

The Relationship between Perceived Gender in L1 English and Grammatical Gender in L2 Spanish

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1. Introduction and previous research

1.1 Natural and grammatical gender

Historically, two types of gender have been identified in language: natural gender and grammatical gender. Natural gender is a semantic system. Those nouns that stand for male animate beings are masculine, those that refer to female animate beings are feminine, and those that refer to inanimate entities are neuter (Konishi 1993:520). In other words, the natural gender system is based on biological sex. For example, in English (a language with natural gender), words like 'boy,' 'father,' 'dog,' and 'rooster' are masculine. They necessarily refer to animate, male beings, and can be replaced by the pronoun 'he.' In the same way, words like 'girl,' 'mother,' 'bitch,' and 'hen' are feminine. They necessarily refer to animate, female beings and can be replaced by the pronoun 'she.' Conversely, words like 'stapler,' 'book,' 'happiness,' and 'peace,' since they represent inanimate objects or concepts, are neuter in English. The pronoun 'it' can be used to refer to them.

In contrast to natural gender, grammatical gender is characterized by a formal system (Konishi 1993:520), where each noun belongs, obligatorily, to a certain grammatical class (Lyons 1968:283). Furthermore, this system requires that there be gender agreement between a noun, the adjectives and articles that modify it, and any pronoun used to refer to it (Penelope 1990:60). According to Lyons (1968:284), a word's grammatical gender is logically independent from the meaning of the word. So there may or may not be a correspondence between a given word's natural and its grammatical gender. For example, the word *Mann* 'man' is grammatically and naturally masculine in German, while the word *Mädchen* 'young woman' is grammatically neuter, despite being naturally feminine.

Spanish is a language that, like German, has grammatical gender. Each noun in Spanish fits, obligatorily, within one of the grammatical classes of either masculine or feminine gender (though there are a few words, like *mar* 'sea' that can be either masculine or feminine). Since only adjectives, pronouns, and articles have neuter forms in Spanish, obviously there will not always be a correspondence between a word's natural and grammatical genders. *Libro* 'book,' *suéter* 'sweater,' and *disco* 'disc' are grammatically masculine words and *luz* 'light,' *media* 'stocking,' and *impresora* 'printer' are grammatically feminine words, even though all of them have neuter natural gender. Other examples of a mismatch between grammatical and natural gender in Spanish can be found in epicene nouns, which have but one form which is used to refer to both males and females (Alarcos Llorach 2003:74). Examples of such words in Spanish include *persona* 'person,' *pantera* 'panther,' *testigo* 'witness,' and *ruiseñor* 'nightingale.'

Despite the examples mentioned above, there very often is a correspondence between grammatical and natural gender in Spanish (and in many languages). Many of the words that refer to animate female beings are grammatically feminine and many of the words that refer to animate male beings are grammatically masculine (Konishi 1993:520). Thus *perra* 'bitch,' *gallina* 'hen,' *niña* 'girl,' *hermana* 'sister,' *madre* 'mother,' *tía* 'aunt,' and *gata* 'female cat' are grammatically feminine in Spanish, while

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perro ‘male dog,’ *gallo* ‘rooster,’ *niño* ‘boy,’ *hermano* ‘brother,’ *padre* ‘father,’ *tío* ‘uncle,’ and *gato* ‘male cat’ are grammatically masculine.

The previous does not claim to be an exhaustive description of grammatical or natural gender or of the relationship between the two. These are complex topics about which whole books have been written (see, for example, Corbett 1991). This has been, rather, a brief summary of these topics in order to provide a context for what will be examined in this paper—the relationship between the perceived meaning of certain words and the grammatical gender assigned to them by students of Spanish as a second language.

1.2 Spanish grammatical gender and the language learner

Research has shown that gender marking and agreement appear quite early in learners of Spanish as a first language. Pérez-Pereira (1991) observed overall high accuracy and very few differences in the behavior of his 160 L1 Spanish subjects, who ranged in age from 4 to 11 years (20 per age group). He therefore concludes that gender is acquired prior to age 4. Despite this early mastery, Pérez-Pereira observed some variability in his L1 Spanish learners’ responses when morpho-phonological (word endings), syntactic (articles), and semantic (natural gender) clues provided contradictory information about a noun’s gender. Nevertheless, in such situations all subjects privileged intralinguistic (morpho-phonological or syntactic) clues over extralinguistic (semantic) ones.

