

From Here to There: A Sociolinguistic Study in Gender and Direction-Giving

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1. Introduction

How do we get from here to there? It is clear that men and women explain things differently, but how much variation is possible in giving step-by-step instructions for a common task? If there is variation in these directions, how can we explain its origins? Carol Lawton, who studied the ways in which men and women give directions for spatial tasks, stated, “the pattern of gender differences that has emerged from research on navigation and wayfinding shows that men excel on some tasks and women on others.” (322) Conclusions like Lawton’s that claim that linguistic gender differences arise from variations in related sub-sets of cognitive strengths are supported by what sociolinguist Jennifer Coates referred to as the “difference approach” to describing how men and women use language. This approach “emphasizes the idea that men and women belong to different subcultures... researchers have been able to show the strengths of linguistic strategies characteristic of women [and men]” (6). In my study entitled “From Here to There: A sociolinguistic study of gender and direction-giving,” I was not only concerned about the differences in responses to the direction-giving tasks that I asked of my respondents. Also, I wanted to know if these differences are due to inherent variations in the way that men and women use language, the frequency of certain linguistic markers, the effects of the nature of the study on the types of responses given, and the performance of each gender on two different types of tasks.

I modeled my study most closely on Carol Lawton’s “Gender and Regional Differences in Spatial Referents Used in Direction Giving” (2001), although I compared my methodology and conclusions to other studies that also tracked gender differences in direction-giving tasks, both spatial and otherwise. In the first part of my paper, I will discuss direction-giving studies, in particular, Lawton’s study. I will then discuss my study’s methodology and the ways in which my study compared to Lawton’s and as well as that of other similar studies. Next, the paper will focus on the responses that I received for my study and how these results were converted into numerical data using statistics. Finally, I will evaluate my hypothesis in light of these findings, discuss the ways in which the methodology of my study may have affected the responses that I received, and briefly address changes that I would make for future studies on direction-giving.

1.1. An Overview of Direction-Giving Studies

During the initial conception of the focus of my study on direction-giving, I surveyed a variety of studies done on direction-giving for spatial tasks and found that the overarching view of these linguistic gender differences was that men and women are both able to give

perfectly adequate directions and it seems that they operate on some shared conceptual skills, they have different cognitive strengths that influence the ways in which they respond to direction-giving tasks. Men and women both support the directions that they give with the use of analogies, hand illustrators, and hierarchical messages (“the order in which people describe a collection of objects or rooms from a spatial layout” (Plumert et al. 478)) to describe object locations; in other words, both genders use these strategies as both linguistic and paralinguistic markers to enhance the quality of their directions.

In terms of particular strengths, however, men generally tend to include a higher frequency of references to cardinal directions, distance information (for example, the estimation of distances to landmarks), serial orientation (using words to describe the steps of the directions as a series: “first,” “second,” etc.) (Boerger & Henley, 1999; Cohen, 1977; Plumert et al., 1995). Men also excel in pointing to out-of-sight markers, locating hidden targets, and creating sketch-map drawings. On the other hand, women are more likely to refer to right/left turns (“At the stop sign, make a right.”) and markers (“There will be a stop sign on your right.”) and landmarks along the directional route. Women also show greater accuracy in remembering landmarks and their locations, identifying objects in a changed location and order, placing previously seen objects on a map, and recalling landmarks and street names from a map.

In short, men portray more explicit “pictures” of the directions that they give based on the location of a variety of objects, but women’s directions are more explicit in their content, using specific names and being able to adapt their directions to unforeseen circumstances, such as changes in object location, approaching landmarks from different starting points, etc (MacFadden et al., 2003; Friend, 2001; Lawton, 2001). One theory suggested by Thomas Parsons and his colleagues states that these differences in conceptual strengths originate during development, when men and women establish patterns in cognitive performance that influence their abilities to perform linguistic, visual, auditory, and sensorimotor tasks. This claim about cognitive functioning and its relationship to gender will be examined further in the “discussion” section of this paper.

The hypothesis of Carol Lawton’s study, “Gender and Regional Differences in Spatial Referents Used in Direction Giving” (2001) operated on these fundamental assumptions of gender-based strengths in task performance. Lawton suspected that not only would respondents give directions differently based on their gender, but also that the use of certain markers in their responses was a function of their geographic location due to differences in historical land partitioning. For example, male subjects would be more likely to use cardinal markers, but females would also use these markers if they were from the Midwestern United States, as land boundaries and markers were originally established based on their cardinal relations to others.

