium so abstracted from the actual movement that it provokes an intellectual understanding of movement, a third-person perspective that is cut off from its physical determination" (Salazar Sutil 2015, 135). This can be explained with reference to the fact the experience of the dance is happening through completely different perspectives. From the time a dance is notated, we no longer have access to the physical movement but only to the documented. That means that the "we no longer have access to the movement, but only to the reading and writing of movement" (Salazar Sutil 2015, 135).

For instance, in the case of a *Beauchamp-Feuillet* reconstruction, it can be easily discerned that the one who reconstructs obtains a completely different experience from the one who moved. In particular, the reconstructor would have to figure from the markings and a single track line a comprehensive understanding of multiple elements of a dance such as duration, direction, use of space, dynamics, and so forth. In fact, this process would have to be performed individually for every single marked step; and keep in mind that a single step could last even half a second. That means that a reconstructor would have to constantly go back and forth from reading to dancing,

from decoding to reconstructing. Therefore, a reconstructor – in order to arrive in the reconstruction of eight counts of a dance – would have to spend hours of reading and decoding and then trying to step into the dancer's role. On the other hand, a dancer obtains a rather different experience of the dance. 'One who moves' has a direct physical encounter with the movement, the elements, and the instructions of the dance, hence, they gain a more encompassing experience. Considering this, it seems that traditional dance notation systems encourage a rather slowed-down decoding process. As Salazar Sutil asserts, traditional notations as medium "slow down the transference from physical to mental, creating a disjointed and cut-off connection in which intellection becomes divided and excluded" (2015, 135). In order to reconstruct a conventionally notated dance, one has to meticulously study the system, investigate the marks, and break down the movement in a high degree of granularity. Therefore, a reconstructor obtains a fragmented idea of a dance: they have to first see the dance as still images and then try to combine them and put them in the suggested sequence, in order to recreate a moving image.

With this in mind, I wish to bring back to the discussion Flusser's argumentation on temporality. As discussed in "The Gesture of Writing", an important notion of the gesture of writing is the awareness of time as linear movement. Flusser's argument unfolds in two stages: first, he claims that the gesture of writing encourages the awareness of time as linear movement and then, he explains that this awareness is depended on medium specificity. Taking these into consideration, I wish to discuss here the effect of the gesture of notating in the awareness of movement's temporality.

To begin with, Flusser's gesture of writing is apparent in both processes of coding and decoding movement information. First, Flusser expresses that written texts unfold in a linear mode and that they follow a sequence of steps that are narrative in nature (Poster 2011, xvi). Therefore, texts demand progressive reception; they move from start to finish (Flusser 2002, 39). This linear progression becomes evident when we bring in mind, for instance, *Beauchamp-Feuillet*'s coding process, which follows the precisely the same order. For instance,

> the orthographic markings of *Beauchamp-Feuillet* are placed carefully on a line that cannot but track spatial movement in a linear way. For instance, a *Beauchamp-Feuillet* notator needs to record one movement after another; in case one step was missed then the succession of the dance would be interrupted and unfeasible. ("Dance Alphabets")

Therefore, one that records movement through this system cannot but obtain a linear understanding of movement. This is because the documentation of the choreography depends on a successful coding process which follows a specific order. Otherwise, the dance as initially conceived ceases to exist. Additionally, the gesture of notating not only provides a linear understanding but also an intermittent one. While notating we are repeatedly forced to come up from the flow of notation in order to get a critical overview (Flusser [1987] 2011, 20). This can be shown for instance in *Labanotation*: following the creation of a dance alphabet, one needs to constantly repeat and break down movement in order to be able to notate it. There is a constant inner dialectic between one 'who moves' and the one 'who writes'. Nevertheless, as mentioned before, this inner dialectic can provide deep insight into the choreographic structures.

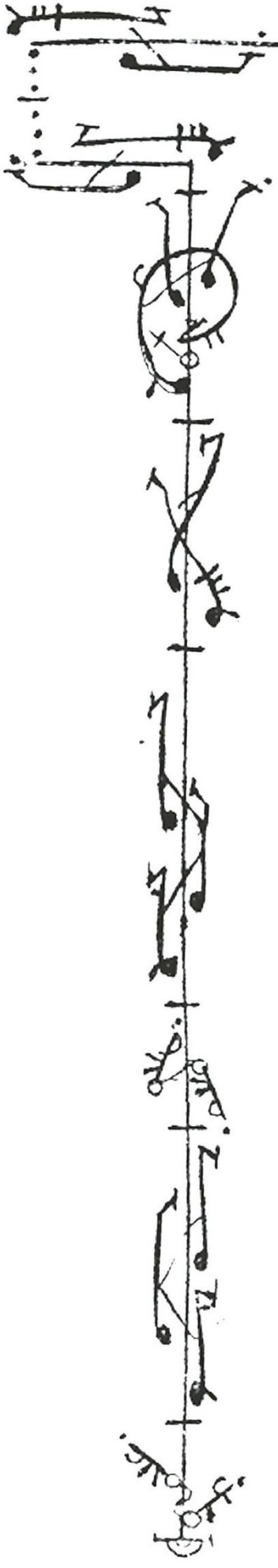
Moving the discussion to the process of decoding, the linear temporality of traditional notation systems becomes apparent. As Flusser asserts, the specificity of each medium is associated with a special form of temporality (Poster 2011, xv). As explained in the gesture of writing, for texts, this is noticeable in their decoding process: written texts are decoded step-by-step and encourage a gradual awareness of time while suggesting a one-directional sense of decoding (Flusser 2002, 23). Similarly, the effect of the notating gesture on the temporal understanding of movement becomes apparent when we bring in mind, for instance, S*tepanov* or *Labanotation*'s decoding process. For instance, as discussed before, *Stepanov* does not only require the beforehand knowledge of a dance alphabet but also the gradual interpretation of the movement by following linear markings on a horizontal stave. Additionally, the same is applicable to *Labanotation*'s decoding process and understanding. More specifically, in order to obtain a comprehensive view of the choreography, one has to first decode step-by-step all of the movements and then assemble them all together. Therefore, one that reads notation and reconstructs dances through these systems cannot but follow a specific sequence of time. In order to reconstruct a traditionally notated choreography, the decoding process needs to be performed meticulously and step-by-step. If we wish to precisely reconstruct the dance there cannot be jumps from one movement to the other.

Considering the above, the gesture of notating facilitates a progressive step-by-step coding and decoding process. Therefore, traditional dance notation systems encourage the understanding of movement and time in a linear succession. To conclude, I wish to indicate that this linear but interrupted awareness of movement's temporality will be among the main differences between notation systems and annotation practices.

Summary

With this study, I have provided a comparative analysis of some of the most significant conventional notation systems. The first section of this chapter "On Notation," defines notation systems as systems which enclose (but are not limited to) the function of capturing, storing, visualising, examining, and (possibly) reproducing information. Following this, "Writing Dance" discussed how the concept of dance notation has progressed throughout the centuries and provided a rather general definition for it. In doing so, this section demonstrated the deep-rooted relationship between dancing and writing. Then, by referring back to Flusser's principal notions of the gesture of writing, the following section discussed and defined the gesture of notating as the process of translating movement into written signs with the intention to make a legible examinable object. Moreover, it argued that the gesture of notating – and hence, the mediation of writing for movement – shapes the conditions for a linear but also intermittent understanding of movement. Then, "Traditional Dance Notation Systems" presented the notation case studies of this thesis. Following their description, "Dance Alphabets" demonstrated how conventional dance notation systems have been under the hegemony of an alphabetic tradition of movement knowledge. With this foundation, the final principal section of this chapter analysed the traditional notation case studies according to the purposes of 'documentation', 'transmission', and 'reconstruction'. Following this examination, it proved how the processes of conventional notation intend to create legible examinable objects in

an intermittent and linear way. Finally, “Discussion” evidenced how traditional notation systems encourage the understanding of movement and time in a linear succession.



Part Two: Annotation Practices

There are many ways to explore recorded content once disconnected from the fixed, one-directional and linear nature of time: 'scrubbing' back and forth, jumping from one place to another or visiting many places simultaneously.

—Florian Jenett, Notes on Annotation

On Annotating

The second part of this thesis is dedicated to annotation practices. My intention with this part is to and clarify as much as possible the discourse around annotation practices. To this end, I will present and examine three annotation case studies. In light of that examination, I intend to locate and define the stance annotation practices hold towards research material. That said, this chapter is organised in the following way. To begin, "On Systems and Practices" addresses the use of the terms 'notation', 'score', and 'annotation' in scholarly research. Following this, it explains the way and the reasons the terms 'notation systems' and 'annotation practices' were employed for this thesis. The subsequent section presents and describes three case studies of annotation practices, namely, *Mediathread*, *RAM*, and *Piecemaker*. The examination of these annotation practices is performed through the lens of three purposes, 'annotation', 'interaction-generation', and 'transmission'. Considering the above, the next section explores and then defines the 'gesture of annotating'. With this foundation, this part concludes by comparing the gesture of notating with the gesture of annotating.

On Systems and Practices

I would like to begin the examination of annotation practices by first explaining the reason I employ the term 'practices'. The terms 'notation', 'annotation', 'archive', and 'score', have been used interchangeably in dance scholarly research and I have come to the understanding that the discussion on how to use these terms, occurs around two poles: 'notation, archive, score' and 'notation, annotation.' It appears to me that the confusion which transpires both these discussions resides in the not clear distinctions of whether we speak of a system or a practice.

Although the most clearly defined term of this discussion seems to be 'notation', as explained previously, it is still quite convoluted. Nevertheless, notation in regard to dance can be understood as a system, a practice, or a tool that has to do with forms of transcription and symbolic representation (Bardiot 2015, 1). Among the studied literature, I could not find specific definitions on the term archive or score.[18] However, a great starting point for an investigation of these terms is Keyna Nara's master thesis *Contemporary Writings on Dance as New Forms of Notation* (2015). One of Nara's core arguments is that notation is an obsolete term and that the currently dominant term is that of scores (2015, 4).

> Dance notation has become rather an obsolete medium these days. Particularly after the time of Laban notation in the early twentieth century, the use of dance notation seems to have declined enormously to such an extent that it could be seen as a relic of the past (Nara 2015, 4).

