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Article

Cognitive and linguistic factors affecting the selection of landscapes in the Corpus of Language and Nature[1]

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Abstract

The present paper attempts to establish the relationship between the linguistic and cultural background of speakers of different L1 and their description of nature. Specifically, our research has an interdisciplinary foundation and investigates the relationship between language, environmental background and the contemplation of natural landscapes in the Corpus of Language and Nature (henceforth CLAN). The CLAN project is a collection of over 4,000 spoken descriptions of landscapes recorded online by 19 to 24-year-old university students from different parts of the world. The selection of the landscapes was based upon two variables: humid vs. non-humid landscapes and domesticated vs. non-domesticated landscapes. participants described 24 photographs combining the two variables, with six photographs per combination. The computer platform designed for the project presented the 24 photos in a random order and the students were instructed to freely choose the order of photos for their comments. The objective of the study is to analyze the participants' behavior in two aspects: the selection order of the photos and the duration of the contemplation and description of the photos. The results showed that the background environment and the number of languages spoken by the participants influenced the order of photograph selection and the duration of the descriptions. In sum, our article presents for the first time the relationship between the contemplation of landscapes and emotions from a linguistic perspective, and we believe that it can open research avenues to understand the cognitive processes in the linguistic and emotional evaluation of landscapes.

KEYWORDS: CORPUS OF LANGUAGE AND NATURE (CLAN); ENVIRONMENTAL BACKGROUND; LANDSCAPE; PERCEPTION

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1. Introduction: visual and linguistic appreciation of nature

The objective of the present study to establish the relationship between the linguistic and cultural background of speakers of different L1 and their description of nature. The article analyzes the behavior of the participants in two aspects: the selection order of the photos and the duration of the contemplation and description of the photos. Specifically, our research has an interdisciplinary foundation to investigates the relationship between language, environmental background and the contemplation of natural landscapes in the Corpus of Language and Nature (henceforth CLAN).

The notion of landscape preference (Gärling, 1998) has been a matter of intense study in recent years in environmental studies as it evidences the inextricable relationship between human cognition and natural contexts. In this sense, evolutionary ecology has shown the overall preference for landscapes that can guarantee ample mobility (Kaplan, Kaplan, and Brown, 1989), and the preference of natural vs. urban landscapes (Kaplan 1987). Adevi and Grahn (2012) defended two possible approaches to the conceptualization of nature by humans: the innate approach, which considers that there are no preferences attached to culture or personal background; and the cultural approach, which advocates for the role of upbringing in landscape preferences. The results of their study based on questionnaires show that childhood memories do play a special role in the preferences, although preferences considered innate are also important.

From a background perspective, landscape perception can be studied both in natural and urban settings. In this sense, landscape modifications are legion in our world and there is an increasing interest in the harmonization between modern uses and tradition. For example, in their study on urban settings Kurz and Baudains (2012) delved into the relationship between biodiversity levels in relation to the preferences of the dwellers. They investigated high- versus low-habitat-providing garden landscapes among residents in Perth, Western Australia. They related this factor with the concern and attitude toward native plants and urban biodiversity. The findings showed the relationship between garden-type preference and the residents' attitudes toward native plants.

Nevertheless, these preferences do not entail that the choices made by humans coincide with ecological quality in terms of purely scientific parameters, as Kurz and Baudains (2012) point out. From a theoretical perspective, preference has been epitomized as the synergy of complexity, order and legibility of landscapes (Kaplan and Kaplan, 1989). For these authors, legibility is the cognitive capacity to understand a landscape in all its components so that our mind can read it without any difficulty. Moreover, our minds can travel along and find an ideal itinerary in legible landscapes while we can get lost in illegible ones. To these properties, some studies have also added the role of mystery and surprise as human-hardwired psychological features.' Mystery

involves a likely interference on the future. Surprise involves a response to a present experience as it relates to previous experience' (Nasar and Cubukcu, 2011: 389).

The aim of our paper is to analyze the preferences in the selection of natural landscapes by people from different countries and continents speaking English as their first or second language. Our theoretical footing is based upon Kaplan's Landscape Preference Model (Kaplan, 1972, 1982, 1988, 1992; Kaplan and Kaplan, 1982, 1989). This model suggests that humans prefer environments that are easy to process cognitively and challenging or involving at the same time.

The present study follows the methodology of corpus linguistics (Romero-Trillo, 2008, 2013a, 2014) and is based on the analysis of the first collection of spoken descriptions of landscapes by native and non-native speakers of English worldwide. This collection, the Corpus of Language and Nature (CLAN Project®),[2] allows university students from different parts of the world to observe and video-record their comments on the photographs online. This visual approach follows the ideas expressed by Jorgensen (2014) stressing the importance of carrying out landscape research based on visual stimuli. The descriptions are preceded by the compilation of an adjoining questionnaire with biographical and linguistic features of the participants. The description of the speakers includes several key elements that we consider essential to assess their landscape appraisal: the rural, urban or suburban background, as for instance in Nation *et al.* (2010) or Cleland *et al.* (2012); the past environmental experiences in childhood (Kyle *et al.*, 2004; Asah *et al.*, 2012; Cheng and Monroe, 2012); the frequency of visits to green places (Ward-Thompson *et al.*, 2008) or the educational background, as in Mobley *et al.* (2010). Undoubtedly, these past experiences imply different degrees of contact with nature during the participants' lifetime and, as a result, they convey different levels of emotional load. Therefore, we consider that the background questionnaire is an indispensable tool for the analysis of the landscape preferences and descriptions by the informants.

