

Can We Find Reason in Dance? Embodied Thought: Exploring Analogies Between Dance and Speech Articulation

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ABSTRACT

After the corporeal turn, the unity of mind and body has been recognized by many. This includes articulatory phonology, which no longer views phonemes as static, disembodied units, but brings in a gesture-based approach, conceiving the articulation of sounds as sound-producing speech movements, or articulatory gestures. This recognition makes it possible to search for closer analogies between spoken language and dance. From this perspective, abstract knowledge and bodily action in dance and speech are nothing but interconnected endpoints of a body-mind continuum, which shape and reshape each other being impacted by the individual differences, imperfections, innovations, and lapses in memory, occurring during the processes of production and perception. I argue here that there might be substrata in dances which are built of "primitive units" comparable to the phonological structure of speech, due to the body-mind unity of sensing and controlling motion. To demonstrate that the articulation of sounds is based on principles similar to how movements are generated in some dances, I present the example of a traditional dance from Romania, *Alunelu înfundat*.

KEYWORDS

Body-mind unity; articulatory phonology; syllable; transgressing structuralism; evolutionary dance anthropology; kinetography Laban; "kinemology."



The Banishment of Dance from the Eden of Reason

Can we find reason in dance? In the 16th century, renowned Reformation theologian and founder of Calvinism Jean Calvin firmly answered "No"! In 1546, under his pressure, Geneva's city council totally banned dance for two months, a decision confirmed by Calvin in his sermons of 1554-1555:

once upon a time (1546) a law was passed here in Geneva for the general prohibition of dancing [...] I admit that the intention was right, since *it would be difficult to find reason in dancing*, except as an invitation to whoredom. (Magyar 2015, 67 [*my emphasis*])

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Calvin, though even stricter than earlier reformers, continued the long-standing ecclesiastical practice of considering dance to be a sin. In tracing these moral and moralising debates on dance from 1200 to 1600, cultural historian Alessandro Arcangeli (1994) concluded that dance has been strongly and profoundly discredited in Christian thought. In company with other scholars, Arcangeli argues that the explanation for this can be found in the historically-developed negative and derogatory attitude of the Western churches, and most strongly the Reformed ones, towards the physical body.

Similarly to the Church's influence, public opinion in Western and Central European societies has been shaped by the dualistic ancient philosophical tradition, in which the body and the soul are two sharply separable and qualitatively different principles. Dualism culminated in the philosophy of Plato in European antiquity, and then became well-known in the early modern period through the rational philosophical construction of René Descartes. Descartes, who as a Jesuit was himself close to the Church (Winterton 1887) imagined that the mind was an immaterial, static principle of thought: the "thinking thing" (the *res cogitans*) which could be separated from the "nonthinking" body (the *res extensa*) which had a three-dimensional extension, a mechanical structure, and was incapable of thought (Bremer 2014; Damasio 1994).

According to Cartesian philosophy, the sole repository of creative thought is the mind, which is completely independent of the physical environment, i.e. the body and the outside world. Soul and body, reason versus emotion, language and movement, the duality of static and dynamic: there are multiple examples of the tough survival of these oppositional pairs. Neuroscientist, psychologist and philosopher Antonio Damasio (1994, xi) underlines the persistence of the belief that reason and emotion are two strictly separated principles:

I had grown up accustomed to thinking that the mechanisms of reason existed in a separate province of the mind, where emotion should not be allowed to intrude, and when I thought of the brain behind that mind, I envisioned separate neural systems for reason and emotion.

Furthermore, this theoretical frame has become a fertile hotbed for the supposition that disembodied and creative thought is expressed and communicated exclusively in verbal language. Mind and thought, as well as rational thought and language, therefore constitute close and exclusive conceptual pairs in this view, excluding sensations, emotions and passions, the latter being bound to corporeality. Noam Chomsky, one of the most influential linguists of the twentieth century, who himself based his philosophy of language on Cartesian foundations, emphasized that language as a species-specific human possession with its "generative ability that is revealed in the normal human use of language" is "a free instrument of thought" (Chomsky 2006 [1968]). Chomsky was sceptical about the existence of any other "language-like" system in human communication (2006 [1968]), although he was well aware of Claude Lévi-Strauss's research, in which the anthropologist had revealed the similarity of the deep structures of various systems, such as mythologies or kinship relations, to linguistic structures. Polish philosopher Adam Schaff, who had a close ideological relationship with Chomsky is even more radical on this subject. The main question of his book is: "Can thought (in the sense of conceptual thought) exist without language?" Or, in other words, "Can language exist without thought?" (Schaff 1979, 102). His answer—also narrowed down to conceptual thinking—is the following:

Thinking, or more precisely, human thinking [...] always takes place in some language, since without the signs of phonic language (or without some transcription of these signs) conceptual thinking is impossible. (Schaff 1979, 142)

Classical Theoretical Models in the Formal Analysis of Dance

Is conceptual thinking “without the signs of phonic language” really impossible? Or if we apply the question to dance, we can ask: “When we dance, do we think?” Is the cognitive process of dancing similar to that of speaking in some way? Can we put aside our reluctance, rooted in dualistic traditions, to seek reason in dance? And shall we put aside the misconception that dance belongs entirely to the sphere of instinctive actions and can be contrasted with abstract thinking?

It is common knowledge that the perception of dance as a bodily phenomenon and belief in the inferiority of the body in relation to the mind contributed to the prolonged persistence of dance’s low status: in everyday life and in the academic sphere, both in artistic and scholarly terms. Although this question of the relationship between mind and body has rarely been discussed in ethnochoreology, the formal structure and characteristics of traditional dances have long been a focus of research. My aim here is to highlight pioneers who identified formal traits in dance, developed analytical tools, and began to connect dance scholarship with established fields, especially in the discipline of linguistics.

Among these, the example of György Martin looms large. Beginning with the publication, together with Ernő Pesovár, in 1960 (Martin and Pesovár 1961, 2000) of a methodological foundation, he worked on revealing the formal structure of traditional dances until his premature death in 1983. Following this, in 1964 Martin used explicit linguistic analogies for the segmentation of dances into formal units: he applied the terms of *phrase* on the model of sentence, *motif* on the model of *word*, and finally the kinetic element, considered to be the smallest particle, comparable to *sound*. (Martin 1964; Kürti 1980) Martin’s method followed the disciplinary categorization of classical linguistics. When describing the architecture of the formal units and defining their special position in the succession of movements, as well as deciphering the construction of higher compositional segments, he implicitly took inspiration from *morphology* and *syntax*. His impressive motif catalogues of the most elaborate Central Transylvanian solo *lads dances*, published posthumously, are reminiscent of lexicography (Karsai and Martin 1989; Martin 2004). Though frequently referring to his method as *structural* (Felföldi 2007) Martin did not follow the structuralist theoretical frame developed by Lévi-Strauss based on the phonology of the Prague Linguistic Circle: consequently, he did not operate with the concepts of *deep structure* and *surface structure*. As such, Martin did not take into consideration the connections between the formal units stored in the consciousness, that is at the memorial level, which presuppose an associatively organized system in which all elements are interrelated in complex ways. In Martin’s approach, the concept of structure is allied to the organization of *the physically realized form of dances in their linear dimension*, without reference to mental processes (Könczei 2020).

From 1962 to 1976, Martin collaborated with the *Working Group on Folk Dance Terminology of the International Folk Music Council (IFMC)* known later as the *ICTM Study Group on Ethnochoreology*. (Giurchescu 2007; Giurchescu and Kröschlová 2007) Scholars within this group defined two planes of dance analysis: the *vertical* and the *horizontal*.

By *vertical* or *systematic* plane, they meant the segmentation of concrete dance performances at different hierarchical levels, from the top to bottom, that is from the largest units to the smallest ones. Following their terminology: a *dance (T)* can be segmented into *Parts (P)* or *Strophes (St)*, sometimes into *Sections (S)* or only into *Phrases (Ph)*, which in their turn can be deconstructed into *Motifs (M)*. *Motifs* can be further broken down into

distinctive subordinate units, the *Motif-cells*, and finally into *Motif-elements (Me)* (Giurchescu and Kröschlová 2007).

The *horizontal*, or the *syntactic* plane actually corresponds to the linear structure of the formal units, or syntax, which according to the authors “deals with the progression of dance in time and space through irreversible combinations of dance elements governed by compositional rules” (Giurchescu and Kröschlová 2007, 24). Although the group borrowed the concepts of *langue* [language] and *parole* [speech] from general linguistics (Saussure 1959 [1916]) to distinguish between the *knowledge* of a dance system, and its *actual realization* in a given dance performance, they did not inquire further into theorizing the whereabouts of the “abstract models” laying behind the particular practices, placing them into the territory of “genres” or “types.”