Moreover, Nara claims that "the word notation is hardly used nowadays" and that its disappearance is related to the rise of the terms archive and score (2015, 4). Although I agree with Nara's view that notation is currently not greatly used, I believe that this a great example of a case in which the terms

[18] *For dance score examples see,* (Imschoot, Engels, and Brande 2012)

system and practice would have been rather beneficial. Firstly, I disagree with the argument of *Labanotation* being a relic of the past, as currently it is rather used for research on dance and robotics.[19] Secondly, it appears that there is a confusion between the practice of notation and a system of notation. Nara compares notation systems with scores which I believe are notation practices and that one does not replace the functions and purposes of the other.

More specifically, I maintain that the difference between these terms lies in whether we refer to systems or practices. I believe that a score can be a notation practice, but not a notation system. On the one hand, notation systems aim to the documentation, transmission, and reconstruction of dance and can be understood by others and not just by their authors. On the other hand, notation practices, although they might share the same purposes, do not share the same methods and achievements. A score is not a system that can be universally understood or taught and it does not aim to achieve a detailed documentation of movement (e.g. space, dynamics, and path in space), rather it focuses in few of them at a time. Moreover, scores cannot be used for precise reconstruction, they are the personal notes of a choreographer/dancer/maker and usually aim at remembering a dance piece or at giving a choreography's impression. Therefore, the main difference between notation systems and scores is that the former is a fully developed system that can describe and store dance data in detail. In other words, notation systems are standardised systems which can be generally understood and achieve high levels of granularity. Scores, on the other hand, are notation practices which provide the impression of a dance and cannot aim at precise documentation or reproduction.

As acknowledged in the introduction, the discourse around 'notation and annotation' has been rather convoluted as it is has been quite common that these terms are used interchangeably. Notation and annotation can get easily intertwined as scholarly research has not directly addressed or delineated their meanings. Hence, their differences remain quite ambiguous, leading to the question: what is annotation and how is it different from notation? The reason for this could be that although there is plethora of research and annotation experiments, a body of theory that addresses these issues has not emerged (with few exceptions such as the special issue of *Performance Research: On An/Notations* (deLahunta, Vincs, and Whatley 2015) and Hetty Blades' research (2015).

A great starting point is Clarisse Bardiot's definition in "Rekall" (2015), that "annotation is commentary applied to something that already exists, for example, a text" (2015, 82). This definition helps to clarify the difference between notation and annotation as it directly addresses their principal difference. On the one hand, notation is used when a document needs to be created. On the other hand, annotation is used when a document (object, material, etc.) already exists and commentary is applied to it. For instance, an example of dance annotation is the process of applying comments, tags, or notes in an already documented dance. Moreover, the method with which this will be accomplished is not restricted, it can be performed through writing, drawing, singing about

[19] See, (Hattori et al. 2001; Huang and Hudak 2003; Seo et al. 2013).

it, and so forth. In addition, Bardiot employs an example that really demonstrates the range annotation can have:

> An extreme example of dance annotation may be performed lectures such as the one given by Anne Teresa de Keersmaecker at the 2013 Dance Congress in Dusseldorf, Germany, where she commented on the figures of Fase as she actually executed them (Bardiot 2015, 82).

Hence, an annotation can range from notes to drawings, to songs, to videos and so forth.

However, the practice of annotating dance was really amplified with the invention of digital annotation tools (Bardiot 2015, 28). For instance, the *Improvisation Technologies* of William Forsythe, the *Synchronous Objects*, the *TKB Projec*t, and many more.[20] As will be explained later in detail, what can be observed from studying these and other annotation projects, is that annotation can be approached in a myriad of ways. Annotation can be performed with multiple and heterogeneous tools, through different platforms, while having diverse goals and intentions. Considering this, for this thesis I decided to refer to annotation as 'annotation practices' and not as annotation systems. This is because I believe that annotation is first and foremost a practice which can be performed through different means. As Florian Jenett mentions, annotation is "process of 'close reading' – inspecting a few properties and features of materials at a granular level" (2015, 25). In other words, annotation is a way of looking, of inspecting, of suggesting; it is not about the creation of an all-encompassing system. Moreover, annotation is not about universal methods and systems. On the contrary, I would argue that in most cases annotation projects try to avoid standardisation. In fact, annotation projects such as *Synchronous Objects* and Motion Bank try to open up the discussion on artistic practices, make things visible, and enable the transmission of choreographic knowledge. Therefore, the use of the terms 'notation systems' and 'annotation practices' allows me to highlight their different intentions and goals. On the one hand, notation systems imply to comprehensive and standardised systems of movement documentation and on the other, annotation practices refer to the act of examining and commenting on movement.

Annotation Practices

The examination of annotation practices will be performed through the use of three purposes, namely, 'annotation', 'transmission', and 'interaction-generation'. Before delving into this examination, I wish to first address two purposes which will not be used for this analysis and explain the reasons behind their exclusion.

For the analysis of traditional dance notation systems, the purposes of 'documentation,' 'transmission', and 'reconstruction' were employed. However, for the analysis of annotation practices, I choose to not use the documentation and the reconstruction purposes. Regarding the documentation purpose, I maintain that annotation practices code information with a rather different intention than notation systems. As described previously, documentation in regard to notation systems means that through the action of coding/recording an item of data is entered into

[20] *See,* (UNSW: National Institute for Experimental Arts n.d.; Forsythe, Zuniga-Shaw, and Palazzi n.d.; TKB Project n.d.),

a storage medium. Additionally, the purpose of documentation as explained intends to the creation of a legible examinable object documented in the highest possible level of granularity. Therefore, the purpose of documentation as used for this thesis can bear the connotation of comprehensive documenting. Because of this, in order to examine the process of coding in annotation practices, I decided to introduce the purpose of 'annotation'. By introducing the purpose of annotation, I believe that the intentions of an annotation practice can become more transparent. More specifically, the purpose of annotation means that an annotation practice does not intend in the creation of a graspable comprehensive body of information. As will be explained through the following discussion, the purpose of annotation is different from the purpose of documentation as far as detail and granularity are concerned. On the one hand, documentation of notation systems intends to create a detailed document of movement information. On the other hand, annotation intends to comment and highlight specific information of a document. In regard to reconstruction, this purpose will not be employed for this analysis, because as will be shown through the provided examples, annotation practices aim at neither explicit documentation nor precise reconstruction of a movement or of a choreographic piece. Instead, the purpose of 'interaction and generation' will be introduced, which in accordance with the purpose of 'transmission' will prove to be the principal and most significant purposes of annotation practices.

Mediathread

Mediathread is an open-source digital platform for annotation which has been developed by the *Columbia Center for New Media Teaching and Learning* at Columbia University since 2010. [21] Currently, *Mediathread* is integrated within the Media Ecology Project (MEP is a digital resource at Dartmouth College) (Dartmouth College n.d.). More specifically, *Mediathread* is a digital platform for exploration, analysis, and organisation of web-based multimedia content, and can host a variety of image and video collections (such as YouTube, Flickr, library databases, and course libraries), enabling users to lift items out of these collections and into an analysis environment (Phillipson 2012).

One of *Mediathread*'s initial aims was to provide a digital collaborative environment which could be used for educational purposes. In fact, I was acquainted with *Mediathread* thanks to prof. Frank Kessler (Utrecht University) who was part of one of its pilot projects, the "Paper Print Collection Pilot Study with Library of Congress and DOMITOR". I worked with *Mediathread* for a tutorial on early cinema trick films and for the "Florence Lawrence and performance in silent cinema" research project developed by prof. Mark Williams (Dartmouth College) and dr. Jenny Oyallon Koloski (The College of Media at Illinois). [22] For both research projects I manually annotated eleven early cinema films, hence, I acquired an in-depth knowledge of the platform's functions.

[21] *Mediathread* was developed using Django and was written in Python. *Mediathread's* source code is published as open source code and is freely available to anyone on Github (W. Koch et al. 2018).
[22] *See,* (Oyallon-Koloski and Williams forthcoming).

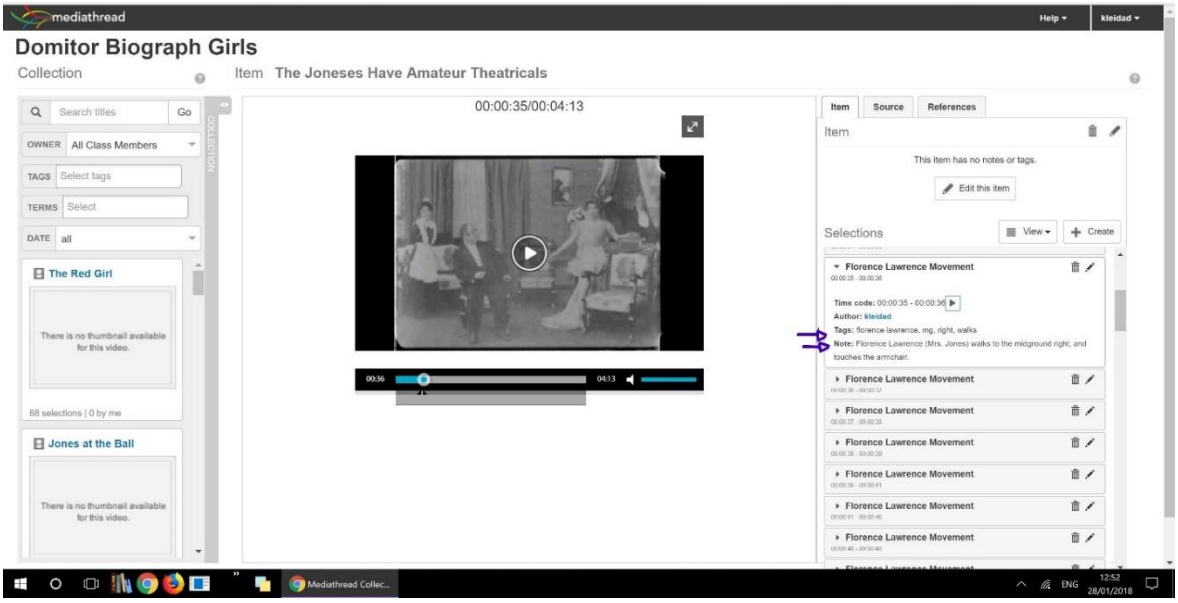


Figure 13: Mediathread Environment

Mediathread supports discussion forums, time-based annotations, as well as the generation of sub-clips, verbal descriptions, and metadata. Here, I will briefly describe the process of creating time-based annotations and verbal descriptions. In *Mediathread* there are collections of films which can be created for a specific collaborative project or for private assignments (*Mediathread* allows users to upload their own e.g. YoutTube playlist). As can be seen in Figure 13, at the left column of the screen there are the videos of the collection, at the centre the item to be annotated, and at the right column there are the annotations, the tags, and the source of the video. What should be mentioned for *Mediathread* is that the annotations are time-based, which means that they specify the duration of the annotation having as minimal unit, one second. The annotations can include: (a) Title, (b) Time duration, (c) Tags, and/or (d) Notes. For instance, an annotation of the Florence Lawrence project is:

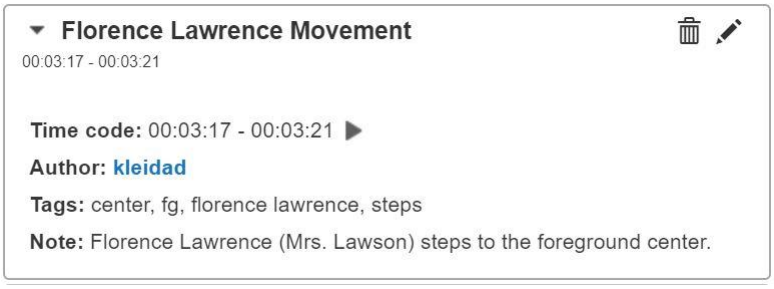


Figure 14: An example of a Mediathread annotation.