These findings are corroborated by work done by Cain et al. (1987). These researchers studied 20 L1 Spanish children (5 each in preschool, first grade, fourth grade, and sixth grade) along with 20 English-speaking university learners of L2 Spanish (5 each in first year, second year, third or fourth year, and graduate students). As in Pérez-Pereira (1991), this study looked at how learners handled conflicting gender clues. Results show that, again, the L1 Spanish subjects generally paid more attention to word endings than to natural gender. Only the oldest group of children showed increased attention to semantics, though all second language learners preferred this strategy.

Other studies have shown similar attention to semantic gender clues among English speakers studying Spanish as a second language. Finnemann (1992) recorded higher rates of gender agreement for her 3 beginning learners with nouns having human referents than with nouns having non-human referents. Alarcón (2004) distinguished between gender assignment (providing the correct definite article for a given noun) and gender agreement (providing the correct form of a modifying adjective) in analyzing the production of 69 university students in first through fourth semesters. She reports that all subject groups assigned grammatical gender more correctly to natural gender nouns than to nouns without natural gender. Interestingly, the opposite trend obtained for the data on gender agreement. Finally, Fernández-García (1999) found that, among her seven third-year learners of L2 Spanish, all but one performed better in showing gender agreement with nouns having natural rather than purely grammatical gender.

Several other patterns emerge from this research on the acquisition of the Spanish gender system by native speakers of English. First of all, as might be expected, proficiency is shown to have an effect, with higher proficiency learners outperforming lower proficiency learners (Alarcón 2004). Additionally, masculine (singular) forms are often used as a default form (Finnemann 1992). Finally, learners are more accurate in showing agreement with nouns ending in *-o* or *-a* than with nouns ending in other letters (Fernández-García 1999). Interesting to note is that these same trends have been observed also with Spanish learners whose L1 is French (White et al. 2003), a language which, unlike English, has grammatical gender. In fact, White et al. found almost no effect for L1 among their 48 French-speaking and 68 English-speaking subjects at beginning, intermediate, and advanced levels of proficiency.

1.3 The significance of grammatical gender

We saw earlier that for some words in Spanish there is a correspondence between natural and grammatical gender, while for others there is not. This has contributed to the fairly common belief that

a word's meaning and its grammatical gender are unrelated. Yet this does not seem to be the case. On the contrary, various studies have shown that grammatical gender does carry meaning.

Sera et al. (1994) used a series of pictures of people and objects, some labeled and others not, to carry out a set of experiments. English- and Spanish-speaking adults (20 per L1) and children (20 per L1 at kindergarten, second grade, and fourth grade levels) were asked to state whether the items pictured should have a male or female voice as a character in an animated movie. The researchers found that Spanish speakers were more likely to classify the objects pictured according to Spanish grammatical gender than were the English speakers. In other words, the Spanish-speaking subjects were more likely to attribute a man's voice to a picture of a book (*libro*, a grammatically masculine noun in Spanish) but a woman's voice to an apple (*manzana*, grammatically feminine). This difference between speakers of Spanish and English first emerged at the second-grade level. Furthermore, the Spanish-speaking subjects were shown to be more sensitive to grammatical gender in their classifications when the pictures were labeled than when they were not.

Flaherty (2001) conducted a similar experiment. In part two of her study, she presented English- and Spanish-speaking adults (48 per L1) and children (48 per L1 for both the 5-7 year and the 8-10 year age groups) with a series of 20 black and white drawings of animate and inanimate objects. Subjects were asked to give a man's or a woman's name to each object. Like Sera et al. (1994), Flaherty found that, for the Spanish speakers, gender choices corresponded to Spanish grammatical gender beginning with the 8-10 year old age group.

Konishi (1993) employed a list of high-frequency words which were grammatically masculine in Spanish but grammatically feminine in German, or vice versa. Adult native speakers of German (40) and Spanish (40) then evaluated the words in their language for potency (a characteristic determined to correlate with masculinity). Her results showed that speakers of both languages judged the words that were grammatically masculine in their language as more potent, even though the equivalent word in the other language was judged as being less potent.

