The lay distinction between primary and secondary emotions: A spontaneous categorization?

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*I*n line with the psychological essentialism perspective, Leyens et al. (2000) have hypothesized that people attribute different essences to groups and that they attribute more uniquely human characteristics to their own group than to out-groups. Leyens et al. have focused on two types of emotions, which in Roman languages have specific labels, such as *sentimientos* and *emociones* in Spanish. A cross-cultural study showed that *sentimientos* (or secondary emotions) are considered uniquely human emotions whereas *emociones* (or primary emotions) are perceived as nonuniquely human emotions. The present study focuses on whether this categorization into primary and secondary emotions is a spontaneous distinction that people use in their everyday live, or whether, on the contrary, it is the result of experimental demands. The paradigm "Who says what to whom" was used to test this question. Geometrical shapes of different colours were systematically associated with different stimuli that varied in meaningfulness. In a first condition, shapes were associated with small or large items of furniture (meaningful categories) and with primary and secondary emotions. In a second condition, the items of furniture were replaced by words ending with a vowel or a consonant (meaningless categories). Subsequently, participants had to recognize which shape was associated with each stimulus. Intra-category errors were significantly more numerous than inter-category errors, except for the words ending with a vowel or a consonant. Stated otherwise, types of emotions were recognized like the meaningful difference between items of furniture. These results show that the distinction between primary and secondary emotions is an implicit one that people use spontaneously, and not as a result of task demands. The findings are discussed from the perspective of psychological essentialism and inter-group relations.

*E*n lien avec la perspective de l'essentialisme psychologique, Leyens et al. (2000) ont proposé que les gens attribuent différentes natures aux groupes et qu'ils attribuent davantage des caractéristiques uniquement humaines à l'endo-groupe plutôt qu'aux exo-groupes. Leyens et al. se sont centrés sur deux types d'émotions, lesquelles, dans les langues romaines, ont les étiquettes spécifiques de sentiments et d'émotions. Une étude trans-culturelle a montré que les sentiments (ou émotions secondaires) sont considérés uniquement comme des émotions humaines, tandis que les émotions (ou émotions primaires) sont perçues comme n'étant pas nécessairement associées aux humains. La présente étude vise à examiner comment cette catégorisation des émotions primaires et secondaires constitue une distinction spontanée que les gens utilisent dans leur vie de tous les jours ou si, au contraire, il ne s'agirait pas plutôt d'un résultat de demandes expérimentales. Le paradigme «Qui dit quoi à qui» fut utilisé pour tester cette question. Des formes géométriques de différentes couleurs furent systématiquement associées à différents stimuli ayant des significations variables. Dans la première condition, les formes étaient associées avec des items de bureau petits ou grands (catégories éloquentes) et des émotions primaires et secondaires. Dans la seconde condition, les items de bureau furent remplacés par des mots terminant par une voyelle ou une consonne (catégories dénuées de sens). Subséquemment, les participants

devaient reconnaître quelle forme était associée avec chaque stimulus. Les erreurs dans les catégories étaient significativement plus nombreuses qu'entre les catégories, sauf pour les mots terminant par une voyelle ou une consonne. Autrement dit, les types d'émotions furent reconnus comme la différence éloquente entre les items de bureau. Ces résultats montrent que la distinction entre les émotions primaires et secondaires en est une implicite que les gens utilisent spontanément et qu'elle ne découle pas des demandes de la tâche. Ces résultats sont discutés en fonction de la perspective de l'essentialisme psychologique et des relations intergroupes.

A corde con la perspectiva del esencialismo psicológico, Leyens et al. (2000) han hipotetizado que las personas atribuyen diferentes esencias a los grupos, de modo que, asignan más las características típicamente humanas a su propio grupo que a los grupos externos. Leyens et al. se han centrado en dos tipos de emociones que, en las lenguas romances tienen etiquetas específicas como en español, *sentimientos* y *emociones*. Un estudio transcultural mostró que los *sentimientos* (o emociones secundarias) se consideran emociones típicamente humanas, mientras que las *emociones* (o emociones primarias) no se perciben como tales. El presente estudio trata de dilucidar si la categorización de emociones primarias y secundarias es una clasificación espontánea, que las personas utilizan en su vida diaria, o si, por el contrario, es el resultado de demandas experimentales Para responder a esta cuestión, se utilizó el paradigma "¿Quién dijo qué?". Se asociaron sistemáticamente formas geométricas de diferentes colores con diferentes estímulos que variaban en su significado. En una primera condición, las diferentes formas geométricas fueron asociadas con palabras que aludían a muebles, grandes o pequeños (categoría con significado). En una segunda condición, las palabras referidas a muebles, fueron reemplazadas por palabras que finalizaban en vocal o en consonante (categoría sin significado). A continuación, los participantes tenían que reconocer qué forma geométrica había sido asociada con cada estímulo. Los errores intra-categoría fueron significativamente más numerosos que los errores inter-categoría, excepto para las palabras acabadas en vocal o en consonante. Por otra parte, los tipos de emociones fueron reconocidas del mismo modo en que lo habían sido las palabras que se referían a los distintos tipos de muebles. Estos resultados muestran que la distinción entre emociones primarias y secundarias es implícita y que las personas la usan espontáneamente, sin que deba mediar una demanda experimental. Los resultados son discutidos a luz de la perspectiva del esencialismo psicológico y de las relaciones intergrupo.