The tags were created by following Oyallon-Koloski's "Florence Lawrence Movement Annotation Guidelines" (Oyallon-Koloski 2017) and the notes by applying descriptive Laban Movement Analysis (LMA[23]). More specifically, each note includes a semantic descriptive sentence which describes the spatial movement of Florence Lawrence during the corresponding annotated time.

[23] LMA provides a descriptive approach to thorough, pattern-based micro and macro analysis of the expressivity of human movement. It is, to my knowledge, one of the most granular and rigorous way to describe, segment, and analyse movement forms.

Additonally, *Mediathread* offers the useful possibility to click on each annotation and specifically play the annotated clip. That way, following the manual annotation, a researcher can focus on very specific parts of a video/film. Finally, the tag function is of great importance as it allows to calculate how many times a tag (movement, object, etc.) appears in a film and then use these quantitative data for further research.

Before starting the analysis of *Mediathread* through the purposes of annotation, interaction-generation, and transmission it should be noted that *Mediathread* is a digital platform that, in contrast to the other case studies (*RAM, Piecemaker*) is not specifically rendered towards movement annotation. *Mediathread* is an annotation platform developed to annotate diverse web-based multimedia content (images, videos, digital databases, etc.) with time-based annotations. Nevertheless, for both research projects I was involved with I used *Mediathread* for movement annotation in films, hence, my examination will be performed through that lens.

In regard to the purpose of annotation, *Mediathread* codes information with text-based annotations. To the extent of my knowledge, there is no other way of creating a comment in *Mediathread*, than through the medium of writing. As hinted at previously, *Mediathread* does not (and possibly cannot) intend for the creation of a comprehensive examinable object. In fact, it is used for commenting on and/or highlighting specific moments of a film/video. For instance, for my research on early cinema trick films, I wished to draw attention to and comment on specific gestures that the actors were performing. As can be seen in Figure 15, to accomplish this I annotated by employing simple descriptions and by making my own vocabulary and tags. On the other hand, the Florence Lawrence project had as a purpose to comprehensively annotate Lawrence's spatial movement. Annotation of spatial movement meant to track the actress' movement, annotate the origin and endpoint of the movement through the frame, and note the type of action she was performing while moving (Oyallon-Koloski 2017). Hence, although detailed annotation was, in fact, the eventual goal of this project it should be kept in mind that this was intended particularly for spatial movement (which in my experience is the most easily attainable). Nevertheless, to achieve the purpose of annotating spatial movement, a vocabulary of a dance notation system was applied. More specifically, Oyallon-Koloski created an LMA annotation guideline which included descriptive terms, metadata tags, and semantic sentences (2017) (*see,* Figure 16). Therefore, the purpose of annotation was accomplished by applying a dance notation system, its rules, and its structures. Consequently, for both research projects, the annotation purpose was achieved by creating text-

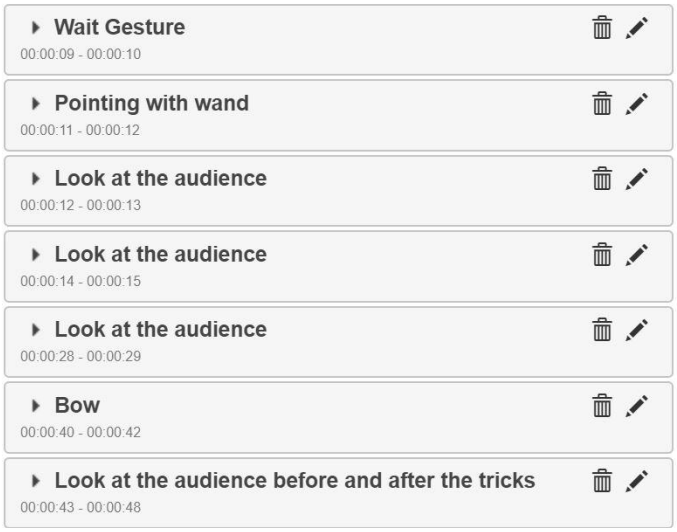


Figure 15: Text-based annotations in Mediathread.

based annotations. To reiterate, the purpose of annotation was accomplished by coding information through the medium and the gesture of writing.

Possible metadata tags / descriptive terms:

Sagittal movement:
- fg – moving towards the foreground
- mg – moving towards the midground
- bg – moving toward the background
- bgoff – moving off-screen from the background

Horizontal movement:
- leftoff – moving off-screen frame left
- left – moving close to the left side of the frame
- leftcenter – moving slightly off-center to the left
- center – moving to the center
- rightcenter – moving slightly off-center to the right
- right – moving close to the right side of the frame
- rightoff – moving off-screen frame right

Vertical movement:
- high – occupying the top third of the frame
- low – occupying the bottom third of the frame

Semantic sentence structure:

[Actor] [(character name)] [action] to the [final placement].

Or

[Actor] [(character name)] stands in the [placement].

*No additional punctuation besides the final sentence period or additional prepositions should be added or altered.

[Actor]	[(character name)]	[action]	[possible qualifiers]	to the	[final placement].		
Florence Lawrence	(Firstname Lastname)	walks [takes multiple steps at an average pace]	backwards; up stairs; down stairs; uphill; downhill		foreground	left off-screen	[no vertical description, assumed center]
	(Mrs. Jones)	steps [takes a single step]	backwards; up stairs; down stairs; uphill; downhill		midground	left	low
		runs [takes multiple steps at a faster pace]	backwards; up stairs; down stairs; uphill; downhill		background	left-center	high

Figure 16: LMA annotation guidelines by Jenny Oyallon-Koloski (2017).

The two additional purposes through which I will examine *Mediathread* are 'interaction-generation' and 'transmission'. These purposes appear to be of the utmost significance for this platform and for annotation practices in general. I maintain that these purposes are the principal aims of *Mediathread* and of most annotation practices. To begin, I understand the purpose of interaction-generation as the possibility provided by an annotation system for a close examination and for deeper reflection. More specifically, through the creation of annotations a researcher can experience an alternative interaction with the research object than possible prior. In addition, this new type of interaction can suggest different viewings of the object and enable new findings. For instance, *Mediathread* allows a researcher – instead of subjecting a film in consecutive views – to interact with it as directly as possible. Additionally, this platform through several means (e.g. tags, descriptions, etc.) provides the possibility to obtain valuable insight into the internal structures of a research object. For example, regarding the Florence Lawrence project for which I annotated six films, although the annotation of each film could take more than twelve hours of manual annotation, this process provided me with an entirely different view of the research material (i.e. the observation of patterns, reflection on the annotation vocabulary, and so forth). Hence, I maintain that succeeding this greatly enhancing experience, the generation of new thoughts, connections, and research can be achieved.

Following the purpose of interaction-generation, the purpose of transmission can be accomplished. I understand the purpose of transmission as the intention to share and communicate newly achieved knowledge. Here, contrary to traditional notation systems, transmission is not about communicating the precise rendition of a choreography. Transmission within the context of annotation practices is about sharing findings and observations (and others) that were obtained through the annotation process. In that sense, *Mediathread* gives way to that as it is a platform that underlines the importance of digital collaboration and enables the creation of online collaborative research projects.

With the above in mind, I hold that *Mediathread* is an annotation practice which is performed through the gesture of writing. In my view, *Mediathread*'s annotating process is highly text-centric as it appears that annotations can only be created through text-based comments. In fact, for the Florence Lawrence project, specific LMA annotation guidelines were developed and applied (*see*, Figure 16). Therefore, it can be observed that the mediation of writing and then, its rules and structures are underlying *Mediathread* annotations. However, I do not wish to give *Mediathread* negative connotations, in fact, *Mediathread* allows a researcher to achieve great affinity with a research object and perform a close reading. Moreover, *Mediathread* is able to offer an alternative view of an object's internal structures by creating tags. It furthermore allows for this knowledge to then be shared digitally. Additionally, text-based annotations can prove to be rather beneficial for filmic textual analysis. Nevertheless, regarding movement annotation, I believe that *Mediathread* is not the ideal tool. This is because, although *Mediathread*'s gesture is about opening up the discussion for a research object and providing alternative interpretations, it is still quite text-based and thus cannot annotate multiple elements of movement.

Reactor for Awareness in Motion (RAM)

The *Yamaguchi Center for Arts and Media (*YCAM) is responsible for creating *Reactor for Awareness in Motion* (RAM), a research project for developing a tool for dance creation and education between Yoko Ando, (dancer from *The Forsythe Company*) and coders. The main elements of the *RAM* project are the *RAM Dance Toolkit*, the *Motioner*, motion capture systems, projectors, and screens.

