

DOUGLAS EDRIC STANLEY

Asymptote, ICC BIENNALE '99

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A.SYMP.TOTE

(ĀS'ĪM-TŌT', -ĪMP-)

asymptota
NEW LATIN (~1600)

asumptōtos
GREEK

a-, not

sun, together

ptōtos, likely to fall

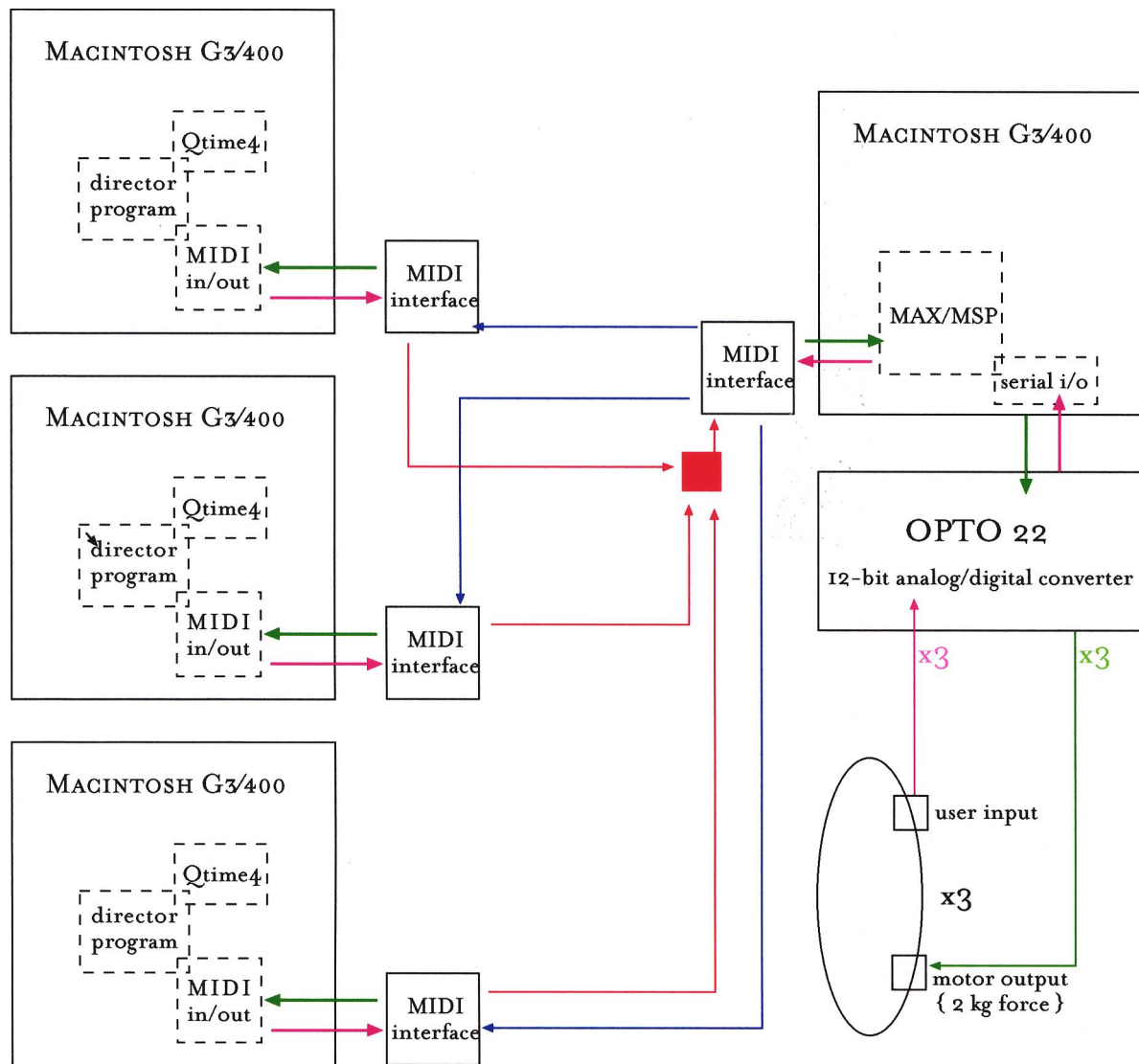
patati, to fly, to hurry, to fall
SANSKRIT

petesthai, to fly
INDO-EUROPEAN

Math. A line considered a limit to a curve in the sense that the perpendicular distance from a moving point on the curve to the line approaches zero as the point moves an infinite distance from the origin. Fig. Two or more elements stretching towards each other, achieving contact only at infinity.



INTERACTIVE FORCE-FEEDBACK INSTALLATION



The installation allows for 33 Kbps communication over Midi/Serial lines. The Max/Msp machine works both as a real-time music composer, and as data server for the motors + Director machines. In this way, Max takes care of the sound and the motors, whereas Director just takes care of piloting Quicktime. The Director computers also have the task of changing stories/objects, of passing information/interaction from one object to the other, in other words, of advancing the storyline, this allows for more robust intelligence than what Max would allow for, as Director/Lingo

contains all of the features of a traditional language (objects, arrays, recursion, etc).

In the ICC version of Asymptote, three G3 computers, connected to 6 projectors, controlled the video images of the marionettes. More recent versions of Asymptote are based on "Abstract Machine" code, allowing for more dynamic interaction between objects/marionettes. This would also eventually allow for all of the marionettes to run off of a single G4/500 machine, with another G4/500 taking care of sound/interfacing.