The idea that people categorize their social environment into groups, and that group members have a tendency to favour their own group (in-group bias or ethnocentrism), is a relatively common research finding (Brewer & Brown, 1998; Leyens, Yzerbyt, & Shadron, 1994). Many different strategies have been used to study in-group favouritism in social psychology during the last few decades. Recently, Leyens et al. (2000) have proposed that ethnocentrism may result in people's perceiving their own group as more human than out-groups. According to Leyens et al., people sometimes treat other groups as "infra-human." In other words, they perceive that other groups lack uniquely human characteristics.

Leyens et al. (2000) based their general hypothesis on psychological essentialism (Rothbart & Taylor, 1992). If people attribute different essences to social groups to explain the differences between them, and if they think that their group is superior to out-groups, it follows that they will attribute a more human essence to their in-group. Consequently, out-groups will only receive an infra-human essence. To the extent that people believe that their own group has the human essence, they will attribute to themselves those characteristics that are considered uniquely human. But which *are* the uniquely human characteristics?

Leyens et al. (2000) asked university students in the Canary Islands (Spain) and in Belgium to list in rank order all the characteristics they thought were uniquely human. Results were convergent in the two samples. The three characteristics most often mentioned were, in order, intelligence (reasoning, thinking, etc.), *sentimientos*, and language (communication). They were followed by other attributes such as positive sociability, values, or negative sociability. The term *emoción* was scarcely mentioned and, when it was, it appeared at the end of the list.

The first characteristic, intelligence, has probably been the one most often investigated in relation to discrimination (see Crocker, Major, & Steele, 1998). The same could be said about language (Giles & Coupland, 1991). However, emotions have rarely been studied in research on prejudice except for investigations of the role of affect in inter-group discrimination (Bless, Schwarz, & Kemmelmeir, 1996; Forgas & Fiedler, 1996) or emotional reactions to stigmatized out-groups (Stephan & Stephan, 1985). Leyens et al. (2000) focused on the emotional side of prejudice, exploring the idea that people underattribute uniquely human emotions to out-group members relative to in-group ones.

Spanish and Belgians (Leyens et al., 2000) differentiate between *sentimiento* (*sentiment*) and

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emoción (*émotion*). They consider that *sentimientos* are uniquely human, while *emociones* are common to humans and animals. Dutch-speaking Belgians distinguish semantically between *emoción* and *sentimiento* to a lesser degree, and English speakers do not have a label to distinguish between these two types of emotions. To better understand what people consider to be primary and secondary emotions, Demoulin et al. (Demoulin, Leyens, Paladino, Rodríguez Torres, Rodríguez Pérez, & Dovidio, 2004) presented different samples of students (French- or Dutch-speaking Belgians, Spanish, and US) with lists of positive and negative emotional words taken from the emotion literature. Participants had to rate the extent to which each word was uniquely human or not, and also whether it possessed a series of dimensions (internal or external cause, links with cognition and morality, visibility, intensity, duration in time, age of appearance). The correspondence analysis of the responses indicated that the solution that best explained the data was one of two axes, with the four resulting quadrants corresponding to positive nonuniquely human emotions, negative nonuniquely human emotions, positive uniquely human emotions and negative uniquely human emotions. What was most interesting, however, was that uniquely human emotions, as compared to nonuniquely human emotions, were evaluated as being more human, more cognitive, more moral, less visible, less intense, longer in time, more internally caused and appearing later in age (proper of adult human beings). Clearly, the lay perception of emotions corresponded to the scientific distinction proposed by Ekman (1992) between secondary (uniquely human) and primary (nonuniquely human) emotions. From now on, this terminology will be used. Some examples of secondary emotions were hate, affection, guilt, resentment, envy, hope, despair, or love, and examples of primary emotions were alertness, tension, fear, nervousness, alarm, enjoyment, anger, or surprise.