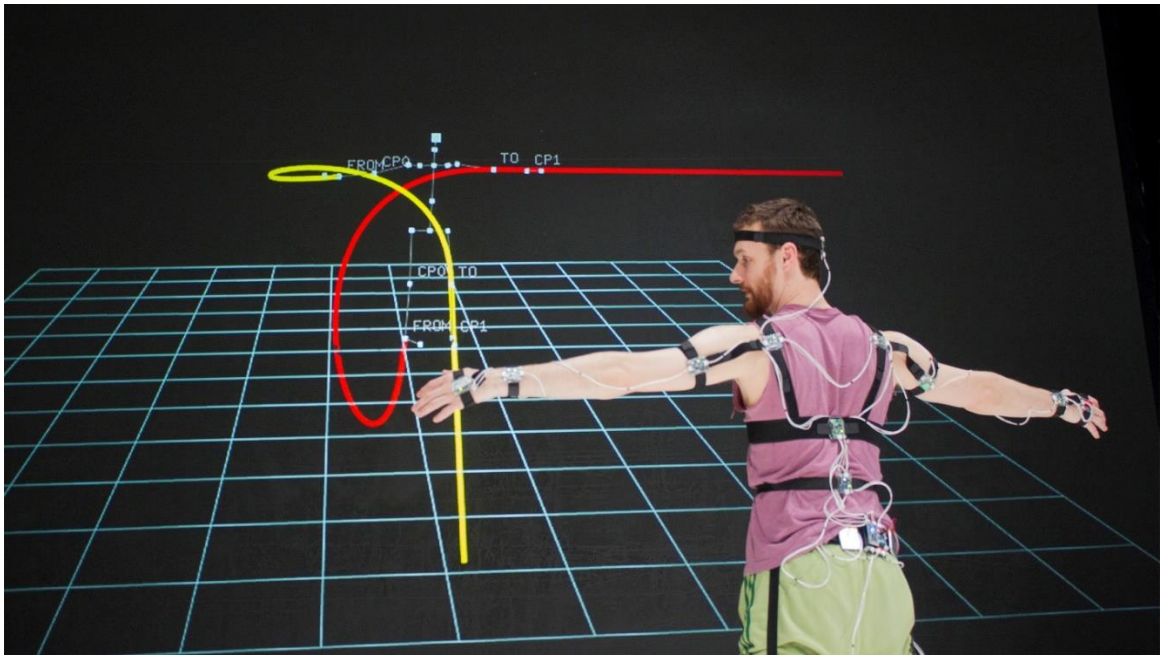


Figure 17: Cyril Baldi interacting with RAM, by Atsushi Tanabe.

The *RAM* Project experiments with motion capture systems, such as Microsoft Kinect, to receive movement data from dancing bodies. More specifically, movement data are collected through optical motion capture systems, such as the Kinect and the *Motioner*. The *Motioner* is the inertial motion capture system developed specifically for *RAM* which is able to receive data from eighteen sensors attached to the dancers' bodies (YCAM n.d.). Then, all received movement data are processed to a computer which first: (a) detects and collects the movement, (b) converts relevant information, and then, (c) visualises it in the context of the dancer's body. The processing of the data is accomplished through the agency of the *RAM Dance Toolkit (see,* Figure 18*)*. The *RAM Dance Toolkit* is a C++ creative coding toolkit which contains a GUI (Graphical user interface) and is able to access, recognise, and process movement data to support the creation of various environmental conditions (called "scenes", *see* Figure 19) (YCAM n.d.). After the collection of the movement data, the *RAM Dance Toolkit* manipulates the data and according to set parameters feeds them back to the dancers in real-time by projecting the new visualisations upon two screens (*see,* Figure 20) (YCAM n.d.).

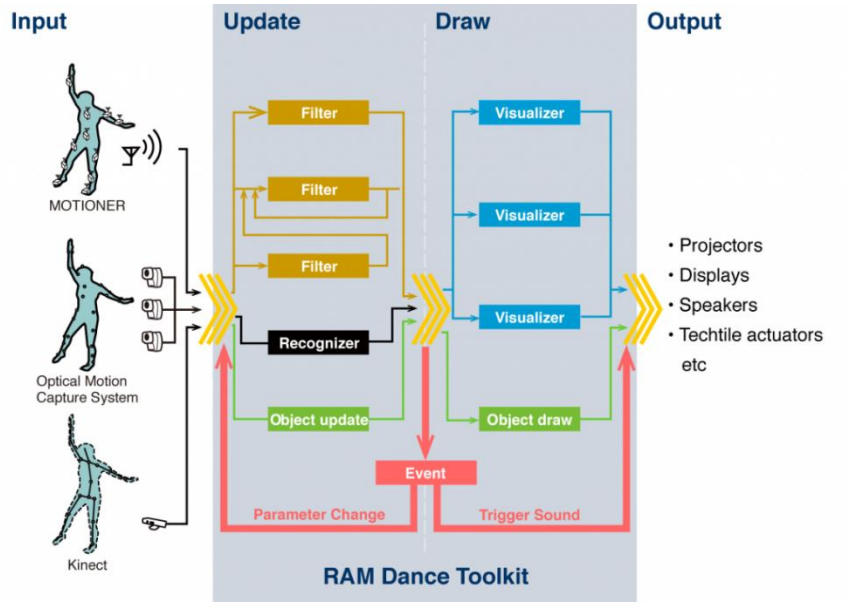


Figure 18: Illustration of how RAM Dance Toolkit functions.

RAM is a research project in which the process of annotation is performed in a different and in a not-as-straightforward way as in *Mediathread* and *Piecemaker*. That is to say, that the practice of annotation is not limited to applying comments on an object, instead, it is more complex and does not have clear boundaries. In addition, annotation is not the eventual purpose of this project but as will be explained, the purpose of utmost importance for *RAM* is interaction-generation (YCAM n.d.).

Regarding the purpose of annotation, *RAM* is processing movement data through *the RAM Dance Toolkit*. The YCAM team calls the *RAM Dance Toolkit* a reactive device between dancers and virtual environments (YCAM n.d.). This can be explained with reference to the real-time mediation that this device provides between the dancers and their movements. That said, the purpose of annotation is achieved in the following way. First, the input of movement data is performed through optical motion capture systems. Then, the *RAM Dance Toolkit* manipulates the data and projects alternative visualisations. Hence, the annotation of movement happens in the process of receiving and manipulating data with *RAM Dance Toolkit*'s mediation. Considering the above, it can be noticed that this annotation practice – contrary to traditional notation systems and similarly to *Mediathread* – does not aim at comprehensive documentation. Although detailed information can be collected through motion capture systems, the *RAM Dance Toolkit* manipulates it and then, projects it in, for instance, Bézier curves without referring back to specific body parts (*see,* Figure 17). Thus, it can be noticed that the annotation process is somewhat concealed to a regular user and/or dancer. However, the annotation process is understandable to the coders of the *RAM Dance Toolkit*. The programmers are able to play with the data and propose alternative visions for them, for instance, they can visualise the movement expanded, compressed or delayed. In addition, these manipulations can be saved as 'scenes' and be projected later on the dancers' bodies (*see,* Figure 19). That way, the dancers can improvise while watching their own pre-recorded dance sequences. Hence, even though the process of annotation is not directly graspable by non-coders, this approach to the manipulation of data paves the way for the purpose of interaction-generation.

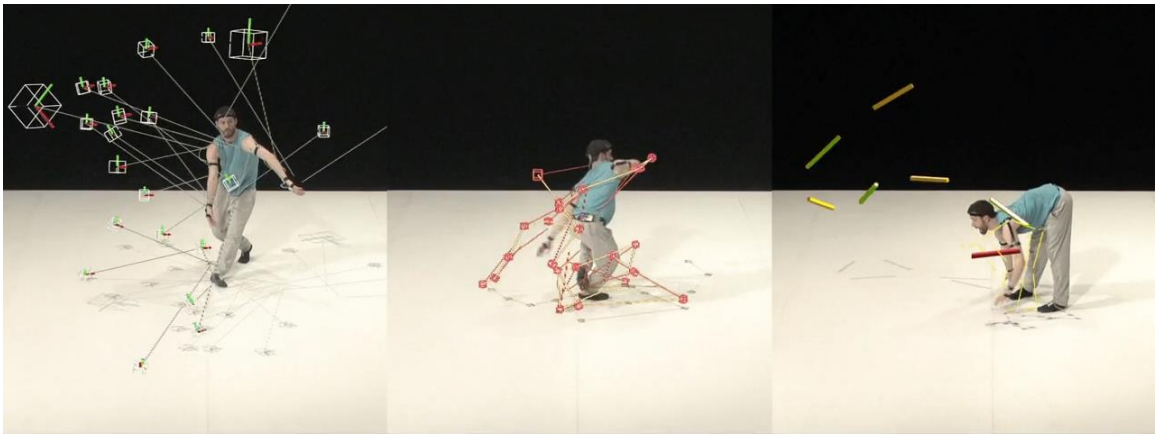


Figure 19: Cyril Baldy in "scenes".

As communicated by YCAM, RAM's most radical achievement is the generation of new movement:

> RAM considers dancers as agents, with evolving imaginations, that seek information from their surrounding environments, rather than simply repeating movements predetermined by a choreographer. The aim of the project is to provide dancers with a tool to activate their perceptions and thoughts; to inspire new ideas in dance. (YCAM n.d.)

More specifically, according to YCAM, the most significant aims of *RAM* is to: (a) increase bodily awareness and offer dancers alternative perceptions for their moving bodies in real-time and (b) to generate new movement vocabulary (n.d.). In particular, *RAM* aims at enhancing the physical cognitive information that dancers hold while moving in space, primarily during their improvisation process. Moreover, *RAM* aims at the creation of inspiring and interactive virtual environments for the generation of new movement vocabulary. These goals are accomplished through the annotation, abstraction, and then, visualisation of movement. More specifically, the purpose of real-time interaction is achieved through the projections *RAM* provides to dancers in real-time. As explained before, the *RAM Dance Toolkit* can save, reproduce, and manipulate movement data received by the *Motioners* and several motion capture systems. Following this, the alternative data are projected on screens with which the dancer can interact while improvising. In other words, their real-time interaction is achieved through a simultaneous dance improvisation and observation of virtual environments (*see,* Figure 20). Thus, as YCAM claims, "by the time their mind thinks of doing something, their bodies are already reacting" (YCAM n.d.). Thus, real-time interaction with *RAM* and its visualisations allows dancers to incorporate real-time feedback, and to enhance their improvisation processes not only while dancing with *RAM* but also while improvising without it.