These studies, then, affirm that there is a relationship between grammatical gender and meaning. Specifically, grammatical gender can influence the manner in which speakers of languages that have this feature perceive certain entities. Grammatically masculine nouns tend to be perceived as being more masculine in meaning, and grammatically feminine nouns as being more feminine in meaning.

2. The research question

The previously mentioned studies establish that a language's grammar can influence its speakers' perceptions. The current study investigates whether such a relationship also operates in the opposite direction. In other words, it considers whether our way of perceiving certain objects and concepts can affect our linguistic systems. We approach the topic by examining whether a word's gender connotations can influence how grammatical gender is assigned to that word. Specifically, we look at second language learners and ask: does perceived gender affect how native speakers of a language with only natural gender assign grammatical gender in a second language?

This question is thought to be especially pertinent given the key role semantic information has been shown to play in gender assignment in Spanish by native speakers of English (Alarcón 2004, Cain et al. 1987, Fernández-García 1999, Finnemann 1992). Furthermore, the answer to this question is of special importance because of a crucial difference in Spanish between actual masculine/feminine referents and items that simply hold masculine/feminine connotations. As stated before, in Spanish words that identify male and female beings are usually grammatically masculine and feminine, respectively. Therefore, relying on semantic information will lead second language learners to correctly assign grammatical gender to these words. The same type of correspondence does not necessarily hold, however, for words with masculine or feminine connotations. As a result, use of a semantic strategy to assign grammatical gender to these words will invariably provoke learner errors.

To answer the research question, a two-part study was conducted. The first part established whether certain words were perceived as having masculine or feminine connotations. The second part analyzed the grammatical gender assigned to those same words in Spanish, along with others included

for comparison. Each task will be described individually first, along with its results. Then, general findings across the two tasks will be presented and discussed, followed by conclusions.

3. Task one

3.1 Subjects

The subjects in task one were students of an intensive, first-year, Spanish language course taught at the University of Minnesota in the fall of 2003. The typical student at this level has already had some Spanish instruction, but not enough to test out of any courses at the university level. All subjects were native speakers of English. Data were collected from 112 participants, though 5 were later excluded because they either were native speakers of a language other than English or had completed the task incorrectly. The remaining 107 subjects consisted of 44 men, 58 women, and 5 who did not specify their sex. All participated voluntarily and during normal class meeting times.

3.2 Instrument

In order to discover whether the subjects' gender perceptions would influence their intuitions about the grammatical gender of certain words in Spanish, it was necessary to first identify words that would have a clear masculine or feminine connotation. However, it was also important that subjects not know the grammatical gender of these words in Spanish. Even at this basic level, many students recognize that words ending in *-a* tend to be grammatically feminine and words ending in *-o* grammatically masculine (Latorre 1991:78), and they assign grammatical gender accordingly (Alarcón 2004). Therefore, the use of this type of word was limited to a small number of items included in task two for comparative purposes. Furthermore, no word that the subjects had studied or would study during the current semester was chosen for the list.

Following these guidelines, the investigator selected a group of words that he suspected would have a sufficiently strong masculine or feminine connotation. An equal number of each type of word was chosen and presented in random order in English on a paper form. Subjects were asked to indicate whether they thought the meaning of each word was more masculine or feminine, by circling either 'M' or 'F.' Subjects also evaluated the strength of each association, by circling either 'weak,' 'medium,' or 'strong.' Task one was conducted during the tenth week of the semester and took approximately five minutes to complete.

The words presented in task one are listed in Table 1, along with the investigator's predictions about the words' gender connotations. These predictions are based on ideas expressed by Eckert and McConnell-Ginet (1993) and the investigator's own intuitions as a native speaker of English. A sample of the form itself is available in Appendix 1.

strike/blow (m)	order/command (m)	compassion (f)
semen (m)	necklace (f)	fort (m)
metal (m)	makeup (f)	reason (m)
weakness (f)	rugby (m)	earring (f)
home (f)	fear (f)	filth (m)
chastity (f)	perfume (f)	moustache (m)
security (m)	rifle (m)	stench (m)
peace (f)	womb (f)	ballet (f)
love (f)	jail (m)	action (m)
alcohol (m)	bra (f)	flower (f)

Table 1: List of words included in task one, with investigator's intuitions; (f) = feminine, (m) = masculine

3.3 Data analysis and results

Though a total of 107 learners participated, the number of subjects that rated each word in the first task varied from a minimum of 103 to a maximum of 107. Some subjects left certain words blank and

other times no data were recorded because it wasn't clear which letter or word was circled on the form. All data were entered into SPSS statistical software version 11.0, which was used for analysis in this and the second task. In SPSS, the qualitative responses for the first task were converted into numerical form using the following scale.