Do individuals really attribute more uniquely human secondary emotions to the in-group than to an out-group? Using the Implicit Association Task (Greenwald, McGhee, & Shwartz, 1998), Paladino, Leyens, Rodríguez Torres, Rodríguez Pérez, Gaunt, and Demoulin (2002) found that participants more rapidly associated secondary emotions with in-group names and primary emotions with out-group names than the reverse. Consistent with these findings, Leyens et al. (2001, Studies 1 & 2) also observed that both low and high status groups attributed secondary emotions preferentially to the in-group, and were reluctant to attribute this kind of emotion to the out-group (Leyens et al., 2001, Study 3).

Leyens et al. (2001) concluded that these results had important implications for inter-group relations. Indeed, if people perceive out-group members as lacking secondary emotions, they will perceive them as having less humanity, and as deserving less respect. However, it should be noted that all the findings are based on Demoulin et al.'s (2004) study. Given the importance of the implications of the lay distinction between primary and secondary emotions, it is necessary to verify whether this differentiation is indeed a spontaneous one that people commonly use, or whether, on the contrary, it is the result of the instruments designed for the research and of the demands made on the participants by the researchers. In other words, it is necessary to know if people felt forced to categorize emotional terms into primary and secondary emotions. In the latter case, the categorization into primary and secondary emotions would be artificial, and it would mean that emotional ethnocentrism, hypothesized by Leyens et al. (2000), is only used by participants in a laboratory setting.

The aim of this study is, then, to verify the spontaneous vs. artificial distinction between primary and secondary emotions. To examine this question, it was used a procedure known as *Who says what to whom?* (Taylor, Fiske, Etcoff, & Ruderman, 1978). These authors were interested in studying whether the categorization of people into groups (according to their hair colour or gender) is a natural process. Specifically, Taylor et al. studied whether a group of people are perceived as a set of individuals, or grouped according to visually salient features such as race or gender. Participants listened to a recording of six men discussing a publicity campaign for a play. While they heard each man's voice, they saw a slide with his photograph. Three of these men were white and three were black. After a 15-minute presentation of the slides and recordings, participants were shown some of the sentences used during the discussion. Their task was to decide which of the six men had said each sentence. Taylor et al.'s hypothesis was that if the members of the discussion group were categorized in terms of their race, the number of intra-category errors would be significantly higher than the number of inter-category errors. Stated otherwise, black (or white) men would be seen as more similar and would be confused to a greater extent than would be expected if the

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participants had individualized each member of the discussion group. The hypothesis was confirmed in three experiments.

For this study, will people perceive a set of emotional terms as individual words or will they group them according to the differentiation between primary and secondary emotions? If the distinction is spontaneous rather than artificial, one should expect, like Taylor et al. (1978), more intra-category errors than inter-category ones. To better test these hypotheses, two different types of contrast categories were added to the design. In one condition, the contrast category was a common one, often used in the language (large vs small items of furniture). In the other condition, the contrast was between words ending with a vowel vs words ending with a consonant. This latter contrast is considered an artificial one. Although people are able to categorize these words, they do not do so spontaneously, without being specifically requested and prompted to do so. Thus, the question asked in this study is whether categorization into primary and secondary emotions is carried out in the same way as categorization into large and small furniture, or if, on the contrary, it is similar to the categorization of words in terms of their last letter. As in Taylor et al.'s study, it was expected that the intra-category errors would be greater than the inter-category errors in the case of spontaneous and useful categorization (types of emotions and types of furniture). No difference should occur for meaningless categorization (word endings).

METHOD

Participants

Thirty-nine students of the University of La Laguna took part in this study for partial course credit.

Material

Four geometric shapes were used (square, circle, triangle, and diamond) with nine different colours (pink, green, yellow, blue, grey, red, lilac, black, and orange). Each shape was paired with one of four categories of words: primary and secondary emotions vs. small or large furniture in one condition, primary and secondary emotions vs. words ending with a vowel or consonant in the second condition. The emotion terms were selected on the basis of a normative study

(Demoulin et al., 2004). The groups of nine primary emotions (annoyance, nervousness, disgust, rage, fear, fury, pain, fright, and discomfort) and nine secondary emotions (deception, shame, guilt, disappointment, frustration, resentment, remorse, melancholy, and indignation) had the same valence to avoid a difference in positivity between them. Furthermore, the frequency of usage of each item was checked (Alameda & Cuetos, 1995) and the difference between primary emotions and secondary emotions was not significant, $F(1, 17) = 1.027$, $p < .32$.