In general terms, the corpus intends to identify the semantic, prosodic and cognitive features of the descriptions of nature in relation to the biographic backgrounds of the participants and the implications for studies on linguistic variation and English language teaching (Romero-Trillo, 2013b).

The present approach is consonant with previous studies that have related viewer attributes with their preferences on natural landscapes. For example Kearney and Bradley (2011: 148) state in this respect that '[p]references … are based both on the physical reality of the scene and on the individual characteristics of the viewer that may influence how that scene is perceived or interpreted.' These authors classify the three most influential models for the analysis of landscape preferences as follows:

1. Kaplan's cognitive-based preference theory, which follows the landscape preference matrix: coherence, legibility, complexity and mystery (Kaplan, 1985; Kaplan and Kaplan, 1989).
2. The landscape aesthetic theory, mainly used in the fields of art criticism and landscape architecture, which is based on concepts such as line, contrast, pattern, balance, harmony, and other aesthetic characteristics (Litton, 1972).
3. The psychophysical approach, which has been used extensively in forest appraisal studies (Daniel and Boster, 1976) and uses the Scenic Beauty Estimation Method to predict beauty via elements such as number and size of trees, percentage of ground cover, etc.

According to Kearney and Bradley (2011: 150) 'environment-based preference research makes a very strong case that our preferences and perceptions are much more determined by our environments than by our idiosyncrasies.' For this reason, we believe that it is the researchers' task to understand how both external and internal conditions may interact in the case of groups of people with similar biographies. In other words, and following Kaplan's cognitive-based Preference theory, it is important to emphasize that the way one perceives the environment depends upon the environment and the perceiver (Kaplan and Kaplan, 1989). The factors that are traditionally considered in this kind of personal background, geographic origin, ethnic variation, etc. For example, Yabiku *et al.* (2008) analyzed the preferences of residents in metropolitan Phoenix, Arizona, in their environmental attitudes toward garden choices depending on four criteria: cost, ecological constraints, laws, and individual preferences. The results showed the overall preference for the 'oasis' type of landscapes in which green gardens were surrounded by desert areas.

In some cases preference studies place their emphasis on the educational sphere and the public's knowledge of environmental phenomena. For example Kearney and Bradley (2011) investigated the relationship between viewer responses and preferences to forested landscapes in relation to demographic factors, attitudes toward forest management, general forest management knowledge, and stakeholder group membership. Apart from the findings on the relationships between these factors, and contrary to the researchers' expectation, they did not find any significant relationship between being knowledgeable about forest management and the informants' preference for certain forest scenes. On a similar wavelength, Park and Selman (2011) analyzed the attitudes toward the changes in the rural landscape in England *vis-à-vis* new socio-economic demands. Their results show the reluctance of the participants to the changes of the classic English rural landscape *vis-à-vis* economic development, although they found a more open position to possible modifications in the younger population.

From a more psychological orientation, the role of natural landscapes on the enactment of positive emotions is, indeed, a topic that has benefited from extensive research in recent years. Han (2011), for example, described some of the findings of environmental aesthetics research to conclude that humans show a preference of natural landscapes over built landscapes, because they can evoke positive emotions, induce positive physiological conditions, facilitate cognitive processing, evoke positive behaviors, help restoration, and improve health. In this study, the author found the positive correlation between scenic beauty and restoration from stress or fatigue.

Some scholars have added culture as a key for the evaluation of landscape preferences like for example Nassauer (1995), who suggested that humans do not only manage and construct landscapes but we also contemplate landscapes and, by so doing, we make decisions accordingly about usage. In his words: 'culture structures landscapes', and 'landscapes inculcate culture' (Nassauer, 1995: 229). From a related perspective Hathaway (1976) analyzed the landscape preferences of English speakers in the US with Italian-American, Afro-American and Yugoslavian-American origins. The study investigated whether the subjects' first language-cum-family culture would influence their choice of landscapes. The results showed consistent differences between the groups of subjects, which hints at the fact that background culture and language bear an important role, even in the cases in which all the subjects have lived and shared the same context.