This auto-limitation can probably be explained by the rather generalized assumption about the singularity and uniqueness of the dance, leading to the limitation of the quest for larger explanatory frames. As they put it: “Although dance has structural features similar to other artistic means of expression (especially music and speech, with which it shares the temporal dimension), it has particular traits, a particular structural makeup, and proper rules of grammar, *because dance is an expressive system of its own, independent and self-sufficient*” (Giurchescu and Kröschlová 2007, 22 [*my emphasis*]).

Parallel to the work of these East European dance scholars, North American anthropologist Adrienne Kaeppler was conducting long-term research (1964-67) on the structure of Tongan dance. This culminated in her 1967 doctoral dissertation and a pioneering publication on her method and theory (Kaeppler 1972). Kaeppler also used linguistic models as a basis for her analysis, sharing the common premise with the European members of the IFMC Study Group, that dance and language are analogous. Both she and other researchers recognized the similarities between the two methodologies (Grau and Wierre-Gore 2005; Kaeppler 2007; Köncei 2020) in, for example, the segmentation of dance into constituent units. Overall, the segments of the two systems overlapped with similarities and differences summarized by Kaeppler herself, the differences consisting mostly in terminology (Kaeppler 2007).

There were, however, differences in their respective approaches. The linguistics and anthropology disciplines in which Kaeppler’s method was rooted considered language to be an organic part of cultures, always conceived and used in plural and seen as holistic entities, appearing in unique forms, each of them having a particular pattern. This perspective was mainstream in 20th century North American anthropology and Kaeppler was inspired by its ramifications as developed in the ethnoscience of Kenneth Pike and the so-called “post-Bloomfieldian” school of linguistics. Perhaps one of the most significant achievements of this approach was the creation of the *etic-emic* distinction of the classificatory systems structuring cultures, including language, and—as an extension in the case of Kaeppler—dance. Following this frame, the utmost aim of *ethnoscience*, that is the science established for understanding the “thought of a people,” a Boasian concept (Kaeppler 2007, 55), is to transcend the conceptual categorizations of the external observer, the *etic* viewpoint, and to grasp the classificatory systems of the particular cultures, as functioning through their internal use, and conceived by the members of the specific traditions: that is, to learn the grammar of a culture through the *emic* lens of the “natives.” Implementing the ethnoscientific method in her field research, Kaeppler aimed to discern the building elements of Tongan dance, interacting with the local dancers, verbally and kinetically, in order to identify the minimal constituent units considered by her to be analogous to the *phonemes*, which she named *kinemes*.

Though using the concepts of phonological *contrast* (Kaeppler 2007), or *minimal contrasting units* (Kaeppler 1986, 2007), which are included in the basic vocabulary of classical phonology, Kaeppler places them in totally different interpretative contexts. In phonology, as elaborated by the Prague Linguistic Circle, the contrast between phonemes derives from their relatedness in a system, understood as a linguistic phenomenon. Kaeppler's approach, which follows post-Bloomfeldean linguistics and ethnoscience, does not intend strictly to apply linguistic analytical concepts to dance, and implicitly to culture, but she handles these concepts as—we could say loose—analogies. Thus, the essential characteristics of contrasts between the *kinemes*, conceived as the minimal constituents of dance, are not to be looked for in the structure of a movement system in itself, but in the recognition of the actors (see Kaeppler 1986).

The knowledge of recognition conferred to a certain culture is regarded by Kaeppler as an underlying structure below cultural manifestations, an abstract entity frequently also named *deep structure* (Kaeppler 1986). Although she does not entirely elucidate this concept, it can be deduced from the context, and in this way points at a collective essence shared by the members of a given culture. This collective essence is clearly understood in a totally different way from the concept of *deep structure* rooted in the concept of *langue* in the general linguistics of Saussure.

In summary, the basis of the methodologies of these pioneers remained classical folklore studies and cultural anthropology, approaching traditional cultures as collective products: in Europe, of the peasantry of national states, and in the US, of tribal societies in the former colonies.



Applications and Developments

Subsequent application and experimentation with these established methodologies have resulted in new pathways, a couple of examples sufficing here to indicate fresh directions. László Felföldi (2007) notes a new generation, including himself, who followed in Martin's footsteps during the 1980s. The most consistent of these was Zoltán Karácsony, who meticulously continued to process the monumental motif repertoires of middle Transylvanian solo dances (Karácsony 1990, 2007), begun by Martin. The main preoccupation of Karácsony has been motif-analysis. Moving away from the static presentation of the motif corpuses of regional dance types, he has also tried to reveal the mechanisms of construction in dance, showing their morphological combinatorics (Karácsony 2019).¹

János Fügedi, to whom not only the "Hungarian School," but also the international community of dance researchers can be grateful for his consistent contribution to the application and spread of Kinetography Laban and motion analysis, both in academic research and education (Fügedi 2016, 2023) represents a separate way of theorizing formal analysis. Critical of Martin's methodology—as well as of the foundational modes of interpreting movement as discussed here—he was primarily sceptical about the applicability of linguistic methods in dance research. Fügedi considered that dance movement has its own rules because of the anatomical specificities of the dancing body and the possibility of realizing synchronous events with several body parts. He also formulated the concept of *contrakinesis*, by which he meant the immediate successive spatial opposition of consecutive movements (Fügedi 2019). In his theoretical work, Fügedi relied on a limited linguistic bibliography, so that he could not realize that, as I believe, some of his suppositions about

dance and movement are actually compatible with recent linguistic models. Because of his tragic early death, unfortunately there will be no more possibilities to continue the exciting theoretical debates we had to confront and share differing ideas and knowledge.

Two significant examples of detailed and in-depth formal dance analysis, adapting the methods described above, including the mapping of the inventories of the building elements, whether they were called kinetic elements or kinemes, are Irish ethnochoreologist Catherine Foley's study of Irish step dances (Foley 2007, based on Foley 1988) and Greek dance anthropologist Irene Loutzaki's modelling of traditional dances from northern Greece (Loutzaki 2007, based on Loutzaki 1989). Evident in late 20th century studies is a shift from a generalized and static conceptual framework towards more dynamic models (see Kaeppler and Dunin 2007). Interest in individual cases, variations, principles of creation, creative processes has been sparked. The closest approaches to the mind-body question though, in European discussions, have been the thought-provoking dialogues initiated by Egil Bakka about "the gap between realization and concept" in the form of witty debates with Georgiana Gore (Gore and Bakka 2007) and Gediminas Karoblis (Bakka and Karoblis 2010). The two published discussions were situated on philosophical grounds, both emphasizing the primacy of perception over some underlying invisible invariant. Gore introduced epistemological perspectives, taking into consideration the role of the researcher-observer in the research situation, and her impact on the "realization" of dances, while Karoblis implemented a phenomenological stance, referring to the philosophy of Merleau Ponty (see Bakka and Karoblis 2010).

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Personal Pathways

My own path towards the present inquiry began in the 1980s, with my search for structural characteristics in middle Transylvanian traditional solo and group dances, the so called "lads" dances, which are performed dominantly by men. A second generation follower of the Hungarian school, I had also studied linguistics, and so approached dances as more or less conventionalized formal systems from the beginning. I noticed in my early work that dances which were also performed communally, revealed more conventionalized structures, and more resemblances with spoken language (Könczei 2007b). Martin continued to remain a source of inspiration for me but, already in my youth, I deviated from his theoretical bases. Undertaking long-term research on the Borica dance, a ritual from the Seven villages in Braşov county (Könczei 2009), I observed its formal construction not only at the linear level (that is on the syntactic level as practised by Martin and his colleagues), but also on the paradigmatic level, which emerges between associative connections in the memory (Könczei 2007a; see also Gell (1979), whose work I was inspired by). Though at the time, I did not have access to the structural anthropology of Lévi-Strauss in its complexity, I applied a model very similar to his theory on surface and deep structure (Könczei 2007c). In my earlier works, I illustrated dance analysis with Laban scores (Könczei 2002), and much later I also experimented with Laban Movement Analysis in a new interpretation of the Borica ritual from the Seven Villages. In this, I demonstrated the sharp contrast between the movement qualities of the dancers who perform attuned to each other within the group, and the individual improvisations of the masked figures. I found the character of the previous realisations to be trance-like, and the latter's ecstatic-like (Könczei 2023).