Lawton asked men and women from all areas of the United States to submit written directions to a location approximately fifteen minutes away from their homes. She conducted her study via website (the website contained the survey question and responses were submitted to the site), selecting a sample of 240 participants from 492 respondents over the age of 18. 154 of Lawton’s respondents were females and 86 were males; in the interest of uniformity, only directions based on driving to the destination were used. Directions were coded for route information according to the following criteria: cardinal directions, mileage, right/left turns, buildings, topographical features, and traffic lights/signs. These criteria were chosen because they addressed both abstract (mileage, cardinal directions, right/left turns) and concrete (buildings, topographical features, traffic

lights/signs) markers and techniques that would hypothetically be used in a higher or lower frequency depending on the respondent's gender. The following is one example of a respondent's set of directions that used several examples of route information (Lawton substituted letters for actual street names):

... Turn left off of Street A onto Street B. You are now going west on Street B. Continue on Street B for several miles, going through several stoplights. You will pass a mini-mall, and an insurance building with a big Christmas tree out front. Shortly after the insurance building there is a Burger King. Immediately after Burger King is Street C. Turn right on Street C. Continue straight on Street C for about a mile, and turn left... (329)

In this excerpt, we can see indicators of right/left turns ("Turn left off of Street A"), cardinal directions ("You are now going west on Street B"), traffic lights ("Continue on Street B... going through several stoplights"), mileage ("Continue on Street B for several miles"), buildings ("You will pass a mini-mall"), and topographical features ("Immediately after Burger King is Street C").

2. Methods

Like Lawton, the goal of my study was to see if males and females used different types of route information in order to give spatial directions. However, I was less interested in the influence of geographic location, but rather the content and complexity of the respondents' directions as a function of the goal of the directions. To find gender differences in spatial information tasks as opposed to other types of tasks which also required step-by-step directions, I asked my respondents to complete a spatial task as well as a neutral task. The neutral task was important to my study because I wanted to see if the cognitive differences that affected the gender differences in spatial directions would have a similar impact on other directional tasks.

My study was directed at students familiar with the Wellesley College campus, so the directional task was to give directions from the coffee bar on the first floor of the Lulu Chow Wang Campus Center to the main entrance of the Science Center. The neutral task was to give directions as to how to make a grilled cheese sandwich. My hypothesis stated that females would give longer, more complex directions (more words, steps, and words/step); males would use more topographical and directional markers in spatial tasks; and females would give more explicit directions for neutral tasks.

I solicited responses from students at Wellesley College and Olin College of Engineering, and received a total of 18 responses (9 male and 9 female); unlike Lawton, I performed my study with an equal number of male and female respondents. Subjects ranged in age from 18-22 and were all full-time students at Wellesley and Olin, respectively. The requirement for participation was that the subject be familiar with the Wellesley College campus, and the survey directions were as follows:

1. Tell me how to get from the coffee bar in the Lulu to the main entrance of the Science Center.

2. Tell me how to make a grilled cheese sandwich.

I solicited and collected responses via email. For both tasks, I recorded the total number of words for each response, as well as the total number of steps (this was determined based on the way that the subject presented the response, either with numbered steps or bullet points, or, if no steps were clearly delineated, I determined where steps began by progression markers such as “first,” “next,” and “then,” or by sentence changes) and the average number of words per step.

My coding criteria for Task 1, the directional task, were based on Lawton’s study, as well as additional criteria from similar analyses of gender and direction-giving. In a study about direction-giving and object placement, Jodie Plumert and her colleagues (1995) coded subject’s responses for their frequency of place markers. Plumert’s subjects were asked to give directions about where objects were placed in a room and their responses were coded for levels of spatial information—“floor, floor part, room, room part” (482)—as well as environmental information—“large landmark, large landmark part, small landmark” (482). Alastair MacFadden and his colleagues also focused on the frequency of subject references to landmarks in a study of how men and women scan maps (2003), however, in this experiment, data were collected from verbal rather than written responses. Although I did not use all of Plumert and MacFadden’s coding criteria, their methodologies influenced the way that I organized my study.

In Task 1, I coded for cardinal directions, right/left markers, buildings, and topographical features. References to cardinal directions and right/left markers indicated the subject’s knowledge of abstract directional concepts, and references to buildings and topographical features tested the subject’s awareness of the environmental surroundings as relevant to the goal of the task. In choosing my criteria for Task 1, not only did I want to determine whether or not my respondents were explicit in the directions that they gave, I wanted to see if they referred to abstract as well as concrete markers.

