OVERVALUATION OF OWN ATTRIBUTES: MERE OWNERSHIP OR SUBJECTIVE FREQUENCY ?

Vera Hoorens *

University of Groningen
Sectie Sociale- en Organisatiepsychologie
Grote Kruisstraat 2/1
9712 TS Groningen (The Netherlands)

and

Jozef M. Nuttin

University of Louvain (K.U. Leuven)
Laboratorium voor Experimentele Sociale Psychologie
Tiensestraat 102
B-3000 Leuven (Belgium)

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Requests for reprints should be sent to Vera Hoorens, Sectie Sociale en Organisatiepsychologie R. U. G., Grote Kruisstraat 2/1, 9712 TS Groningen.

ABSTRACT

The hypothesis was tested that the Name-Letter Effect or affective overvaluation of own name-letters as compared to non-name-letters (Nuttin, 1985, 1987) is due to an enhanced subjective frequency of own name-letters as compared to non-name-letters. Experiment 1 yielded a Name-Letter Effect and an overestimation of own name-letters' frequencies as compared to non-name-letters. Both effects were correlated. Experiments 2 and 3 replicated both effects but not their correlation. In experiment 3, subjects who were satisfied with their own name showed a stronger Name-Letter Effect (but no stronger name letter frequency overestimation) than subjects who were relatively dissatisfied with it. Results run counter to the subjective frequency hypothesis and support the mere ownership hypothesis stating that merely belonging to one's self (mere ownership) is a sufficient condition for the enhancement of the attractiveness of an object and its constitutive elements. The implications of both name-letter-overvaluation phenomena for cognitive and affective self-referent processes are discussed.

OVERVALUATION OF OWN ATTRIBUTES:
MERE OWNERSHIP OR SUBJECTIVE FREQUENCY ?

People perceive themselves relatively favorably as compared to other people. This differential perception of one's own attributes and behaviors is evident in self-serving biases such as the belief that one's own traits and abilities are better than other peoples' (e.g. Alicke, 1985; Brown, 1986), the expectancy that one's own future will be better than other people's (e.g. Weinstein, 1980; Perloff & Fetzer, 1986) and the belief that one is especially successful in attaining desired goals and in avoiding undesired ends (see Greenwald, 1980, for an overview). Some years ago, Nuttin (1984, 1985, 1987) demonstrated that people even prefer the letters occurring in their own name (name-letters) above letters not ocurring in their own name (non-name-letters). This so-called Name-Letter Effect occurred independently of the letters' visual, acoustical, aesthetic and semantic characteristics and even in the absence of the subjects' awareness of the own name versus not-own name principle governing their attractiveness choices. (Nuttin, 1984, 1985). In addition, it was found in subjects of different nationalities and ages and for non-initial as well as initial letters of the subjects' first and/or family name (Nuttin, 1987; Hoorens & Todorova, 1988; Hoorens, Nuttin, Erdélyi-Herman & Pavakanun, 1990).

Several cognitive and motivational explanations have been advanced for self-serving biases in social comparison and attribution, including hypotheses based on the differential availability of, and attention for, information concerning one's own and other people's behavior, the ambiguity of trait and ability definitions, and self-esteem

maintenance or self-presentational tendencies (for a review see Hoorens, 1993). Nuttin (1984) has explained the Name-Letter Effect by stating that the mere circumstance that an object or an attribute belongs to one's self may be a sufficient condition for the enhancement of the attractiveness of the object or attribute and of its constitutive elements. According to this mere ownership (or mere belongingness to self) hypothesis, due to a hypothesized pervasive attachment to themselves, people are expected to rate the attractiveness of their own belongings and attributes higher than they would if the same items did not belong to them. Moreover, this enhanced attractiveness does not only pertain to the object as a whole but also to its elements.

In the present paper, the alternative hypothesis is tested that the Name-Letter Effect is due to an enhanced subjective frequency of own name-letters as compared to non-name-letters. Some researchers have found unequivocal affective consequences of subjective familiarity in the absence of objective exposure differences (Matlin, 1971; Moreland & Zajonc, 1977, 1979; see, however, Wilson, 1979; Seamon, Brody & Kauff, 1983). Therefore, while Nuttin's research procedures excluded an explanation of the Name-Letter Effect in terms of objective letter frequency differences, name-letters may be preferred simply because these letters seem more familiar than non-name-letters. Due to the high accessibility of the self as a memory structure (for reviews see Greenwald & Pratkanis, 1984; Markus & Wurf, 1987) and to the prominent place of one's own name in this self-concept (e.g. Allport, 1961; Snyder & Fromkin, 1980; Markus & Sentis, 1982), name letters may catch one's conscious attention more easily or spontaneously evoke more

associations. Consequently, they could be perceived to be more frequent or familiar than non-name-letters, causing a subjective familiarity mechanism to enhance their attractiveness.

An empirical validation of the subjective frequency hypothesis would imply that even a completely arrational phenomenon such as the Name-Letter Effect can be reduced to a side-effect of a cognitive, self-related phenomenon. This would in turn lend support to informational interpretations of self-serving biases in general. In addition, it would suggest that there is no need for the mere ownership hypothesis to explain phenomena such as the Name-Letter Effect. Before describing the present research, which pits the subjective frequency hypothesis against the mere ownership hypothesis, Nuttin's research on the Name-Letter Effect will be presented in more detail.

The Name-Letter Effect: An unequivocal demonstration of the affective consequences of mere ownership ?