Association	Strength	Value Assigned
Masculine	Strong	3
	Medium	2
	Weak	1
Feminine	Weak	-1
	Medium	-2
	Strong	-3

Table 2: Value of associations from task one

Positive numbers were assigned to one gender and negative numbers to another so that any word with no real gender association for the subjects would obtain a mean score close to zero. Means were calculated for each word, and appear in Table 3 in numerical order for the ten words with the highest mean (strongest masculine perception) and the ten words with the lowest mean (strongest feminine perception). These words were the ones selected for inclusion in task two.

Masculine			Feminine		
Word	Mean	SD	Word	Mean	SD
semen	2.79	0.56	womb	-2.83	0.61
moustache	2.76	0.49	bra	-2.83	0.68
rifle	2.34	0.85	perfume	-2.66	0.71
strike/blow	2.32	0.76	makeup	-2.62	0.79
stench	1.90	0.89	flower	-2.41	0.63
rugby	1.84	1.48	necklace	-2.36	0.72
fort	1.83	0.85	ballet	-2.32	0.77
jail	1.83	0.90	love	-2.26	1.01
order/command	1.81	1.44	earring	-2.25	0.99
metal	1.74	1.37	chastity	-2.09	1.00

Table 3: Mean scores for task one, perceived gender

Using a one sample *t*-test, all means were found to be significantly different than zero (which would have indicated no gender association) at $p < .05$. For the majority of words, there was no statistical difference ($p < .05$) between the means for male and female subjects, as demonstrated by independent samples *t*-tests. Furthermore, males and females agreed in their gender perceptions for all words, with one exception. Men thought 'reason' was masculine (mean = 0.26), while women considered it feminine (-1.20). The overall slightly feminine ranking of this word (-0.52) was the only discrepancy between the investigator's predictions and actual results for this part of the study.

4. Task two

4.1 Subjects

The subjects for task two were also native English speakers and were enrolled in the same course, though different sections, as the subjects who performed task one. Different subjects were used for the two tasks in order to avoid revealing too much about the relationship being examined. As before, data were collected during normal class meeting times and participants were not compensated for their participation. In this part of the study, data were collected from 106 subjects and analyzed for 105 (45 men, 55 women, and 5 who did not specify their sex). Data from one participant were discarded because the student was a native speaker of a language other than English.

4.2 Instrument

Task two was used to identify the grammatical gender subjects would assign to words with strong gender connotations. The instrument for this task included a total of 34 words in Spanish: 20 selected based on the results of the first task (and translated into Spanish), and 14 more included to disguise the nature of the study and to serve a comparative function. The 20 words taken from the first task consisted of the 10 words with the most masculine scores and the 10 words with the most feminine scores (see Table 3, above). The added words included 8 words that ended in the same letter as a word chosen from the first task, but were not believed to have a strong gender association. The balance of the additional items were 3 words ending in *-o* and 3 ending in *-a*. Of these, the author suspected that, from each group, 1 word would have a masculine connotation, 1 a feminine connotation, and 1 no strong gender connotation. The entire list of words added for task two appears in Table 4, along with the investigator's intuitions about any gender associated with the meanings of the words.

<i>déficit</i> 'deficit' (n)	<i>andén</i> 'platform' (n)
<i>mecánico</i> 'mechanic' (m)	<i>ataúd</i> 'coffin' (n)
<i>pila</i> 'battery' (n)	<i>jersey</i> 'pullover' (n)
<i>arbusto</i> 'shrub' (n)	<i>faz</i> 'countenance' (n)
<i>farol</i> 'streetlight' (n)	<i>azafata</i> 'stewardess' (f)
<i>ovario</i> 'ovary' (f)	<i>cursor</i> 'cursor' (n)
<i>barba</i> 'beard' (m)	<i>mente</i> 'mind' (n)

Table 4: List of words added for task two, with investigator's intuitions; (f) = feminine, (m) = masculine, (n) = neither

The words in the second task were randomized and appeared in Spanish, with their English meaning in parentheses. For each word, subjects were to indicate, by circling either the masculine (*el*) or feminine (*la*) definite article, whether they thought the word was grammatically masculine or feminine in Spanish. At the end, there was one additional question which asked the subjects to comment on how they made their decision when they didn't know the grammatical gender of a word. This task took subjects approximately five minutes to complete, and was conducted during week eleven of the semester.