On the other hand, the coding criteria in Task 2, the neutral task, were original; I coded for references to objects used, simultaneity in steps (this was determined as present when the subject indicated that the person following the directions should be doing more than one thing at a time; for example, “While the pan is heating up, put a slice of cheese between two slices of bread.”) ingredients used, and task complexity. As in Task 1, I chose these criteria to test for abstract and environmental knowledge. References to simultaneity and the degree of complexity of the response indicated whether or not the subject assumed that the person following his directions would be familiar with the task; this “meta-awareness” demonstrated abstract thinking on the part of the respondent. References to objects and ingredients indicated the subject’s awareness of environmental resources that may be available in order to complete the task.

I will discuss the statistical relevance of the coding criteria for Tasks 1 and 2, the ways in which I analyzed the survey responses in the following section.

3. Results

For the statistical analysis of my data, I first looked at the total words, total steps, and average number of words per step for each gender group and task. Then, I examined each subject’s survey responses and marked references to each of the coding criteria by hand. I

put the total number of references into an Excel spreadsheet, sorting the figures based on gender and task. I then found each gender's average number of references for each category of coding criteria. The averages for each gender group and task are shown in Table 1

Table 1.
Gender Group Response Averages

| Task 1—Spatial | Females | Males | Task 2—Neutral | Females | Males |
|----------------------------|----------------|--------------|-----------------------|----------------|--------------|
| Words | 201.333 | 63.778 | Words | 99.222 | 111.889 |
| Steps | 7.667 | 3.444 | Steps | 6.111 | 6.111 |
| Words/step | 23.967 | 14.764 | Words/step | 15.736 | 17.882 |
| Cardinal directions | 0 | 0.444 | Objects | 2.111 | 3.111 |
| Right/left markers | 7.222 | 1 | Simultaneity | 0.222 | 0.111 |
| Buildings | 3.778 | 2.556 | Ingredients | 2.778 | 3.444 |
| Topographical | 16.333 | 3.667 | Complexity | 2.333 | 3.111 |

From these results, it is clear that females outperformed males on the spatial task in all categories except references to cardinal directions. Females showed significantly higher references to right/left markers and topographical features; their directions were also longer and sorted into more steps. On the other hand, males responded particularly well to the neutral task. Interestingly, their directions had a higher average word count, although both gender groups used the same number of steps; therefore, it would seem that, as in Task 1, females are more inclined to use multiple short steps rather than a few long steps to describe a task. In addition, male directions ranked higher than females on the complexity scale in Task 2.

After taking the averages for each category of coding criteria, I submitted this data to t-tests in order to show potential significant statistical differences between gender groups. The graphs of the averages and standard deviations for each category can be found in Appendix I; the arithmetic means and the P ($T \leq t$) values for each task and category are shown in Table 2.

From the statistical analysis, we can observe trends in each task. In Task 1, there is a significant statistical difference in the words and cardinal directions category. In terms of total words count, the directions that females gave were substantially longer than those of the males. On the other hand, because no female subjects referred to cardinal directions in their responses, there is a considerable difference in this category in favor of the males. In Task 2, we can observe that there were significant p-values in the ingredients and complexity categories; in both of these categories, the males gave more data than their female counterparts.

Table 2
Arithmetic means and P values for each task and category

| Task 1—Spatial | Mean— Females | Mean— Males | P-value | Task 2—Neutral | Mean— Females | Mean— Males | P-value |
|--------------------------------|--------------------------|------------------------|----------------|-----------------------|--------------------------|------------------------|----------------|
| Words | 201.333 | 63.778 | 0.056 | Words | 99.222 | 111.889 | 0.637 |
| Steps | 7.667 | 3.444 | 0.84532 4 | Steps | 6.111 | 6.1111 | 1 |
| Words/step | 23.967 | 14.764 | 0.96876 | Words/step | 15.736 | 17.882 | 0.198152 |
| Cardinal directions | 0 | 0.444 | 0.02075 | Objects | 2.111 | 3.111 | 0.195016 |
| Right/left markers | 7.222 | 1 | 0.93753 | Simultaneity | 0.222 | 0.111111 | 0.922805 |
| Buildings | 3.778 | 2.556 | 0.48684 | Ingredients | 2.778 | 3.444 | 0.036942 |
| Topographical | 16.333 | 3.667 | 0.93233 | Complexity | 2.333333 | 3.111111 | 0.011717 |

