Miradas
Revista de Historia del Arte y la Cultura de las Américas y la Península Ibérica

MIRADAS 09 (2025)
Special Issue: Experience and reception of images, objects and spaces in the Iberian Peninsula and the Americas

Special Issue editors: Alicia Miguélez, Sara Carreño

Editorial Deadline: November 2025

eISSN: 2363-8087
https://journals.ub.uni-heidelberg.de/index.php/miradas

Edited by: Miriam Oesterreich; Franziska Neff;
Institut für Europäische Kunstgeschichte, Heidelberg University

Hosted by: University Library Heidelberg

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Receipt date: 31/07/2024
Acceptance date:: 25/11/2024
DOI: doi.org/10.11588/mira.2025.2.114832

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Citation:
Amayra, Imanol et al. “SUMMARY Experimental study of the aesthetic preferences of images from Upper Palaeolithic figurative art.” Special issue *Experience and reception of images, objects and spaces in the Iberian Peninsula and the Americas*, edited by Alicia Miguélez and Sara Carreño. *MIRADAS – Journal for the Arts and Culture of the Américas and the Iberian Peninsula* 9 (2025): 213-228, doi.org/10.11588/mira.2025.2.114832.

SUMMARY Experimental study of the aesthetic preferences of images from Upper Palaeolithic figurative art

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Abstract

Aesthetic preferences function as mental frameworks in the choice of graphic representations. In this empirical study, we analysed aesthetic preferences towards prehistoric art in 92 images of Upper Palaeolithic figures: bison, horses and deer mainly from the Franco-Cantabrian axis. All the images chosen are drawn or engraved in an upright and static manner, and most are in profile. A convenience sample of 116 people aged between 18 and 88 participated in the study. Participants responded to the images presented using a computer programme. Specifically, we explored the role played by sociodemographic variables (age and gender) and figure variables (type of animal, degree of naturalism and orientation of the figure) in aesthetic judgement using a binary code (like/dislike) and response time. Our results show that aesthetic preference was higher for representations of bison and deer, with a greater degree of naturalism and colour. Younger people showed a lower overall index for this type of art. No gender differences were observed. Response time was longer for figures with higher aesthetic preference, degree of naturalism and colour.

Keywords: aesthetic appreciation · Palaeolithic art · reception

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Aesthetic preferences function as mental schemas in the choice of graphic representations. However, this seems difficult in the case of Upper Palaeolithic figurative art, where engraved or painted images depicting animals (horse, bison or deer), with some exceptions, are not very accessible or familiar. The bison of Altamira, the aurochs or horses of Lascaux, the lions of Chauvet or the horse engravings of Foz Coa are better known, especially to the Western public. Although these iconic images are included as a priority in informative catalogues that provide information on the places where they were discovered, the vast majority of them remain unknown.

The Upper Palaeolithic figurative art that appears both in caves or shelters and on portable materials (e.g. Venus), is not usually observed in its natural environment. The reasons for this are diverse. In many cases they are not found in accessible places, in others, access to their contemplation is restricted in order to avoid deterioration and, when it is possible to see them, the poor state of conservation, the luminosity or the weakness of their traces make them difficult to identify.

The existence of replicas or 'neo-caves' and museums where reproductions have been made seems to be a good solution. In them it is possible to analyse the size, colour, proportions and perspective of the drawing. The same can be said of the catalogues of rock or portable art published by archaeologists and prehistorians, which provide the viewer with a specialist's view that offers additional data, such as their age, relationship with other images and interpretations based on the theory of styles or authorship.

In one way or another, Upper Palaeolithic figurative art has gradually entered Western culture and is attracting the interest of more and more people. Its images appear in the textbooks of secondary school and high school students. Its motivations inspire documentaries, films and even best sellers that try to present a period of history related to the origin of the first cultures. Sometimes, all this is mixed with clichés, such as the well-known stigma of the mental primitivism of the first Homo sapiens based on the psychological clichés of researchers such as Luquet or Breuil, who attributed these figures to a form of childish, unevolved thinking, which is framed in the theories of intelligence of the early 20th century.