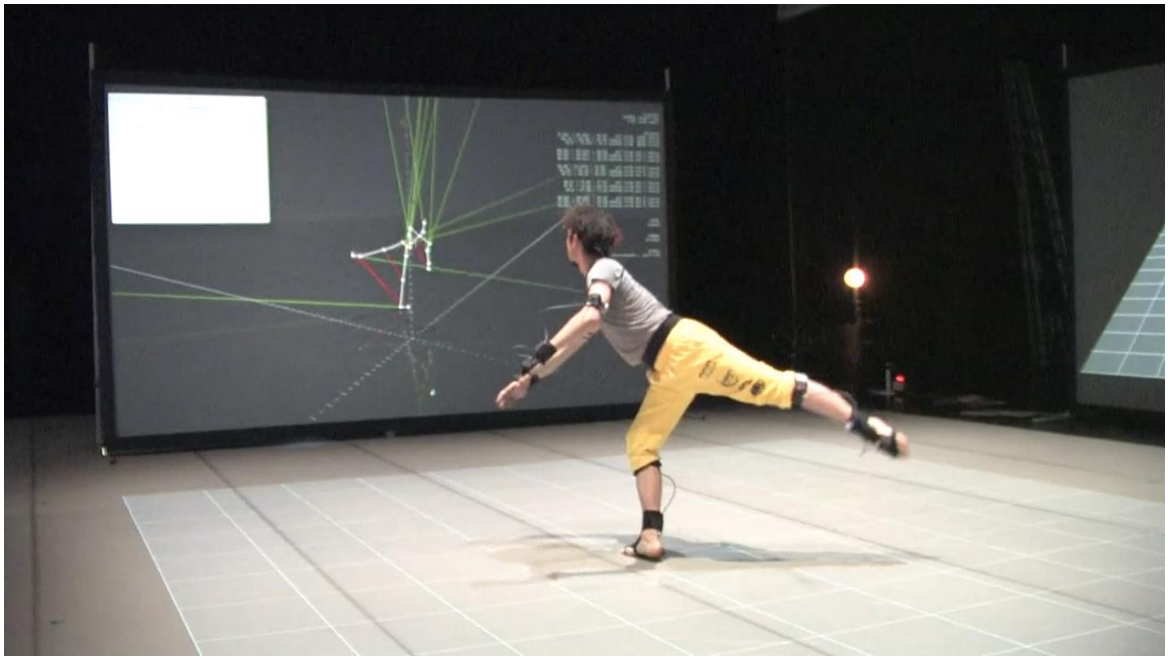


Figure 20: Cyril Baldi interacting with visualisations.

Provided this, *RAM's* subsequent aim of movement generation is achieved through precisely this real-time interaction. As explained above, the *RAM Dance Toolkit* takes all of the actions from the dancers, internalises them, and then, feeds them back to the dancers, so that they incorporate the feedback into their process of improvisation. That way, the dancers gain an augmented awareness of their movement through the live interaction with the software and the visuals. In this way, new movement vocabulary can be generated. For instance, the *RAM* visualisations provide the dancers with a 'bird's eye view' (YCAM n.d.). That is to say, that the movement visualisations and projections offer the dancers simultaneous realisation of not only how they move in space but also how their partners are. Additionally, the dancers can observe how space is shared and the movement patterns they create. That way, the dancers gain an augmented awareness of their spatial movement and can continue moving while acknowledging the lines they draw in space. Thus, contrary to traditional notation systems, *RAM* aims neither at precise reconstruction nor at post-production alteration of movement. Instead, *RAM* aims at creating an environment for real-time self-reflection with the intention of generating new movement. In short, with *RAM*, dancers can visually observe their ideas and obtain real-time feedback regarding their movement from the environment. As YCAM claims, *RAM* enables the dancers to experiment more with their perception and movement (YCAM n.d.) While the dancers gain an advanced perception of movement, new ideas can be triggered and new movement vocabulary can be generated.

With the above in mind, I maintain that *RAM* is a great example of an annotation practice which provides close study, deeper reflection, and increased awareness of movement. As already mentioned, one of the most significant contributions of *RAM* is the real-time interaction. By introducing real-time interaction with movement, *RAM* not only provides deep insight into the process of improvisation but also enables the generation of new movement material. Finally, it should be mentioned that although *RAM*'s annotating process is different from Mediathread's,

similarly to it, *RAM* opens up the discussion around a research object and provides alternative interpretations about it.

Piecemaker & MoSys

The version of *Piecemaker* discussed in this thesis is the latest soon-to-be-released version of *Piecemaker* (PM3) & *MoSys* developed by Motion Bank.[24] It should be mentioned that my description will be heavily based on Scott deLahunta's "Motion Bank: A broad context for choreographic research" (2016), the discussion between him and Anton Koch (deLahunta and Koch 2017), Florian Jenett's video (Motion Bank 2018), the *Brainstorm Session Meeting* ("Brainstorm Session Expert Meeting Organized by Maaike Bleeker" 2018) and recollections of personal conversations with Scott deLahunta and Anton Koch. This is first because the platform is not yet released and, although deLahunta and Koch were generous enough to give me insight, I do not have actual experience with the annotation process of *PM3* (I have worked only with PM2GO). Second, as *PM3* is currently being released there are very few publications about it. Nevertheless, I chose to examine this annotation platform as it represents the state-of-the-art of annotation tools developed specifically for dance.[25]

Motion Bank started as a four-year research project (2010-2013) of *The Forsythe Company* providing broad context for research into choreographic practice (deLahunta 2016, 131). The first version of *Piecemaker* (*PM1*) was initiated as a research project by The Forsythe Company member David Kern to support the organisation and recall of materials created by Forsythe and his performers in the rehearsal studio (deLahunta 2016, 133). During Motion Bank phase one, *PM1* was reprogrammed as *PM2* for use in the development of the online digital scores and as a standalone tool for use in the studio (*PM2GO*) (deLahunta 2016). The other software created by Motion Bank is *MoSys*, a publishing system developed for the publication of the online scores that looks like a mind map (deLahunta 2016, 134). "*MoSys* consists of a private editor to browse collections of recorded, analyzed, and annotated material and arrange it into 'views' as sets and a frontend to view them. Each set comprises a grid-like system of cells that can interact with each other using a unique messaging system" (deLahunta 2016, 134). Since the end of Motion Bank in 2013, the Motion Bank team (now hosted at Mainz University of Applied Sciences) is working with a small team of coding artists developing these systems (deLahunta and Koch 2017). The soon-to-be-released version is *Piecemaker* (PM3) will include a redesigned version of *MoSys*.

Originally, originally, *Piecemaker* and *MoSys* were two separate systems, but they are now integrated together in the Motion Bank Annotation Platform. The act of annotating takes place in the *Piecemaker* environment and then, these annotations along with additional web-based multimedia are placed in the *MoSys* grid-environment in order to enable alternative presentations and visual experiences of the material by expressing relations through visual proximity. *Piecemaker*

[24] *See,* (Motion Bank n.d.)
[25] Other advanced annotation tools are *ELAN* and *Mediasuite* but they are geared towards different types of analysis. *See,* (Max Planck Institute for Psycholinguistics n.d.) *and* (The Netherlands Institute for Sound and Vision n.d.).

supports time-based annotations, verbal descriptions, live and post annotation, recording of videos, and collaborative projects. One of the great contributions of the transition from PM2 to PM3 was the change of the employed data model which is now compatible with Semantic Web standards (defined by the W3C consortium (*see*, "Web Annotation Data Model" n.d.)). More specifically, as Koch explains, the currently employed model is a simple layer on top of an RDF model data (model for describing digital or physical resources). And then, the Web-based Annotation Data Model connects resources using distinct vocabularies, also called 'ontologies' ("Web Annotation Vocabulary" n.d.).[26] This change of data model is significant because the Web Annotation Data Model provides an extensible, interoperable framework for expressing annotations ("Web Annotation Data Model" n.d.). As Koch explains,

> [i]n this way, both a machine and a human can traverse said graph and try to make sense of it by inferring additional connections and relations. Finally, in order to map resources to ontologies, their description must be standardized to some extent in order to be processed and eventually put into perspective. (deLahunta and Koch 2017)

In terms of sustainability (a crucial issue for digital projects and objects[27]), that means that the metadata created through this application can be exported, and then, fed to other annotation systems (A. Koch 2018).

[26] "It [Linked Data] lays out the world as a graph of individually addressable resources, while not making assumptions on the nature and implications of the resources, nor the form of their connection, but merely stating that there is a reference and connection using shared and domain-specific Ontologies bringing together subjects, predicates and objects to describe semantics (deLahunta and Koch 2017)." For further explanation, see (deLahunta and Koch 2017) *and* ("Web Annotation Data Model" n.d.).

[27] *See,* (Forsythe, Zuniga-Shaw, and Palazzi n.d.) which was built in flash with a lot of JavaScript and now that these languages are no longer supported the project faces issues of sustainability as a lot of Objects either do not work or cannot be fixed ("Brainstorm Session Expert Meeting Organized by Maaike Bleeker" 2018).

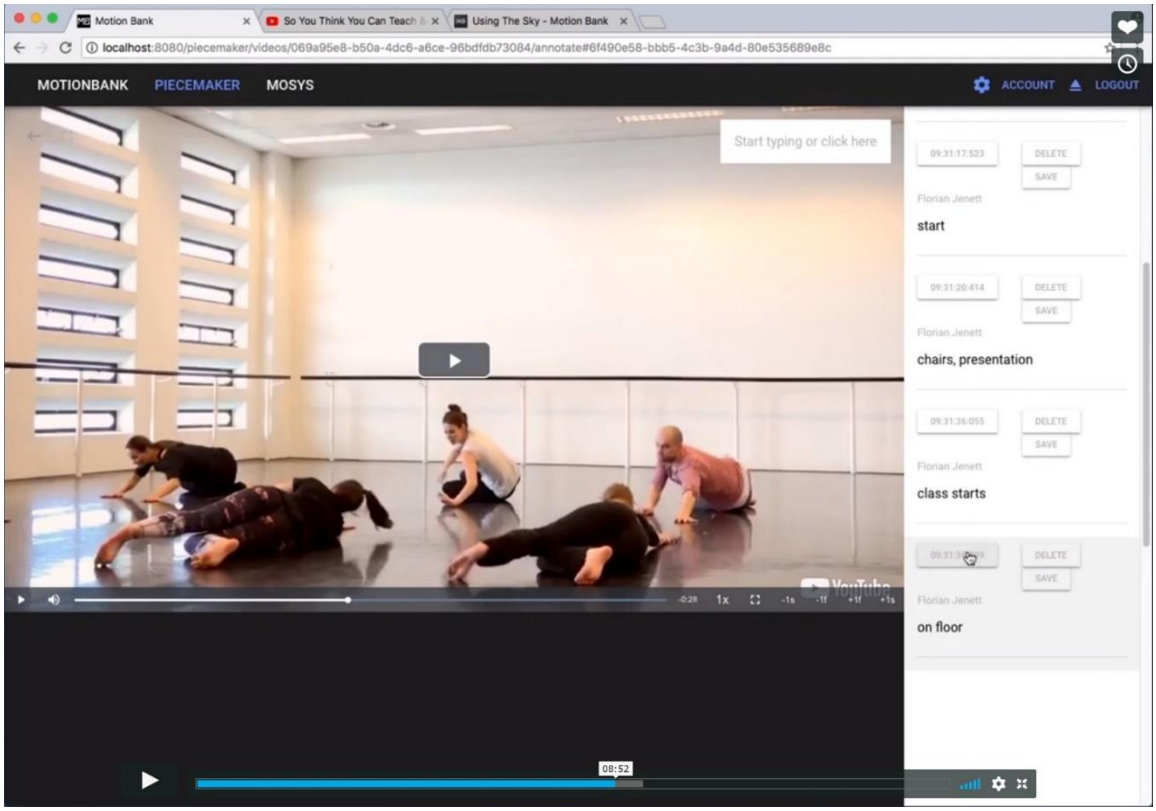


Figure 21: Piecemaker Annotation Environment

Regarding *Piecemaker* (the online application and not the complete platform), the purpose of annotation is performed through text-based annotations (*see,* Figure 21) with the possibility of also inserting a URL (Uniform Resource Locator) as annotations external to the platform. Currently, the purpose of annotation in *Piecemaker* can happen in two ways, by live and post annotation. More specifically,