With respect to analogies between language and dance, I pointed to the limitations of possible comparisons. I formulated the proposition that not all dances can be compared



with language, and those which can, should be paralleled with poetic not literal language, because of their structural specificities, such as, for example, repetition (Könczei 1995). The criterion of searching for similarities, I thought, was firstly a formal one, which referred to the segmentation of dance and language, as both needed to be broken down into “discrete elements.” While all verbal languages are compounded by discrete elements, not all dances are. (Könczei 1994) Surveying the specialist dance literature, and looking for examples, I found it more convenient to distinguish between two ideal types: the “abstract” or “pure,” and the “narrative”/ “expressive”/ “mimetic,” although I am conscious, that not all dances fit into these two categories, and some, indeed, have a hybrid character (Könczei 2015).

In the last couple of years, besides using conventional phonology in my research, I have begun to investigate theories which transgress the duality of body and mind and which might make it possible to conceptualize a common cognitive base for language and (abstract) dance. I started to study emergent phonology (Lindblom 2000, 2011), which challenges the „inescapable dogma” of the 20th century, a phrase used by Chomsky to refer to the priority of abstract mental structure over bodily gesturing and perception (Lindblom 2000). Subsequently, I have experimented with articulatory phonology (Browman and Goldstein 1989a, 1989b, 1992) a gesture-based approach to phonetic and phonologic structure.



Transgressing structuralism. The quest for origins

In recent decades, it has become an established practice, and to some extent even fashionable to talk about the “thinking body,” the “embodied mind,” or even “body memory.” All these concepts that have been offered by philosophical, psychological, and cognitive theories are frequently and collectively referred to as the corporeal turn. Most acknowledge and recognize the unity of mind and body, intellect and emotion, and that cognitive processes do not only take place intracranially, i.e. inside the skull, but also extend to the body, just as the realm of emotions and sensations is not limited to the headless body. A relevant formulation of this idea is Damasio’s (1994, 226), who argues against “Descartes’ error”:

I am not saying that the mind is in the body. I am saying that the body contributes more than life support and modulatory effects to the brain. It contributes a content that is part and parcel of the workings of the normal mind.

Structuralism helped greatly in understanding linguistic and cultural phenomena, most of their results remaining valid. The need for the search of further paradigms came from the recognition of its limitations, which in particular, are rooted in its static character (Buckland 2007; Könczei 2020), probably stemming from Saussure’s neglect of the origins and the evolutionary aspects of language change. Saussure possibly was influenced by Durkheimien sociology, his contemporary, about the “social facts,” which always are supposed to pre-exist the individual and appear as objective givens for the newborns in any society (Santos 2023).

No society, in fact, knows or has ever known language other than as a product inherited from preceding generations, and one to be accepted as such. (Saussure 1959 [1916], 71-2)

New paradigms bring new questions, such as those of Swedish linguist Björn Lindblom on the origins of the units of speech: “The limitations of the structuralist approach become

abundantly clear when we ask: ‘Where do these units come from?’” (Lindblom 2011, 1). Although classical linguistics, especially phonetics, had long recognized that sound is inseparable from the motion of the vocal organs in speech (Saussure 1959 [1916]), it was articulatory phonology, developed by Catherine P. Browman and Louis Goldstein, which induced a shift in the understanding of the nature of speech, shining a light on the foremost importance of motion in this complex phenomenon, as well as evidencing the shared role of the brain and the speech organs in verbal communication. Their theory is a gesture-based approach to phonetic and phonologic structure which conceives the articulation of sounds as sound-producing speech movements, or articulatory gestures. They no longer view phonemes as static, disembodied, purely abstract units, but as the results of interconnected mental processes with dynamic movements of the sound-forming organs.

This recognition makes it possible to search for *closer analogies between the sound-forming acts of spoken language and the movements of dance*. In order to demonstrate that the articulation of sounds is based on principles similar to how movements are generated in some dances, I now present the example of footwork in a traditional abstract dance from Romania, *Alunelu înfundat* (Giurchescu and Kröschlová 2007). There is enormous potential in this recognition, which—with sufficient empirical support—can bring us closer to answering the question of whether it is possible to find reason in dance. Speech and dance—in this setting—can no longer be seen as opposites of each other, but as related phenomena embedded in a common cognitive basis: we could also say that dance can be speech-like, and speech can be dance-like. Louis Goldstein, one of the founders of articulatory phonology, had an intuition about this supposition: “My approach ... has been to view the vocal organs during speech as engaging in a kind of dance and to decompose the dance into primitive actions (like dance steps)” (Goldstein 2008, para. 2).

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Returning to an Old Question: What is the Minimal Unit in Dance?

According to articulatory phonology (hereinafter AP), the differences between individual sounds come from the differences in movements of the sound-forming organs—the tongue, the lips, and so on—executed towards different directions and in different degrees along the vocal tract, or from changes of the location of the constrictions between them. This is similar to how we move the individual parts of our bodies in different directions while dancing, or touch different spots with our limbs. Viewed from this perspective, speech is therefore not primarily a phonic phenomenon, but a kinetic one. The elementary source of its materiality is not mere sound, but the sound producing movement.

Once we recognize that body movement is a basic congruence between speech and dance, we can continue our inquiry as to how and to what extent we should utilize the theoretical findings of AP in dance research. We must acknowledge the dissimilarities which derive from the anatomical peculiarities of the speech-producing organs in the vocal tract and of the body as a whole, which induce/allow different movement possibilities (as, for example, in space usage, the existence or lack of symmetrical body parts, opportunities for plurikinetism and so on). Then, I think, essential analogies can be traced between the two. As far as I see, there are at least two themes that can be explored here. One of them consists in the possible analogies of the gestural systems of speech and some dances, and the other is the interactive social model applied in AP which has an explanatory value in understanding the dynamics of variety and historical change of speech and probably of dance too.

We should first compare the minimal units of both communicational systems, and examine the possible analogies between them. In AP, the minimal building blocks of speech are the “speech production events” (Hall 2018, 1) or “phonological events.” The generic name for the “atom” of speech is “*gesture*”:

Gestures are units of action that can be identified by observing the coordinated movements of vocal tract articulators. That is, repeated observations of the production of a given utterance will reveal a characteristic pattern of constrictions being formed and released. The fact that these *patterns of (discrete) gestures are similar in structure to the nonlinear phonological representations [...]*, leads us to make the strong hypothesis that gestures themselves constitute basic phonological units (Browman and Goldstein 1989, 202 [*my emphasis*]).

It is necessary to clarify here that the concept of gesture in AP differs in two ways from how it is used in the motion analysis of dance research. First of all, in AP the concept of *gesture* indiscriminately refers to all the array of movements of the speech-producing body organs, whereas in the motion analysis applied in dance research, especially in Kinetography Laban (hereinafter KL), the term *gesture* has a more restricted meaning. In the latter, the movements are classified into two different categories according to the criteria of whether they are performed by body parts which carry the body weight, or by body parts which are “free” from the body weight. In the case of leg movements, for example, Laban kinetographers differentiate between movements of the “supporting leg,” and of the “gesturing leg,” implying that only those movements that are not performed by body parts which “support” weight can be called gestures. (Fügedi 2016, 54). Thus, within this frame, movements associated with a step or a jump are not called gestures, only movements such as a leg or an arm swing (see Fügedi 2016).

The other difference derives from the size attributed to the building units in the two fields. The articulatory gesture is considered to be the smallest constitutive element of speech, which in itself is not necessarily analogous to a phoneme. In my understanding, the phoneme in AP is much more seen as a target, which can be achieved through one or more gestures, called also “a set of gestures,” produced by different parts of the speech organs in synchronicity. Furthermore, not all simultaneous gestures produce a single phoneme, as gestures contributing to articulate different sounds can also overlap in time. For instance, vocal and consonantal gestures can occur at the same time. For this reason, the notation of a constellation of gestures articulating a word or a syllable is represented by a “gestural score.” The structure of the gestural score can be compared, by the way, to the kinetographic staff, as both of them have separate columns for representing the gesturing of different body parts. The main differences arise from their positioning, the gestural score in AP being horizontal and the kinetographic staff vertical, and from the fact that the latter represents the lateral symmetry of the body, unlike the gestural score which represents the special structure of the vocal tract.² (See Figure 1. Figure 2.)