The relationship between language and nature was originally presented through the ideas posed in the classical work by Boas (1911) on the diversity of names for types of snow in Eskimo-Inuit in comparison with English. This question was then picked up by Whorf when he averred that 'We [English speakers] have the same word for falling snow, snow on the ground, snow hard packed like ice, slushy snow, wind-driven snow – whatever the situation may be. To an Eskimo, this all-inclusive word would be almost unthinkable. …' (Whorf, 1940; in Carroll, 1956: 216). In fact, Carroll was the scholar who labeled the development of this descriptivist approach to language and nature as the 'Sapir-Whorf hypothesis' (1956: 27), based on a connection between Whorf's ideas and Sapir's famous statement: 'Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society … The fact of the matter is that the "real world" is to a large extent unconsciously built up on the language habits of the group' (1921: 209). We would also like to mention the seminal work by Slobin (2002, 2004, 2005) who showed that the description of world events differs depending on the language that one speaks. Specifically, Slobin demonstrates that the conceptualization of motion is portrayed differ-

ently depending on the typologies of verb-framed languages (e.g. Romance languages) or satellite-framed languages (e.g. Germanic languages).[3] Our work is linked to this tradition as we also believe that linguistic factors can affect how natural landscapes are perceived and described, as language is the main tool that human beings have to conceptualize, represent and communicate their thoughts, emotions and feelings.

Nevertheless, in recent decades the role of language in the description of natural landscapes has not been sufficiently explored, with the exception of some recent research on the description of the vocabulary pertaining to the environment, undertaken as part of the UK National Ecosystem Assessment (Wild *et al*., 2013), or of the analysis of compositions written in accord with the different walking paces of the writers (Lund, 2012). The present approach to the language of nature differs from these methods because it analyzes spoken language, with its multifaceted features such as intonation, rhythm, etc., and strives to investigate the emotional, cognitive and cultural components of the language used to describe landscapes.

In this sense, Gladkova and Romero-Trillo (2014) have shown, following Natural Semantic Metalanguage theory (henceforth NSM), that the adjective 'beautiful', and its corresponding translations in Russian, 'krasivij', and Spanish, 'bonito', have differing conceptual and statistical uses in relation to the description of nature in the three languages. Also, Romero-Trillo and Fuentes (in press) have investigated the role of adjectivization in the oral descriptions of landscapes by speakers from different geographical origins. Research has also shown how the expression of positive and negative emotions – like the ones triggered by high-quality landscapes and low-quality landscapes (Daniel and Vining, 1983) – have a universal linguistic component inextricably linked to our cognitive experiences (Wierzbicka, 1993). Other studies have delved into the analysis of the linguistic realization of nature, like the description of water elements in English and Pitjantjatjara/Yankunytjatjara, an aboriginal language in Australia (Bromhead, 2011).

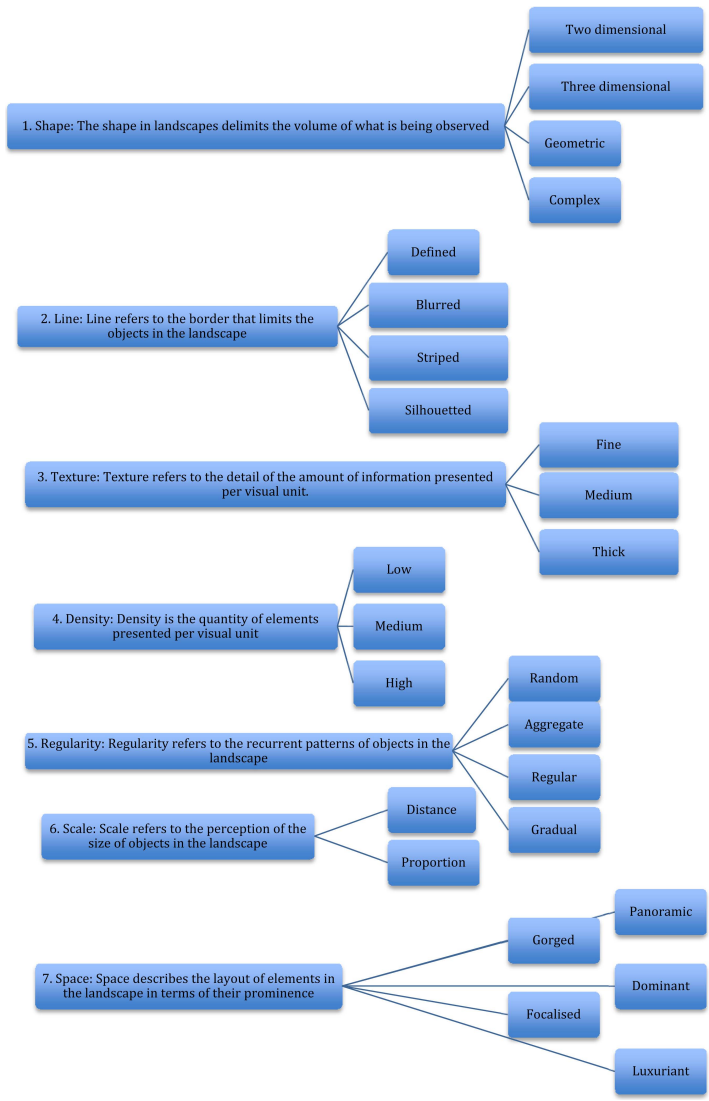
2. Methods

2.1. The Corpus of Language and Nature (CLAN): a tool for the linguistic description of nature

In order to understand the conceptualization of landscapes Romero-Trillo and Espigares (2012) designed a cognitive visual taxonomy that allowed researchers to classify landscape representation according to seven categories that functioned systemically and were present in all natural landscapes. The categories were the following:

- Shape
- Line
- Texture
- Density
- Regularity
- Scale
- Space

These seven features were subsequently subdivided into more delicate visual subcategories, as shown below:



All the subcategories were explained following the Natural Semantic Metalanguage theory (NSM) (Goddard and Wierzbicka, 2002). This theory describes the semantic universals that underlie the linguistic realization of the same concepts in different languages, and can express these concepts in a way that is simple and self-explanatory. In this sense, NSM identifies some semantic universals – or 'primes' – i.e., meanings that are semantically simple, that cannot be defined further and are accepted as indefinable.

