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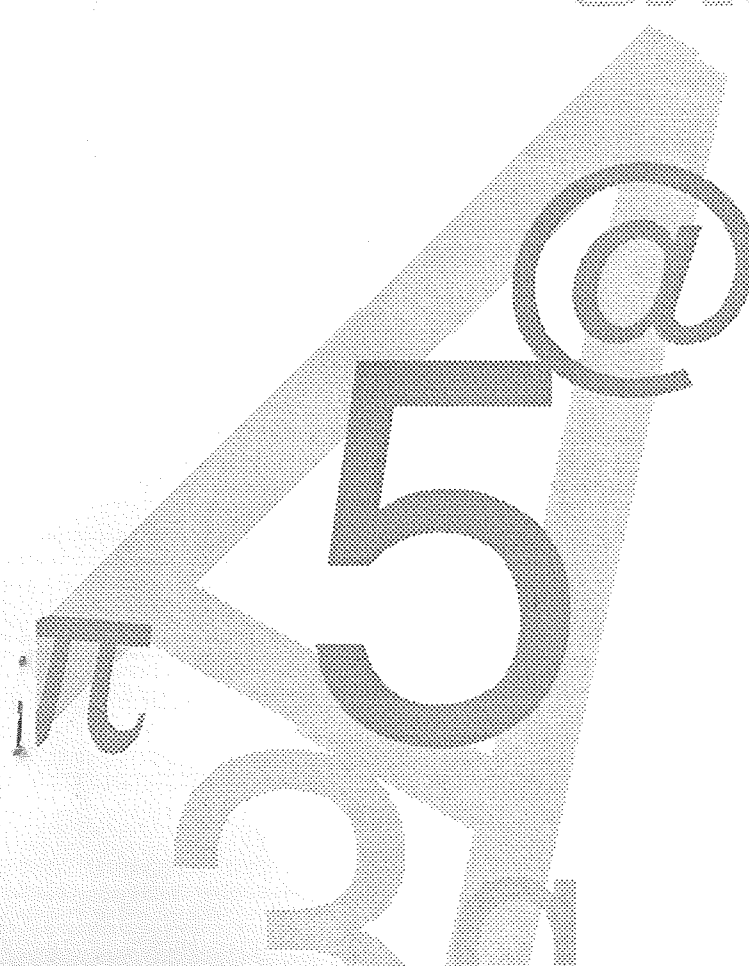
**CATS**  
**Computer Aided Theatrical Score**  
Esprit Project 20340

## **Symbolic Notation Specification**

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# CATS

Computer Aided Theatrical Score

## CATS Symbolic Notation Specification

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## 1. INTRODUCTION

For the purposes of this document the term *symbolic notation* has a broad sense: it means any formalized description of information through symbols, texts and drawings. Therefore it does not represent a real symbolic language.

Symbolic notations are employed by CATS in two contexts:

1. in the *input language*, i.e. the user interface's *jargon* that allows the user to specify a *staging score* and to deal with a *staging project* within the CATS environment;
2. in the *output language*, i.e. the notations used by CATS in compiling reports for documenting several aspects of a stored project in a form other than the simulation on the screen in order to provide a means for communicating staging ideas to various people or to describe how some activities must be executed during the production phase.

The purpose of this document is to define the CATS Symbolic Notation on the basis of the results of Task 2.2.1 (Analysis of Existing Notations and Standards) and of WP 1 (User Requirement Collection).

## **2. APPLICABLE AND REFERENCE DOCUMENTS**

### **2.1 Applicable Documents**

This section lists all the documents that are applicable to the present document. Each document is identified by a unique number:

1. D2.2. - Analysis on Existing Notations and Standards Report

### **2.2 Reference Documents**

This section lists all the documents, which although not directly have been referred to for a better description:

1. Requirement Collection for Theatre Report
2. Requirement Collection for TV & Cinema Producers Report
3. Requirement Collection for Drama Schools Report
4. D1.1 - Requirements Homogeneization and Generalization

### 3. GENERAL DESCRIPTION

This section contains a general description of the CATS Symbolic Notation in terms of its major features and purposes, along with the principal objectives that have been pursued in defining it.

#### 3.1 Function and Purpose

The CATS Symbolic Notation is introduced to satisfy the need to have a number of ways to represent the information related to the elements of a performance designed with CATS. In particular, it is not strictly speaking a formal language but a set of symbolic descriptive methods.