According to the mere ownership hypothesis, the fact that an object belongs to the self is sufficient to cause an enhanced attractiveness of the owned object and of its constitutive elements. This enhanced attractiveness is assumed to occur independently from, and in addition to the effects of any other factor such as freedom of choice or idiosyncratically defined frames of reference for the comparison of own and not-own items.

An unequivocal test of the mere ownership hypothesis, which Nuttin later called the 'affective self-particles hypothesis' (Hoorens, 1990), requires a research paradigm in which the confounding of mere ownership with other, ownership-related variables is rigourously avoided. This goal

can be reached by studying the attractiveness of 'own' and 'not-own' objects which meet a least four criteria (Nuttin, 1987). First, a well-defined category of experimental objects should be found, of which the different items belong to different subjects. Second, the overall utility of all items of this category of experimental objects should be equivalent across subjects. Third, ownership of certain items should not differentially affect the behavior of owners versus not-owners, except for the hypothesized enhanced liking of the owned object. A preference for own objects as compared to not-own objects can only be assessed unequivocally when these first three conditions are met. In addition, a fourth criterion is that mere belongingness to self should be experimentally manipulated (or naturally varied) independently from perceived belongingness to self. By keeping the crucial variable outside the subjects' conscious awareness, two threats to the validity of a test of Nuttin's hypothesis can be eliminated. First, because we are trained from earliest childhood on not to disparage ourselves while simultaneously keeping up some degree of modesty, social desirability considerations might render an evaluation of obviously own and not-own objects futile. This might be especially problematic if subjects used an obvious mine-not mine distinction as a rule of thumb to select certain objects in the absence of any true preferences among items. Second, when subjects consciously classify the experimental stimuli on a mine-not mine dimension, then it is quite unavoidable that their choices will be influenced by a host of factors that are often confounded with ownership (e.g. perceived choice).

Nuttin states that all four conditions are met when such trivial objects as the isolated letters of the alphabet are used as experimental objects and when letters occurring

in one's own name (name-letters) are considered as belonging to one's self, while letters not occurring in one's name (non-name-letters) are considered as not belonging to one's self. Then, the mere ownership hypothesis can be tested by comparing the attractiveness of name-letters and non-name-letters. A series of quasi-experimental studies with subjects of different ages supported this prediction, in that name-letters were preferred above non-name-letters.

Mere ownership versus mere exposure

One obvious alternative to the mere ownership hypothesis as an interpretation of the Name-Letter Effect is offered by Zajonc's mere exposure hypothesis (Zajonc, 1968; for reviews see Harrison, 1977; Van Beselaere, 1983). Since a positive correlation has been found between the frequency of occurrence of phonemes and letters and their judged attractiveness (Forer, 1940; Alluisi & Adams, 1962), a simple between-letters comparison of name-letter/non-name-letter preferences might artificially yield a name-letter preference because letters that are more frequent in everyday language also occur more often in people's names.

To avoid the confounding of objective letter frequency differences and the ownership variable, in one series of studies Nuttin (1984, 1985) used a yoked design. He presented subjects with two lists of letter pairs. For each subject, the letter pairs in one list always consisted of a name-letter and a randomly chosen non-name-letter. The other list consisted of name-letter/non-name-letter pairs for a second subject, who was yoked with the first one. The two yoked subjects were asked to indicate, as spontaneously as possible, the most attractive letter of each pair in each stimulus list. Thus, exactly the same name-letter/non-name-

letter pairs were judged by both the 'owner' of the crucial name-letters and by another subject. For each stimulus list, the proportion of name-letters preferred over non-name-letters was compared for the name's 'owner' versus its 'not-owner'. This difference was then taken as a measure of the affective overvaluation of own name-letters. In Nuttin's first study, the mean proportion of name-letters chosen by their 'owner' was .551 while the equivalent proportion for the yoked 'not-owner' was .446, yielding a significant Name-Letter Effect.

In a second series of studies (Nuttin, 1987), the goal of eliminating letter frequency differences was accomplished by asking subjects to select their six most preferred letters out of a single, random presentation of the whole alphabet. Nuttin calculated the mean proportion of times that each letter of the alphabet was chosen among the six most preferred letters when it was a name-letter and when it was a non-name-letter. A randomization test (Edgington, 1980) across the entire alphabet was performed to test the difference between the former and the latter proportions. Each letter thus served as its own control, keeping all possible determinants of preference constant except mere ownership. Using this procedure, the average probability for a letter to be chosen among the six most preferred letters of the alphabet was .30 for name-letters versus .20 for non-name-letters.

The subjective frequency hypothesis

While controlling for objective frequency differences, and thus excluding a mere exposure explanation of the name letter effect, Nuttin's published studies did not examine the influence of subjective letter frequency differences. Given

the evidence that enhanced subjective familiarity may lead to increased attractiveness (see above), the Name-Letter Effect may be explained in terms of subjective letter frequency differences as well as in terms of mere belongingness to self.

Two predictions can be derived from the subjective frequency explanation of the Name-Letter Effect. First, the frequency of name-letters should be overestimated as compared to the subjective frequency of non-name-letters. Second, this name-letter-frequency overestimation should be positively correlated with the Name-Letter Effect. Two (unpublished) studies have directly tested the first prediction, while not a single study has tested the second one. Nuttin asked one group of subjects to group all the letters of the alphabet into 16 frequency categories, while another group simply rank ordered the letters of the alphabet according to relative frequency. In the latter group, a marginally significant difference was found between the judged frequency for own initials and the judged frequency for non-name-letters. Johnson (1986) asked her subjects to choose the more frequent or the more attractive member of each item in a list of upper case, lower case or Gothic English letter pairs. She found a name-letter-frequency overestimation for Gothic letters only and in only one of her analyses. However, rather than using a yoked design, Johnson matched her letter pairs for letter frequency. She ordered the letters of the alphabet according to their frequency and grouped them into triads with roughly comparable frequencies (using the count of Mayzner & Tresselt, 1965). Johnson then formed pairs of letters belonging to the same triad. It is clear that this matching procedure could only partially control for objective frequency differences as considerable frequency differences

still existed within triads.