What about minimal units in dance? In the scholarly tradition discussed above, in spite of the terminological variations, a consensus has developed in the understanding of what a minimal formal unit is. In the Hungarian scholarly practice, which has been developed relatively early, the usual denominations of this unit were *movement phase* (Szentepl 1954) and *movement element* (Martin and Pesovár 2000; Martin 1964), often translated in English as *kinetic element*, which coincided with the term *Motif-element* used by the IFMC, (IFMC 1974, 128, 129; Giurchescu and Kröschlová 2007) The *kinetic element*, as introduced by Martin and Pesovár, corresponded to the *sound*, following the phonetic definition of the minimal vocal

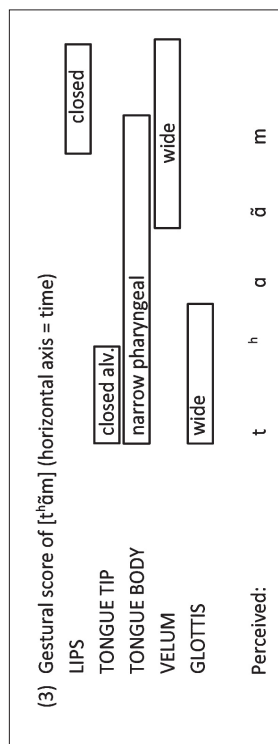


Figure 1. Gestural score of “them.” (Hall 2018, 3)

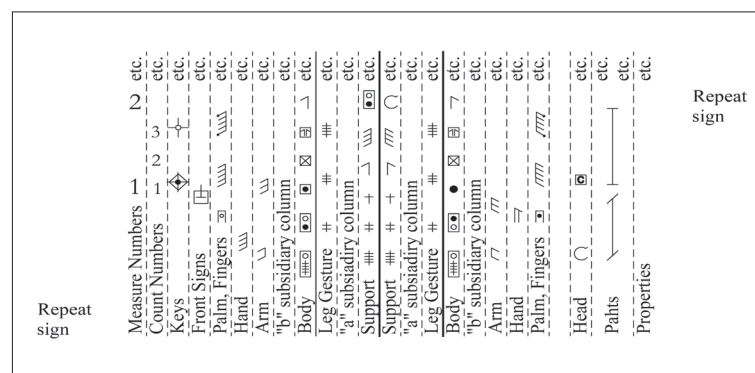


Figure 2. Kinetographic staff. (Hutchinson 1970 [1954], 491)

utterances in normative linguistics. (Bárczi 1951, 1957 [1953]; Martin and Pesovár 2000; Fügedi, Quigley, Szőnyi and Varga 2020; Könczei 2020) In this perspective the *kinetic element* is the smallest unit of dance, which cannot be further broken into more individual pieces. The terms *kinetic element* and *Motif-element* have been used alternatively with *kineme* in the literature, being identified much more contextually than by definition, referring to it as a unit which is recognized as a separable element by the native dancers (Kaepler 2007), respectively through examples:

Individual movements such as a step, hop, swing, turn, leap, stamp, clap, finger snap, hand grasp, movement of the head, arm, or hip, a gesture, and so on, are considered *kinetic elements* (Giurchescu and Kröschlová 2007, 27 [my emphasis]).

The Question of Consonantal and Vowelish elements of Dance

We need to consider whether the kinetic elements exemplified by the movements mentioned above are formally analogous or not to the phoneme. One aspect of this question generates another one: while in speech, phonemes are classified into two categories—into consonants and vowels—do we have anything similar to this in dance? In the given examples, such as the step or the hop, if we were to consider them as kinemes, would they be more analogous to a consonant or to a vowel? To be able to decide this, first we should look at the fundamental characteristics of the two categories to see what makes the basic difference between consonants and vowels.

Both conventional phonetics and AP deal with consonants and vocals firstly from a

phonic perspective. The peculiarities of the sounds are described in accordance with the place and extent of the constrictions produced in the vocal tract, conceived as a resonating tube, much like how a wind instrument functions. Thus, in conventional phonetics the consonants are those sounds, which form the most obstacles in the way of the air flow. Surely, the sounds belonging to the other category meet the least obstacles during their production, so they are articulated with a free flow (Roach 2011).

AP works with more quantitative data, measuring the degree of the constrictions and recording the shape of articulatory organs during articulation with computational methods. As most of the movements are continuous, the whole dynamic process is monitored, the gesturing being segmented according to the moments of “damping”: that is, to the observable lessening of the flow of energy, and to the “stiffening” of the movements, that is to the brief instants of rigidity, as the specific gestures reach their target. In the case of consonantal gestures, the reference is the distance of the gesturing speech organs to the peculiar points of the surface of the vocal tract:

Each gesture is a critically damped oscillator that is characterized by a target and a stiffness. In the transitions from vowel to consonant, the gestural target is defined as a distance (constriction degree) between an active and passive articulator. [...] In the transitions towards vowels, the target is the complete midsagittal shape, as represented by an array of control parameters. (Alexander et al. 2019, 4458)

Motion analysis as applied in KL, on the one hand, is familiar with the concepts of decreasing or increasing the distance in relation to a fixed point of reference, which is usually the floor (Fügedi 2016). This, however, is a marginal approach besides the attention given to the indication of the space directions targeted by the moving body parts. On the other hand, what really can be a productive idea for tracing analogies between speech and dance, is that both conventional phonetics and AP make a difference between the so-called active and passive articulators. Active articulators are those speech organs, which can be and are moved during the speech act, and the passive ones are those which are fixed in place, and can be only touched or approximated by the active parts:

The principal articulators are the tongue, the lips, the lower jaw and the teeth, the velum or soft palate, the uvula and the larynx. It has been suggested that we should distinguish between active articulators (those which can be moved into contact with other articulators, such as the tongue) and passive articulators which are fixed in place (such as the teeth, the hard palate and the alveolar ridge). (Roach 2011, 6)

The distinction between the active and passive articulators allows us to rethink the analogy of the gesturing of the speech organs with the dancing body. What if we reverse the hierarchy between the phonic and kinetic components of articulation? What if we regard the motion of the active articulators as a primary factor of speech, as initiated, incidentally, by AP as well, and consider the phonic side of it as an outcome developed over a long period of time? This would be a totally admissible questioning from the evolutionary point of view of the Gesture to Language (G to L) theory (Heyes 2012, Sterelny 2012), or of anthropologist John Blacking's hypothesis about the emergence of conceptual thought from the collective sensory-motoric experiences of early humans (Blacking 1976). If we follow this path, we might be able to compare the kinetic elements of both phenomena on their own, of course without forgetting that speech operates mainly through its phonic realization, and that to a certain extent dance

can also possess important phonic traits. Though the concrete coordinates of the immediate bounded spaces in which speech and dance occur differ from each other, the first one being constituted of the limited space of the vocal tract, the other being the kinesphere of the dancer, striking similarities can be discovered between them in other aspects, probably because of the shared kinesthetic and proprioceptive perception, control and feedback.

Detailed descriptions of conventional phonetics stress the kinetic components of the articulation, in the case of consonants the elements of contact or touching. For example, when we pronounce alveolar consonants like t, d, s, z, n, l..., the tongue comes into contact with the alveolar ridge (Roach 2011); when we produce fricatives, like f, v, the lower lip touches the upper front teeth (Roach 2011), and so on. In the case of vowels, what is most commonly taken into account in their classification, is the height of the position of the tongue in the mouth. When producing vowels, they can be “high” or “low,” front-like, central or back-like, depending on the movements of the tongue. If we complement these positions with the spreading and the rounding of the lips, we actually arrive at the main spatial directions guiding the movements in the analysed dance as well: up and down, forward—backward, lateral, and central.

If we take dance by analogy, then the mechanism of a “consonantal” movement would be described as contacting (or touching) the ground (a passive factor) or a body part with the limb(s) (an active “articulator”). The danced “vowels” then would be those movements, which are targeted towards predetermined directions and point of the kinesphere with body parts taking on a certain shape. So, returning to the initial question, the answer would be: a spring or a step is analogous neither to a consonant, nor to a vowel, as they contain elements which can be compared with both.



Discrete clustering of movements. The case of the step.

Though the kinetographic verbal description of the step gives a detailed account of the smaller components, in the formal analysis of dance it is taken for granted that a step is a single kinetic element. Let us consider the analysis of a walking step from KL:

The leg from which the step is initiated is called the *previous supporting leg*. The movement of the leg which leads into new support is the *preparatory leg gesture*, and the leg that takes the weight is labelled as the *new supporting leg*. While walking forward, the leg contacts the ground on the heel before taking weight. In our analysis, the *moment of floor contact* is regarded as the start of a step—this marked moment is often referred to as the step’s *rhythm factor*. (Fügedi 2016, 35 [*my emphasis*])

A step can be indeed analysed as a continuum, as in a physical manner the flow of motion in dance is continuous, that is one movement gradually melts into the next one, without a detectible caesura. Still the motion-flow of a step, as well as of a part of dances can be separated into discrete elements, the same as speech.