In the present description the selected primes are 'kind', a relational prime, and 'place', a space prime. These primes were combined with the physical and visual features of the landscapes to form a grammar that can explain the objective interpretation of landscapes without distortion. Thus, the emerging metalanguage is capable of representing meanings of more complex concepts and of (shared) cultural attitudes through explications or semantic paraphrases. All visual features were described according to NSM.

Below is the example of the definition of the category 'shape' (Romero-Trillo and Espigares, 2012: 174):

Shape

The shape in landscapes delimits the volume of what is being observed. It can be two-dimensional, three-dimensional, geometric or complex.

1. Two-dimensional shape: When viewers see this place, they can observe some elements of a different kind there. They can think about all these elements like this: 'these elements can be well observed and distinguished in horizontal and vertical terms'.
2. Three-dimensional shape: When viewers see this place, they can observe some elements of a different kind there. They can think about all these elements like this: 'these elements can be well observed and distinguished according to irregular lines in terms of width, height and depth'.
3. Geometric shape: When viewers see this place, they can observe some elements of the same kind there. They can think about all these elements like this: 'these elements can be well observed and distinguished according to regular lines organized in terms of width, height and depth'.
4. Complex shape: When viewers see this place, they can observe some elements of the same kind there. They can think of all these elements like this: 'these elements cannot be observed and distinguished according to regular lines organized in terms of width, height and depth'.

Each category was complemented with real landscape photographs and a sketched drawing highlighting the most salient features (Romero-Trillo and Espigares 2012: 174), as Figure 1 shows.

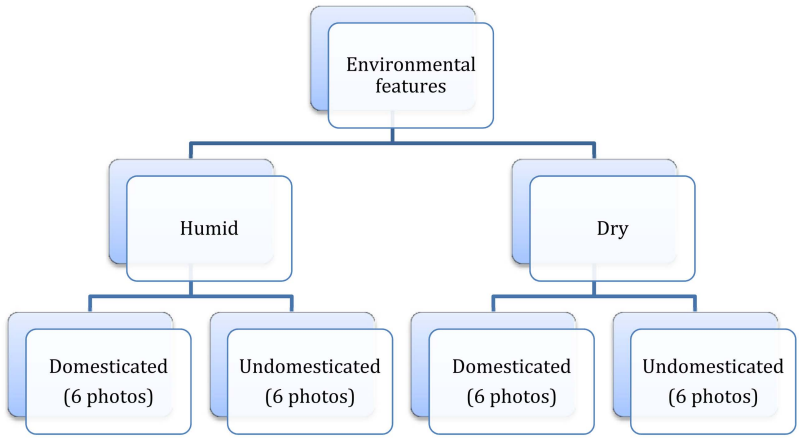


Figure 1: NSM illustration of the category 'shape'

After the description of the cognitive elements of a landscape that could be used to describe the grammar of nature, the authors selected 24 photographs according to the following two basic environmental features: abundance of water and domestication. The abundance of water, which may appear in the form of water courses or luxuriant vegetation, has been identified as one of the main features that conditions landscape preferences (González–Bernáldez, 1985). Domestication of a landscape means the degree of control that humans have on this landscape, which also has an effect on its preference. In the specific case of the selection of photographs for the CLAN project, domesticated landscapes are those in which some presence of human activities can be perceived (like a road, fence, etc.) while undomesticated landscapes lack any human sign.

Four groups of photographs were chosen on the basis of these two environmental features (2 degrees of abundance of water × 2 degrees of domestication). For each combination, six photographs were selected in order to account for the necessary replicability of the samples, as Figure 2 shows.

The 24 selected photographs and their combination for the analysis are presented in Figure 3.

All the participants viewed the photographs on their computers after registration and were given a username and a password that allowed them to access the computer platform specifically designed for the corpus compilation. The order of the photographs was random and different for each participant, and they were instructed to start the comments on any photograph of the set in order to identify possible preference patterns.