The present paper describes three studies that were designed to test the subjective frequency explanation of the Name-Letter Effect against Nuttin's mere-belongingness-to-self hypothesis. In experiment 1, two predictions derived from the subjective frequency hypothesis were tested: name-letter-frequency overestimation, and the positive correlation between this overestimation and the Name-Letter Effect. It should be noted that the predicted name-letter-frequency overestimation is relative compared to subjective non-name-letter-frequencies and is not an overestimation of absolute and objective letter frequencies. Using Nuttin's (1985) yoked design, high school students were presented with two lists of letter pairs and were instructed to indicate the more attractive and the more frequent letter in each letter pair on both stimulus lists. A Name-Letter Effect was inferred if more name-letters were chosen by the 'owner' of the name used to construct the stimulus list than by the second subject given the same list of letter pairs. In a similar vein, a name-letter-frequency overestimation was inferred if more name-letters were selected as the more frequent member of the pair by the former than by the latter subject.

EXPERIMENT 1

Method

Subjects

Sixty-six 14- to 15 year old Flemish male high school students took part during their regular study hours at school. None of them had previously served as a subject in psychological experiments. The names of the subjects were collected from the sign-up forms all students had completed

expressing their consent to participate in a study on preferences. All testing took place within a two-weeks period.

Materials

Two Apple IIe microcomputers with 192 by 280-pixel, green-black Apple monitors were used to present the stimulus lists and to record subjects' responses. Instructions were written on an instruction booklet lying next to the computer.

For each subject a stimulus list was prepared consisting of name-letter/non-name-letter letter pairs. Letters repeatedly occurring within the same name were only presented in a single name-letter/non-name-letter pair, rather than in as many pairs as the frequency with which they occurred in the name (Nuttin, 1985). This was done to avoid biases in the frequency judgments due to the suspiciously high occurrence of certain letters within the experimental task. In addition, the elimination of 'repeated name-letters' avoided boredom that might have been caused by too long a duration to the choice task. It should be noted that neither Nuttin nor Johnson (1986) found clear evidence for enhanced preference for letters occurring repeatedly in subjects' own name as compared to repeating name-letters. To enhance the power of the yoked design, Nuttin (1985) tried to link up subjects whose names contained no common syllables. Because the stimulus lists used in the present research were shorter than the ones used in Nuttin's (1985) original studies, we linked subjects with a minimum of common name-letters rather than just avoiding names containing common syllables.

Letter pairs were presented to the subjects one at a time at the centre of the computer screen. Letter pairs consisted of capital leters of the built-in system font. Name-letters randomly appeared as the left or right member of

the letter pairs, which themselves were randomly ordered within each stimulus list. Subjects responded to the stimuli (letter pairs) by pressing one of two keys marked with orange labels. One was situated at the left of the keyboard and was to be pressed when the left letter was chosen; the other was situated at the right and was to be pressed when the right member of the letter pair was chosen. Subjects started stimulus presentation by pressing a third key, marked with a green label. Between letter pairs, the dark screen was filled with a green background and then immediately turned dark again, showing the next letter pair. The intertrial interval lasted approximately 1.5 seconds.

Procedure

Design

A 2 (attractiveness- versus frequency task) x 2 (own versus yoked partner's stimulus list) x 2 (attractiveness/frequency versus frequency/attractiveness task order) design was used.

Subjects chose the more attractive and the more frequent member out of each letter pair in their own and each other's stimulus list. For each list, the difference between the proportions of name-letters selected by the name's 'owner' versus by its 'not-owner' was used as a measure for affective overvaluation or for relative frequency overestimation of own name-letters.

About half of the yoked subject couples first chose the more attractive letter within each letter pair of both stimulus lists, while the other half first completed the frequency task. Both members of each yoke were presented with identical stimulus lists in exactly the same order. Consequently, one member of each yoked couple started the

choice task with his 'own' stimulus list while the other subject started with the same stimuli, which in his case formed his 'partner's' stimulus list. A confounding of the 'own versus not-own' variable and the order of the stimuli was thus avoided. For both tasks, exactly the same stimulus lists were used. Thus, every subject judged the same letter pairs under two different instruction sets.

Experimental session

Subjects were sent to the experimental room one by one by the teacher supervising their study hours. Upon arrival they were seated at one of the Apple IIe's which was set up to present the appropriate stimulus lists. As the order in which subjects came to the experimental room was prescheduled, there was no need to ask subjects' names and thus focus their attention on their names.

The instructions explained that the subject would be presented with very well-known symbols appearing on the screen two by two, and that his task consisted of indicating as spontaneously as possible the more attractive (or the more frequently occurring) of each pair. The use of the relevant computer keys to start the experimental session and to record one's responses was also explained. It was stressed that there were no 'right' or 'wrong' answers.

As soon as a subject pressed the green key, the first stimulus pair appeared and remained visible until one of the orange keys was pressed. After completing the first experimental task, subjects were cued to refer to the instruction booklet's next page, on which the second task was explained.