I suggest two explanations for this phenomenon. First of all, the discreteness is related to the systemic correlations of the “kinemologic” elements,³ probably very similar to the phonological structures, which organize the minimal units into categories on the basis of similarities and differences between them. These relations emerge and are sustained in a non-linear fashion, or using a more traditional vocabulary, at the memorial or paradigmatic level. Applied to AP, the categorical distinction of movements is clarified as such:

Although the location and degree of the constriction formed by a given articulator set are, in principle, physical continua, the differentiated gestures can be categorically distinct. The partitioning of these continua into discrete categories is likely aided by quantal (i.e. non-linear) articulatory-auditory relations [...]. In addition, Lindblom (Lindblom, 1986) has shown how the pressures to keep contrasting words perceptually distinct can lead to discrete clustering along some articulatory/acoustic continua. (Browman and Goldstein 1989, 205)

Goldstein and Fowler (2003) discuss the “failure” of early trials in their approach to isolate “discrete, re-combinable units in the acoustic record,” as it was only possible to observe “continuous, context-dependent” flows. According to them, this failure explains why for a long time “phonological units (segments) have been removed from the domain of publicly observable phenomena, and have been hypothesized to be fundamentally mental units that are destroyed or distorted in the act of production, only to be reconstructed in the mind of the perceiver” (160-1). Later, with the shift to paying attention to the motions of the speech articulators, they became aware of the fact that discreteness has to be searched for in the actions which lead to the sound production, which are separable from each other. In this way, it also became possible to link the abstract mental entities with the bodily motions:

Articulatory Phonology [...] has proposed [...], that the failure to find phonological units in the public record was due to looking at too shallow a description of the act of speech production, and that it is, in fact, possible to decompose vocal tract action during speech production into discrete, re-combinable units. The central idea is that while the articulatory and acoustic products of speech production actions are continuous and context-dependent, the actions themselves that engage the vocal tract and regulate the motions of its articulators are discrete and context-independent. In other words, phonological units are abstract with respect to the articulatory and acoustic variables that are typically measured, but not so abstract as to leave the realm of the vocal tract and recede into the mind. They are abstract in being coarse-grained (low dimensional) with respect to the specific motions of the articulators and to the acoustic structure that may specify the motions. (Goldstein and Fowler 2003, 161)

This is equally true, when in a dance we have recurring similar movements in a non-linear fashion, such as a leg gesture to the side, or a stamp with the full foot: we will perceive them as the same, that is, belonging to the same kinetic category. The other explanation for the discreteness of the building elements of speech and (abstract) dance can be the task-oriented character of the performed phonemes and kinemes. Browman and Goldstein stress the fundamental abstractness of the gesture in its drive to achieve its predetermined goal, no matter the concrete physical realization of the movement which leads to it (Browman and Goldstein 1989). As Nancy Hall summarizes:

It is important to understand that a gesture, in AP terms, does not refer to the articulatory movements themselves. It specifies a goal, not a means of achieving the goal. The same gesture may cause different movements in different contexts, and possibly even involve different articulators, depending on factors such as what position the articulators start in. (Hall 2018, 3)

Returning to the case of the step, our initial example, we can raise the question: while with an articulatory gesture we must accomplish a single task, do we carry out a single goal when we make a step? In my understanding we do not achieve one, but two. When stepping, I think we need to make two decisions: one defines the direction, and scale/dimension of the

step, the other one the characteristics of the contact with the ground/floor, that is, which part of the foot is contacting the ground or floor, what is the quality of the touching, that is how strong, how long it is, etc. So, in my interpretation the motion analysis of a step contains two kinetic elements, not one, and it can be described in the following way:

As while walking the “new supporting leg” always becomes the “previous supporting leg” during the next step, a step actually contains two different actions: 1. a free movement of a leg in the air, which determines the direction and the length of the step, and 2. a motion performed with the same leg contacting the floor and taking over the body weight, most commonly continuously rolling from heel to the whole foot.

In this interpretation, a step cannot be analogous to a phoneme, be it a consonant or a vowel, as it compounds elements from both categories: the “free gesture” is vowel-like, and the floor-contacting movement is consonant-like. The composition of the step becomes more obvious, when it is performed in other directions than the usual forward walking step is, or when it takes different stylized forms. An excellent example to demonstrate the component parts of a step is the so-called military “goose-stepping” of the Wagah Attari guards in the border ceremony between Pakistan and India. During the vowel-like “introductory” free gesture, the leg forms a bent shape, as the thigh is raised forward high and the lower leg forward low, and the floor-contacting movement is performed with force on the whole foot, both gestures being emphasized to the extreme (see Vora 2017). (See Figure 3.)

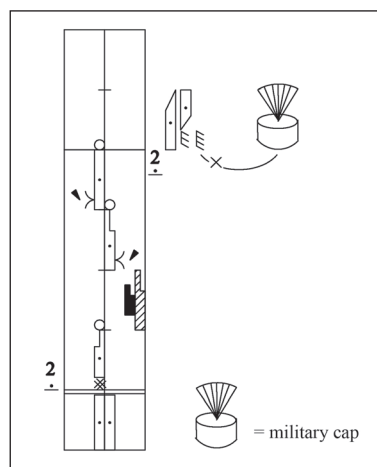


Figure 3: Goose-stepping and Saluting at the gate. Laban score notated by Urvi Vora under the guidance of János Fügedi (Vora 2017, 22).

• • • • •

Kinemes or Syllabic Units?

Common sense conceives syllabic structures to be the smallest building blocks of speech and dance as well. In the popular approach, a syllable is understood first of all as a rhythmic element, articulated on one beat. Saussure himself recognized this phenomenon: “they still do not devote enough attention to the reciprocal relations of sounds. These relations are not immediately discernible; [...] *syllables are easier to identify than their sounds*. We have seen [...] that some primitive systems of writing noted syllabic units; only later was the alphabetic system devised” (Saussure 1959 [1916], 50). Similar to Adrienne Kaeppler, many of us could also have experienced in fieldwork situations that dancers, while demonstrating which are the smallest movement elements from the “native point” of view, usually picked syllabic units. Kenneth Pike also emphasized the importance of the syllabic segmentation as the simplest way of describing the architecture of speech. (Pike 1947)

Overall, linguists recognize that syllables have an important phonological role in the gestural organization of speech. One reason for this is that the architecture of syllables influences to a great extent the phonological distribution and gestural realization of the phonemes. Abstract gestures are not performed exactly in the same way in all instances.

Movements leading to the achievement of the same target can differ from each other depending on their place in a syllable (onset or coda).

Some allophony, however, is not merely a matter of blending, but reflects differences in the magnitude or coordination of sets of gestures when they occur in different positions within a word or syllable. For example, English /l/ is described as having a “clear” quality in onset position and a “dark,” velarized quality in coda position. This is more than a blending effect; the gestures that correspond to /l/ have a different timing relation in different positions. [...] *Findings like this have led to a strong focus on the role of syllable structure in gestural organization.* (Hall 2018, 11 [*my emphasis*])

Another reason for the significant role of the syllable in gestural organization might be its function in the metrical and rhythmical construction of speech, which is repeatedly mentioned in the vast literature on the syllable. In his historical overview of the study of the syllable, Goldsmith states that “there are few languages in the world whose prosodic systems can be adequately and compactly characterized without making reference to the syllable.” He goes on to draw attention to the occasional fusion of language and dance in regulating the rhythm of speech: “Prosodic or suprasegmental regularities involve a wide variety of linguistic phenomena, including timing, other rhythmic effects (such as clapping and dancing), and tonal structure” (Goldsmith 2009, 2). Pike classified languages into “stress-timed” (e.g. English) and “syllable-timed” (e.g. Spanish) types. By “syllable-timed” he referred to a tendency of a language to have equally timed (or isochronous) syllables. (Goldsmith 2009, 8)

Finally, Goldsmith concludes that “the syllable is ultimately best regarded as the lowest level (or one of the lowest levels) of rhythmic reoccurrence of possibilities in language” (Goldsmith 2009, 27). Although he does not entirely agree, that this is “the reflection of gestures made by the articulatory apparatus” he acknowledges the importance of this research issue:

The most important question to answer is how to develop a model that is suited precisely to capture the rhythmic character of syllables, and the striking asymmetries of onset and coda. (Goldsmith 2009, 28)

Surprisingly or not, the recognition of the rhythmical character of syllabification overlaps in scholarly research and popular knowledge, and it also probably explains to a certain extent why the formal analysis of dance has focused so much on syllabic units. It is possible that in future, accumulated knowledge of dance research might also contribute to the elucidation of the rhythmicity of speech.

Taking syllabic units of motion as minimal elements in dance research, in addition to the factors mentioned above might be also connected to the nature of KL, the most well-spread kinetographic notational system in the international practice of the formal analysis of dance. As KL itself is, in great part, a syllabary writing system, it is not totally appropriate for noting all the kinemes separately. According to the writing conventions of KL, multiple elements can be merged into one single symbol. There are several solutions for using simplified and abbreviated representations, in which some motions or gestures are not signalled at all, as the notation relies on the reader’s implicit knowledge of movement (Fügedi 2016).