In the first experimental condition, the diamonds were paired with primary emotions and the squares with secondary emotions. The triangles were paired with the names of small articles of furniture (chair, shelf, coffee-table, stool, lamp, bench, coat-stand, umbrella-stand, and magazine rack) and the circles with the names of large articles of furniture (three-piece suite, desk, bunk, bed, sofa, couch, wardrobe, table, and armchair). In the second experimental condition, the pairing of diamonds with primary emotions and squares with secondary emotions was repeated but, here, the triangles were paired with abstract nouns ending in a consonant in Spanish (indiscretion, friendliness, sociability, humility, generosity, competition, ability, unselfishness, and hospitality) and the circles were paired with abstract nouns ending in a vowel in Spanish (talent, competence, charm, intelligence, innocence, reserve, sympathy, friendliness and negligence). In each category, each specific term was paired with a colour. For example, in the case of primary emotions, nervousness was paired with a green diamond, rage with a blue diamond, and so on. There were, then, 36 stimuli in each condition. The items were presented in random order for all participants.

Design

A 2 (type of error: inter vs intra) × 2 (target: emotions vs contrast category) × 2 (type of contrast: meaningful vs meaningless) design was used with the first two factors as within-participant variables and the last one as a between-participants variable. The dependent variable was the number of errors.

Procedure

When participants arrived individually at the laboratory they were told that they were about to participate in a two-phase memory experiment

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and they were given the following instructions:

> On the computer, you will shortly see some geometrical shapes of different colours, paired with certain words. Your task is to remember which coloured shape is paired with each word. Each pair of "coloured shape and word" will appear twice and your task in the first stage is simply to watch the screen and to try to memorize the different pairs.

At the end of this phase, the participants were told that the recall stage was about to begin:

> In this second part, you will see a geometric shape of a certain colour and six words. Your task is to choose which of these words was the one previously paired with the coloured shape.

The subject was then presented with the 36 geometrical shapes (four shapes in nine different colours). Each one (for example, the red diamond) was presented together with six different words: the correct response, two words belonging to the same category as the correct response (e.g., secondary emotion), and three words of the other category (e.g., primary emotion). For example, the pink diamond, which appeared in the presentation stage with the word "pain," was presented in the recognition stage together with the following six words: pain (primary emotion), disappointment (secondary emotion), resentment (secondary), frustration (secondary), rage (primary), and disgust (primary). As can be seen, the choice is only between primary and secondary emotions, never between these terms and the words for furniture or abstract nouns. As the correct answer is pain, the participants could only confuse this with the other two primary emotions (rage and disgust) or with the three secondary emotions (disappointment, resentment, and frustration). The same was true for the shapes associated with articles of furniture or with the abstract nouns varying in consonant-vowel endings.

The only possible errors were intra-category and inter-category ones. By chance, participants could confuse the correct response with two items from the same category (for example, primary emotions), but with three items from the other category (for example, secondary emotions). To eliminate the effects of random choice, we compared each participant's within-category errors with two thirds of the value of the same participant's inter-category errors, that is, with 66.6% of their inter-category errors (Taylor et al., 1978).

After the task had been carried out, the aims of the experiment were explained to the participants and they were thanked for their participation.

RESULTS

A 2 (type of error: inter vs intra) $\times$ 2 (target: emotions vs contrast category) $\times$ 2 (type of contrast: meaningful vs meaningless) ANOVA was calculated, with the first two factors as within-participant variables and the last one as a between-participants variable. Most interesting, the three-way interaction proved to be significant, $F(1, 37) = 5.020$, $p < .05$. Such interaction means that types of errors vary not only as a function of the target, but also as a function of type of contrast.