Results

As in Nuttin (1985), names were used as units of

analysis. For each name, the proportion of name-letters chosen by the 'owner' of the name was compared to the equivalent proportion of his yoked partner, the 'not-owner' of the name.

The ANOVA on both the attractiveness and the frequency data showed main effects for own versus partner's stimulus list; $F(1,64) = 12.12$; $p < .001$ and $F(1,64) = 15.5$; $p < .001$, respectively. In both choice tasks, subjects chose more name-letters in their own stimulus list than their yoked partners did (table 1). Task order did not yield any main or interaction effects.

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insert table 1 about here

The owner/partner proportion differences for the two tasks were positively correlated. This was the case for the total group (Pearson correlation $r(64) = .35$; $p < .005$) and for both Attractiveness/Frequency orders separately; $r(30) = .35$; $p < .05$ and $r(32) = .37$; $p < .05$, respectively.

Discussion

Own name letters not only possess an enhanced attractiveness compared to non-name-letters, but people also judge their own name letters to occur more frequently in everyday language use. Moreover, the affective name letter overvaluation (or Name Letter Effect) and name letter frequency overestimation are positively correlated. This pattern of results is in line with predictions derived from the subjective frequency hypothesis, which states that the name letter effect is due to the enhanced subjective frequency or familiarity of name letters.

The above conclusion should be taken with caution,

however, because of methodological and empirical limitations to experiment 1. First, the present results yield the very first demonstration of name-letter-frequency overestimation. As such, they run counter to Johnson's subjective frequency data. Second, the correlation between the Name-Letter Effect and name-letter-frequency overestimation might be restricted to the specific procedural characteristics of the study. Exactly the same letter pairs were presented in both choice tasks. Under these circumstances, the shortness of the stimulus lists and the absence of a considerable intertask interval may have allowed subjects' to remember their own responses during the first task while performing the second task. At first glance, the short intertrial intervals may have limited such memory effects by interfering with rehearsal of one's choices. However, one cannot exclude the possibility that during the second task, subjects simply repeated their first choices. Third, demand characteristics may have distorted our data in one final way. It is possible that due to the uninterrupted administration of both tasks, subjects guessed the expected relation between frequency- and attractiveness judgments. Even without suspecting the hypothetical base for this relation they may have deliberately tried to make the same choices in both tasks.

For all of these reasons, we decided to run a critical replication of our first study, experimentally controlling for demand characteristics while also using a more stringent procedure by presenting different name-letter/non-name-letter pairs in the attractiveness and the frequency choice tasks.

EXPERIMENT 2

Subjects were again asked to make attractiveness and

frequency choices within each letter pair in an 'own' and a yoked 'partner's' stimulus list. To keep subjects from simply repeating their original choices during the second choice task, different stimulus lists were constructed for the attractiveness- and the frequency tasks. To experimentally test the aforementioned possibility that demand characteristics may have caused subjects to emit identical choices in both tasks, four conditions were run.

Two experimental groups essentially provided a replication of experiment 1. For each letter pair, subjects indicated the more attractive and the more frequent letter. One group gave attractiveness choices first, while the other group started with frequency choices. As 'positive' choices (selecting the more attractive or the more frequent letter) were asked in both the attractiveness and the frequency choice task, these conditions are called the Apos-Fpos (attractiveness-frequency) Condition and the Fpos-Apos (frequency-attractiveness) Condition. Two conditions were added in which opposite rather than parallel instructions were given for both choice tasks. In the first group, subjects chose the more attractive and the less frequent member of each pair (Apos-Fneg Condition). In the second group, subjects chose the more frequent member and the less attractive member of each pair (Fpos-Aneg Condition).

It was suggested that the observed correlation between the Name-Letter Effect and name-letter-frequency overestimation may have been due to subjects deliberately trying to respond consistently with the experimenter's hypothesis. If the 'parallel' attractiveness- and frequency choice tasks (i.e. two positively framed choice tasks) elicited the conjecture that the experimenter expected attractive letters to be frequent, then it would be quite

understandable for subjects eager to please the experimenter to make corresponding attractiveness and frequency choices. Following this reasoning, however, 'opposite' choice tasks (i.e. one positively framed and one negatively framed) should elicit the reverse conjecture, that the experimenter's expectation is that attractive letters are relatively infrequent. If demand characteristics are the main determinant of subjects' responses, then this conjecture should also be apparent in subjects' letter choices. Taken together, the demand characteristics explanation predicts positive correlations between measures on the attractiveness and frequency estimation tasks in all four conditions. Note that these measures actually involve differences between owner and partner responses, which thus reflect over- or undervaluation and over- or underestimation. In the Apos-Fpos and Fpos-Apos conditions this positive correlation would imply a direct relationship between name-letter frequency and attractiveness, while in the Apos-Fneg and Fpos-Aneg conditions this implies an inverse relationship between name-letter frequency and attractiveness.

If, on the contrary, subjects who show an affective name-letter-overvaluation genuinely tend to overestimate the relative frequency of their name letters, then in the two conditions with parallel choice tasks (Apos-Fpos and Fpos-Apos Condition) a positive correlation between measures on the attractiveness and frequency estimation tasks should be found. In the conditions with opposite tasks, a negative correlation should be obtained between these measures. This pattern of results would imply a direct relationship between the Name-Letter Effect and name-letter-frequency overestimation regardless of the framing of the two choice tasks.