When, for instance, we want to represent contact of the floor with some part of the foot (tip of toe, ball, whole foot, heel), in principle we apply one of the “contact hooks” symbols. (Fügedi 2016; Hutchinson 1970 [1954]) When we want to notate touching the floor in the continuation of a “free leg gesture” (which is a marked movement of the leg in the air), the

hooks can be attached to the direction symbols, indicating the direction and the shape of the gesturing leg. So, the vowel-like “free” leg gesture and the consonant-like touching gesture are not represented separately, but in one single condensed sign, a joint sign of a direction symbol and a hook.

When we notate touching the floor with the whole foot carrying the body weight, as in a stamp, we do not even have to use the “hook,” as writing the direction symbol in the support column represents in itself the contact. So, in this case one simple direction symbol signifies both the vowelish (preparatory) leg gesture and the consonantal touching gesture.

Another example is the simplified notation of a jump. When the physical and anatomical conditions of a jump are considered to be known, the “free” leap gesture, which thrusts the body into the air before touching the sole, is represented by an empty space, the length of which signals the amplitude and the duration of the propulsion. In this case, only the ground-contacting act is notated with the help of direction symbols. So, here we do not have either a separate representation of the vowel-like kineme from the consonantal-like.

The syllabary character of KL probably owes much to Laban’s inspirational sources. We know that during his preparatory work Laban researched old writing systems, looking for symbols of movement. He studied and was influenced by the mantic Tibetan script, the Assyrian and Babylonian cuneiform writing-system, as well as the ancient Egyptian and Chinese scripts (Laban 1970 [1954]), all of which being logographic, or syllabary, or a mixture of them.



The Kinetic Inventory of *Alunelu înfundat*. Testing a New Methodology

To test my hypothesis, according to which steps, hops, stamps are not the minimal units of dance, because they are analogous to syllables, and can be further broken down into smaller vowel-like and consonant-like gestures or kinemes, the equivalents of phonemes, I analyzed the Romanian circle dance *Alunelu înfundat*, as published by Anca Giurchescu and Eva Kröschlová (2007). *Alunelu* is appropriate for a “kinemologic” analysis for several reasons. It is a good example of an orally created and transmitted abstract dance, which can be clearly segmented into formal units. All the movements are performed solely by footwork, the body weight is supported continuously by one foot at a time in the form of dance steps and stampings, and the dance lacks body rotations and whirling. Each movement performed with the right foot is also performed with the left one, mirroring each other in a sagittal (lateral) symmetry. Coronal symmetry⁴ is also present in the dance, as the forward gestures are counterbalanced by backward ones. When listing the movement elements and arranging them in the form of a chart, non-linear systemic relations can be revealed, which are comparable with the phonological systems of speech. For all these reasons, *Alunelu* is an ideal choice to initiate experimentation with this methodology at the first stage of testing.

The notation of this particular dance also favours demonstration of the proposed methodology, because it helps to easily perceive the formal structure of the flow of motion. The Labanotation of the dance, realized by Jean-Philippe Van Aelbrouck in 1984, is a simplified representation of the movements, showing their abstract essence in a homogeneous manner, omitting the allokinemes, that is the tiny deviations from the normative standards of the dance steps. This characteristic also stems from the circumstances of Aelbrouck’s notation which was actually a transcription of Anca Giurchescu’s manuscript, originally recorded in Ronotation (Warner 1988), a script developed by Vera Proca-Ciordea as a national notational system. Ronotation itself is built up from a set of stylized symbols, suitable for a sketchy

representation of the movements, without fine details, as the notators relied on readers' pre-existing dance knowledge. (Proca 1956, 1957). Since the notation in question does not capture the full nuances of an actual performance, it is not suitable for representing the precise articulation of gestures. However, its simplified form is well-suited for identifying the minimal units and compiling their inventory, as it makes the analysis more transparent. The notation of *Alunelu înfundat* is based on Vera Proca-Ciortea's collection from 1951 in Bechet, district Dolj (Oltenia), Romania. Anca Giurchescu carried out an exhaustive formal analysis of the whole dance, on different hierarchical layers (Giurchescu and Kröschlová 2007), from which I will refer here only to the level of the "Motif-elements." In Giurchescu's analysis, these are the smallest units and are grouped into "Motif-cells." In her methodology, the Motif-elements are represented by Greek letters as the smallest kinetic elements of dance. Below I list an inventory from her analysis (Giurchescu and Kröschlová 2007, 44-6) with my additional comments in rectangular brackets:

Kinetic content of the Motif-cells of Alunelu according to Anca Giurchescu:

α = "forward step" / "lateral" step [conceived as differing elements of the spatial variation of Motif-cells a' and a'1]

β = "close," "closing" step [in the logic of Labanotation this is identical with the "step in place," signalled by ϵ]

γ = "step backwards" [backward fifth position / behind the other foot]

δ = "step backwards (right—left)" / "diagonal step" [conceived as differing elements of the spatial variation of Motif-cells b' and f']

ϵ = "step in place" [identical with β]

η = "crossing step" [forward fifth position / in the front of / across the other foot]

π = "stamping"

φ = "stamping step"

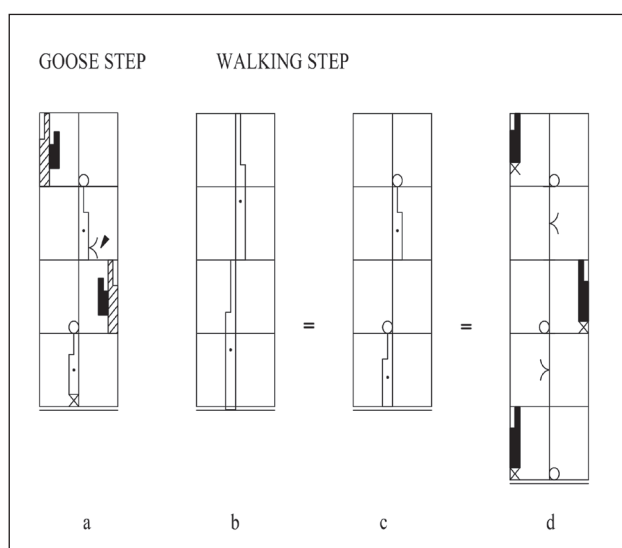


Figure 4: Examples of possible conventional and alternative notations of the walking step. a) Notation of goose-stepping. b) Conventional condensed notation of walking steps. c) Another possible conventional notation of walking steps. d) A proposed alternative notation of walking steps, separately signalling the "vowelish" gestures from the "consonantal" movements.

In my understanding, the units listed above are analogous to syllables. A reinterpretation of the smallest constituent elements of the dance results in a set of kinemes, which can be classified into the categories of "vowelish" and "consonantal" movements. To separate the "free gestures" from the "contacting gestures" we have to dissect the condensed signs, and represent the directional gestures performed in the air in their own right. As noted above, this is different from the practice of KL which usually does not signal them separately, considering that they are only "introductory leg gestures" of a step, and a matter of common knowledge. A comparison of conventional notations of walking

steps with a proposed alternative way of notation envisions how the “vowelish” gesture can be hidden or revealed. (*See Figure 4.*)

The representation of the kinetic elements on the following chart with the help of kinetography and in parallel with visual illustrations makes the hidden non-linear relationships between them discernible. The vowel-like kinetic elements can be arranged in oppositional pairs on the array of the main spatial directions (forward—backward, lateral), similar to how the articulating gestures are oriented in speech. In the case of consonant-like stampings, adapting the conceptual frame of AP, the body part which can be seen as the active articulator is the whole foot contacting the floor, which plays the role of the passive articulator. The insertion of stamps in the performance is a widespread practice in oral popular dances, producing different sound effects depending on which part of the foot is touching the ground, for example a “knock” with the heels or toes, or a “tap” using an eighth of the ball of the foot. Referring to stamps and heel clicks, Fügedi (2016, 70) discusses these movements as “audible accents.”

VERBAL EXPLANATION OF THE CHART OF MINIMAL KINETIC ELEMENTS IN *ALUNELU ÎNFUNDAT*

VOWEL-LIKE KINETIC ELEMENTS / FREE LEG GESTURES

As a general comment which is valid for all movements: the leg is slightly bent, and probably approaching the ground.