The Symbolic Notation includes the following parts of the CATS simulation and authoring environment:

1. the symbols of the CATS' Graphical User Interface (e.g. bitmaps on toolbar buttons, flags and drawings used for representing actors and scene components), whose meaning the user should be able to immediately understand in order to easily manage a staging project;
2. the formalisms employed by different modules that make up the CATS authoring environment for defining the properties of the elements of a performance;
3. the notations used in the reports generated by CATS and used as a means for communicating staging direction ideas to various people involved in the pre-production and production activities.

The choice of a notation is a critical aspect of the system design. In fact, because it affects all the aspects of the communication between the user and the application, it has a very strong impact on the usability, and ultimately on the success, of CATS. Thus, the CATS Symbolic Notation should be easy-to-use and should include as much as possible the habits consolidated in current practice.

#### 3.2 General Constraints

The staging direction descriptions that are used in practice mainly consist of personal annotations and don't have a standardized form.

The user representatives state that sophisticated symbolic languages are not commonly used and are considered difficult to understand. In particular, they clearly remark that forcing the utilization of a given formalism may be a very dangerous decision because CATS' users might not agree on such a formalism and might not want to spend any time learning it.

Consequently, only well assessed and universally accepted formalisms (such as the CPN notation for music) will be taken in account. Highly specialized symbolic formalisms that are not used in practice (such as body motion notations) cannot be

## **4. SYMBOLIC NOTATION DEFINITION**

This section describes the main features of the notations adopted in CATS for equipment, speech, human body motion and music. The next section focuses on the output documentation.

### **4.1 Technical Notation**

In general, using the performance template mechanism, the CATS user is free to choose the preferred notation to be used both in the CATS authoring environment and in the output documents. However, the technical notation described in Deliverable 2.2 will be considered as the default notation for text, for representing the arrangement of equipment (cameras, floodlights, etc.) and the position and orientation of characters.

### **4.2 Speech notation**

CATS allows pitch notations through the speech interface by means of the INTSINT system which is very simple because it only uses an arrow representation without taking into account the linguistic knowledge. Besides it is independent from languages (available for English, Italian, Spanish, French) and is useful for any producer, actor or student who intends to represent and try several versions of intonations.

### **4.3 Human body motion notation**

Notations for human body motion (Labanotation, Eskhol-Wachmann, Rajka) are considered too much difficult to use, since they address sophisticated and highly trained users. Therefore, the CATS authoring environment does not support such symbolic languages for building motion and provides another kind of approach, more similar to the one followed by existing animation packages.

### **4.4 Music notation**

CATS will provide a Piano-Roll interface to compose music. Piano-Roll notation is a de-facto standard that is integrated into all computer music software (sequencer, score editors). It offers an intuitive and easy-to-use graphic interface to those composers who create their scores on computers and execute their compositions by using MIDI devices.

## 5. OUTPUT DOCUMENTATION

The user is allowed to ask the system for various kinds of documents, each of which presents a different point of view of the performance by delivering a specific subset of the information that has been previously introduced when the staging project was authored and that can be useful in different phases of the pre-production and production processes. Obviously, these documents are not intended to cover all the needs of the production, but only the aspects designed with CATS.

### 5.1 Document Classification

In general, a performance is logically structured into several phases (e.g. *sequences*, *scenes*) or may be subdivided into smaller action units (e.g. *shots*, *actions*). Such a hierarchical organisation is different for each domain (i.e. theatre, cinema, etc.). For instance, in specifying a film, the narration flow is segmented in *sequences* and *shots*, where a sequence is identified by space unity and a shot is a segment of a sequence running between the camera commands *action!* and *cut!* (it corresponds to camera unity). On the other hand, a theatrical play is divided into *acts* and *scenes*, which are action units which a given number of actors participate in. Moreover, performance units can be grouped into high-level blocks according to a certain theme or based on other kinds of artistic considerations.

Of course, output reports' contents should be itemized according to the performance structuring. As stated above, the adopted solution is to allow the user to select from a collection of *performance templates* (e.g. film, theatrical piece, TV-show, etc.) that encompass the rules enabling the program to automatically perform the hierarchical structuring of the documents.

There are two kinds of documents that CATS is able to produce:

1. *Object Documents*, that are related to a specific object of the performance's specification (e.g. lights, cameras, sounds, actors, etc.).
2. *General Documents*, that provide information about the performance as a whole (e.g. the *story*, the *storyboard*, the *breakdown*), and

Basically, an object document addresses the needs of a specific worker (actors or technician) and indicate, in form of executive plans, what he is expected to do (in "managing" the object) during the production of the performance.