It is not easy for today's viewer to understand that the apparent simplicity of Palaeolithic representations of paintings, engravings, bas-reliefs or sculptures can hide an art form. The interpretation given by experts may clash with the perception of the layman, shaped by an aesthetic canon that tries to understand the graphic invariance of Palaeolithic representations. The same animals almost always appear, in similar postures, generally upright, static and in profile, with an outline that defines the integrity of the form, without ornamentation, detail or modelling. Figures suspended in the air, resting in any case on the bulges in the wall, isolated, superimposed one on top of the other, with no apparent interest in achieving a composition or framing with the adjacent images, in apparent competition with each other and, moreover, many of them incomplete. Also striking is the existence in some cases of obvious disproportions between some parts of the anatomy and others, which are somewhat strange.

The analogical, analytical and physio-plastic interest that these images transmit, allowing us to identify which animal it is, trying in any case to conserve the identifying structure of the species, attending to some anatomical details and excluding others, can generate a graphic constancy that facilitates the creation of a prototypical or average mental image for the spectator. For art experts, this may be the origin of a style, while for the layman, the isomorphism of the figures and their repetitive character allow them to be easily recognised through memory.

This mental faculty is at the origin of the formation of aesthetic judgements, since in order to judge it is necessary to compare an image with other previous images registered in the brain, consciously or unconsciously. It is difficult to assess the quality of a painting without first knowing that the outline or colour of a representation is familiar to the observer. Normally, there is a certain a priori rejection of figures or images that are unrecognisable. In its search for implicit order, visual perception does not tolerate well the lack of meaning or apparent relationship between certain abnormalities in the geometric shapes that make up a figure. Within Palaeolithic art this ambiguity between the figurative, the schematic and the abstract also seems to occur. Psychology has come tentatively close to understanding why some images are liked more than others. Differential Psychology and Experimental Psychology have explored the formation of aesthetic judgement in different artistic expressions, such as painting, sculpture or music. Through different procedures, they have tried to study empirically whether it is possible to identify conditions and measure variables that influence aesthetic taste.

We know that the set of aesthetic conditioning factors is numerous, difficult to determine and even more difficult to control at an experimental level. From the perspective of scholars such as Gombrich, Arnheim or Berlyne, the first studies of the Psychology of Art were born, in which an attempt was made to identify these variables of interest. These include situational and personal factors. Among the former, the perceived complexity of the images should be highlighted. This, together with order, refers to the amount of information provided by a graphic stimulus. Intermediate levels of complexity are aesthetically preferred over more chaotic or complex stimuli. On the other hand, there are person variables, such as age or response time. Age may be related to the degree of preference. We know that the person goes through different evolutionary periods ranging from an initial interest in schematism in childhood to a greater preference for realism from adolescence onwards.

It is also found that older people have more accumulated knowledge about the world, including art, and therefore have more criteria for comparison. Having a greater graphic memory may influence the degree of information processing. This can be more or less profound and is manifested in the time the person spends analysing the shape, colour, modelling or perspective of artistic figures. As a consequence, the response time, i.e. the aesthetic reaction of confirmation that one ‘Likes’ or does not ‘Like’ that image may vary from person to person.

These variables are the subject of an empirical study whose data we present. This paper describes some of the personal and situational factors that may be involved in aesthetic perception. For reasons of appropriateness, some have been excluded and we have focused

on those that we could subsequently analyse more systematically. Therefore, we have not considered the degree of previous familiarity that the participants had, nor have we taken into account asking each person to make a reasoned judgement of what aspect of the figure they have noticed (contour, colour, modelling, level of proportion) in order to establish its relationship with aesthetic taste.

From an inductive perspective, we have been interested in the role played by certain socio-demographic variables, such as age and gender, as well as others of a psychological nature, such as the degree of activation inferred through response time.

Empirical study

The experimental empirical study is based on the selection of an incidental sample of 92 animal figures representing the species of bison, horse and deer mainly from the French Midi region, the Cantabrian coast and the Pyrenees. These figures have contours with greater or lesser detail, modelling and even colour, with varying degrees of sharpness of outline. Some figures have a more balanced internal composition in their parts, while others are disproportionate.

The selection of the works was not random, but was based on the criteria of the late Prof. Juan María Apellániz. The incidental exhibition is made up of photographs of figures and pictorial tracings, wall engravings and the artefacts of the animals most frequently represented in the bestiary of the European Upper Palaeolithic. Incomplete figures, such as protomes, or representations of the animal's hindquarter, were excluded.

Another of the criteria followed was to balance the figures as far as possible according to the type of animal and the degree of disposition of the figure, i.e. where the animal's head was facing. The degree of complexity of the figures was also considered by including figures ranging from a variable low degree of abstraction to more schematic or realistic ones. Some of the images that form part of this work present difficulties similar to those that can occur with prehistoric figures when they are observed in their natural environment (ambiguity, luminosity, sharpness or definition of the line or lack of perspective).

