The Text in Scientific Exhibitions: Linguistic Constraints in the Production of Labels

Julie Desjardins
University of Montreal
Montréal, Canada

Daniel Jacobi
Institut National de Promotion Supérieure Agricole
Dijon, France

Marie-Sylvie Poli
University of Grenoble
Grenoble, France

Science museums are informal places of learning scientific knowledge. How do visitors, in an independent and non-linear manner, succeed in acquiring scientific knowledge? A museum visitor requires assistance in understanding the objects which are on display. Labeling is the primary, if not the only, tool which a visitor has available to assist him/her in interpreting objects.

The research presented is based solely on labels and not on the entirety of written texts in scientific museums. We shall define the label as a text which refers to an object (or to several objects). In this way, the text of a label is not independent, it always refers to an item and gives this item its meaning. We therefore exclude from the term "label" any self-sufficient explanatory sign.

The fundamental character of the label is generally accepted by museologists. Devenish (1990) maintains that an object has no meaning without the comments to which it relates. Numerous are the authors who confirm this role (McManus, 1989; Loomis, 1987; Borun and Miller, 1980; Screven, 1987; Bitgood, Nichols, Pierce, Conroy, and Patterson, 1986). The time when the use of labels was questioned (are they read by visitors?) seems forgotten.

A review of recent literature exposes an inventory of two types of work. Firstly, there are publications of a prescriptive nature which aim at certain parameters to control during label writing (choice of print, size of letters, length of lines, colors, etc.). Secondly, we find empirical research attempting to verify, in an experimental manner, the impact of certain variables on visitors' behavior. In spite of this abundance of literature, there seems to be one side as yet unexplored – an analysis of the linguistic quality

of labels.

The linguistic analysis enables us to partly touch on this singular relation between what is displayed and the recognition operation that the label establishes. How is this mediation function put into place? What are the linguistic mechanisms brought into play during this function? These are several questions which we will attempt to answer.

With the present research, we anticipate not only to better understand several linguistic constraints with respect to label writing, but also to show that the linguistic form of labels is an entirely separate variable. That is, by revising the text of labels, we may be able to modify their mediation function.

These are the very first results of the research which we present here – research which was carried out by our small team in Dijon and Grenoble (in France). Firstly, we will present an overview of the linguistic tendencies of labelling in museums and scientific exhibitions. The method used is quite simple – we have collected a sample of labels, as varied as possible, in scientific exhibitions. These visits were followed up with interviews with the museographers responsible for the writing of these labels.

In concluding this paper, we will briefly touch on the first results of another study in which, starting from our first investigations, we have modified the text of labels in a manner so as to assure ourselves of the impact of the linguistic variable.

Independent and Predicative Labels

To begin, we can separate the text of labels into two major categories. We have in fact been able to observe, during the course of our museum visits, two tendencies with respect to labelling: firstly, a minimal tendency wherein the sole function of the label is to designate – to identify the object. This tendency, strongly supported by the school of Georges-Henri Rivière, simply involves naming the object, most often with the use of words or proper nouns, without using sentences. We have agreed to refer to these labels as "independent." (In French, we refer to these labels as "autonymes.") Figure 1 provides an example of this kind of label. As we notice, this label uses no verbal form. It minimizes the amount of words by the use of a telegraphic style. And the information stated is strictly related to the identification of the specimen.

The second tendency, quite different from the first one, consists in using a text composed of sentences which surpasses mere identification. The writer comments, explains or recounts the object being displayed. We have chosen to refer to this label as "predicative." Figure 2 is an example of a predicative label. The text is long and formulated in complete sentences. The information stated is interpretative as it attempts to explain, describing the dinosaur's footprints, the ethology of the animal.

Summary Context

First, one should recall that museographers are experts who have many things to say about the items displayed. For the writer, the operation of selecting information to be transmitted is not an easy one; he/she is often tempted to say as much as possible and in fact, makes no selection at all. The space available for writing labels is limited and accordingly, if the writer wishes to write all that he/she has to say, the information must be contracted. This constraint explains why label writing has all the characteristics of a summary context.

In order to do so, the museographer has two options. The first, and by far the easiest, is to revise the text editing. As such, to provide as much information as possible in a limited amount of space, the writer will choose a small print, and at times, an extremely small print. He/she will also spread out the text by lengthening the width of the lines and, if more space is needed, he/she still has the option of condensing the lines together. The situation which we describe here is far from being an exception. This type of text is often seen in present-day exhibitions. No need to say that these changes in the editing of the text render the reading task difficult and the label unattractive.