Method

Subjects

One hundred and thirty-six Flemish 15-years old male and female high school students were tested during their regular class hours at school. None of them had previously served as a subject in psychological experiments. All testing took place within a two-weeks period.

Materials

Two Apple Macintosh SE microcomputers were used to present the stimulus lists and to record subjects' responses. The use of a Macintosh computer (not available to us at the time of experiment 1) with a 512 by 342-pixel high-resolution graphic screen provided improved stimulus presentation.

As in experiment 1, subjects were presented with stimulus lists consisting of name-letter/non-name-letter pairs constructed from their own and their yoked partner's name. However, rather than using the same stimulus lists in both experimental tasks, a different stimulus list was constructed for each task. This was done by pairing the name-letters with different non-name-letters for the attractiveness- and the frequency choice task.

The letter pairs consisted of 1 x 1.8 cm capitals presented at the centre of a white 3.9 x 6.7 cm rectangle which was situated in the middle of a light-grey screen. Between the presentation of subsequent letter pairs, the rectangle turned black.

Procedure

Except for the fact that two conditions were added to the design, the same procedure was used as in experiment 1. In the first experimental task, 'positive' choices (selecting the more attractive and the more frequent letter) were made

in all four conditions. For half of the subjects this was an attractiveness task (Apos-Fpos Condition and Apos-Fneg Condition) and for half it was a frequency task (Fpos-Apos Condition and Fpos-Aneg Condition). In the second part of the experiment, half of the subjects received 'negative' choice instructions (Fpos-Aneg Condition and Apos-Fneg Condition), while the other half again made 'positive' choices (Apos-Fpos Condition and Fpos-Apos Condition).

Results

Data were treated in the same way as in experiment 1. For the 'negative' choice tasks, name-letter-non-choice proportions were calculated and used in further analysis rather than choice proportions. This was done to facilitate data interpretation by having all scores denoted a preference for, or a relative frequency-overestimation of, name-letters.

After the above transformation, the demand characteristics explanation predicted a negative correlation between attractiveness and frequency measures in the Apos-Fneg and in the Fpos-Aneg condition. In the Apos-Fpos and in the Fpos-Apos condition, a positive correlation between attractiveness and frequency measures was predicted. If, however, the positive correlation between the Name-Letter Effect and name-letter-frequency overestimation obtained in experiment 1 was not due to demand characteristics, then a positive correlation between these measures was to be predicted in all conditions.

The results are summarized in table 2. In both the attractiveness- and the frequency tasks, name-letters were chosen more often (or rejected less often) by the owner of the name than by his or her yoked partner; $F(1,132) = 4.48$; $p < .05$ and $F(1,132) = 15.11$; $p < .0005$, respectively. In

addition, more name-letters were preferred (or fewer name-letters were rejected) by subjects who first performed the frequency task than by subjects who first performed the attractiveness task; $F(1,132) = 8.25$; $p < .005$. No other main effects or interactions were significant.

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insert table 2 about here

The owner/partner name-letter-choice (or non-rejection) proportion differences for the attractiveness- and the frequency tasks were not significantly correlated (overall $r(134) = -.05$).

Discussion

Again, evidence was obtained for both the Name-Letter Effect and name-letter-frequency overestimation. However, no correlation was found between these types of name-letter-overvaluation. While supporting one prediction from the subjective frequency hypothesis--the relative overestimation of own name letters' frequencies--the results are at odds with another prediction derived from it--the positive correlation between the Name-Letter Effect and name-letter-frequency overestimation. Because of the latter aspect of our data, the subjective frequency hypothesis receives only equivocal support as an explanation of the Name-Letter Effect.

The overestimation of name-letter-frequencies obtained in experiment 1 was replicated. It seems, then, that people not only show a name-letter preference but that they also estimate the frequency of occurrence of name-letters in everyday language to be higher than the frequency of occurrence of non-name-letters. Although cognitive self-

referent phenomena such as the better recall of self-relevant information have been extensively reported in the literature (for reviews see Greenwald & Pratkanis, 1984; Markus & Wurf, 1987), all these phenomena pertain to complex stimulus levels on which self/non-self distinctions are consciously and unequivocally made. In contrast, the relative name-letter frequency overestimation implies cognitive consequences of self-relevance on an incomparably basic stimulus level and even in the absence of a conscious self/non-self distinction.

Three cautions should be taken into account before drawing the conclusion that because we found no clear support for the subjective frequency hypothesis, Nuttin's mere ownership hypothesis gives the best account of the Name-Letter Effect. First, the design of experiment 2 may have done too good a job in avoiding an artificial correlation between the Name-Letter Effect and name-letter-frequency overestimation. It is possible that the use of the different name-letter/non-name-letter pairs in the two letter evaluation tasks created such unfavorable conditions for the observation of any correlation that a 'true' relationship between both phenomena could not be detected. In our view, however, it is unlikely that the error variability due to the use of different non-name-letters could completely suppress a 'true' correlation between the Name-Letter Effect and name-letter-frequency overestimation. Indeed, analyses were performed on the complete stimulus lists rather than on individual name-letter/non-name-letter pairs.

Second, the absence of a correlation between the Name-Letter Effect and name-letter-frequency overestimation may not be sufficient to reject the subjective familiarity hypothesis. The mere existence of both name-letter-overvaluation phenomena does show that the attractiveness of

letters and their subjective frequency partly depend on the very same variable--namely, whether or not they are in the subjects' name. This common determinant does suggest a certain relationship between both phenomena. However, it is clear that a correlational link is the very least that can be expected from two variables which are assumed to be causally related.