Moreover, among the objectd documents, we can distinguish between:

- b) *Property Documents*, that describe the (static) *properties* of the object, and
- c) *Action Documents*, that define the *actions* that a specific *agent* (an actor, a floodlight, a camera, etc.) must perform in order to synchronize its behaviour with the other elements of the performance.

Notice that general documents (e.g. the breakdown) may include annotations about the objects of the performance to specify how they are involved in each performance's phase. However these annotations lack of detailed information about object properties and behaviour (in fact, this kind of directive are contained into the appropriate action documents)

## 5.2 Document Structure

Without entering into a detailed description of documents' layouts which, as stated before, will be determined by specific templates, we define a general framework for describing a CATS document's structure.

Each document has an horizontal and a vertical organization. Hereafter, the *horizontal organization* of a document defines the specific situation of a given performance and the *vertical organization* the way a document's contents are itemized in order to reflect the logical structuring of the performance (e.g. in *acts*, *scenes*, and *actions*).

In particular, as concerning object documents note that, while the structure of property documents is different for each kind of element in a performance (e.g. drawings and plans for the stage, annotated text for the actor speech, etc.), there is a common horizontal organization for all the action documents. It consists of three parts:

- a description of the situation of a specific performance; this may consist of a *snapshot* of the performance showing the status of all (and only) the elements that are meaningful for the actions to be specified;
- a report on the *events* happening in the situation described by the snapshot and which should be interpreted as *point of synchronization* for the actions;
- the specification of the *actions* to be undertaken by the agent in accordance with the succession of events occurring in the situation.

The way these three parts (snapshot, events, actions) are represented depends on the selected notation. Furthermore, the horizontal organization (e.g. the columns into which each line is partitioned) is determined by the type of information involved (e.g. the document specifying the behaviour of the camera, the document specifying the behaviour of the lights, the document specifying the role of a given actor, etc.), while the subdivision of the performance into logical units (as specified by the template) leads to a vertical organization.

## 5.3 Examples

It should be noted that CATS provide new, unthinkable possibilities to its users as all the information memorized by CATS can be printed in any combination and represent completely new documents with respect to the traditional ones. On the other hand only the practice and experimentation can reveals the utility of these possibilities to users who will be free to decide the most useful format.



For the purposes of this report, a selection of currently known documents is listed and briefly described. A more exhaustive and complete description of all the documentation used in production is given in the Requirement Collection Reports.

### 5.3.1 *General Documents*

#### **Story**

The Story is a very short narration (usually 1 - 3 pages of text) in which events, places and characters are outlined in a synthetic form. The purpose is to give a general idea of performance's potentialities.

#### **Treatment**

The Treatment is a more detailed written description from which the form of the performance can already be perceived. The document can have an episodic structure based on the logic structuring of the performance. Each episode outlines the action and includes a synthetic description about time and place. Neither dialogues or technical indications are included.

#### **Script**

The Script is the written text of the dialogues said by actors and a description of the actions that take place on the stage. The narration flow is segmented and numbered in a succession of episodes as in the Treatment. Every episode is headed by its number, by its title and by indications about time and location (interior/exterior, night/day, etc.). Then the characters involved are listed, together with their role, and a summary of the the action is provided. Finally the dialogues are itemized in *cues* and headed by the name of the speaking character. Cues are interleaved with a description of what happens in the scene.

#### **Breakdown**

The Breakdown is a revision of the Script that includes technical indications along with a more detailed description of the stage and the feeling, and where each episode is translated in several phases according on the performance's logic structuring. The form of the document should be suitable for providing the user with a first draft of technical requirements for music, lights, cameras, etc., with respect to the different episodes and phases. Thus the Breakdown is the framework according to which the full performance project is organized.

### 5.3.2 *Object Property Documents*

#### **Lighting plan**

It contains information on spotlights position, direction and intensity.

**Musical Scores**

They are the result of the collaboration between the composer and the director, to be given to the orchestra for rehearsing and recording or playing live in the performance.

**Set report**

It contains a collection of successive drawings and plans of the stage.

**Continuity**

It records the exact timing and description of every shot with a special attention to actors and objects position in the last frame in order to assure the continuity of the work from one shot to the next one.

*5.3.3 Action Documents***Sound report**

It lists every sequence and shot with their corresponding sounds.

**Camera and light scripts**

These documents describe different shots with their specific lights within a scenario.