A sample of the form used for task two is available in Appendix 2. It is necessary to mention that this form had two typographical errors. The word *andén* 'platform' had the accent mark on the wrong syllable, and the word *orden* 'order' had an extraneous accent mark. Unfortunately, these errors were detected after data collection. Nevertheless, they are not likely to have influenced the results.

4.3 Data analysis and results

The number of responses per word in task two varied from 103 to 105. This was caused by occasional items being left blank or the investigator not being able to tell whether *el* or *la* was circled. As in task one, all data were entered into SPSS statistical software. Qualitative responses for each word were subsequently quantified, by assigning a value of 1 each time the masculine definite article was circled and a value of -1 each time the feminine definite article was chosen. The rationale for this was, again, that an overall mean rating close to zero would indicate no clear preference for grammatical gender for a given word. Means were calculated for each word and appear in Table 5 in numerical order.

One sample *t*-tests were again conducted for all words, to test whether the ratings observed were significantly different than zero (no grammatical gender association). As can be seen in Table 5, the means for three words—*fuerte* 'fort,' *ovario* 'ovary,' and *collar* 'necklace'—were found not to be significant at $p < .05$. This, of course, does not indicate that the means for those words are not meaningful, but rather that it is quite possible that their true mean is zero. All other means were found to be significantly different than zero.

Independent samples *t*-tests indicated that there was generally no significant difference ($p < .05$) in how men and women assigned grammatical gender to the words in task two. Nevertheless, they did

disagree on a few words. Women, for example, assigned masculine grammatical gender to the word *fetidez* ‘stench’ (mean = 0.64), while men gave it a slightly feminine rating (mean = -0.02).

Masculine			Feminine		
Word	Mean	SD	Word	Mean	SD
<i>mecánico</i> ‘mechanic’	0.90	0.43	<i>azafata</i> ‘stewardess’	-0.92	0.38
<i>rugby</i> ‘rugby’	0.90	0.43	<i>pila</i> ‘battery’	-0.92	0.38
<i>arbusto</i> ‘shrub’	0.83	0.56	<i>barba</i> ‘beard’	-0.68	0.74
<i>semen</i> ‘semen’	0.81	0.59	<i>matriz</i> ‘womb’	-0.58	0.82
<i>bigote</i> ‘moustache’	0.81	0.60	<i>castidad</i> ‘chastity’	-0.52	0.86
<i>cárcel</i> ‘jail’	0.68	0.74	<i>maquillaje</i> ‘makeup’	-0.45	0.90
<i>cursor</i> ‘cursor’	0.66	0.76	<i>faz</i> ‘countenance’	-0.43	0.91
<i>rifle</i> ‘rifle’	0.66	0.76	<i>pendiente</i> ‘earring’	-0.33	0.95
<i>metal</i> ‘metal’	0.64	0.77	<i>ballet</i> ‘ballet’	-0.26	0.97
<i>andén</i> ‘platform’	0.61	0.79	<i>sostén</i> ‘bra’	-0.24	0.98
<i>golpe</i> ‘strike/blow’	0.60	0.81	<i>perfume</i> ‘perfume’	-0.23	0.98
<i>farol</i> ‘streetlight’	0.54	0.85	<i>flor</i> ‘flower’	-0.21	0.98
<i>orden</i> ‘order/command’	0.52	0.86	<i>collar</i> ‘necklace’	n.s.	1.00
<i>ataúd</i> ‘coffin’	0.52	0.86			
<i>jersey</i> ‘pullover’	0.49	0.88			
<i>amor</i> ‘love’	0.43	0.91			
<i>déficit</i> ‘deficit’	0.37	0.93			
<i>fetidez</i> ‘stench’	0.35	0.94			
<i>mente</i> ‘mind’	0.21	0.98			
<i>fuerte</i> ‘fort’	n.s.	1.00			
<i>ovario</i> ‘ovary’	n.s.	1.00			