All the figures have an uneven degree of colour, perspective, proportion, quality of line or modelling, the impact of which on the viewer will not be assessed when considering their final aesthetic judgement. We only limit ourselves to noting which figures are more or less attractive and whether this judgement is related to socio-demographic or psychological variables, such as response time.

The figures were presented separately, in an uninterrupted sequence and in the same order (first the bison images, then the horse images, and finally the deer images) using the PsychoPy computer program, which allows the participants' responses and reaction times to be

recorded with great sensitivity. This programme finally generates a data file for each participant in which three types of response were stored: the socio-demographic variables (age and gender), the 'Like'/'Dislike' response and the time it took the person to respond to each image presented.

Finally, an incidental sample of 116 people was evaluated. The sample ranged in age from 18 to 88 years. The younger ones were attending university for undergraduate education and the older ones as participants in cultural courses of different disciplines.

Each person could look at the images for as long as they wanted and had to answer with the keyboard whether they liked or disliked each figure. The data obtained were analysed by means of statistics in order to establish the degree of preference for certain types of animal, more naturalistic or schematic representation and figures with or without the presence of colour or modelling. For practical purposes, differences were compared according to gender, age groups (university students versus people with different degrees of education attending university cultural events) and response time. The degree of preference towards the type of animal image was analysed using multidimensional scaling procedures, which allow us to identify groups of figures that implicitly present some formal characteristics.

Results

Overall, the data reveal a moderate degree of preference for the Palaeolithic images presented. This is significantly higher in the group of people over 50 years of age (55% interest), regardless of gender, compared to younger university students (25% interest). While the latter are more inclined towards realistic figures with greater detail, the adult group also values the more schematic ones, with a more open taste and willingness to accept simplicity or schematism. However, they coincide with young people in rejecting more disproportionate figures and in their greater taste for realistic ones. The latter can be explained by the influence of memory schemata. People tend to recognise typical, highly similar images that have many features in common with other stored members of the same semantic category and to reject images that are disproportionate in their contour.

The response times to each of the images also revealed differences. Older people spent more time analysing the figures, which indicates a deeper level of processing. Young people's responses seemed more spontaneous. The lower average exposure to each of the 92 figures may be associated with the lower interest of the latter.

Aesthetic preference was greater for bison or deer images than for horse images, perhaps influenced by the greater number of disproportionate schematic figures or casts present in the latter sample. It is also possible that there was a so-called 'serial position curve effect' that explains the greater recall or bias towards the first and last stimuli in a sequence. In this case, the average portion of images between the first and last ones corresponded to horses.

Finally, there is little agreement on the value given to some of the figures that are usually included in prehistoric art catalogues. This is the case of the Marsoulas red-buffered bison, the Mayenne horse, the spotted horse from Pech Merle or a bison from Altamira, which in many cases did not exceed 25% of acceptance.

In summary, the work reveals that aesthetic preferences towards Palaeolithic art are conditioned by mental mechanisms based on the value of the order of images, the avoidance of ambiguous and indeterminate forms and the search for the analogy of the image with reality. These principles are common to all the people evaluated.

One of the main challenges faced by the research population was how to label or remember anonymous images, whose unknown authorship makes mnesic registration more difficult and which also look very similar in style. This apparent effect of low distinctiveness may explain the difficulty of being studied in a more analytical or in-depth way. In this case, the teaching role of art historians or prehistorians may be key to improving the didactics of art and offering detailed explanations that allow laymen to better understand the value of Palaeolithic figurations.