The recordings of the description of photographs were made online with the video-recording software Kaltura (2014), with good audio and video qual-

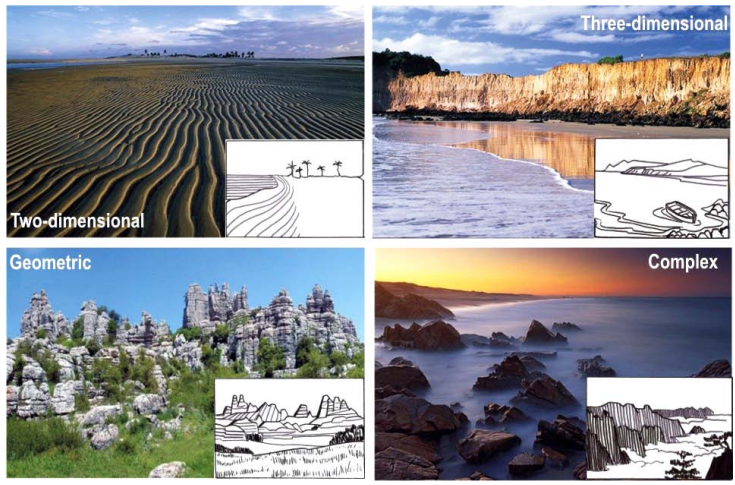


Figure 2: Experimental design of the photograph test

Figure 3: Selection of photographs: Photographs 1 to 6 correspond to the combination Dry-Domesticated. Photographs 7 to 12 correspond to the combination Dry-Undomesticated. Photographs 13 to 18 correspond to the combination Humid-Domesticated. Photographs 19 to 24 correspond to the combination Humid-Undomesticated.

ity. The recordings were immediately transferred to a computer server. Before starting the comments, the participants had to fill out an online questionnaire that inquired about the following biographical aspects:

For all participants

- *Years enrolled at University*
- *Age*
- *Sex*
- *Origin (nationality)*
- *Country of Residence*
- *Environmental background (rural, urban or suburban)*
- *Frequency of visits to the countryside*
- *Preference of living in town or countryside*
- *Number of languages spoken (apart from English)*
- *English as the first language*

Additional questions for non-native speakers of English

- *What is the typical use of English in daily life*
- *Command of English*
- *English as the primary language at home*
- *English as the primary language at University*
- *Method used to learn English*
- *Length of residence in an English speaking country*
- *Type of high school attended, and if English was the medium of instruction.*

For a full description of the questionnaire and summary of the answers by participants see Romero-Trillo (2013b).

2.2. Data collection

The photograph test described above was distributed to universities of different countries of Europe, Asia, America and Australia. This article analyzes the data of the first 97 completed tests by students who volunteered to participate in the project. Specifically, we have studied the effect of sex, environmental background, origin and number of languages spoken on the order of the selection of photographs for the descriptions, and also on the time each individual spends contemplating and describing each image.

All the photograph tests were completed by 19- to 24-year-old students from 12 different countries: 7 from Central Europe (Austria, France and Germany), 45 from Southern Europe (Italy and Spain), 29 from Eastern Europe (Russia), 7 from Middle East (Israel), 7 from America (Argentina, Paraguay, USA and Venezuela) and 2 from Australia. The students had to describe the photos in English, which was either the native or the second language for all of them.

For the analysis of the preferences in the order of selection we have studied the factors influencing the choice of the four first and the last photographs and also the selection criteria for the first photo. Also, we analyzed the duration of the contemplation and description of the different images according to two different parameters:

a. Total time each individual needed to describe all the photos (it was calculated by the sum of the partial times spent in each photo).
b. Proportion of the total time each individual spent in each photograph (calculated by dividing the time spent in each photo by the total time the individual used to described all photographs).

We performed several χ^2 and Anova tests to explore significant differences and relationships between the variables. In the cases in which Anova tests show the significant effect of a variable, we performed post-hoc Tukey tests to make pairwise comparisons.[4]

3. Results and discussion

3.1. Influence of the background of the speakers on the selection of photographs

In this section we intend to present the relationship between the background of the speakers and their selection of photographs. Previous studies have compared the realization of different aspects of ecological preferences depending on the origin of the participants. For example, Boeve-de Pauw and Van Petegem (2013) analyzed the environmental values and behaviors of children from Flanders, Guatemala and Vietnam, and Cordano *et al.* (2011) compared the pro-environmental behavior of business students from Chile and the United States. In the study we instructed the participants to freely choose the photographs for their subsequent comments, without any pre-established order as each subject had a different order of presentation. The aim of this section is to see if there is any relationship between the background questionnaires and the order of the selections in the groups of speakers.

The first significant result that affected all categories of participants is that the subjects chose one photograph with a humid environment as their first option, χ^2 test ($\chi^2 = 4$, df = 1, $p = 0.045$). This indicates the overall preference for the abundance of water in all selections. This result is consonant with the patterns observed in López-Santiago (1994) and his findings about the role of water in the factors in the selection of pairs of photographs by subjects from different cultural backgrounds.

However, in the overall choice of photographs other influencing factors were the following: environmental background, origin and number of languages spoken. However, sex did not have any effect.

As regards the environmental background, the results showed that the participants who grew up in urban and suburban settings tend to choose, as a whole, photos that combine domesticated and humid features in the last positions (Anova test, $F_{2,72} = 4.53$; $p = 0.01$). Figure 4 shows the differences in the frequency of selection of domesticated and humid landscapes as the last choice in individuals with different environmental background.