4. Discussion

While analyzing the numerical data of my study, I considered some of the effects that the methodology of my study may have had on the results that I collected. Due to the limited time and resources that were available to me when conducting this study, I was not able to solicit answers from a large number of respondents. In addition, the female respondents had a natural advantage on Task 1: as Wellesley College students, they were more familiar with the Wellesley campus than the male respondents. If I were to repeat this experiment, I would at least balance out the number of female respondents by using an equal number of Wellesley and non-Wellesley students (female students from Olin College, for example). However, the males may have had an advantage on Task 2. From spending a significant amount of time at Olin College, I have concluded that Olin students cook more than Wellesley students, as they have modernized kitchens with communal cooking equipment; Wellesley students tend not to cook often due to limiting schedules, outdated or dirty facilities, and lack of communal equipment available.

The current survey questions in turn elicited some negative feedback. Initially, the Task 1 question was not to find one's way from the coffee bar in the Lulu to the Science Center, but rather from the same starting point to the Knapp Center in the Margaret Clapp Library. Many of my Olin respondents said that, although they were familiar with the Wellesley campus, they did not know where the Knapp Center was and therefore could not complete the task. Therefore, I had to change the directions of Task 1 to be for a simpler destination, but even after this change, respondents confessed that they found the task difficult, and many respondents chose to begin their directions from the outside of the Lulu rather than from the coffee bar. Even after these changes, two male respondents still claimed that they were unable to give directions for Task 1, so the overall male results had to take into account two subjects who did not submit responses for the spatial task.

I had a similar problem with Task 2: initially, I asked subjects to tell me how to make a turkey club sandwich, but again, my respondents, especially vegetarians, claimed that they

could not give directions for the task. Once again, I modified the survey question to ask for directions to make a grilled cheese sandwich, which I deemed to be a simpler, vegetarian-friendly task.

In addition to the initial change in my survey questions, many of my respondents raised other issues that I suspect may have affected the form and content of the directions that they submitted. Because I purposefully wrote vague survey questions, some of my subjects expressed concern that they did not know who the audience or recipient of their directions would be. Fredric Rabinowitz and his colleagues conducted a study about the ways in which men and women are helpful to lost tourists by giving directions (1997). Rabinowitz and his colleagues found that depending on the gender, age, language, and assumed socioeconomic status of the tourists, subjects would unconsciously modify the form of the directions that they gave. Thus, I predict that if I told subjects to write directions specifically for a friend, a parent, or a professor, then each set of directions would have different linguistic characteristics.

Another factor which may have affected the subjects' responses was that the surveys were done over email rather than in person. Had I asked the subjects to give directions in face-to-face interviews, I might have been able to not only observe the ways in which subjects verbally explained directions, but the potential use of hand gestures and bodily movements as relevant to the task that they were trying to explain. Akiba Cohen stated that paralinguistic "illustrators", which I would have been able to observe had I asked my subjects to give directions in person, could serve an "*encoder* [emphasis Cohen's] function when the encoder uses illustrators in order to help process the information in the message being received" (55). Cohen believes that paralinguistic cues enhance the information that the "encoder" is trying to convey because they "[create]... illustrators as if 'drawing a map' of the situation, while encoding the message verbally" (55). My subjects were information encoders in a restricted sense, however, because submitting their survey responses via email only allowed them to communicate verbal information and left out the potential for paralinguistic illustrators. Therefore, as Cohen would probably argue, the quality of the information that they encoded may have decreased.

Although the ways in which subjects presented their survey responses probably influenced the content and quality of the directions that they gave, the ways that I analyzed my data may have also affected the conclusions that I was able to draw. Until completing this study, I had never used statistical formulas to work with data. Initially, I was unsure of how to run t-tests and standard deviations; I also did not know what p-values I should be trying to detect and how the significance (or lack thereof) of these values would change my initial hypothesis. In addition, I unintentionally violated some statistical practices by performing t-tests on each other coding criteria for each task, rather than on selected criteria (although I would not have been sure as to which criteria I would select for the t-tests). In short, I believe that my statistical analysis and resulting figures may not be entirely reliable.

5. Conclusions

In light of these factors which may have affected my project's data, I was nonetheless able to reevaluate my hypothesis and draw conclusions about how men and women give directions differently, especially in regard to these directions' complexity as dependent on the task at hand. My original hypothesis had three parts, stating my belief that: females will

give longer, more complex directions (more words, steps, and words/step); males will use more topographical and directional markers in spatial tasks; and females will give more explicit directions for neutral tasks. However, I found that the results of my analysis did not support these predictions.