Third, until now we have not presented any direct and independent evidence for Nuttin's mere ownership explanation of the Name-Letter Effect. This hypothesis states that name-letters are preferred above non-name-letters simply because name-letters occur in such a salient self-attribute as one's own name. It will be remembered that the Name-Letter Effect itself was initially presented as empirical evidence for the affective consequences of mere belongingness to self. However, even though alternative interpretations of the Name-Letter Effect have not been supported (see also Hoorens & Todorova, 1988; Hoorens, Nuttin, Erdélyi-Herman & Pavakanun, 1990), the mere fact that they have been advanced underlines the desirability of additional data supporting Nuttin's theoretical view.

To further test the subjective frequency hypothesis, while simultaneously avoiding the weaknesses of experiment 1 and 2, and to provide additional evidence for Nuttin's mere ownership hypothesis, a third experiment was conducted.

EXPERIMENT 3

The purposes of experiment 3 were twofold. First, this experiment was aimed at further testing the subjective frequency hypothesis. To provide an unequivocal test of the

correlation between name-letter-frequency overestimation and the Name-Letter Effect, the design should allow the presentation of exactly the same letter stimuli in both letter choice tasks, while preventing subjects from simply repeating their first responses in the second choice task.

Second, experiment 3 was designed to test Nuttin's mere ownership hypothesis more directly. According to this hypothesis, an assumed fundamental attachment to one's self enhances the attractiveness not only of own(ed) objects and attributes but even isolated elements of compound objects and attributes. As one's own name is an important self-attribute, this implies that people are generally attached to their own name and to the letters occurring in their name. If this reasoning is correct, then it can be expected that people showing a relatively strong attachment to their own name should also show a stronger Name-Letter Effect than people who evaluate their own name more neutrally or even negatively. Therefore, two predictions were derived from Nuttin's mere ownership hypothesis: a) people will tend to evaluate their own name positively, and b) the strength of the Name-Letter Effect will be positively related to one's evaluation of one's own name. Obviously, an empirical test of these predictions required a design in which the evaluation of one's own name was assessed along with the Name-Letter Effect.

These requirements necessitated a different research design than the yoked design used in the previous studies. University students were asked to rank order the letters of the alphabet both according to their attractiveness and their frequency of occurrence and at the end of the session, the subjects filled out a short questionnaire assessing their evaluation of their own name. As all the letters of the

alphabet were to be ordered in both tasks, a lack of correlation between the Name-Letter Effect and name-letter-frequency overestimation could not be ascribed to the use of different stimuli. In addition, 26 letter-rank combinations are more difficult to remember than one's choices in a paired comparison task. Therefore, it is unlikely that subjects could simply repeat their original responses in the second ordering task, causing an artificial correlation between both tasks.

The mere ownership hypothesis predicted a Name-Letter Effect--manifested by a relatively high rank of name-letters in the attractiveness hierarchy--, a generally positive evaluation of one's own name, and a positive relationship between one's evaluation of one's name and the Name-Letter Effect. The subjective frequency hypothesis only predicted a significant and intercorrelated Name-Letter Effect and name-letter-frequency overestimation.

Method

Subjects

Two hundred Flemish students in economy and law (UFSAL, Brussels) voluntarily participated in one of two collective experimental sessions. Both sessions took place in immediate succession.

Materials

Experimental booklets were prepared containing the letter attractiveness task, the letter frequency task, and a short questionnaire designed to assess the subjects' evaluation of their first and family name and to obtain the name of the subjects. The stimuli for each letter ordering task consisted of all the letters of the Roman alphabet, presented in a random order on a single sheet of paper. The

letters were written in capitals and different random presentations were used for the two tasks. Each of the two stimulus pages was preceded by a page of written instructions. For each task, four different versions were administered to different subjects to neutralize the possible effect of the order of the stimuli. Blank pages separated the instruction and stimulus sheets of both tasks.

The subjects' evaluation of their first and family name was measured by a short questionnaire consisting of three items. On 5-points scales, subjects had to indicate a) to what degree their own name would suit someone of the same sex whom they admired very strongly (very well suited--not suited at all), b) to what degree their own name would suit someone in the professional group to which they most desire to belong (irrespective of the realistic character of this desire) and c) to what degree they would choose their own name again if they had the opportunity to do so (certainly--certainly not). Each item was answered twice: once for the first name and once for the family name.

Procedure

Each subject was handed an envelope containing a response booklet. It was stressed that subjects should work individually and react as spontaneously as possible to the test questions. They were then allowed to open the envelope and to work on the experimental task at their own pace.

For the letter attractiveness- and frequency tasks, subjects were asked to rank the letters of the alphabet by writing a number from 1 (most attractive or most frequent) to 26 (least attractive or least frequent) in the free space to the right of each letter. The order of both tasks was counterbalanced. After completing both ordering tasks,

subjects were asked to answer some additional questions. At this point, they were presented with the three items of the own name evaluation questionnaire. On the last page of the booklet, subjects were asked to write down their full name.

