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Exploring Gender Differences in Giving Addresses: A Study of Address Forms through the Lens of Cardinal Directions, Relational Terms, Landmarks, and Mileage Estimates

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ABSTRACT

Many studies have addressed way-finding and direction-giving strategies regarding the differences between males and females in terms of behavior and self-report measures. To put it in a nutshell, men and women have cognitive and mental differences in the way they communicate and handle various linguistic and psychological issues. Therefore, the idea of giving directions might call the attention of scholars to explore the differences between the two genders. In this study, these differences are identified based on four aspects of giving directions proposed by Ward et.al. (1986), including cardinal directions, relational terms, landmarks, and mileage estimates. The study was carried out with 140 adults aged above 15 years old in Khorramabad, Lorestan, Iran. The data was gathered via questionnaires for literate participants and descriptive interviews for illiterate participants. The results showed that women tended to be more specific and exact in giving step-by-step directions. They also had a great inclination towards utilizing relational terms. Men, on the other side, were more bound to pointing to directions by referring to exact mileage and using cardinal directions more often. In addition, the analysis found 103 references to landmarks, of which 59 were made by men and the rest by women. This study can guide toward having a clearer picture of the gender differences and have implications for educators as well as policymakers.

1. Introduction

Men and women exhibit certain behaviors in quite different ways; for instance, they explain things differently (Li, 2025; Plug et al., 2021). This is because they are

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completely different creatures. Generally, the way they express themselves, talk, or share their ideas is different. Giving directions as a mental activity has also been the focus of studies by scholars to find out the dissimilarities between genders. Some studies have revealed that women possess superior abilities to remember landmarks and exhibit a higher frequency in using directional markers, especially those indicating left and right, in comparison to their male counterparts (Anderson et al., 2012; Dahmani et al., 2023).

Nowadays, with Smartphones and GPS devices, it has become very easy to exactly locate an address (Ruginski et al., 2019). However, one should not ignore the general distance notes on the roads and streets, or describe the location of a landmark to others.

When the contextual factors are weighed, some people believe that giving direction between women and men is quite different (Yacoub et al., 2024). Therefore, this hypothesis has led scholars in the field of psychology, linguistics, and sociolinguistics to ponder over it in a scientific way. For instance, Gray (1992) argued that males and females demonstrate marked differences in their linguistic patterns, share feelings, express themselves, state opinions, and in the way they talk to each other. These differences in communication style can lead researchers to doubt the differences in giving directions between these two genders.

Despite the vast diversity in terms of communication between men and women, one should not forget that these differences do not imply any positive or negative value for them. The differences between genders mostly apply to their cognitive and mental capacity (Plumert, 2001). Plumert argues that regarding cognitive strength, men tend to be keener on remembering general facts rather than details. Furthermore, neuroscientists argue that there are differences in giving direction between men and women that have their roots in the prehistoric times where men and women worked in the roles of hunter-gatherer.

To put it in a nutshell, men and women have cognitive and mental differences in the way they communicate and handle various linguistic and psychological issues. Therefore, the idea of giving directions might call the attention of scholars to explore the differences between the two genders.

Overall, this study aims to find an answer to the distinctions in giving directions between men and women. To do so, the following research questions were addressed.

1. What are the differences between the way men and women give directions?
2. How are these differences interpreted in English language education?

2. Literature Review

Many studies have been conducted to explain gender differences in general and giving addresses in particular (Nazareth et al., 2023; Qazi et al., 2022). The study of giving an address is a compelling research topic that explores how individuals navigate both familiar and unfamiliar environments by asking for assistance from others. This area of study has garnered significant scholarly attention due to its potential to shed light on various cognitive and social processes involved in wayfinding. Especially, researchers seek to understand how people communicate spatial information, what strategies they employ to orient themselves, and how they interact with others in the process of seeking guidance. By investigating these phenomena, scholars hope to gain insights into human perception, communication, and social behavior, as well as inform the development of tools and techniques that facilitate effective navigation (Mitrofanova et al., 2018; Ton, 2019).

The provision of lucid and unambiguous directions and instructions is a fundamental aspect of facilitating successful navigation (Ruginski et al., 2022). It is imperative to consider the perspective of individuals who lack familiarity with the relevant environment, recognizing that diverse individuals may have distinct preferences with regard to wayfinding methodologies. For instance, while some individuals may favor cardinal directions, such as North, East, West, and South, others may prefer relative reference frames, such as right or left, and others may prefer exact distances, and still others may prefer directional information that is based on landmarks, with varying degrees of specificity. (Anacta & Schwering, 2010).

According to Noachtar et al. (2022), different parts of the brain are activated in different navigation tasks carried out by men and women. The researchers utilized fMRI to investigate how 36 men and 36 women carry out navigation tasks under controlled conditions. The findings revealed that men exhibit strengthened activation of frontal areas and women display reinforced activation of posterior brain areas. Women showed higher connectivity between the hippocampus (essential for forming memories and retrieving contextual details) and left-

lateralized frontal areas (specialized for language and verbal processing functions), meanwhile men exhibited higher hippocampus connectivity with the superior parietal regions (visuospatial working memory functions). In other words, women are more likely to take on verbal and strategic networks during navigation, such as labeling landmarks or verbalizing routes. On the other hand, men focus on visuospatial and metric networks, such as using distance estimation or spatial mapping.