Females gave long and complex directions, but only for Task 1; this was probably due to the fact that they were more familiar with the goal of the task and the spatial information being asked of them than the male subjects. These results are also supported by Alastair MacFadden and his colleagues, who found that “a topographic strategy is typically evident among females, who describe landmarks along a route and transpositions using an egocentric (right/left) frame of reference” (297). On Task 1, Males also used fewer topographical markers than females, which I believe is due to the fact that, logically, they are less familiar with the Wellesley campus than Wellesley students. However, the male subjects did refer to directional markers at a higher frequency than the females; according to MacFadden, this is because “males recall more cardinal directions... and distance information than females when describing mapped environments from memory” (297).

MacFadden justifies these claims as to why men and women process and present spatial information differently by citing similar research on gender and cognition by Miller and Santoni (1986). Miller and Santoni concluded that these gender-based linguistic differences were due to “sex differences in the reliance upon topographical versus Euclidean aspects of spatial arrays in constructing internal maps” (297). Parsons and his colleagues, in their study of gender differences and cognition among adults (2005), believe that these differences in cognitive processing according to gender originate and are found in childhood, become established in adolescence, and continue to affect the ways in which men and women conceptualize information well into adulthood.

However, what Miller and Santoni seem to be inferring is that when presented with tasks that incorporate spatial information, both men and women base their responses on the internal creation of mental “maps” that both serve as a visual analogy of the task at hand and which help them to use a sort of inductive reasoning to work from the destination of the task in order to conceptualize the steps that it will take to reach this destination. I suspect that if I had provided the respondents with the opportunity to make maps for the spatial task as supplements to the written directions, not only would the written directions have changed slightly, but by having the subject create visual representations of the task at hand, I may have been able gain insight into what the subjects’ internal maps looked like and how these maps supplemented the verbal information of the directions.

Finally, it was the males, rather than the females, who performed the best on the neutral task, contrary to my expectations. Perhaps males performed better on the neutral task because they felt that it was more appealing than the spatial task. Similarly, males might have performed better on Task 2 because their uncertainty with Task 1 led them to want to compensate for this deficiency by giving better and more explicit responses to the next task; it is possible that I could have avoided this “compensation effect” by changing the order of the tasks for half of my subject pool in order to balance out the effect. Additionally, males residing in Olin may just be more creative in the kitchen than Wellesley students; this higher overall performance could be due to Olin’s better cooking facilities and resources, their limited on-campus dining options, or simply because the majority of my male subject pool were very good at making grilled cheese sandwiches.

It seems that the male respondents’ abilities to perform well on Task 2 may also be due to differences in perception and cognitive processing. MacFadden and his colleagues stated

that “males have shown more aptitude than females for using [information based on the description of space based on a Euclidean survey-level perspective] in real-world and pencil-and-paper navigation tasks” (297). By MacFadden’s characterization of men’s cognitive processing, it may be possible to say that they are better at planning tasks based on the ability to see the task from a subjective, “surveyor” perspective, rather than step-by-step. On the other hand, females plan tasks with a better understanding of the objects involved and with more specific steps; however, since making a grilled cheese sandwich is not a task in which many objects are used, it is possible that the female subjects did not perform as well as the males because the task was not sufficiently complex and object-intensive.

The conclusions that I have drawn about gender and direction-giving seem to support the difference approach to sociolinguistics: as the results of my study and others have shown, men and women give directions differently because they have different conceptual strengths and perspectives. In “Think Practically and Look Locally: Language and Gender and Community-Based Practice,” Penelope Eckert and Sally McConnell-Ginet state that linguistic differences between genders may also be affected by power dynamics.

Looking at language and gender from an anthropological standpoint, Eckert and McConnell-Ginet organized their data based on “difference on the one hand (especially the male power as a component of gender identities) and power on the other hand” (462) and sought to “shift attention away from an opposition of [difference and power] and toward the processes through which each feeds the other to produce the concrete complexities of language as used by real people engaged in social practice” (462). In short, the implications of the Eckert and McConnell-Ginet’s study are that, just as we do not live in a vacuum, the majority of our speech operates on and reflects social norms. However, I do believe that by society’s standards, gender stereotypes, linguistic and otherwise, are based on differences— inherent, factual, or assumed. Although direction-giving is a topic that is gender-neutral, the results of my study show conceptual and linguistic differences between men and women and thus these differences have the potential to further influence linguistic stereotypes based on gender.

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