1. lift right leg low in place—lift left leg low in place;
2. lift right leg low in front of (“crossing”) the other leg (in fifth position)—lift left leg low in front of (“crossing”) the other leg (in fifth position);
3. lift right leg low in the back of the other leg (in fifth position)—lift left leg low in the back of the other leg (in fifth position);
4. lift right forward low—left forward low;
5. lift right backward low—left backward low;
6. lift right side low at a small distance—left side low at a small distance;
7. lift right side low—left side low;
8. lift right leg to the side slightly backwards diagonally (in fifth position)—lift left leg to the side slightly backwards diagonally (in fifth position);
9. lift right leg to the left side crossing the left foot in the front diagonally—lift left leg to the right side crossing the right foot in the front diagonally.

CONSONANT-LIKE KINETIC ELEMENTS / FLOOR-CONTACTING MOVEMENTS

1. touching the floor with the foot (right and left), while taking over the support of body weight;
2. forcefully touching the floor with the whole foot, “a strong contact of the foot with the floor” creating a sound effect, in motion analysis often called “a stamp” (Fügedi 2016, 70)—while taking over the support of body weight;⁵
3. the same—a short contact with the floor of the whole foot of a free gesturing leg, without supporting the body weight.

Summarising the “kinemologic” analysis of *Alunelu înfundat* we can confirm that the non-linear organization of the minimal units shares the properties of the phonological structure as a combinatoric system (see below). Its inventory consists of a limited number of kinetic elements, altogether 12, from which 9 are “vowelish” and 3 “consonantal.” These can be combined in different ways as in speech communication:

The most fundamental property of speech communication is its phonological structure: it allows a small inventory of primitive units to combine in different ways to form the vast array of words that constitute the vocabularies of human languages. It shares this combinatoric property with just a few other natural systems, such as chemical compounding and genetic recombination. [...] In all such self-diversifying systems [...] the atomic units are discretely distinct from one another, and they retain their discreteness when they combine to form new objects. This appears to be a necessary property of such systems. (Goldstein and Fowler 2003, 160)

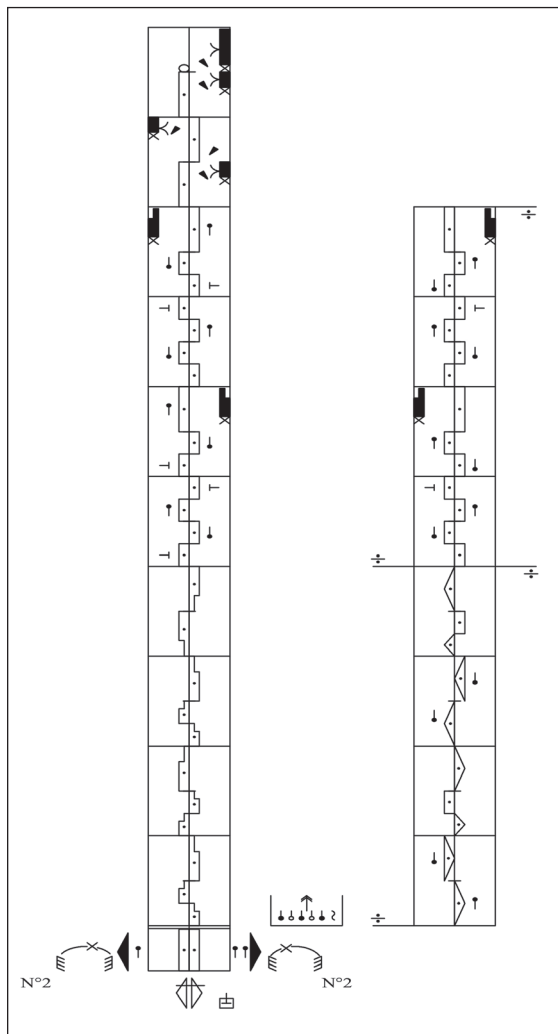


Figure 5: Laban score of *Alunelu înfundat*.

Some Conclusions and Further Questions

In seeking analogies between the articulatory gestures of speech and dance, I do not intend to suggest that we should seek exact equivalences. The anatomical differences of the speech organs and the whole dancing body, the symbolic distinctions of speech and dance would make it impossible to find one-to-one correspondences between specific phonemes and kinemes. *What I mean is that there might be a substratum in dances which are built of “primitive units” (Goldstein 2008) comparable to the phonological structure of speech as a result of the unity of body-mind sensing and controlling motion.*

Further testing of the method of “kinemologic” analysis could reveal to what extent and in which way dance and speech share proprioception in generating gestural actions toward abstracted space directions such as up and down, forward and backward and so on or in the realization of varied points of contact and differentiated qualities of the touching gestures.

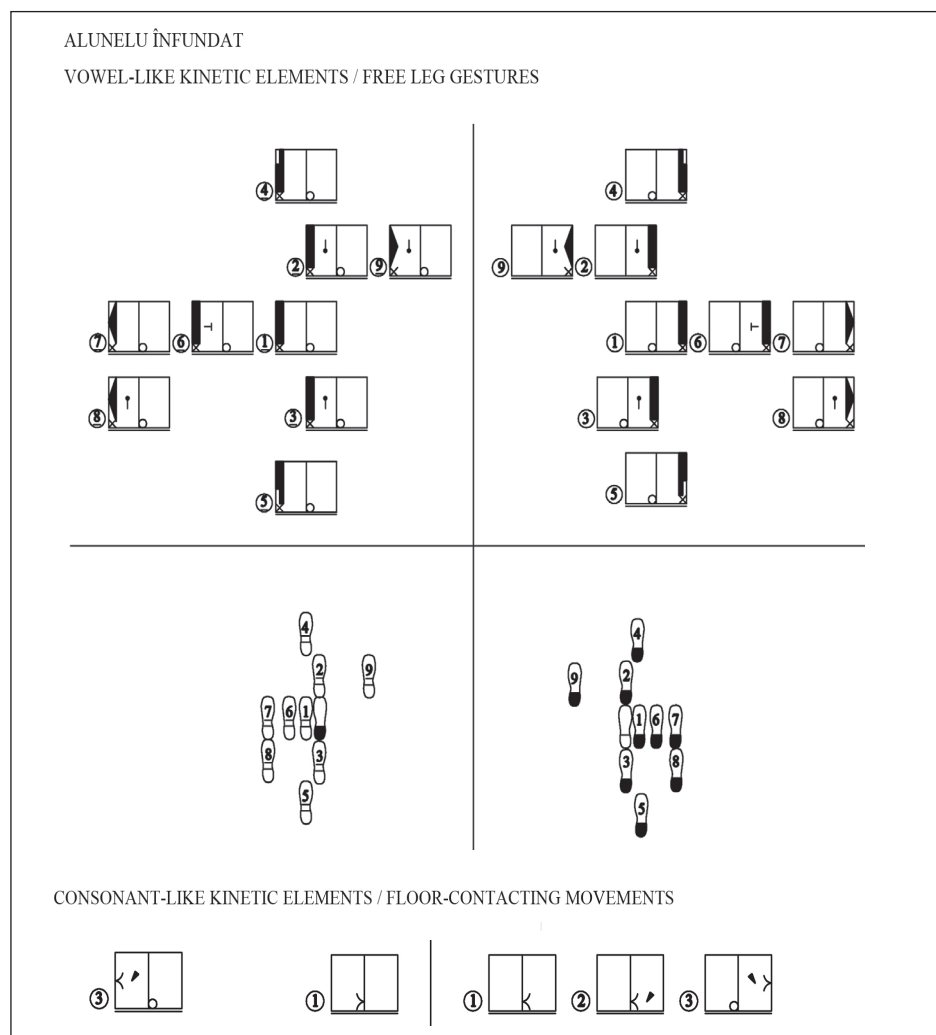


Figure 6: Chart of minimal kinetic elements of *Alunelu Înfundat*.

Are plosives, for instance, such as t, k, p, d, g, b, etc. based on the same kinesthetic sensing as with stamps, knocks and taps? Or would fricatives, like f, v, s, z, etc. feel similar to sliding or gliding movements in dance? Is anything common between the differences of the tactile and auditory outcomes depending on which part of the foot or the tongue touches surfaces? There are many questions which can be raised in further investigations, but in the meantime, we can also foresee the limitations of the methodology proposed in this paper.