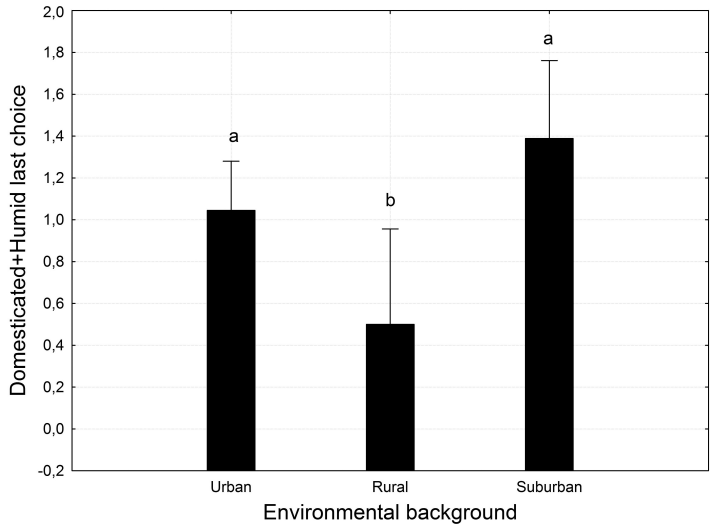


Figure 4: Relationship between the environmental background and the frequency of domesticated and humid landscapes as the last choice. Different letters indicate significant differences between groups (Tukey tests, $p<0.05$).

The most likely explanation for this result is that the subjects who grew up in urban and suburban settings, with a lot of domestication and water signals in parks, gardens, etc. tend to choose the environments that differ most from their own personal background.

Another interesting result of the analysis is the relationship between the number of languages spoken by the participants and the choice of photographs. Specifically, speakers who speak one or two languages tend to select the four first photos showing undomesticated and dry landscapes (Anova test, $F_{1,73} = 3.35$; $p = 0.07$), as Figure 5 shows.

Although the result is not statistically significant ($p = 0.07$), we can clearly observe the tendency of monolingual and bilingual speakers to choose undomesticated and dry landscapes, as opposed to speakers who know three or more languages. We think that this preference lies in the fact that this type of landscapes has fewer salient elements and are, therefore, easier to describe.

From a cognitive perspective, the role of multiple languages in the speakers changes their perception of reality and also of their first language, as Kecskes

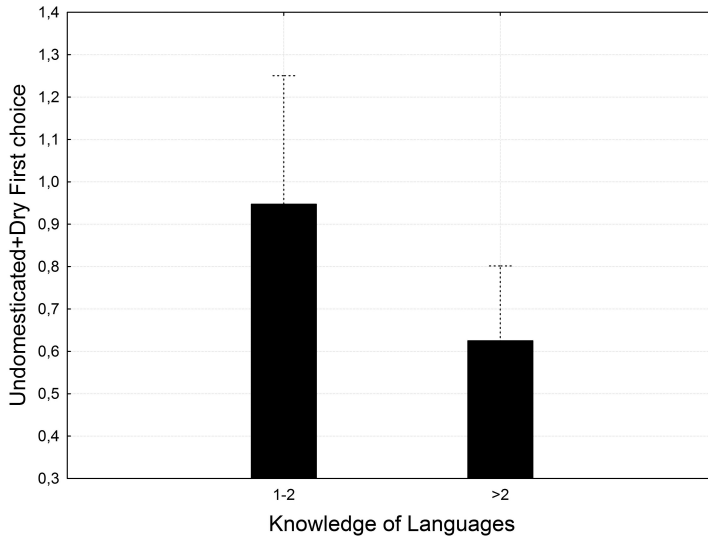
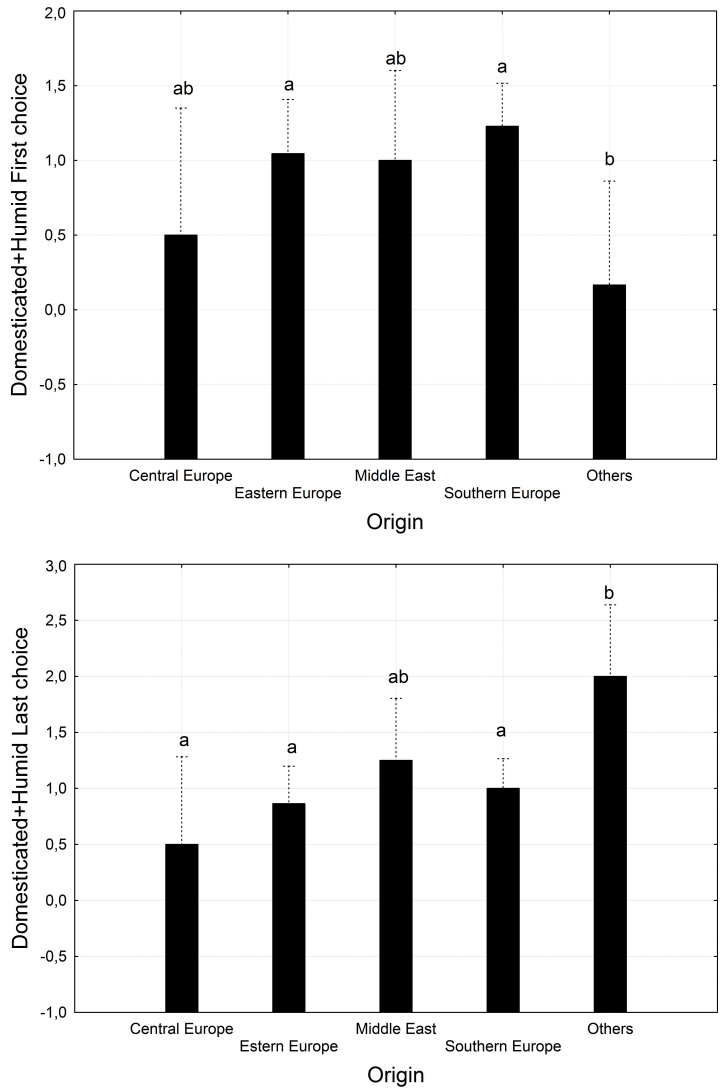