Table 5: Mean scores for task two, grammatical gender; n.s. = not significant

In response to the open question at the end of task two, regarding how the subjects decided which definite article to circle when they didn’t know if the word was grammatically masculine or feminine, several trends were identifiable. Fifty (50) students mentioned taking into account the ending of the word, with 19 explicitly stating that they chose *el* for words ending in *-o* and *la* for words ending in *-a*. The majority made a general statement about a relationship between word endings and grammatical gender, while a few subjects listed other endings that tended to correspond with masculine or feminine grammatical gender. These generalizations were sometimes correct, though other times not (“It is feminine if it has a vowel [e] at the end [and] masculine if it doesn’t have a vowel [e].”—Subject 2-2). Other methods of deciding included using whichever article “sounded best” with the word (40 subjects), using masculine as a default (9 subjects), and a technique observed in previous research such as Finnemann 1992), and taking into account the meaning of the word (54 subjects). This last technique will be commented on in depth in the next section.

5. Findings and discussion

5.1 Across tasks

Looking at the results of the two tasks together, it can be seen that all of the words ranked as having a masculine connotation in task one were also assigned masculine grammatical gender in task two. This same pattern held for words perceived as having a feminine connotation, with one exception. The word *amor* ‘love’ showed a slight preference for masculine grammatical gender in task two, despite having been ranked as strongly feminine in meaning. While this word is not a word that appears in the vocabulary presented in the course text, it is a common word, and students are almost certain to be familiar with it. This could account for the subjects (correctly) assigning it masculine grammatical gender.

To investigate the observed relationship between tasks one and two further, Pearson correlations were run using the task one mean and the task two mean for each of the 20 words included in both tasks. Across all subjects, a correlation of .882 was observed. Dividing the subjects by sex yielded a correlation of .823 for the men, and .879 for the women. All of these values were significant at $p < .001$. In all cases, these numbers represent a strong, positive relationship between the gender associated with a word's meaning (task one) and the grammatical gender assigned to the word (task two).

This certainly seems to indicate a tendency for L1 English speakers learning L2 Spanish to assign grammatical gender based on a word's perceived gender connotations. Another possible explanation, however, could be that the words in the current study with masculine and feminine connotations were in fact grammatically masculine and feminine, respectively, in Spanish. In fact, 7 of the 10 words judged as having a masculine meaning are grammatically masculine in Spanish. This does not hold, however, for the words judged as being feminine in meaning. Of those words, only 3 of the 10 are grammatically feminine in Spanish. Furthermore, this alternative explanation would assume that students generally provided the correct grammatical gender for the Spanish words. This was not the case. For the twenty words appearing in both tasks, the subjects responded correctly only 57.87% of the time, or just slightly better than if they had been guessing at random.

Subjects' performance on specific words lends further support for the role of perceived gender in grammatical gender assignment. Subjects correctly assigned grammatical gender most often when there was a correspondence between a word's gender connotation and its grammatical gender, and correctly assigned grammatical gender least often where there was a conflict between the two. Of the 20 words appearing in both task one and task two, participants correctly assigned grammatical gender most often (95.24%) to the word *rugby* 'rugby,' a word both perceptually and grammatically masculine. On the other hand, the correct definite article was chosen only 16.9% of the time for the word *cárcel* 'jail,' a word perceived as having a masculine connotation, but grammatically feminine in Spanish.

The effects of conflicts between perceived and grammatical gender can be seen even more clearly in the results from words ending in *-o* and *-a*. Recall that 3 words with each ending—1 with a masculine association, 1 with a feminine association, and 1 with no strong gender association—were included in task two. The 3 words ending in *-a* were assigned feminine grammatical gender more often than any other word. This was expected given that, even in the first semester of college Spanish, learners have been shown to assign masculine/feminine grammatical gender to words ending in *-o/-a* more than 90% of the time (Alarcón 2004). However, the word with a masculine connotation, *barba* 'beard,' received a mean score significantly lower ($p < .05$) than the other two words ending in *-a*, as shown by paired-samples *t*-tests. Even more striking are the results for the words ending in *-o*. The masculine definite article was chosen a very high percentage of the time for both *mecánico* 'mechanic' and *arbusto* 'shrub.' Yet *ovario* 'ovary,' a word with a strong feminine association, was assigned masculine grammatical gender just over half of the time. In fact, its mean of 0.05 was not even found to be significant. In other words, the subjects in the study showed no preference one way or the other for the grammatical gender of this word, despite its ending in *-o*.