Results

Name-Letter Effect and name-letter-frequency overestimation

For each letter, a mean rank order was calculated across subjects, for the two tasks (attractiveness and frequency) and the two task order conditions (attractiveness/frequency versus frequency/attractiveness) separately. Z-scores were then calculated for each letter and for each subject to indicate the degree and direction of the discrepancy between individual subjects' rankings and the mean rank for that letter (As a matter of fact, the different random presentation orders were taken into account as well. As this variable has little theoretical importance, however, no further mention of it will be made in this paper). As letters were ranked from 1 (highest rank) to 26 (lowest rank), negative z-scores denote a higher rank than average. For each letter, z-scores were averaged over subjects for whom the letter was a name-letter (i.e. for whom the letter occurred in the subject's first name and/or family name) and over subjects for whom the letter was a non-name-letter (i.e. for whom the letter occurred neither in the first name nor in the family name). A randomization test for matched pairs was then performed over the letters of the alphabet to assess whether name-letter-scores were significantly different from non-name-letter-scores. Letters never occurring as a name-letter of the full, first or family name of at least one subject were excluded from the analysis.

As shown in table 3, for both task order conditions

name-letters ranked higher in subjects' attractiveness hierarchy than non-name-letters. In the subjective frequency hierarchy, name-letter-frequency overestimation was found for the Frequency/Attractiveness Condition and for the total subject group.

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insert table 3 about here

Own name evaluation

The subjects' responses to the items of the own name evaluation questionnaire were scored from 1 (strongly negative evaluation) to 5 (strongly positive evaluation). As there were three items for each the first and family name, a total score of 9 (3 x 3) denoted indifference towards one's own first or family name, while a score of 15 denoted the most positive evaluation and a score of 3 the most negative evaluation. Mean scores were 10.3 for the first name (SD = 2.2) and 10.1 for the family name (SD = 2.5). Both values were significantly higher than the expected mean (z-test; $p < .0001$).

Relationship between the Name-Letter Effect, name-letter-frequency overestimation and own name evaluation.

For each subject, the mean z-score of name-letters was calculated for the attractiveness rankings and for the subjective frequency rankings separately. In addition, full name evaluation scores were calculated by summing the scores for first and family names. Pearson correlations were then computed between both z-scores and the name evaluation scores.

The correlation between mean name-letter z-scores for the attractiveness and frequency rankings was not significant ($r(198) = -.06$), suggesting that name-letter-frequency

overestimation and the Name-Letter Effect are unrelated. However, positive correlations were obtained between name evaluation scores and mean name-letter z-scores for the attractiveness rankings; $r(198) = .29$; $p < .005$. In other words, subjects who evaluated their own name relatively positively showed a stronger preference for their own name letters than subjects who evaluated their own name relatively negatively. Name evaluation scores and mean name-letter z-scores for the frequency rankings were uncorrelated; $r(198) = .02$: subjects who evaluated their own name relatively positively did not show a stronger name-letter-frequency overestimation than subjects who evaluated their own name relatively negatively.

The correlational analysis was confirmed in an ANOVA on the name-letter z-scores, with the experimental task (attractiveness versus frequency) as a within subjects variable, and with task order (attractiveness/frequency versus frequency/attractiveness) and own name evaluation (relatively positive versus relatively negative, median split) as between subjects variables. This analysis yielded significant main effects for experimental task and for name evaluation; $F(1,196) = 5.01$; $p < .05$ and $F(1,196) = 7.02$; $p < .01$, respectively. Both main effects were modified by a significant experimental task x name evaluation interaction; $F(1,196) = 10.61$; $p < .001$. In general, the affective overvaluation of name-letters was stronger than their frequency overestimation. Name-letters were more strongly overevaluated by subjects who were relatively satisfied with their own name than by subjects who evaluated their own name rather negatively. However, the relationship between own name evaluation and name-letter-overvaluation occurred only on the attractiveness rankings. Subjects who evaluated their own

name positively affectively overevaluated their name-letters to a higher degree than subjects who evaluated their own name rather negatively, but they did not overestimate name-letter-frequency more strongly (see figure 1).

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insert figure 1 about here

Discussion

The subjective frequency hypothesis predicted a name-letter-frequency overestimation and a positive correlation between this phenomenon and the Name-Letter Effect. Although the results of experiment 3 were in line with the first prediction, we found no support for the second one. The absence of a relationship between the Name-Letter Effect and name-letter-frequency overestimation is less equivocal than in experiment 2 because in the present experiment this cannot be ascribed to procedural factors such as the use of different letter stimuli. Exactly the same letter stimuli were used in both letter ranking tasks though in different orders of presentation.

Nuttin's mere ownership hypothesis predicted that people would evaluate their own name positively and that people's satisfaction with their own name would be positively correlated with the Name-Letter Effect. Both predictions were confirmed: subjects evaluated their first- and their family name relatively positively, and a positive correlation was found between own name evaluation scores and the Name-Letter Effect.

At first glance, the relationship between one name evaluation and the Name-Letter Effect seems rather straightforward. However, while it is clear that most people

perceive their own name as belonging to themselves, very few would consciously admit that they consider its constitutive letters as belonging to themselves as well. In addition, one's name-letters occur in a myriad other contexts as well. Each of these contexts may be affectively positive, negative or neutral. Even under these circumstances, however, the mere occurrence of certain letters in one possible context (i.e. one's name) is sufficient to enhance these letters' attractiveness, and a positive evaluation of this context as a whole further adds to this enhanced attractiveness.

An especially interesting aspect of our results, pertaining to both the subjective frequency and the mere-owner-ship hypothesis, is the lack of a significant correlation between name-letter-frequency overestimation and own name evaluations (despite a significant Name-Letter Effect-own name evaluation correlation). This pattern of results shows that the Name-Letter Effect, but not name-letter-frequency overestimation is related to one's evaluation of one's own name. As such, it runs counter to any hypothesis assuming a mediating role of subjective frequency in the relationship between attachment to one's own name (or mere ownership) and the Name-Letter Effect. It also suggests the relative independence of both name-letter-overvaluation phenomena.