Because of the specific hypotheses, we focused on simple effects between intra- and inter-category errors. As can be seen in Figure 1, for the meaningful condition, the number of intra-category errors for large and small furniture was significantly higher ($M = 5.8$) than the number of inter-category errors ($M = 3.1$), $F(1, 37) = 17.53$, $p < .001$. For emotions, the number of intra-category errors ($M = 5.4$) was also significantly higher than the number of inter-category errors ($M = 4,1$), $F(1, 37) = 5.24$, $p < .05$. The results for the meaningless condition appear in Figure 2. In the case of nouns ending with a vowel or a consonant, the difference between both types of errors ($Ms = 4.4$ and 4.5 for inter- and intra-category, respectively) was not significant, $F(1, 37) < 1$. On the contrary, the difference was significant for emotional words, $F(1, 37) = 4.59$, $p < .05$. The number of intra-category errors ($M = 5.7$) was significantly higher than the inter-category errors ($M = 4.5$). Moreover, the intra-category errors in the case of the words related to emotions ($M = 5.7$) were significantly higher than the intra-category errors for the abstract nouns ($M = 4.4$), $F(1, 37) = 4.59$, $p < .05$.

DISCUSSION

Leyens et al. (2000, 2001) hypothesized that people tend to attribute more uniquely human emotions to their in-group than to out-groups. In order to study this phenomenon, these researchers distinguished between primary and secondary emotions, the former being experienced by both humans and animals, and the latter considered unique to human beings. Although this differentiation has certain parallelisms with the scientific classification of basic and nonbasic
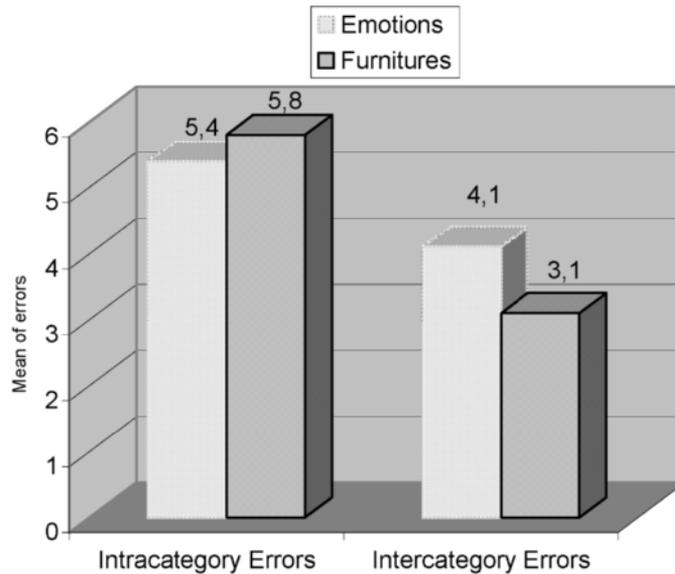
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Figure 1. Means of intracategory and intercategory errors in the experimental group differentiating between primary/secondary emotions vs large/small furniture.
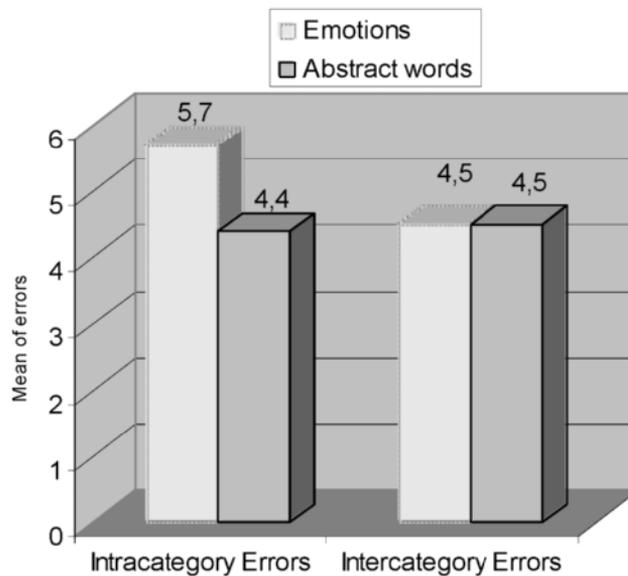

Figure 2. Means of intracategory and intercategory errors in the experimental group differentiating between primary emotions/secondary emotions vs words ending with a vowel/consonant.

emotions (Ekman, 1992; Epstein, 1984), it is not clear whether people use this distinction spontaneously in their every day lives as a basis for discriminating against others. The aim of the present study was to find out whether people use the distinction between primary and secondary emotion (Demoulin et al., 2004) in a natural way or whether, on the contrary, this categorization is artificial, i.e., a consequence of experimental demands. To achieve this aim, Taylor et al.'s (1978) paradigm was used in which the differences between the participants' inter-group and intra-group errors allow inference about the criterion for organizing the information. Taylor et al.'s idea is that if people organize information into useful categories (sex, size of furniture, types of emotions), they will make more intra- than inter-category errors because of perceived similarity.