Yet the most compelling evidence of a relationship between perceived gender and grammatical gender assignment for the subjects of the current study is found in the responses to the open-ended question from task two. As previously mentioned, 54 of the 105 subjects who participated in task two stated that they took into account a word's meaning when they didn't know its grammatical gender. In fact, this is the most common strategy mentioned in response to the question, more common even than looking at the word's ending, mentioned by 50 subjects. The following statements are typical:

Subject 2-43: "I looked at the [E]nglish meaning—if it was related to women, I guessed 'la' and if it was related to males, I guessed 'el.'"

Subject 2-82: "[M]ore 'feminine' words such as 'bra,' 'make-up,' 'stewardess,' I was more apt to using 'la' and vice versa."

The open-ended question also confirmed the apparent conflict between meaning and word ending observed above for words like *ovario* 'ovary':

Subject 2-70: “In high school I was taught that it was masculine or fem[i]nine depending on what letter the word ended with. On the other hand, it makes no sense because how can an ovary or a bra be masculine?”

Subject 2-63: “[F]or instance, ovario totally looks like it would go along with ‘el,’ but the word in English is probably the most feminine on the sheet.”

Clearly, then, subjects took into account word meanings when they didn’t know a word’s grammatical gender. Perhaps more notable is that a word’s gender connotations had a significant effect even on words for which the subjects did have a strong grammatical intuition, as indicated by the final two comments.

5.2 Limitations

While a relationship between perceived gender and grammatical gender assignment seems clear for the subjects in the current study, it’s important to recognize other factors that may have also influenced the observed results to some extent. In the first part, for example, some students resisted the binary classification of words as having either a masculine or a feminine association. They demonstrated this in various ways, such as leaving certain words blank or circling both ‘M’ and ‘F.’ One subject even wrote a little note alongside the word ‘love’ saying “Can’t it be both?” (Subject 1-20).

Another factor, in both parts of the study, may have been the repetitive nature of the tasks. In the first part, this seems to have affected the evaluation of strength of association for at least a couple of subjects. One marked ‘medium’ strength for every word, while another defaulted to ‘medium’ after the first three items. Task design may have combined with task context to play a role in the completion of the second activity. Many of the words and their grammatical gender in Spanish were unknown to the subjects, which could have led them to complete the task quickly and carelessly, especially since they knew they weren’t being graded.

Yet the most important possibility to consider is that the presence of so many words with strong gender connotations in task two may have led students to believe that a connection does exist between word meaning and grammatical gender in Spanish. The investigator made a conscious effort to avoid such an effect, by limiting the number of words with an obvious association to a certain sex, by including items with no gender connotations, and by ordering the items at random. Nevertheless, three words with a strong feminine connotation—‘perfume,’ ‘ovary,’ and ‘bra’—did end up one after another. This could have contributed to an effect of the form, alluded to by one subject in response to the open-ended question: “[A]t first I thought you could tell by the ending of the [S]panish word—then I began to take into account w[he]ther the [E]nglish word was more masculine or fem[i]nine” (Subject 2-53).

6. Conclusions

6.1 Research question

We return now to the research question for the study, which asked, “does perceived gender affect how native speakers of a language with only natural gender assign grammatical gender in a second language?” Based on the results of the present study, the answer is clearly an affirmative one for these subjects. That this is true is supported by several observations.

First, task one established that the meanings of certain words do indeed carry strong gender connotations for the subjects, all of whom are native speakers of English, a language with natural but not grammatical gender. Task two then established that the subjects, beginning students of L2 Spanish, were more likely to assign masculine grammatical gender to words perceived as masculine in meaning, and feminine grammatical gender to words perceived as feminine in meaning. Correlations between

tasks one and two revealed a strong, positive correlation across all subjects, as well as when men and women were considered separately.

Added support for the influence of perceived gender on grammatical gender assignment was observed in unexpected results for words like *ovario* ‘ovary’ and *barba* ‘beard.’ Subjects overwhelmingly assigned masculine grammatical gender to words ending in *-o* and feminine grammatical gender to words ending in *-a*. However, for these two words, the strong gender connotation of the word’s meaning clearly called into question the subjects’ intuitions based on morphology, leading to significantly different results.