Figure 5: Relationship between number of languages spoken and the selection of undomesticated and dry landscapes in the four first photographs.

and Papp (2000: xi) stated: 'People with more than one language have different knowledge of their first language (L1) than do monolingual people.' This fact has clear implications in the analysis because the participants were either native speakers of English or speakers of English as a second (L2) or foreign language (FL) language with a very high proficiency level. The fact that the participants who had a good command of three or more languages differed in the selection of the photographs supports current socio-cognitive theories of language. For example, Hall *et al.* (2006: 232) state that 'what are needed, we suggest, are new concepts and terms that capture contemporary understandings of language knowledge as emergent and provisional constellations of structures, whose shapes and boundaries are as malleable and porous as the social actions in which they are grounded'. In other words, these theories share the view that the L2, L3, etc. do not simply add linguistic knowledge to the L1. New languages are repositories of new social activities and theoretical concepts, such as the variables used in the present analysis, and are shapers of new linguistic and cognitive behaviors. As a result, multilingual speakers develop new cognitive multi-competences compared to speakers from other cultures and languages, thus engaging in intercultural communication processes that deviate from their L1 behavior (Kecskes and Romero-Trillo, 2013). Therefore, we believe that the results of this analysis confirm the hypothesis that multilingualism changes the mind and are convinced that this specific study can open new avenues for research in intercultural communication and language acquisition.

As regards the geographical origin of the participants, the results of the analysis show that the Eastern and Southern European speakers choose the first four photographs with domesticated and humid landscapes (Anova test, $F_{4,70} = 2.39$; $p = 0.05$). On the contrary, American and Australian participants preferably choose these landscapes as their last choice (Anova test, $F_{4,70} = 3.16$; $p = 0.01$). Figures 6a and 6b show these differences.



Figures 6a and Figure 6b: Selection of domesticated and humid landscapes as first (a) and last choice (b) according to geographical origin. The category 'Others' refers to American and Australian participants. The letters indicate significant differences between groups (Tukey tests, $p<0.05$).

This result also shows a preference pattern in the selection of landscapes that can indicate further affiliation choices in terms of artistic likes, literature and filmic settings, etc. In sum, this section has shown that there is a significant relationship between the preferred selection of photos and the background information, i.e. the place where the participants grew up, the number of languages mastered by the participants and the geographical origin of the speakers that took part in the corpus collection.

3.2. Analysis of the time devoted to the photograph descriptions

The second aspect that we wanted to investigate was the relationship between the duration of the comments and the description of photographs.

The first significant result is that the time spent by participants in the description of the photos was influenced by the domestication degree of the landscape and the geographical origin of participants. As Figure 7 shows, there is a significant tendency for all speakers to spend more time in the description of domesticated landscapes (Anova test, $F_{1,2289}$=6.20; p=0.01)

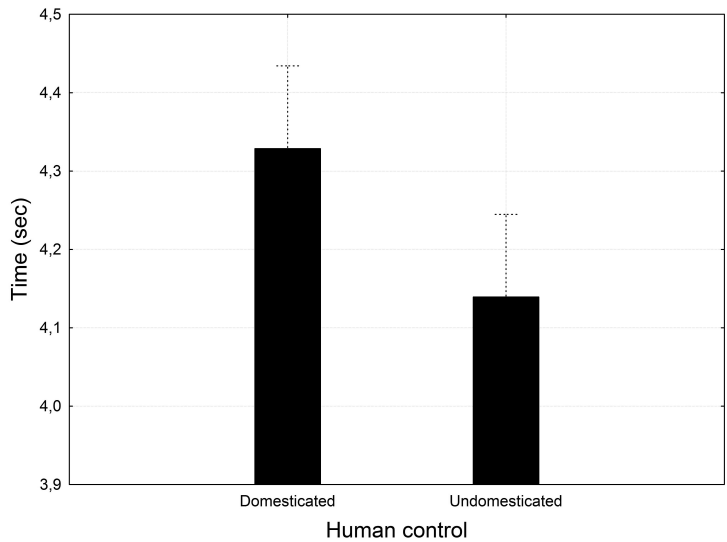


Figure 7: Mean time spent in the descriptions of domesticated and undomesticated landscapes.