The second option open to the museographer in submitting to the constraints of a summary context is to act on the wording of the text. In this case, it is by playing on the choice of words and their syntactic structure that the writer will succeed in contracting the message.

The first series of solutions consists in modifying the order of the text. As such, to limit the proliferation of signifiers, the writer will use such forms in an utterance as: the ellipsis or omission of superfluous elements in interpreting the message; nominalization or the transformation of a sentence into a noun phrase; contraction and embedding; the use of relative propositions, participle constructions, gerunds and infinitives, often placed in apposition, at the beginning of a sentence. To save more space, the information is inserted in a long and complex sentence.

Figure 3 portrays an example of the use of the ellipsis. It explains that the white feathering of the Ptarmigan plays a protective role in winter time. It is understood that the animal can camouflage itself better in the snow. The third sentence is a good example of syntaxic condensing: seven informations, four verbal forms, two subjects, two indirect object complements, four adverbial complements, four substantivisations, two ellipsis.

A second linguistic mechanism used by writers regards the rewording of specialized terms. We are aware that the text of labels often encounters problems with respect to the specialty language. Often irreplaceable, specialized terms must be reworded in order to be understood by the public who has not generally mastered such jargon. We will not linger for much longer on rewording processes (for a detailed study, see Jacobi, 1984).

We shall only reiterate that these mechanisms may be used in accordance with two practices: association or substitution. Associations are composed by repeating rotating terms with the help of a co-reference expression: synonym, defining paraphrase, meta-linguistic element, etc. An example of rewording by association of a defining paraphrase which is put into parenthesis is portrayed in Figure 4.

In order to save space, the writer generally prefers to use substitutions, which are different expressions that refer to the same concept in a series of sentences.

However, the most efficient method to ensure space saving is to not do rewording at all. This is the situation that is encountered most often in scientific exhibitions. Figure 5 shows an example.

The Variable Text

In this paper, we have focused only on one of several characteristics – the summary context. Our study, however, exposes additional linguistic aspects, for example, as regards the utterance. The text of a label is not void of all subjectivity and the author of a text succeeds in creating a communication relationship (distant or familiar) with the visitors.

In Figure 6, the second sentence clearly contains elements of the writer's subjectivity. These elements can be easily detected by linguistic analysis: "protected, disturbed, unfortunately, victim." In most predicative labels, the writer does not keep neutral. Indeed, the text of labels can be used as a strategic medium of scientific communication.

In short, the linguistic content of labels is extremely fluid and labile. By modifying the text in a determined way, can we succeed in influencing visitors' practices?

The results of a small experiment recently carried out at the Muséum de Dijon appear to confirm same. The experiment was conducted in the vivarium where approximately 30 live animals are on exhibit to the general public (children and parents). After observing the behavior of visitors, which allowed us to classify the items on display as appealing, somewhat appealing, or unappealing, we re-wrote the text of each label.

Our main concern was to ensure a certain homogeneity in the form of the labels as well as in the type of information presented throughout the exhibit. Furthermore, it was extremely important to keep the syntaxic structure as simple as possible since we knew that the exhibition was mainly visited by children. An example of the new labels is presented in Figure 7.

To verify the impact of each text, two types of information were used: first, a classic measure of the duration of a visit and the stopping times; then a recall test at the end of the visit whereby young visitors were asked to, on the one hand, identify the animals and, on the other hand, answer simple questions on their habitat, food, etc.

The results gathered show an increase in the duration of a visit and the number of stops, as well as a consistent increase in the number of correct answers. Admittedly, this single experiment cannot, by itself, be convincing. This experiment was carried out in a place where errors were apparent and it was manifestly possible to improve the efficiency of the plan of action. Nonetheless, our decision was based solely on the singular linguistic element and the effects registered appear to fully reveal that the text of labels is of great importance in scientific exhibitions.

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Figure 1
Example of Independent Label
(Museum of Grenoble)

Taupe (mole)
Talpa europaea

Figure 2
Example of Predicative Label
(Palais de la Découverte, Paris)

La plus belle piste de dinosaure
trouvée à Cerin

Par la taille et la disposition des empreintes, elle ressemble beaucoup aux pistes de dinosaures sauteurs, SALTOSAURUS. Mais elle en diffère par l'absence de bourrelet de sédiment à l'arrière des empreintes de pied et par le manque de palmure. Celle-ci laisse supposer une bonne adaptation au milieu aquatique. Il est vraisemblable que, dans ce cas, l'animal nageait en prenant appui sur le fond. La piste principale était constituée par sept couples d'empreintes. Seuls deux d'entre eux ont été moulés.