To summarize, the results of experiment 3 provide no support for the subjective frequency hypothesis. In contrast, they demonstrate a direct relationship between own name evaluation and the affective overvaluation of name-letters. Therefore, these data support Nuttin's thesis that merely being part of one's name is sufficient to enhance the attractiveness of the letters of the alphabet.

GENERAL DISCUSSION

Nuttin's mere ownership hypothesis states that own objects or attributes and their constituent elements grow more attractive to their 'owner' simply because they belong to the self. The Name Letter Effect has been advanced as the first experimental demonstration of this affective consequence of mere belongingness to the self. As one's own name is an important self-attribute, the mere ownership hypothesis implies that people will be attached to their own name and to the letters occurring in it.

In three studies, we have tested an alternative explanation for the name letter effect in terms of an assumed enhanced subjective frequency of name letters. The subjective frequency hypothesis received only minimal support: a significant relationship between the name letter effect and name-letter-frequency overestimation was obtained in only one study. As this correlation was absent in more controlled studies, it can most easily be ascribed to the procedural characteristics of experiment 1.

A second purpose of our research was to provide additional evidence for Nuttin's mere ownership hypothesis. In line with the predictions derived from this hypothesis, subjects gave a generally positive evaluation of their own name, and own name satisfaction was positively related to the strength of the name letter effect. An analogous relationship between own name satisfaction and name-letter-frequency overestimation was not obtained, ruling out subjective frequency as a mediating variable between belongingness to self and the enhanced attractiveness associated with this factor.

The Name-Letter Effect implies a considerable extension

to the repertoire of known self-serving biases and throws an interesting new light on them. While common-sense cognitive and motivational processes may contribute to the overvaluation of complex and 'important' self-attributes such as one's material belongings, personality traits, abilities and prospects (see above), there is no straightforward reason why people should overevaluate something as trivial, arbitrary and unimportant as the letters of their own name. This overvaluation is the more intriguing because people are confronted with their own name letters (as well as with non-name-letters) in a myriad other positive, negative and neutral contexts. The triviality of the objects in which self-related biases still can be demonstrated, points to the basic nature of self-serving biases and suggests that it might prove impossible to completely explain these biases in terms of other motivational and cognitive processes. Of course, this is not to say that general informational or conative factors may not contribute to them.

Although the subjective frequency explanation of the name letter effect was not supported, an overestimation of name-letter-frequencies was demonstrated in all three studies. This newly demonstrated self-related phenomenon has an important theoretical relevance in its own right. As a matter of fact, the pervasive influence of the self-concept in social information processing has been extensively demonstrated. However, until now self-referent effects in perception, memory and inference have only been demonstrated with relatively complex pieces of information. Name-letter-frequency overestimation demonstrates that the self is involved, not only in the processing of complex self-related attributes, but also in the processing of the constituent elements of at least one such an attribute (one's own name),

elements which themselves would not be readily recognized as being part of self. Therefore, the present research offers the first experimental demonstration of cognitive self-referent processes at an extremely elementary stimulus level.

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own attributes - 37 -

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Table 1: Experiment 1: Mean proportions of name letter choices in a stimulus list consisting of own name letter/non-name-letter pairs, for the owner of the name and his yoked partner, on both attractiveness (A)- and frequency (F) choice tasks, with the order of the two tasks manipulated between subjects. (Standard deviations shown in brackets).

	Choice task			
	Attractiveness		Frequency	
Order	own	partner	own	partner
A/F	.62 (.17)	.53 (.15)	.70 (.16)	.60 (.15)
F/A	.67 (.18)	.56 (.18)	.73 (.16)	.62 (.12)

Table 2: Experiment 2: Mean proportions of name letter preference choices in a stimulus list consisting of own name letter/non-name-letter pairs, for the owner of the name and his or her yoked partner, on both attractiveness (A)- and frequency (F) choice tasks, for two tasks order (AF versus FA) and two instruction sets ('positive' versus 'negative' choices) (Standard deviations shown in brackets).

	Choice task			
	Attractiveness		Frequency	
Condition	own	partner	own	partner
AposFpos	.56 (.13)	.49 (.21)	.70 (.18)	.61 (.24)
AposFneg	.52 (.20)	.54 (.16)	.73 (.18)	.62 (.17)
FposApos	.62 (.19)	.56 (.17)	.70 (.16)	.66 (.17)
FposAneg	.64 (.22)	.56 (.15)	.68 (.15)	.59 (.17)

Table 3: Experiment 3: Mean standardized ranks of own name letters (NLs) and non-name-letters (NNLS) in attractiveness (A)- and subjective frequency (F) rankings for two task orders (AF versus FA). Positive ranks denote a higher rank than average.

		Ordering task					
		Attractiveness			Frequency		
Order	k*	NL	NNL	p**	NL	NNL	p
AF	25	.23	-.12	.001	.02	-.07	.14
FA	26	.13	-.08	.01	.13	-.04	.05
total	26	.17	-.09	.001	.11	-.05	.025

** The p-values associated with the NL-NNL differences are obtained with a randomization test (2000 permutations) for matched pairs, as described in Nuttin (1987)

* Number of letters in the analysis

Figure 1: Experiment 3: Mean z-scores of name letter-ranks for subjects who evaluated their own name relatively positively for two task orders (A=attractiveness ordering task; F = frequency ordering task). So that positive values indicate affective name-letter-overvaluation or name-letter-frequency overestimation, all signs were reversed.