In the two between-participants conditions, the results confirmed the predictions. They indicated that the differentiation between primary and secondary emotions is, in fact, a natural and

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useful categorization, as in the case of a meaningful distinction such as large vs small furniture, and unlike what happened for a meaningless distinction such as words ending with a vowel or a consonant. These results are important for the theory of infra-humanization (Leyens et al., 2000, 2003). One's own group identity is accredited with greater humanity or sensitivity than the out-group's identity. This differentiation has important consequences. In a time of strong social pressure against prejudice and against one of its crudest and most explicit manifestations, that is, the belief in the intellectual or moral superiority of one's own group over other groups, crediting one's in-group with the exclusive ability to experience subtle and uniquely human emotions allows ethnocentrism to be upheld within the limits set out by the social values of our times.

According to the results, the distinction between primary and secondary emotions is useful for people precisely because it is an implicit differentiation of which they are not aware. Consequently, this differentiation does not appear, at first sight, to infringe any moral principles, although it is used as an instrument of in-group favouritism and of out-group derogation (Leyens et al., 2001, Study 3). Demoulin et al. (2004, Study 2) observed that people were quicker to respond to secondary emotions than to primary ones in a human context. The reverse happened in an animal context. The latter result was not expected since primary emotions belong to humans and animals. Nevertheless, the "emotional side of prejudice" can be said to consist basically of claiming the exclusive right to human essence for one's own group and of making the other groups less human and closer to animals. There have been examples throughout history of this phenomenon; for example, the official Nazi discourse established that Jews and Gypsies should be included in the category of dangerous animals rather than in the category of human beings.

The present research is not without its limitations. First of all, primary and secondary emotions had a negative valence. This fact is explainable by the fact that the valence of the nine primary emotions had to be equivalent to the valence of the nine secondary emotions. Demoulin et al.'s (2004) data reveal that it is rather difficult to find many positive primary emotions. Working with positive emotions would have then reduced the range of material to examine and this reduction could have impacted the memory biases (Klauer & Wegener, 1998). A second element decreases the importance of the

use of negative emotions only. Infra-humanization is typically measured by the difference of positive and negative secondary emotions between the in-group and the out-group. This difference in favour of the in-group is usually smaller in the case of negative emotions. Therefore, it was important to show that people spontaneously distinguish between negative emotions.

It could be argued that the greater number of intra-category errors was higher than the number of inter-category errors due to the emotions that were used in the experiment. Indeed, because all the emotions are negative, their meanings are sometimes quite similar (e.g., fear and fright, pain and discomfort, shame and guilt). Following this argument, the great number of intra-category errors would not be determined by the distinction between primary and secondary emotions, but by the similarity of given clusters with similar meanings. It was, therefore, checked whether participants were confusing semantically related words instead of classifying these words as primary vs secondary emotions. Semantic confusion is practically nonexistent. In fact, the clusters mentioned above (fear and fright, pain and discomfort, shame and guilt) do not even appear together. Given that the number of combinations of six elements is limited (36), semantically related words do appear together very occasionally. Moreover, when semantically similar words appeared together, no tendency was observed for the participants to confuse these words more often than the other ones.

On first inspection of the results, it could appear that the difference (intra-category errors minus inter-category errors) between large and small furniture is greater than the difference between primary and secondary emotions, suggesting that furniture is categorized more spontaneously than emotions. However, our analyses do not confirm such a difference. In any case, a greater difference does not necessarily indicate greater spontaneity. It could also indicate higher frequency of usage, as we categorize furniture more often than we do emotions. On the other hand, the greater difference for the category of furniture does not constitute a problem for our general hypothesis, since the contrasts for the primary and secondary emotions are significant in both conditions.

Last, this study confirms that people spontaneously categorize two types of emotions, primary and secondary. These results suggest that the Leyens et al. (2000) studies, in which the authors observed that people infra-humanize others,

attributing them fewer secondary emotions than their own group, are not purely artifactual. In fact, people use the differentiation between secondary and primary emotions as a useful categorization in their everyday lives.

This line of research presents an interesting challenge for the future. If perceiving others as having few secondary emotions makes them less human, it follows that people could discriminate against others through infrahumanization (Vaes, Paladino, Castelli, Leyens, & Giovanazzi, 2003). On the contrary, if perceiving that others experience secondary emotions makes these others more human, such a perception probably has consequences for empathy and for altruistic behaviour.

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