Finally, what these first two observations seemed to imply was confirmed explicitly by the responses to the follow-up question in task two. Over half of the subjects mentioned taking into account meaning when assigning grammatical gender to an unfamiliar word. This technique was mentioned more often than any other.

These results, then, confirm the importance of semantic information to English-speaking adult learners when assigning grammatical gender in L2 Spanish. Previous research has demonstrated the importance of this factor for nouns with natural gender (Alarcón 2004, Cain et al. 1987, Fernández-García 1999, Finnemann 1992). The current study indicates that a similar semantic strategy, based on perceived gender connotations, may also operate for nouns without natural gender. Given that no correspondence between gender connotations and grammatical gender necessarily exists in Spanish, such an approach to grammatical gender assignment among learners will undoubtedly lead to errors.

The findings of the current study also corroborate what was observed by Sera et al. (1994), Flaherty (2001) and Konishi (1993). A relationship does exist between grammatical and perceived gender. Furthermore, the two can influence each other mutually. Sera et al., Flaherty, and Konishi show that native speakers of a language with grammatical gender tend to perceive grammatically masculine words as more masculine in meaning and grammatically feminine words as more feminine in meaning. On the other hand, the current study indicates that learners whose L1 has only natural gender may be more likely to assign masculine grammatical gender in the L2 to words perceived as having masculine connotations and feminine grammatical gender to words perceived as having feminine connotations. Our perceptions can indeed influence our linguistic systems.

6.2 Future research

Future research into this area can both improve on the design of the current study and investigate new issues. Including fewer words and a smaller percentage of words with masculine and feminine associations in task two should serve to minimize the repetitiveness and any effect of the form, mentioned as possible limitations of the current study. In repeating this research it will also be advisable to verify the gender connotations, or lack thereof, of words added in task two.

Further research is needed to look at what other factors influence grammatical gender assignment by second language learners. Why, for example, are words like *cárcel* ‘jail’ and *fuerte* ‘fort,’ which received identical masculine scores for meaning, assigned grammatical gender so differently? What factors influence how learners assign grammatical gender to words without gender connotations? Given the overwhelming similarities observed by White et al. (2003) among learners whose L1 has grammatical gender and those whose L1 does not, will learners whose L1 does have grammatical gender also take into account gender connotations when assigning grammatical gender in L2 Spanish? If so, how do such learners treat semantic clues which contradict morpho-phonological and/or syntactic clues? What exactly do students mean when they say they choose the grammatical gender that “sounds best” with a word? What pedagogical technique or combination of techniques best enables second language learners to use grammatical gender successfully in Spanish? The answers to such questions will provide important information about how learners approach grammatical gender in a second language.

Appendix 1: Sample of task one

For **each word** in the following list, please indicate:

1. Whether you tend to think of it as being more masculine or feminine. **Circle “M” for masculine or “F” for feminine.**

Give your **initial reaction**, not whether you think the item in question **should** justly be considered masculine or feminine. Your choice should represent your intuition about the **English word** only, without regard to the grammatical gender of any equivalent word(s) in Spanish.

2. Indicate how strong the masculine/feminine association is for you. **Circle “weak”, “medium” or “strong.”**

1	strike/blow	M	F	Weak	Medium	Strong
2	semen	M	F	Weak	Medium	Strong
3	metal	M	F	Weak	Medium	Strong
4	weakness	M	F	Weak	Medium	Strong
5	home	M	F	Weak	Medium	Strong

Appendix 2: Sample of task two

For **each word** listed, please **circle either “el” or “la”**, to indicate whether the Spanish word listed is grammatically masculine (“el”) or feminine (“la”). If you don’t know, just make your best guess. **Don’t leave any items blank.** For your information, the English meaning of each word is listed in parentheses. **Please also answer the question at the end.**

1.	el / la	déficit (<i>deficit</i>)
2.	el / la	fuerte (<i>fort</i>)
3.	el / la	ballet (<i>ballet</i>)
4.	el / la	flor (<i>flower</i>)
5.	el / la	cárcel (<i>jail</i>)

When you didn’t know whether a word was masculine (“el”) or feminine (“la”), what did you base your decision on? Please be as specific as possible (you may use the back if you need more space).

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