Fig. 1: Graffiti from 1660 depicting Palaeolithic figures in the Niaux cave

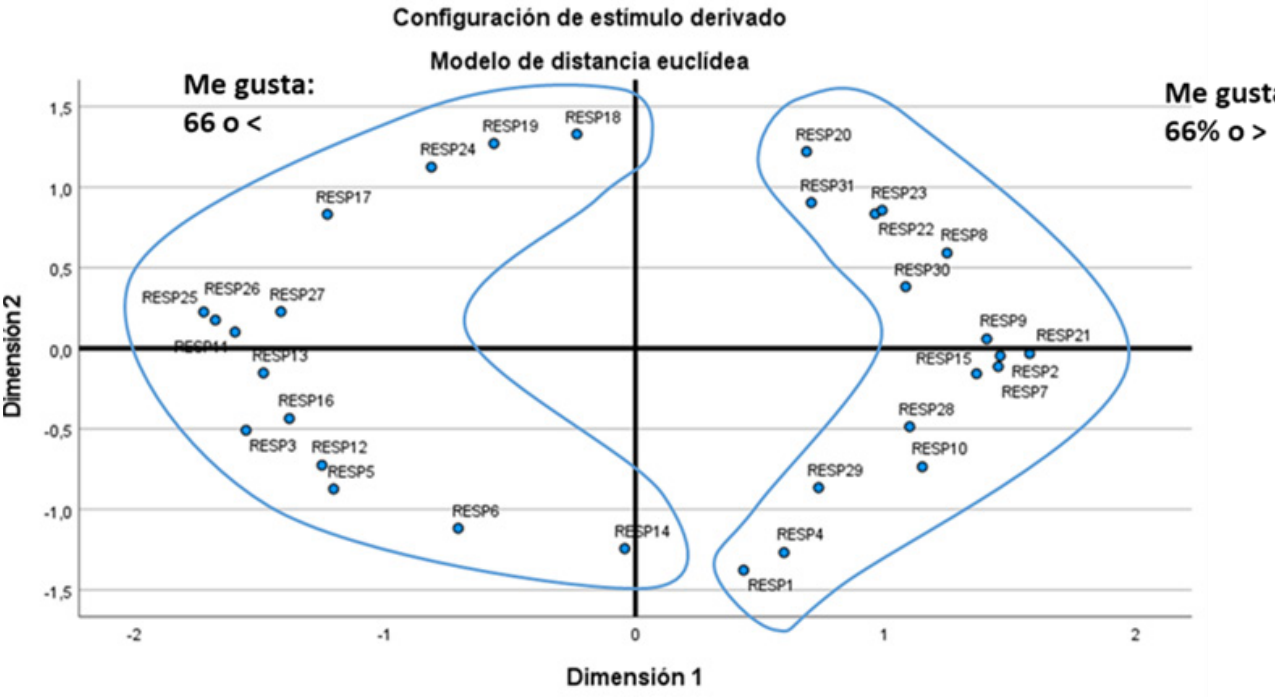

Fig. 2: Aesthetic preferences in the bison sample (EMD).