INTRODUCTION

In both its mathematical and figurative uses, the term "asymptote" describes a paradox: two elements, by nature incompatible, extend themselves nevertheless towards an infinite point at which their impossible contact can take place. A line, by the rules and conventions of mathematics, cannot be mistaken for a curve. However in the case of the asymptote, which situates itself at infinity as a tangent to its hyperbola, one can speak of this line endlessly becoming this curve and of the curve endlessly approaching the form of the line. An impossibility seeking its possibility at the point where it is most comfortable, in the impossible.

The installation *Asymptote* takes its point of departure from the narrative-essay « On the Marionette Theater », written by Heinrich von Kleist in 1810. Although Kleist makes direct reference to the asymptote, his central allegory revolves around the similarly paradoxical relationship of the marionette and the marionettist, in which an object devoid of gravitational forces takes on the emotional weight of its operator, thus effectuating a transfer or translation between matter and the disjunctive imagination of the human subject. The operator's gravity-bound gestures are uplifted into a state of grace, described by Kleist as a sort of spiritual prosthesis. The central conduit of this transfer takes place through the wire that both connects and divides the two worlds.

Two centuries later, this wire necessarily takes on new significance in light of the contemporary prosthetics offered by computer interaction, and serves as the central interface of the installation.

INSTALLATION

In the center of a darkened room: a small cylindrical pedestal. A series of thin wires connected to pulleys sit atop the cylinder, which in turn connect up to three computers lying in the cylinder chamber, and which are visible through the transparent glass of the top surface. The wires are tightly stretched and offer a force-feedback resistance when pulled. When the museum visitors pull these strings, a series of interactive video images projected onto the walls of the installation react to these interventions: appearing, disappearing and evolving according to the rhythm of the interactor's gesture. By pulling on one of the strings violently, for example, the hand of a marionette appears, spinning in circles frenetically, hitting itself with each rotation. With another, softer, pull of the string, another marionette's hand gently caresses a third marionette's hair. Slowly, as the visitors pull and release the wires, an interactive narrative develops, based on stories from Kleist's text. These stories are related, as in the text, through a dialogue that takes place between the narrator and a renowned ballet dancer the narrator happens to meet in a public park. As the interactor(s) activate the wire interface, this dialogue develops, takes unexpected turns, and eventually bifurcates to follow the digressions of the interactor's interventions.

The cylinder is large enough to allow multiple visitors to interact with the piece simultaneously, however small enough to allow a single user to pull the various strings as if it were a stringed instrument. Inter-user interactions are made possible through the motorization of the strings. For example: if one user — by pulling on his or her string — interacts with the image of a marionette pulling a rope, while at the same

time a second user interacts with a similar image, a tug-o-war suddenly becomes possible, in which each user can feel the interactions of the other as well as visualize the resulting image. In other cases, an image itself will give feedback as to the weight and resistance of an object, thus allowing the user to enter into a physical as well as mental relationship with the object.

INTENTION

The first, and most obvious issue that I intend to explore in this installation, is the relation established by the "string" or wire poised between the "interactor" and the computer device, or "dispositif". This relation is at once imaginary and effective: it is a psychological projection as well as a physical configuration, whether or not there is an actual wire connecting the hand or body to the machine as in the case of *Asymptote*. It is a prosthetic relationship, in which a paradoxical, or asymptotic relation of exchange is offered between the hand of the interactor, and the image of the machine; where two incompatible worlds approach one another, and exchange their perspectives.

The second element I want to explore in this project is the question of weight and weightlessness. Kleist is very clear on this matter. Humanity is plagued by its "gravity" (in all senses of the word), which gives it the ability to affect and be affected, while imposing at the same time a false movement. Meanwhile, the puppet eternally floats above the ground, only brushing it lightly as if a simple obstacle. Their spiritual bending of one to the other allows them to know something of the other: the marionettist's movements become light and airy, while the marionette takes on something of the emotive powers of its human counterpart. Although this sort of man-object relationship has become somewhat obvious and almost academic, for me the same configuration is at work when we interact with computers, and remains to be fully explored. Computers are, in my opinion, one of the ultimate manifestations of a zero-gravity, infinite space. I do not take it lightly that the first computer game [*Spacewar*] took place in the stars and was a bloody

war leading to annihilation. This meeting of bodily flesh and abstract O/I-space, this literal inversion, resembles the same exchanging of roles described by Kleist.

The final aspect is a bit more technical and concerns a series of interactive figures I have been developing in which the interactor's qualitative as well as quantitative gestures are related to a filmed object as if by a string. I have been calling these figures "video marionettes" for several years. The idea is that the interactor literally pulls along an actor's trajectory, modifying both the movement, and the time of the image. This work has led to a number of experimental and artistic explorations, notably an interactive dance piece in which the users literally unravel the choreography, and hence all of the dancer's movements. *Asymptote* is a continuation of this research, and can be considered one chapter in a multi-work thesis I am currently preparing at the Laboratoire Esthétique de l'Interactivité at the University of Paris 8. It is followed by another interactive program entitled "The Abstract Machine", which is currently being finalized in CD-Rom format. The Abstract Machine is a highly interactive demonstration of the principles at work behind the scenes of *Asymptote*, and of my other work involving algorithm-controlled video images. It attempts to playfully show the relationships of diverse video-objects, as in *Asymptote*, and their possible interactions, as well as teach basic principles of programming. For the next two public installations/versions of *Asymptote* (Marseille, Prague), the Abstract Machine will accompany it, offering the public an interactive deconstruction of the work.

Douglas Edric Stanley

« But from another point of view, this line was something very mysterious. For it was nothing other than the path of the dancer's soul; and he doubted if it could be found unless the operator imagines himself at the puppet's center of gravity — that is, in other words, dance. »

—Heinrich von Kleist, *On the Marionette Theater*