> [w]ith live annotation, a video can be recorded in the studio and at the same time annotations can be written to a web document… Live annotation is characterized by the writer not looking at a video, but writing while he or she observes the events in space. Only after recording are annotations and videos displayed side by side and the annotations can then be edited or supplemented. When annotations are added later, we speak of post annotation. In Piecemaker both modes are supported: you can either start a live annotation session or create new post annotations in relation to previously recorded material. Piecemaker not only allows the integration of self recorded videos from the dance studio, but also from hosting platforms such as Vimeo or YouTube, which can then also be annotated (Jenett 2018).

Therefore, although the purpose of annotation in live and post-annotation is achieved through the same process (time-based verbal annotations), live and post-annotation intend to extrapolate different information and help with different practices. On one hand, live annotation is rendered towards 'studio-time' and is developed for recording information which would have been already forgotten by the time of post-annotation. For instance, live annotation can be used to annotate information ranging from the present members in the studio to the temperature of the studio, off camera events, and so forth. Additionally, live annotation is used to annotate ideas and thoughts at the time they are happening while attending a rehearsal or a class. On the other hand, post-

annotation is the more 'traditional' annotating process, in which a researcher holds an analytic stance and comments upon pre-recorded material. Therefore, the purpose of annotation in *Piecemaker* (as also in *Mediathread*) is achieved by creating text-based annotations. Consequently, (with the exception of the URL which be explored in *MoSys*) the purpose of annotation in *Piecemaker* is accomplished by coding information through the medium and gesture of writing.

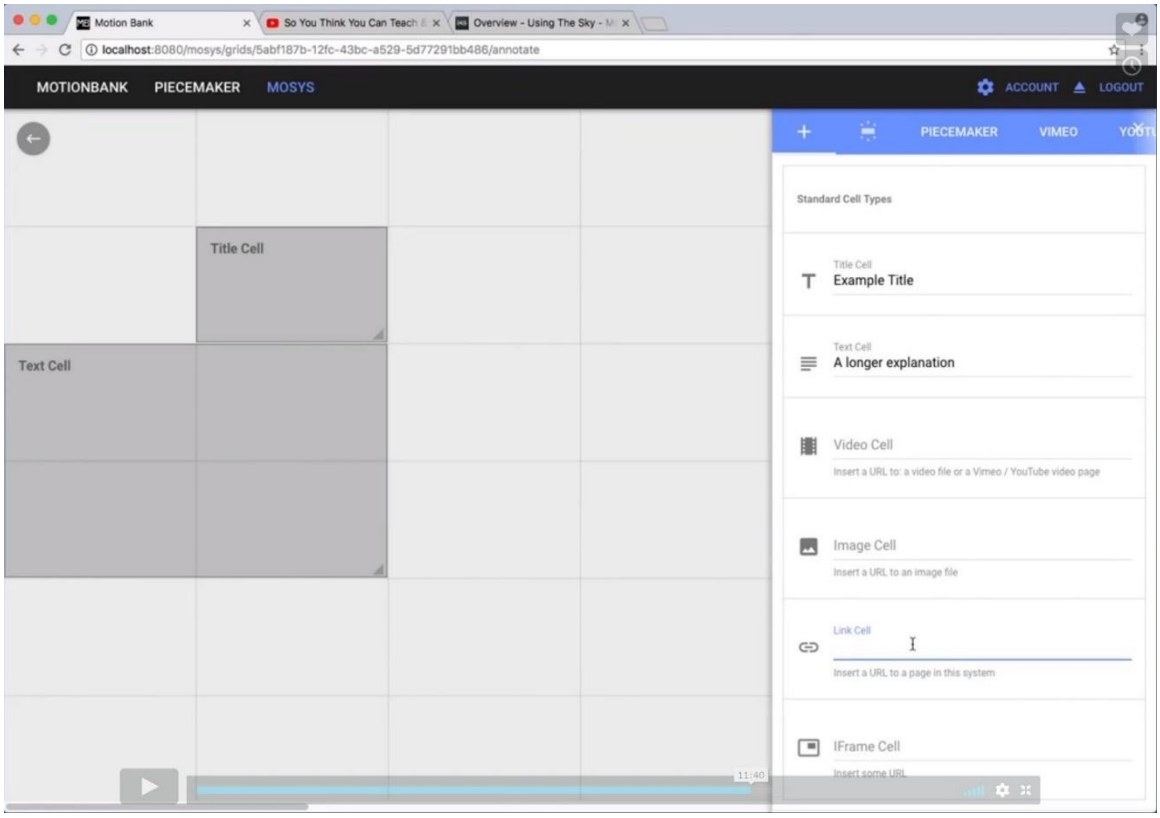


Figure 22: MoSys Grid

As with Mediathread, the two additional purposes which are of the utmost significance for the Piecemaker platform are 'interaction-generation' and 'transmission'. The purpose of interaction-generation is mainly achieved through the second application of Piecemaker, *MoSys*. *MoSys* is the publishing system which hosts an underlying grid system that can be filled with material (*see,* Figure 22). More specifically,

> MoSys makes it possible to arrange material from Piecemaker in the browser, i.e. videos with the associated annotations. MoSys offers a flexible grid with any number of so-called "cells". The cells can also show other videos from the web, images, texts or web content. This makes it easy to create small web pages with the corresponding content. As in Piecemaker, the MoSys website allows you to view annotations and video side by side and to go to the corresponding moment in the video by selecting an annotation. (Jenett 2018)

In other words, with *MoSys* you can create cells which can be filled with material such as Piecemaker annotations, videos, images, links to other grids, etc. In that way, *MoSys* enables the creation of a net of information which provides the possibility for a plethora of diverse visual experiences of the annotated material. For instance, in *MoSys* it is possible to synchronise and watch various videos simultaneously, further comment on existing annotations, create groups of

material, and so forth. In addition, it should be noted that in *MoSys*' environment all these materials can be placed according to their conceptual proximity as expressed through a spatial proximity. In other words, *MoSys* can be understood as a digital mood board. That is to say, with *MoSys* it is possible to place the material (annotations, videos, texts, etc.) according to how closely you think they are related with each other. To briefly summarise, with *MoSys* it is possible to place various material in a grid system, which through its spatial organisation and presentation, provides the possibility for alternative views of dance annotation-related material.

Considering the above, the purpose of interaction-generation in *Piecemaker* (the platform) is achieved in a unique way. First, similarly to *Mediathread*, I understand the purpose of interaction-generation in Piecemaker as the possibility provided by an annotation tool for the close examination of a research object. More specifically, through the process of annotation a researcher/choreographer/dancer has the possibility to interact with their study object in a different way. Through this interaction, valuable insight can be obtained and new thoughts and connections regarding the research object can be generated. However, in my view, *Piecemaker's* most unique and groundbreaking contribution is provided through *MoSys*. As mentioned above, *MoSys*' mood board environment suggests alternative presentations of the annotated material and enables a different type of interaction with it (*see,* Figure 23). What makes the *MoSys* presentation system so distinct is that it allows more than just a text-centric examination. In fact, through MoSys it is possible to annotate dance with images, sounds, links, videos, additional dance videos, other grids, and so forth.