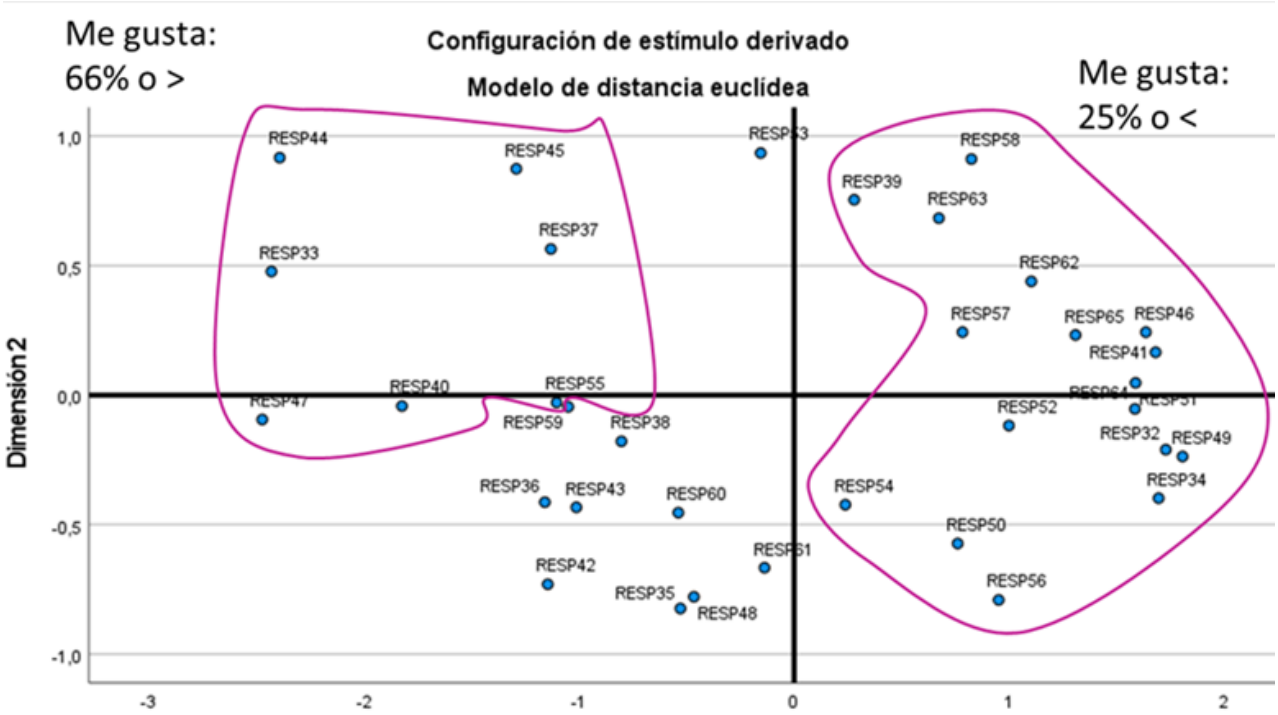

Fig. 3: Aesthetic preferences in the sample of horses (two groups)

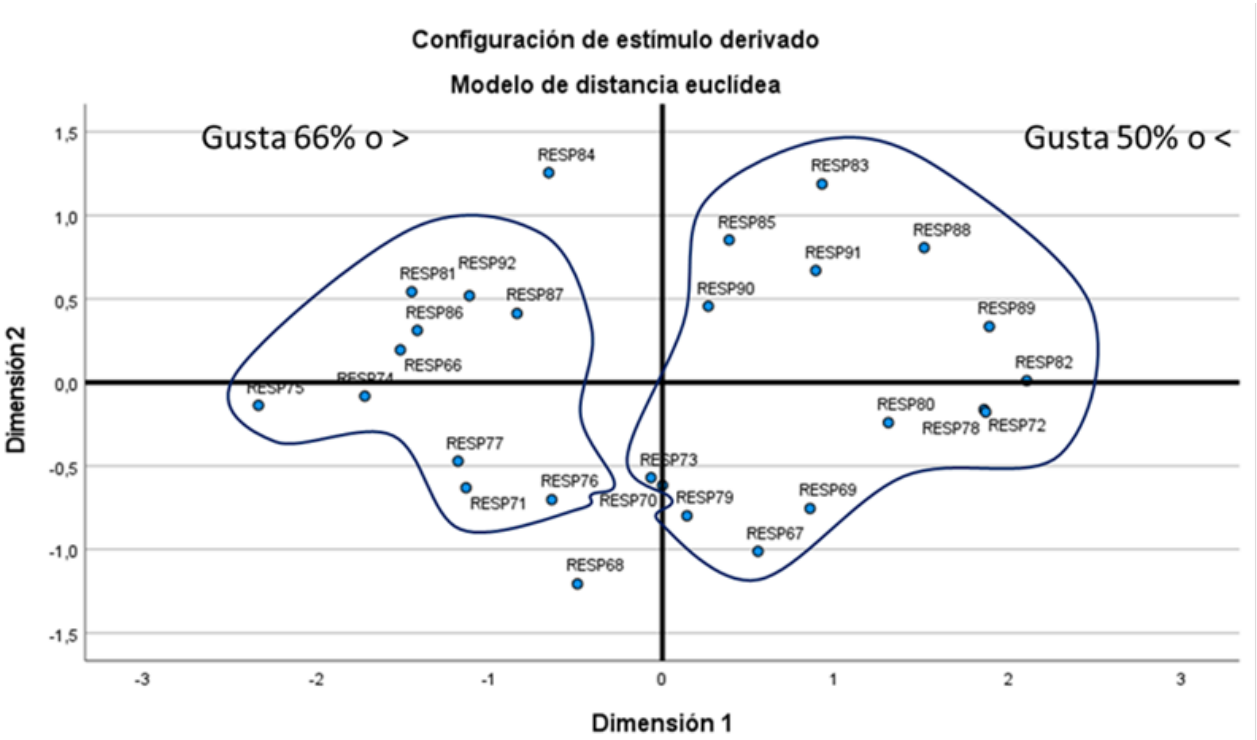

Fig. 4: Aesthetic preferences in the sample of deer.