Possibly, speakers devote more time to the domesticated landscapes because of the possibilities that for the creation of a narrative entail the presence of a bridge, a fence, etc. In other words, these human-related objects help viewers to imagine what can happen in a dynamic perspective: cattle running across the fence, people crossing the bridge, etc., which can obviously

lengthen one's attention to the photograph. This result works in a similar fashion to the variables originally described by Herman *et al.* (1957) for the accuracy in the linguistic reproductions of verbal stimuli. This fact also coincides with the results described in Maguire and Romero-Trillo (2013) in which private experience triggers the narrative reinterpretation of reality through the creation of common ground in bilingual children.

Then, as regards the geographical origin, we can see in Figure 8 that Australian speakers are the ones that significantly devote more time to the description of the 24 photos (Anova test, $F_{6,90} = 3.82$; $p = 0.001$).

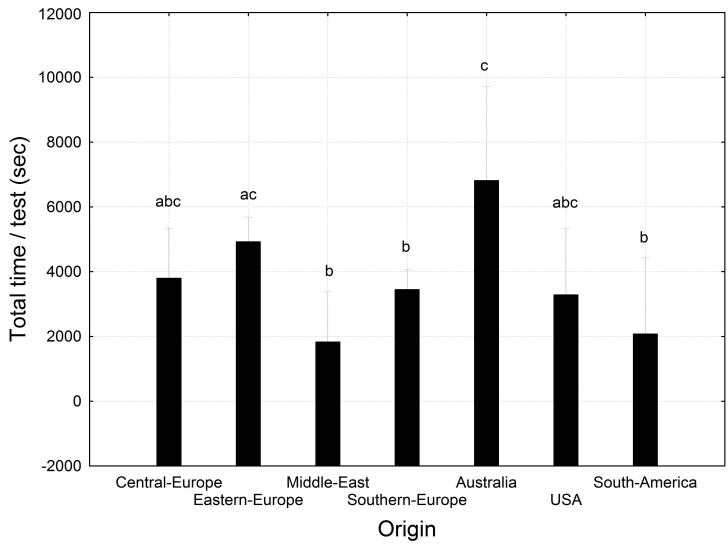


Figure 8: Total time invested by speakers in the description of the 24 photographs of the test for each geographical origin. Different letters indicate significant differences between groups (Tukey tests, $p<0.05$).

In our opinion, the relationship between the length of the descriptions and the country of origin clearly shows that cultural and geographical backgrounds can make a difference in the way people approach nature. In other words, people's perceptions of nature are not universal but they are modified by the conceptual categories and the experiences that their languages provide (Lenneberg and Roberts, 1956) and, as a result, linguistic personal experiences trigger the cognitive appraisal of landscapes realized in the different duration of the descriptions.

4. Conclusion

The present study, based on the data from the Corpus of Language and Nature, has shown the importance of language and environmental background in the

contemplation of landscapes. First, we would like to highlight the interest of the methodology used in the design of interdisciplinary studies, and in the description of natural landscapes by speakers of English as a first or second language worldwide.

Second, the results of the analysis have shown the universal preference of first photo selection with the presence humid landscapes. In fact, this shows that the presence of water can be regarded a hardwired component present in human emotions and cognition.

Our investigation has concentrated on the influence of the environmental background on the selection of landscapes and on the time devoted to the contemplation and description of the photographs. The results have shown that speakers who have urban or suburban origins prefer non-human and dry landscapes, possibly because of their emotional and experiential distance, and that speakers who speak one or two languages prefer photographs without human and water landscapes, possibly due to the lower complexity of the images and, therefore, the simpler language needed in the descriptive process. Our results show that participants who can speak three or more languages can cope with more complex descriptions.

As regards geographical origin, the analyses show that Eastern European and Mediterranean speakers choose photos with domesticated + humid landscapes, whilst American and Australian speakers' last choice is photos with this sort of landscapes.

In terms of the amount of time devoted by participants to describe and contemplate the landscapes, the results show a significant majority of cases in which the participants spend more time describing domesticated environments, in which they can implement their experiential and conceptual habits to create a context in which hypothetical human activities can take place.

The results also show that Australians devote more time in the description of the photographs, which can be interpreted as a cultural pattern related to the abundance of natural resources throughout the country, as opposed to other speakers, e.g. Israelis, who live in an environment with a highly dense population and little access to ample landscapes.

In sum, we believe that the present study can shed new light on the inextricable relationship between language, environmental background and the contemplation of landscapes, and also on the understanding of human cognition and linguistic behavior.

Notes

1. We thank the Journal editors and the anonymous referees for their insightful comments on the first version of this article.

2. The Corpus of Language and Nature (CLAN Project) (logos, design, computer platform

architecture and data) has the Certificate of Registration No 010091932 issued by the Register of Community Trade Marks of the European Union.

3. We are grateful to one of the anonymous referees for this interesting reference.

4. The analyses have been carried out with the following package: StatSoft, Inc. 2007. STATISTICA, version 8.0. www.statsoft.com.

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