LUIZ VELHO

PRESENTATION

Nota-Anna is a system for recording movements, developed by a dancer and choreographer who dedi-cated himself to think about the significance of this form of art/communication.

As Analivia says in the introduction to his dissertation, the task of proposing a new notation body movement is certainly very ambitious.

In fact, a notation formalizes the registration information, whatever its nature. The writing is closely associated with language, and consequently with communication between humans. In this way, it takes on a instrumentalizer role in the storage and transmission of knowledge/feelings.

For this reason, the great milestones of human history are almost always linked to qualitative changes in registration information.

The technology of writing has evolved greatly, starting with the drawings on the wall of the cave, through the manuscripts scrolls, continuing until the invention of printing, to get in the era of computerization. At the same time, languages also evolved, potentiated by the technical facilities of production and dissemination of content.

Given this historical perspective, it is surprising that even today the language of movement does not have an effective writing system, unlike virtually all other forms of human expression, such as verbal, musical and visual language.

From this observation, it can be seen how the proposed Analivia is ambitious! A major challenge that several others have faced with relative degree of success.

To better understand the dif culty of the problem, note that the registration of information is intrinsically linked to the physical nature of this information. Take for example, the audio information, whose physical quantity in question is the air pressure - or by other means produced by a vibration. In mathematical terms, we can describe the sound as a continuous function of a scalar - the pressure over time. So, to register a sound, simply "record" this function in some way.

However, what we perceive in a sound, are the changes in pressure that are mathematically characterized by frequency components of the function. Ultimately, these components are the perceptual units that are the signifiers of language. In other words, they are phonemes in speech and musical notes in a melody.

The task of writing these units is to encode using symbols that may be easily recorded and interpreted. On this basis, it builds lexical elements and syntactic structures are created that define the relationships between these elements.

Comparing the sound with movement, we can note two significant differences: the first is linked to the issue/capture; the second is linked to the size of their parameter space.

The issue/sound capture is symmetrical and direct. That is, humans have mechanisms that

Video/book presentation text Nota-Anna - an electronical notation of body movements based on Laban method, Annablume and FAPESP publishers, São Paulo, 1998.

enable it to produce and perceive sound waves directly, respectively through the vocal cords and ears. In contrast, the emission/capture motion is asymmetric and indirect. This is because the movement is produced throughout the body, while its perception is made indirectly by the sense of sight.

Note that a singer hears the music is singing exactly the same way as the others around them. A dancer, instead, realizes his move quite differently from those who attend.

In relation to the parameters, the sound is much simpler than the movement, whatever the approach used in the comparison. In terms of production, the sound, as we talked about before, is associated with the variation of pressure; It depends on one parameter only. Since the movement is associated with the variation of the joints of the human body, ie something between 15 and 30 different parameters, depending on which joints are relevant to the movement. In terms of perception, the sound is again associated to a parameter. Mathematically is a scalar function of a variable, and therefore has dimension 1. The movement, given that it is perceived through an image that varies with time, it involves more parameters. Mathematically is a vector function - color (white and black) - two spatial variables in time. Therefore, dimension has at least 3 (for monochrome images).

Moreover, the movement is not displayed in its entirety, as occurs in three dimensional space environment, but the observation is given by a single viewpoint.

Still on the sound relation with the movement, it is worth remembering that often the movement is closely linked to sound. This is the case of dance, when you follow the beat of the music.

It can be concluded from the above analysis that one way is to register the movement through a sequence of images. Indeed, since the invention of cinema, this format is used for this purpose.

But the motion picture records the movement in its raw form. There remains a form of registration allowing encode syntagmatic units move and assemble more complex semantic structures. Some notation proposals have been developed for this purpose, including the Labanotation which served as the basis for the Nota-Anna.

Such writing systems run an analysis of the essential characteristics of movement as space, time, force and creep. These elements are graphically represented by symbols indicating the behavior of each part of the body.

Although such systems enable the recording and reading of movement and dance, they are quite complex and do not reflect all the significant movement of wealth.

It can be said that ratings based on graphic symbols constitute the first generation of motion of writing systems. Despite its limitations, these systems fulfill their role as best as possible, given the constraints imposed by available technology by mid-century. Namely, the two-dimensional and static graphics allowed by paper and pencil.

With the advent of the computer, the era of computerization techniques opens up new possibilities for the development of a second generation of motion of the writing systems.

This is where you insert the work Analivia when drawing up the Nota-Anna system.

The computer enables direct recording of the movement, and furthermore, the use of dynamic three-dimensional graphics. Nota-Anna chose scanning from video images and animated representation by wire figures.

Within this perspective, the system incorporates an option for simplicity that in general is the most effective proposition and paradoxically the most dif cult to achieve. The system design takes advantage of all the features of the current state

of the art in computer graphics, without sacrificing ease of access and low cost.

In addition, the system is open for the introduction of new resources from a future evolution of technology.

In conclusion, Nota-Anna, in its current stage, it is undoubtedly a tool that allows the recording and visualization of motion, direct and natural way. With its evolution, by the incorporation of computer vision and artificial intelligence techniques, Nota-Anna, probably can also become a powerful analysis tool and motion design. Maybe even turn out to be widely used by all those who cultivate this art.