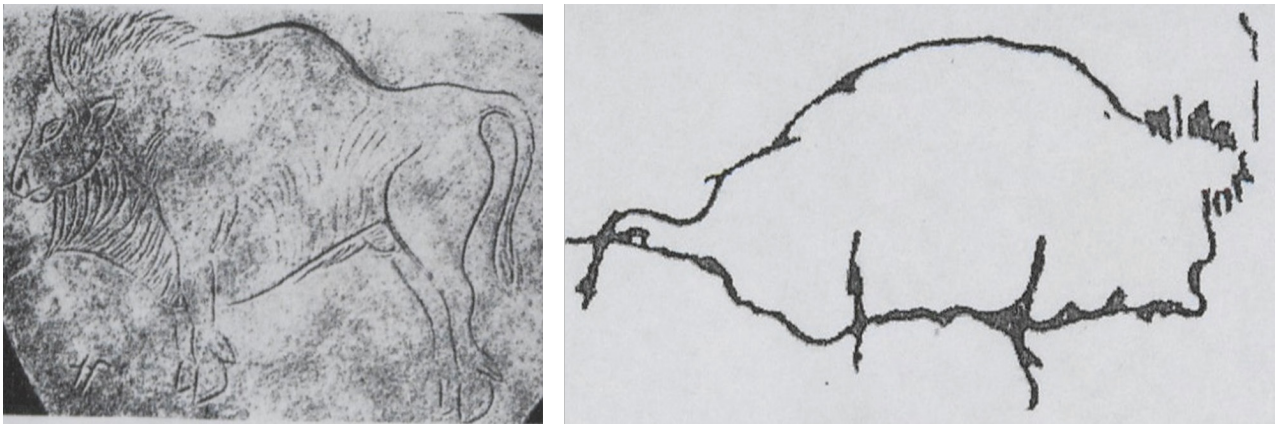

Fig. 5: Most preferred figure (left; Laugerie bison, code RESP21) versus least preferred (right; Santimamiñe bison, code RESP26).

Fig. 6: Most preferred horse figure (left, Chauvet, code RESP33) and least preferred (right, code RESP64).

Fig. 7: Most preferred deer figure (left, Kessler-Loch, code RESP75) and least preferred (right, Ojo Guareña, code RESP82).

Fig. 8: Contrasting aesthetic preferences according to age: greater preference among adults (Altxerri bison, code RESP12) than among young people (Ekain horse, code RESP35).