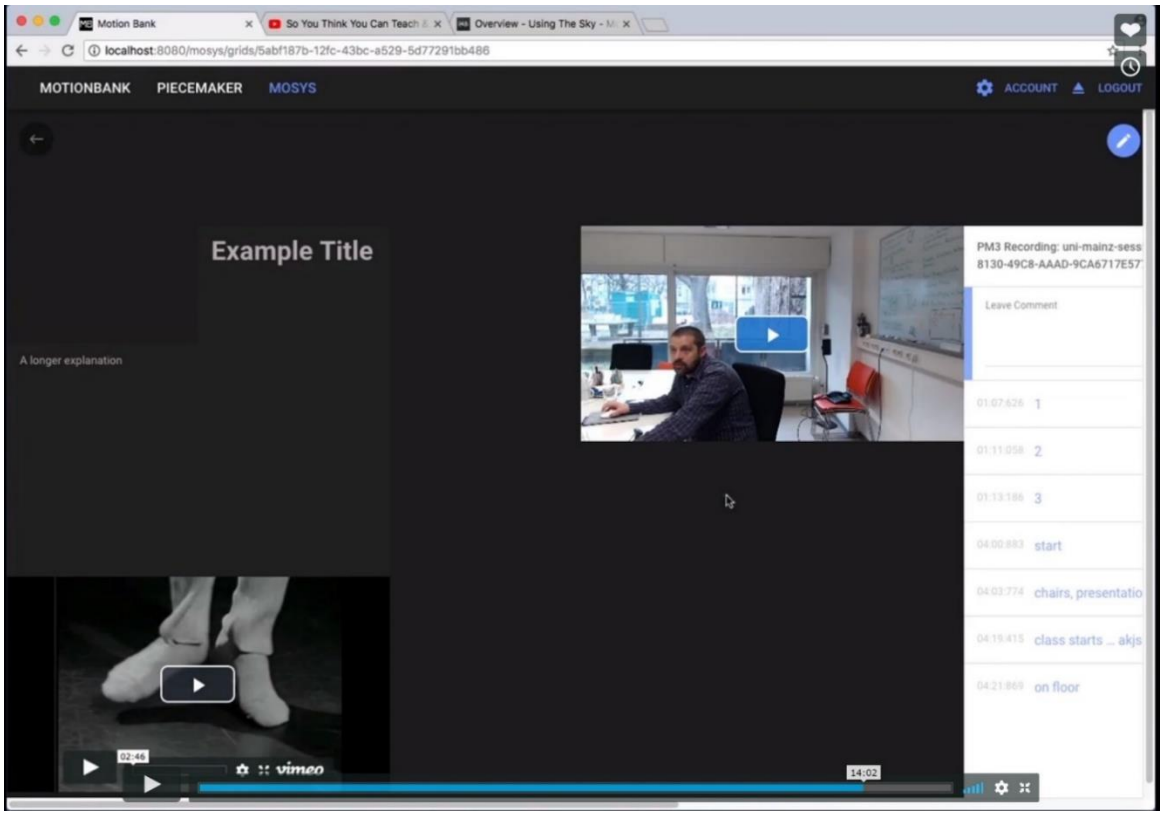


Figure 23: MoSys Presentation Environment

Following the purpose of interaction-generation, the purpose of transmission can be accomplished. As explained with the analysis of *Mediathread*, I understand the purpose of transmission as the intention to share and communicate knowledge and observations which were obtained through the annotation process. Piecemaker succeeds in that as it is a platform which promotes digital collaboration, enables the dissemination of dance knowledge, and opens up artistic practices. More specifically, on the contrary to traditional notation systems, Piecemaker does not intend on transmitting the precise version of a choreography. Instead, for *Piecemaker* and Motion Bank, transmission is about sharing and giving access to choreographic knowledge. In fact, I maintain that transmission is one of the principal purposes put forth by the Motion Bank team, which is dedicated to making dance and/or embodied knowledge accessible (personal communication and (A. Koch 2018).[28] As deLahunta explains, Motion Bank aims to "make explicit some of these relationships that might not be so easy to see otherwise. There's a big emphasis in making things visible that are not necessarily visible" (deLahunta in "Brainstorm Session Expert Meeting Organized by Maaike Bleeker" 2018). Additionally, among Motion Bank's goals is not only the free distribution of dance knowledge but also the free distribution of the systems through which the knowledge was achieved (deLahunta in "Brainstorm Session Expert Meeting Organized by Maaike Bleeker" 2018). As deLahunta claims,

> At Motion Bank we are trying to establish that the research into the development of software systems for working with dance data is on an equal level with the research we do into embodied creative practice in dance. Motion Bank cannot do one without the other; they are on the same plane and absolutely integrated. (deLahunta and Koch 2017)

Considering the above, it appears that *Piecemaker*'s practice of annotation is performed through two gestures: the gesture of writing and the gesture of annotating. On the one hand, I maintain that *Piecemaker* (the tool) annotates information through the gesture of writing. In my view, *Piecemaker*'s annotating process is text-centric as it appears that live and post annotations are principally created through text-based comments (*see*, Figure 21). On the other hand, I believe that *MoSys* annotates information through the gesture of annotating (which will be explored in particular in the following section). From my perspective, *MoSys* represents a great example of an annotation practice which provides close study, alternative viewings, and increased awareness in choreographic knowledge. As explained, *MoSys* provides a unique way of interacting with the material as it allows to annotate with various means such as links, videos, additional grids, etc. Therefore, *Piecemaker* (the platform) similarly to *Mediathread* and *RAM* aims at opening up the discussion around a research object. In particular, *Piecemaker* aims at making choreographic practices accessible and at providing researchers with the tools for that.

[28] "The knowledge that emerges out of a practice of contemporary dance which includes systems of training, histories of making, innovation within the contemporary art frame" (deLahunta in "Brainstorm Session Expert Meeting Organized by Maaike Bleeker" 2018).

The Gesture of Annotating

Following the analysis of the annotation case studies, this section discusses the 'gesture of annotating'. Contrary to the gesture of notating, the gesture of annotating is not such a clearly defined concept. The gesture of annotating is not a straightforward process applied during the practice of annotation. Therefore, I decided to first examine the annotation case studies and then discuss the gesture of annotating. This is because to reach a definition for the gesture of annotating I needed to first be able to discuss its principal characteristics. As acknowledged in "On Systems and Practices," the field of dance annotation does not consist of universal methods and means. In fact, as was shown with *Mediathread*, *RAM*, and *Piecemaker*, dance annotation can be practised through a vast range of tools and platforms. Nevertheless, I believe that annotation practices have a common ground; their gesture towards research material. More specifically, as explored in the previous section, annotation practices have certain shared purposes (annotation, interaction-generation, transmission). For each of the examined annotation practices, these common purposes were achieved in several ways, with different methods, having various goals, but with having the same eventual intention. To put it another way, although annotation practices are performed through various means, they all hold a certain stance and approach towards research material. In my view, this common approach towards research material that underlies annotation practices represents the gesture of annotating.

In aiming to investigate the common ground of annotation practices, I will follow two paths. First, I will examine how other theorists refer to the process of annotation and how they describe what this process brings forward. Then, through this examination and in conjunction with the purposes of annotation practices, the underlying notions of the gesture of annotating will be made apparent.

As explained previously, although there is a plethora of annotation experiments, the field of dance annotation significantly lacks theorisation. Therefore, I wish to start discussing the gesture of annotating by addressing the most insightful descriptions of annotation that reveal its key characteristics.

Clarisse Bardiot:

> Annotation makes it possible to **comment** and **refine the information** gathered from different documents… (2015, 84)

Scott deLahunta and Florian Jenett:

> Artists and their collaborators embraced digital media as the most effective means of doing this work, to render the "complex spatial-corporeal-temporal relationships involved in dance … **visible, accessible and comprehensible** to a reader" (2016, 64–65)
>
> [The practice of annotation] **as a way of thinking that builds relations** with and extends upon a background of 'domain expertise', whether that is artistic, scientific or scholarly, in time-based phenomena such as dance. (2016, 76–77)

Hetty Blades:

> [Synchronous Objects] was not generated as record or a recipe; it was **developed to enhance our understanding of the work,** and to examine the complexities of choreographic structure. (2013, 53)

> Synchronous Objects, aims to **'unlock' the structures of the work**, to help users **recognize the systems** of organization and **disambiguate the dance**. (2015, 27).
>
> In all three cases the explicit intention of the annotations is to **reduce complexity** by **making choreographic structures perceptible** to the observer. (2015, 31)
>
> The notion of annotation implies a **practice of highlighting key points** and drawing **certain aspects into focus**. (2015, 30)

In my view, the above descriptions reveal the multiplicity and the range that the concept of dance annotation contains. In fact, they demonstrate that annotation is a practice which is very much concerned with providing different views and experiences around a research object/material. First, Bardiot contributes to the discussion by pinning down the main function of annotation, that is, an act of examining and commenting on information. Then, Blades, deLahunta, and Jenett indicate that dance annotation is performed with the intention to make visible, understandable, and accessible, the otherwise unattainable.[29] Additionally, the action of annotating provides a different way of thinking about an object which can enable connections and relations with other disciplines. In other words, by approaching a research object with the gesture of annotating, you can analyse it, highlight specific aspects of it and then, enhance and contribute to the knowledge that surrounds it.

An equally effective way to observe the process of annotating and the stance it holds towards research material is by looking at its purposes; specifically, the purposes of interaction-generation and transmission. As already argued, interaction-generation and transmission are the most impactful purposes of annotation practices. This can be explained with reference to the case studies, to start. Through the analysis of *Mediathread* it was shown that the process of annotating makes it possible to closely examine and reflect on research material. Then, by providing this alternative interaction with the material it enables the gain of valuable insight. Finally, *Mediathread* through a digital collaborative environment highlights its intention to share findings, enhance the knowledge surrounding the material, and enable future research. Additionally, through the analysis of *RAM* it was demonstrated that the process of annotating increases awareness and generates new movement vocabulary. Moreover, it provides the space for deeper reflection and alternative interpretation of movement. Finally, *RAM* through visualisations and real-time interaction administers tools for deep insight into improvisation practices. In a like manner, through the analysis of *Piecemaker*, it was presented that the process of annotating provides valuable insight into choreographic structures and generates further research material. In addition, *Piecemaker* – through its digital collaboration and presentation environment – highlights its intention for transmission of knowledge. More specifically, it intends on disseminating embodied knowledge and making dance practices understandable and accessible.

With the above in mind, it is clear that the gesture of annotating is a gesture transpired by the notions of accessibility, enhancement, communication, dissemination, and transmission. Therefore, I conclude by defining the gesture of annotating as the process of commenting upon

[29] This can have a vast range, from movements, to choreographic structures, to improvisation techniques, and so forth.

(movement) material with the intention to 'open it up'. In other words, the gesture of annotating (a) makes visible and accessible certain aspects of an object with the intention to enrich and create a new and alternative body of knowledge; and (b) aims at communicating and transmitting the newly achieved knowledge.

Summary

This second part has set a ground for further research and theorisation on annotation practices. It first unwound the convolution between the terms 'notation', 'score', and 'annotation'. In doing so, it also explained how the employment of the terms 'systems' and 'practices' can be rather beneficial when comparing notation and annotation. The following section of Part Two, then, presented the annotation case studies (*Mediathread, RAM, Piecemaker*) and examined them by addressing three purposes, namely, 'annotation', 'transmission', and 'interaction-generation'. By doing so, it explored their common processes and detected their key characteristics and notions. Following this examination, the gesture of annotating was defined as: the process of commenting upon (movement) material with the intention to 'open it up' which (a) makes visible and accessible certain aspects of an object with the intention to enrich and create a new and alternative body of knowledge; and (b) aims at communicating and transmitting the newly achieved knowledge.

Conclusion(s)

A Comparison of Gestures

This section draws a comparison between the gestures of notating and annotating. Firstly, their comparison will be performed according to their respective purposes and their underlying notions, processes, and functions. That is to say, (a) the purposes of documentation, transmission, reconstruction and the underlying notions of documentation, alignment, arrangement, step-by-step decoding, and linear awareness of time for the gesture of notating; (b) the purposes of annotation, interaction-generation, transmission and the notions of accessibility, enhancement, communication, dissemination, and transmission, for the gesture of annotating. Secondly, the comparison will be drawn by contemplating on the experiences these gestures provide.