The most beautiful dinosaur track ever
found in Cerin

By its size and the layout of the tracks, it bears a close resemblance to the tracks of the hopping dinosaurs, SALTOSAURUS. However, it differs in that there is no sediment pad towards the rear of the footprints and no palmation. This supposes good adaptation to an aquatic environment. It is likely that, in this case, the animal swam by resting on the bottom. The main track was composed of seven pairs of prints. Casts were taken of only two of them.

Figure 3
Example of Summary Context Label with the Use of Ellipsis
(Museum de Grenoble)

A cours d'une année, le **LAGOPEDE DES ALPES** subit plusieurs mues. Trois plumages se succèdent, du brun en été, au blanc en hiver en passant par un stade intermédiaire.
La coloration blanche du plumage hivernal joue un rôle protecteur contre les prédateurs en hiver, de même que la densité du plumage fait de plumes remplies d'air isole de l'extérieur une couche d'air chaud emprisonné entre la peau et les plumes.

In the course of the year, the PTARMIGAN moults several times. Three plumages follow one another from brown in summer to white in winter, passing through an intermediate stage.
In winter, the white coloring of the winter plumage plays a protective role against predators, in the same way as the density of the plumage, composed of feathers filled with air, insulates a layer of hot air, which rests trapped between the skin and the feathers.

Figure 4
Example of Summary Context Label with Rewording by Association
(Museum de Grenoble)

LA VIE DANS LA MER ALPINE AU JURASSIQUE ET AU CRÉTACÉ
Un exemple d'animaux nageurs: les bélennites
-200 à -100 millions d'années

Les "rostres" de bélennites, en forme de cigare ou de balles de fusil, plus rarement en forme de languettes aplaties, sont des fossiles très fréquemts de terrains jurassiques et crétacés des environs de Grenoble et du sud-est de la France. Ils ne sont, en fait, qu'une partie de l'animal qui ressemblait à une seiche. D'ailleurs, l'"os de seiche" (c'est-à-dire la coquille de ces mollusques, coquille complètement entourée par les chairs) présente à sa partie inférieurs une petite pointe qui est l'équivalent du rostre des bélennites

La silhouette générale de ces mollusques bon nageurs et la forme de leur "os" interne sont connues grâce à de très rares empreintes de parties molles.

LIFE IN THE ALPINE SEA IN THE JURASSIC AND CRETACIOUS PERIODS
An example of swimming animals: the belemnites
-200 to -100 million years ago

The "rostras" of belemnites, shaped like a cigar or a gun cartridge and occasionally like a flattened tongue, are fossils frequently found in the Jurassian and Cretaceous areas around Grenoble and south-east of France. They are, in fact, only part of the animal which resembled a cuttlefish. Moreover, the "cuttlefish bone" (i.e. the shell of these moluscs, a shell completely surrounded by the flesh) has a small point at its lower part which is the equivalent of the belmnite's rostra.
The general shape of these molluscs, who were good swimmers, as well as the shape of their internal "bone" were revealed thanks to some very rare prints of the soft parts.

Figure 5
Example of Scientific Type Label
(Museum de Grenoble)

SPILITE
(= variolite du Drac)

Basalte triasique (les anfractuosités de
la lave ont été remplies de calcite).
Alluvions du Drac.

SPILITE
(= variolite from Drac)
(Triassic basalt [the lava crevices have been filled with limestone].
Alluvial deposits in Drac.

Figure 6
Example of Subjective Label
(Museum of Grenoble)

HIBOU GRAND DUC (BUBO bubo)
UHU - EAGLE OWL

Le Hibou Grand Duc faillit être exterminé. Aujourd'hui protégé il a recolonisé la montagne où il est peu dérangé mais on peut aussi le voir se rapprocher des basses vallées et des lieux habités où malheureusement il est souvent victime des câbles électriques qu'il heurte de nuit.

The Eagle Owl was practically wiped out. Today it is protected and has recolonised the mountain where it is less disturbed, but is also nearer the low valleys and inhabited areas, where unfortunately it often falls victim to electric cables that it hits in the night.

Figure 7
Example of New Labels
(Museum de Dijon)