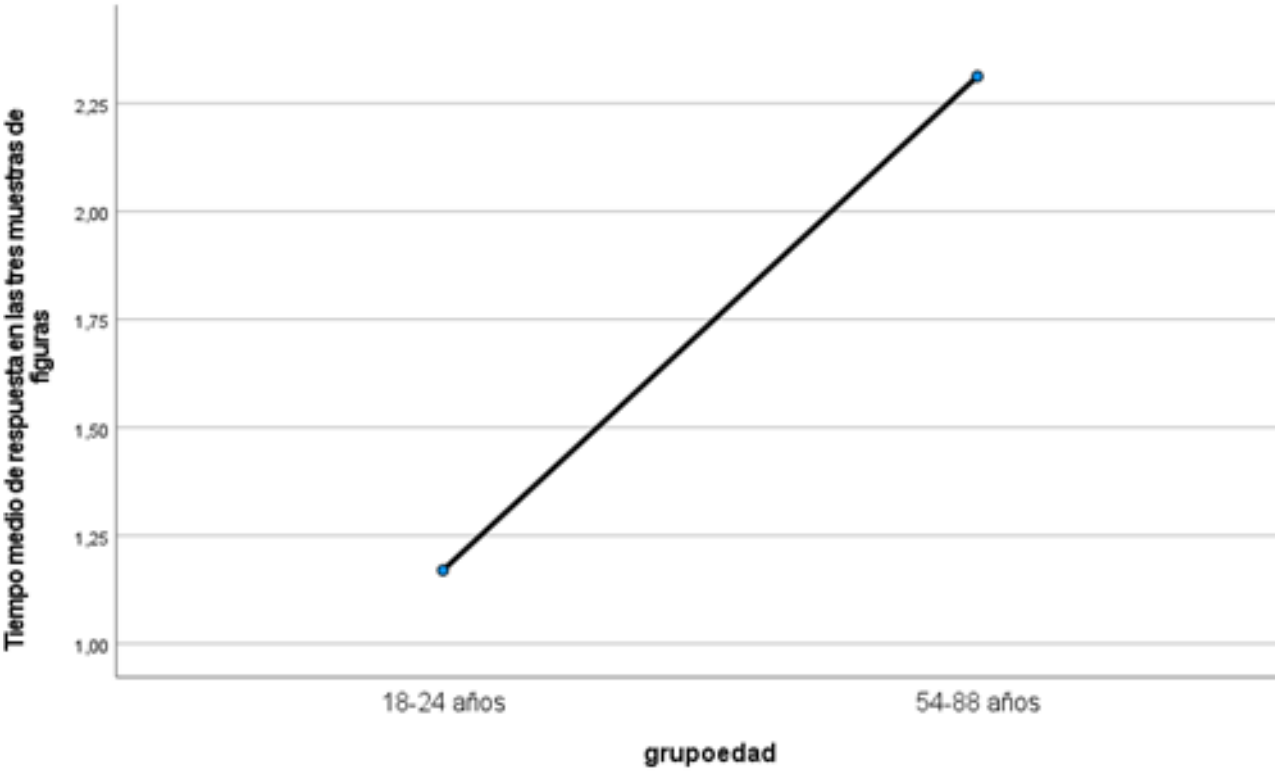

Fig. 9: Relationship between chronological age and response time.

Fig. 10: No difference in response time between the most preferred figure (left, Niaux bison, code RESP07) and the least preferred (right, Las Chimeneas deer, code RESP89).

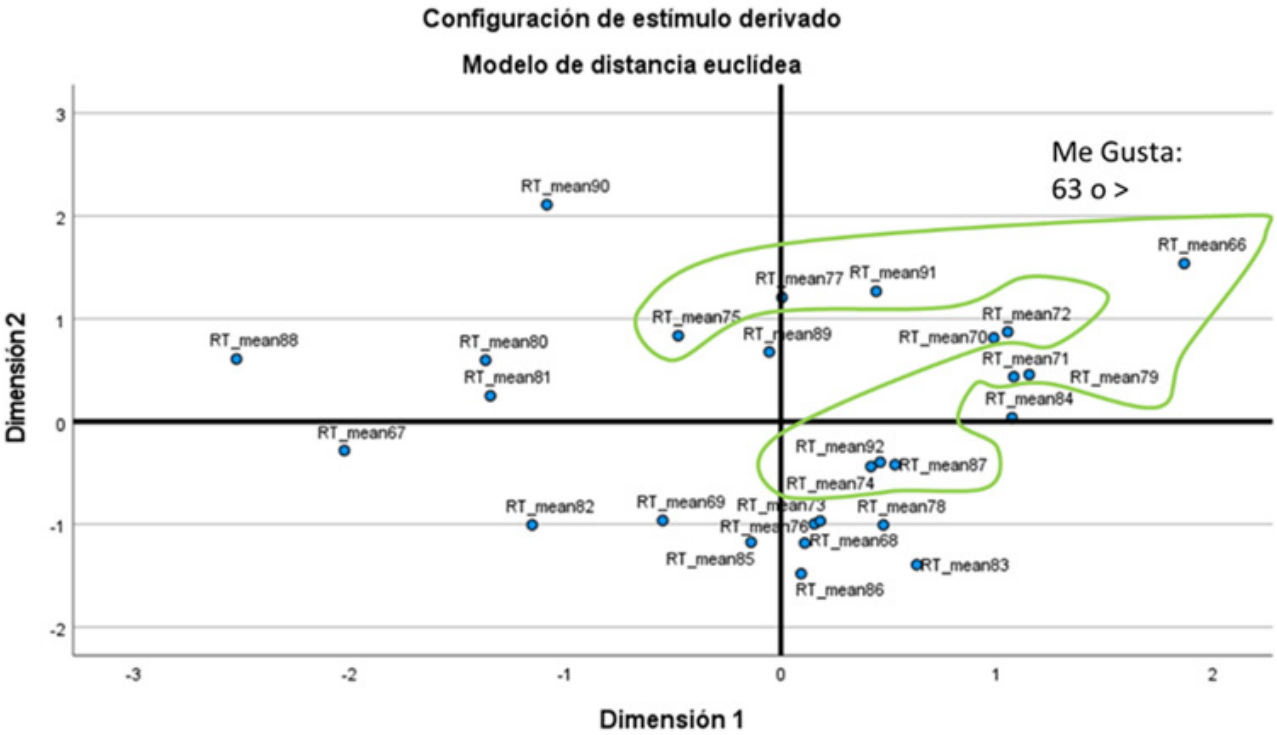

Fig. 11: Discriminant value of response time and aesthetic preference in deer

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