To begin with, the first purposes I would like to address are those of documentation and annotation. I maintain that these purposes are the most indicative of the similarities and differences between the gestures of notating and annotating. This is because one of the most significant aspects of notation systems and annotation practices is how they treat information and research material. As explained, a notation system is principally concerned with recording and documenting information. In fact, one of its primary concerns is to document at the highest possible level of granularity an ephemeral event in the form of a physical examinable object. Hence, regarding the gesture of notating, the purpose of documentation is achieved by creating a precise representation and/or visualisation of information. Moreover, the process of coding information for the purpose of documentation is principally mediated by the medium of writing which, as explained, records movement intermittently and linearly. On the other hand, annotation practices are concerned with applying commentary to something that already exists. Moreover, annotation practices cannot only be composed through a vast range of practices but can also be performed through a wide range of bodies such as images, multimedia, and even other forms of dance. Therefore, contrary to the gesture of notating, the gesture of annotating is not limited to the medium of writing but can be performed through the mediation of diverse media. Additionally, the gesture of annotating in contrast to the gesture of notating does not aim at documenting information comprehensively but at commenting on preexisting material and highlighting specific aspects of it.

The two additional sets of purposes according to which the gestures of notating and annotating can be compared are the purposes of transmission and reconstruction (notating) and transmission and interaction-generation (annotating). As explained previously, the purpose of transmission (regarding the gesture of notating) can be pursued when movement material has been successfully documented. More specifically, through the documentation of movement, an object which represents specific movement material is created and can be communicated and transmitted to others. On top of this, it should be noted that the purpose of transmission is pursued with the intention to preserve and communicate the documented movement material at the highest possible level of granularity and authenticity (as true to the original as possible). In the wake of successful

accomplishment of documentation and transmission, the purpose of reconstruction can be pursued. That is to say, documented material that is successfully transmitted to others can be then used for the reconstruction of it. Note that as demonstrated with the traditional dance notation case studies, similarly to transmission, the purpose of reconstruction is pursued with the intention to reconstruct as precisely as possible. On the other hand, in regard to the gesture of annotating, the purpose of interaction-generation precedes the purpose of transmission. To put it another way, the gesture of annotating is not concerned with the precise transmission and then reconstruction of movement material. On the contrary, the gesture of annotating is principally concerned with providing alternative ways of interaction with movement material and generating new movement vocabulary. In other words, the gesture of annotating is about exploring research material and highlighting specific aspects of it such as patterns and/or structures. Provided that the purpose of interaction-generation is accomplished, then, one that follows the gesture of annotating can pursue the purpose of transmission as described previously. To reiterate, the purpose of transmission regarding the gesture of annotating means the intention to share and communicate newly achieved knowledge obtained through the process of annotation. Therefore, two major differences seem to emerge. On the one hand, for the gesture of notating transmission means the precise conveyance of material. On the other hand, for the gesture of annotating it means the transmission of knowledge surrounding the material and not the material itself. Moreover, while the gesture of notating aims at precise reconstruction of movement material, the gesture of annotating aims at providing different and/or enhanced views of it.

To further expand the comparison between the gestures of notating and annotating, I wish to contemplate on the diverse experiences these gestures provide. To begin, the gesture of notating provides a fragmented and disjointed experience (*see*, "Discussion"). More specifically, there is a split between the 'one who moves' and the 'ones who write'. In other words, dancers and potential notators or reconstructors obtain a rather different experience of the movement material. On the one hand, the 'one who moves' has a physical and all-encompassing encounter with the movement. On the other hand, the 'ones who write' and the reconstructors obtain a fragmented idea of the dance (*see*, "Discussion"). Contrary to this, in my view, the gesture of annotating suggests alternative views towards research material and provides a more all-encompassing and direct experience with it.[30] For instance, as described previously, the *RAM* project is concerned with providing increased bodily awareness in real-time. As demonstrated, the dancers are not interacting with text-based representations but rather with visual representations of movement or alternative interpretations of it. In other words, the movement material is not translated in another language. Therefore, the dancers interact with movement and not its written translation or symbolic visualisation. [31] Moreover, the real-time interaction that *RAM* administers provides an

[30] *For further reading on the 'direct' experience see,* Brian Rotman's "Corporeal or Gesturo-haptic Writing." Rotman has elaborated on this 'direct' experience: "the phonogram and tape recorder do not notate sound in the form of symbols, but write it – capture it – as a direct signal to an apparatus able to reproduce … the captured sounds" (2002, 427).

[31] I would like to clarify that more direct does not imply unmediated. Dancers interact with movement through the mediation of the *RAM Dance Toolkit*. However, *RAM*'s environment in the end gives the opportunity to interact with visualisations of movement and not symbolic visualisations of movement.

instantaneous interaction with movement without having to decipher dance alphabets or markings. Similarly to *RAM*, *MoSys* is also enabling a direct experience with movement. As discussed, with *MoSys'* environment it is possible to watch several dance videos simultaneously and along with the created comments (annotations). Moreover, the created annotations are not solely text-based but as mentioned, they can vary from links to other dance material. With the above in mind, I maintain that the gesture of annotating allows a more direct (but mediated[31]) interaction with movement material and not with its symbolic translation or else written representation.

Lastly, I wish to address the different temporal experiences the gestures of notating and annotating provide. As indicated in "Discussion," I maintain that the temporal experience provided by the gesture of notating depends on its technological condition; the medium of writing. To reiterate, the gesture of notating encourages the understanding of the temporality of (traditionally notated) movement in a linear fashion because of the employment of the medium of writing. Similar to the gesture of notating, the temporal experience that the gesture of annotating provides depends on its technological conditions. However, the technological condition of contemporary annotation practices is the employment of digital media which in my view, provide an alternative temporal experience. That is to say, the annotating gesture is not limited to the medium of writing, instead it employs several digital means to interact with and manipulate movement. The digital technological conditions of the gesture of annotating moreover pave the way for a non-hierarchical experience with movement. For instance, *RAM* and *MoSys* are not limited to text-based annotations but rather employ images, links, and so forth. More specifically, *RAM* provides the possibility for real-time interaction and does not impose a specific path through which the movement should be perceived. Similarly, *MoSys* through the creation of a digital mood board allows to comment on movement with non text-centric ways and to reflect on dance material according to their spatial proximity. Therefore, in my view, among the main differences between the gestures of notating and annotating is the less-structured or non-stratified order through which movement should be perceived or read. In other words, those differences have to do primarily with the non-hierarchical[32] possibilities that digital annotation practices provide.

Conclusion

This thesis has demonstrated how the technological conditions of the representation of movement affect movement interpretation processes and the understanding of the temporality of movement. It has principally aimed at contributing to the dance notation/annotation field of research by suggesting a theory which puts the focus on the technological means through which the notation/annotation of movement is achieved. In doing so, it has illustrated the diverse structures and intentions of notation and annotation processes and has provided the ground for an examination of different gestures and their modes of thinking.

By working with Flusser's theory of gestures, this thesis was able to achieve several findings. For instance, this thesis managed to define (as much as possible) the processes of notating and

[32] *See,* 6.

annotating. Regarding traditional dance notation systems, this thesis reached the conclusion that the technology which predominantly mediates for their documentation of movement is the medium of writing. It demonstrated how conventional dance notation systems have been under the hegemony of an alphabetic tradition of movement knowledge and evidenced how these systems notate movement in an intermittent and linear way. Following this, by looking at notation systems through the gesture of notating it was possible to detect their principal purposes, processes, and intentions. Similarly, by looking at annotation practices through the concept of the gesture of annotating, it was possible to detect their common processes and key characteristics. Through this examination, the gesture of annotating was defined as the process of commenting upon (movement) material with the intention to 'open them up'.

More importantly, by employing Flusser's theory of gestures, this thesis was able to provide a comparison between dance notation systems and annotation practices. This analysis concluded that (a) when compared to the gesture of notating which is performed through the medium of writing, the gesture of annotating can be performed through diverse media; (b) the gesture of notating aims at precise documentation, transmission, and reconstruction of movement material, while the gesture of annotating aims at commenting on preexisting material and highlighting specific aspects of it; (c) for the gesture of notating, transmission refers to the precise conveyance of material, while for the gesture of annotating it refers to the transmission of knowledge surrounding the material and not the material itself; (d) while the gesture of notating aims at precise reconstruction of movement material, the gesture of annotating aims at providing different and/or enhanced views of it; (e) the gesture of notating provides a fragmented disjointed experience with movement material, while the gesture of annotating provides a more direct experience with it.

To conclude, by looking at the gestures of notation systems and annotation practices it is possible to focus on and compare their underlying notions and purposes. Following this examination, I believe that it is made clear that although they are highly related, they serve different scopes. In other words, notation systems and annotation practices serve different purposes and bear diverse possibilities and limitations. For instance, notation systems are of high significance for the documentation and preservation of movement material. Moreover, they aim at precise and comprehensive documentation of this material. However, their principal means of documentation are written signs which (as explained) encourage a linear understanding of traditionally notated movement. Additionally, they are quite 'closed' systems as they require years of study in order to code and decode movement information in their vocabularies. On the other hand, annotation practices are of high importance for future engagement with movement material. That is to say, they enable different approaches and suggest alternative ways to treat movement material which are not hegemonised by the presence of alphabetic signs and structures. Additionally, dance and/or embodied knowledge have always been a rather closed and incomprehensible field of knowledge (deLahunta in, "Brainstorm Session Expert Meeting Organized by Maaike Bleeker" 2018). For this reason, I believe that amongst the most significant contributions of annotation practices is the dissemination of dance knowledge to other disciplines and fields of research. However, I would like to mention that the digital conditions of annotation practices are currently facing issues of infrastructure and sustainability. To name one, online projects such as Synchronous Objects, which

includes digital Objects built in flash with a lot of JavaScript either do not work or cannot be fixed (Zuniga-Shaw in, “Brainstorm Session Expert Meeting Organized by Maaike Bleeker” 2018).

With the above in mind, I conclude that notation systems and annotation practices bear different gestures which cannot replace one another. Both are gestures concerned with movement material but provide different perspectives, serve different purposes with varying intentions, and afford a range of eventual technological abilities. In other words, notation or annotation practices are employed for different needs; they can be combined but one cannot be put in the place of the other.

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