Dances to which a “kinemologic” analysis would be best suited, paralleling phonologic analysis, would be those that have been orally created, transmitted, and collectively shared. Most of them are usually labelled as “traditional” dances. The basic eligibility requirement for such an analysis is that they should be “abstract,” that is they are built of separable, distinctive minimal units. As I suggest, in the first stage the testing could be extended to dances which are prominently or exclusively based on footwork. This could be followed by experimenting with the analysis of dances containing meaningful and controlled gestures of other body parts as well. In later stages, one could investigate when overlapping gestures of

multiple body parts form a single kineme and when they constitute polykinetic phenomena. The biggest challenges are probably hidden in the interpretation of rotational movements, and in the whole category of spinning / whirling / turning dances, some of them being couple dances. I am not sure at this point whether spinning is suitable at all for a comparative analysis with speech articulation, or maybe it belongs to a totally different mode of kinetic creation and communication from language. Finally, the so-called “narrative” or “expressive” pantomimic motions in dance would certainly not fit into the methodological frame of “kinemologic” analysis, as they are composed of continuous gesturing. These lack stable inventories of identical and repetitive discrete units, as well as drawing upon a wide range of diverse contemporary motion culture, which exponentially expands the borders of the concept of dance.

Comparative research of dance and speech, including experimentation with the methodology of AP, has not to be done necessarily only for its own sake. The theoretical foundation of AP can help with developing ideas which offer explanation of the dynamism of dance, as it aims at a “realistic understanding of language forms as language users know them, produce them and perceive them” (Goldstein and Fowler 2003, 159). Eschewing the assumption of the primacy of innate mental templates over bodily realization, AP examines abstract knowledge through production and perception in concrete interactive settings. Goldstein and Fowler see language forms as public actions which emerged and could have possibly been preserved and/or changed during infinite communicative interactions:

[Language forms] are kinds of public action, not the exclusively mental categories of most theories of phonology, production and perception. A theory of phonology, then, should be a theory about the properties of those public actions, a theory of speech production should be about how those actions are achieved, and a theory of speech perception should be about how the actions are perceived. A theory of the emergence of phonological structure in language, from this perspective, is about how particulate language forms emerged in the course of communicative exchanges between people. (Goldstein and Fowler 2003, 159)

From this perspective, abstract knowledge and bodily action in dance and speech are nothing but interconnected endpoints of a body-mind continuum, which shape and reshape each other being impacted by the individual differences, imperfections, innovations, and lapses in memory, occurring during the processes of production and perception. This envisioning also resonates with the idea of the dynamic relationship between concept and realization in dance (Gore and Bakka 2007; Bakka and Karoblis 2010).

This train of thought takes us to another most exciting topic: the evolutionary emergence of speech and dance. In linguistics, both AP and emergent phonology deal with the “where do these units come from?” question, referring to syllables and phonemes (Lindblom 2011, 1) aiming to understand “how the [linguistic] forms might have emerged in the evolutionary history of humans and how they arise developmentally, as a child interacts with speakers in the environment” (Goldstein and Fowler 2003, 159). The bio-cultural perspective of these theories, which transgresses the structuralist stance, hypothesizes the pre-existence of already-developed motor mechanisms, as fundamental and a necessary condition for the emergence of speech articulation. In the conclusion of his study, Lindblom states that:

The goal of this paper was to demonstrate the feasibility of a non-structuralist approach to the basic units of speech. Accordingly, we reversed structuralist priorities starting from substance (performance-based factors) in a quest for possible behavioural causal factors underlying sound

structure formation. We found that a strong case can be made for the claim that the combinatorial structure of sound patterns has behavioural origins. (Lindblom 2011, 16)

In the anthropological study of music and dance, the issue of the emergence of dance in evolutionary terms was raised by Blacking, being further developed by his disciple, Andrée Grau, and later debated by Gediminas Karoblis, Georgiana Gore and Marie-Pierre Gibert (Blacking 1976; Grau 2016; Karoblis, Gore and Gibert 2021). Blacking thought that social interactions like dancing and “musicking” had a great contribution to the development of interpersonal cooperation and cognitive skills, necessary for the appearance of speech (Grau 2016). Being anchored in the structuralist assumption of the innateness of underlying cognitive frames, he thought that dance encompasses “an innate, species-specific set of cognitive and sensory capacities which human beings are predisposed to use for communication and making sense of the environment” (Blacking 1984, 6. Cited by Grau 2016, 234).

Grau (2016) supports Blacking's idea about the fundamental evolutionary significance of dance with an impressive corpus of historical, paleo-anthropological and anthropological references, opening the topic towards the evaluation of the special "power" of dance in creating and strengthening social bonds through heightened states of consciousness emanated by communal dancing, all over the world. Gore, Karoblis and Gibert, reflecting on Grau's article, see the cognitive and sensorial skills supposedly evolved through dancing as tools for the societal construction of humanity. They focus on dance's relational dimension, highlighting its potential to generate "soft political" power (Karoblis, Gore and Gibert 2021).

Beyond this, another avenue would be to explore the origins of the cognitive capacities necessary for speech through dance, expanding on Blacking's idea:

In order to emphasize the non-intellectual basis of conceptual thought, I would prefer to call the first kind of association generalized sensori-motor communion [...] I hope to show why music (which begins with dancing) provides an explanatory model of the process of transformation from sensori-motor communion to conceptual thought, and also throws light on the origin of man. (Blacking, 1976, 4-5)

Further support for Blacking's proposition may be found in relatively recently elaborated theoretical fields, such as evolutionary archaeology, which postulates the cognitive fluidity of the brain as being based on the overlapping and interconnectedness of its specialized domains (Mithen 1996); and in the "new thinking" wave, which suggests switching from the modular (Swiss army knife) model of the brain to a more flexible (hand/palm) one.⁶ Their most promising conceptual frame for comparative research of the emergence of dance and speech might be the so-called gesture to language (G to L) theory. This attributes the foremost important role to bodily gestural communication as an ante-chamber in the development of phonic language (Heyes 2012, Sterelny 2012). This perspective allows us to reconsider Blacking's hypothesis that conceptual thinking has non-intellectual roots in the generalized sensory-motor experiences of early humans through emergent music and dance.

Blacking and Grau introduced the appearance of dance as the missing link between the two scholarly accepted major shifts in human evolution: the emergence of bipedalism and fully articulated language (Grau 2016). To refine the hypothesis regarding the importance of dance in the formation of language, we might consider slightly reframing the question from “What was the role of dance in the emergence of language?” to “What was the role of dance in the process by which language became digital?”⁷ or “What was the role of dance in the process by which language became phonological?” It might well have happened that

the accuracy of gesturing, formed and polished through the “multi-corporeal enactment of rhythmic, synchronous and correlated movements” occurring in the dance of early humans (Karoblis, Gore and Gibert 2021, 261) is one of the “causal factors of the formation of sound structure” of speech and a necessary prerequisite of the emergence of the “discrete positional control of precision talking” (Lindblom 2011, 15-6).

The mainstream view supports the idea that practical motor activities, such as chewing or tool making could have contributed to the formation of speech whereas alternative suppositions favour non-practical foundations. If so, “Is it possible that speech articulation became digital thanks to the motor skills and mental abstractions evolved through dance?” And in the end, we can ask the question: “Is it possible that reasoning stems not so much from practical survival skills, but from the search for pure aesthetic pleasure?”

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NOTES

1. In Karácsony's perspective, combinatorics “is a frame to follow the formal morphological laws or to renew them, to combine creation with pursuing traditions, the morphologically simplest forms with the most complicated ones” (English abstract of Karácsony's doctoral dissertation 2019).

2. For the sake of comparison, we have turned the articulatory gestural score from horizontal to vertical.

3. I propose here the introduction of a new term, “kinemology,” as a possible derivation of “kineme.” The concept of “kineme” was introduced by Ray Birdwhistell (1952) and adapted by Adrienne Kaeppler in dance anthropology (1972). I consider that “kinemology” would be a more appropriate denomination for a branch of dance research analogous to “phonology” deriving from “phoneme,” then the generally used “kinetics” or “kinesiology,” which have more general meanings.

4. In human anatomy the sagittal symmetry exists between the right and left halves of the body, while coronal symmetry refers to the split between the front and back parts divided by the coronal plane.

5. This is the single kinetic element, which according to the score is not repeated symmetrically. Though, due to the simplified notation, we cannot be sure, whether this was an intentional exception, or not.

6. The “new thinking” wave offered an alternative vision to the previously accepted modular model of human mind, the central metaphor of which was the Swiss Army knife envisioning “the evolved human mind as a set of cognitive gadgets, each specialized to learn, remember, and reason about particular types of information.” The new model is instead comparable to a hand, which is like a multi-purpose instrument, which “can strip the defensive spines from a piece of fruit ..., but in Thai dancing it can also signal the smallest nuances of emotion” (Heyes 2012, 2092).

7. In semiotics “digital” is used as an opposition to “analogue,” referring to the discontinuous, discrete quality of the constituent elements of a semiotic system in opposition to the continuous nature of analogue ones. Phonemes are the best examples of this (Barthes 1977 [1964]).

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