Levinson (1996) delineated three distinct modes of providing directions: intrinsic, relative, and absolute. The intrinsic frame of reference pertains to defining navigation with regard to a reference object, whereas the relative frame of reference depends on the observer as the point of reference for navigation. The absolute frame of reference, conversely, involves establishing orientation through fixed bearings like cardinal directions.

However, Anacta and Schwering (2010) contend that wayfinding instructions are generally provided using either the relative or absolute frame of reference. In the context of navigational activities, individuals demonstrate distinct inclinations as to which reference frame they find more manageable to follow. When adhering to directions, factors such as the duration of the journey and the frequency of stops along the route are also taken into consideration.

The concept of route knowledge has captured the attention of many researchers from various fields, generally within the discipline of geography. Golledge et al. (1992) assert the superiority of survey learning in an unfamiliar environment, with variations based on geographic background and gender. The authors emphasized the need to gain a better understanding of how individuals acquire knowledge of their environment.

In a study carried out by Wood et al. (2021), GPS data was gathered from 2,078 person-days of movement to capture the difference between men and women living in Tanzania in their hunter-gatherer behaviors regarding navigation. The results indicated that hunter men walked a lot more than women and explored more land. On the other hand, women traveled in more straight and shorter routes and exhibited gatherer behaviors and these distinct behaviors were shaped from a very early stage in their lives. The authors suggested that each gender faces different navigation challenges due to the division of labor in hunter-gatherer societies.

Lawton's (2001) study examined the potential influence of a region's geography on individuals' tendencies to provide directions. For instance, the Midwest and Western regions in the United States have residents who prefer giving cardinal directions, potentially due to the grid-like patterns of their road networks.

Cultural differences in language use have also been documented by researchers. For instance, Ishikawa and Kiyomoto (2008) have reported that Japanese speakers have a tendency to adopt a relative frame of reference.

Numerous investigations have been undertaken to examine the differences between men and women in their utilization of spatial abilities for navigational purposes (Chargo et al., 2025; Gagnon et al., 2018; Munion et al., 2019). These empirical studies have sought to ascertain the degree to which gender-based dissimilarities influence this cognitive function. In their comprehensive analysis of gender differences in spatial orientation, Collucia and Louse (2004) reported varying findings pertaining to spatial differences.

Moraitaki and Thora (2021) conducted a small-scale qualitative study to examine the influence of gender on directional orientation. The findings of their study revealed the significant influence of gender in the process of giving directions. Specifically, the authors found that women rely more heavily on landmarks and serial orientation markers compared to men. Interestingly, their results contradict previous findings, as neither men nor women utilized cardinal terms in their directions. Additionally, the authors discovered that women employ more hedges in their language, using vagueness markers such as 'kinda' and 'somewhat' more frequently than men.

In a study, Ward (1986) showed that individuals commonly use landmarks and relational terms as opposed to cardinal directions and mileage estimates when providing directions. Additionally, women were observed to predominantly utilize landmarks and relational terms while giving directions, in contrast to men who tended to utilize cardinal terms and mileage estimates more frequently. Furthermore, it was noted that men were associated with a higher level of accuracy in their directions, and made fewer errors compared to women.

There is a prevalent belief that women encounter more challenges in tasks related to way-finding compared to men (O'Laughlin and Brubaker, 1998). Females have a tendency to perceive themselves as having a poorer sense of direction and may struggle in following directions, particularly in an absolute frame of reference.

In a recent study, Chen and Chen (2020) demonstrated that men have a better performance in wayfinding compared to women. They performed significantly faster than women in difficult tasks, such as comparing perceptual information, judging, and memorizing. This discrepancy may stem from women's relatively lower spatial ability, which requires additional time for making visual-spatial decisions and cautious navigation. Alternatively, men may benefit from maps and orientation strategies to a greater extent than women, which further enhances their way-finding abilities.

Montello et al. (1999) conducted a study that highlighted the superior performance of women in object location, as well as their lower error rate in remembering landmarks. Their experiment was specifically designed to investigate the ability of individuals to recall a route on their campus. Conversely, research suggests that men have better spatial abilities, as they tend to rely on cardinal directions and metric distances when navigating their environment. Notably, Iachini et al (2005) found that there were no statistically significant differences between the performance of males and females in terms of their ability to recognize objects or recall the spatial configuration of a particular location.

Sholl et al. (2000) presented evidence suggesting that males tend to exhibit superior proficiency in employing navigational strategies centered around cardinal directions, whereas females tend to rely more heavily on route strategies that primarily involve the use of landmarks. In line with this finding, Munion et al. (2019) also reported a similar outcome, indicating that males have a better navigational performance and also revisit and pause less during the task compared to females. Furthermore, females are found to revisit previous locations more frequently and explore smaller areas, while males explore more extensive spaces and commit fewer navigation and pointing errors (Gagnon et al. 2018).

In a study conducted by Boone et al. (2018), it was found that males and females exhibit distinct patterns in their navigation strategies and efficiency. The study revealed that women tended to follow learned routes and engage in wandering behavior, whereas men demonstrated a tendency to use significantly shorter routes, enabling them to reach their intended destinations faster than their female counterparts.

Harris et al. (2019) conducted an empirical investigation to examine how the interplay between strategy and perspective impacts gender differences in a 3D

navigation task. They found that males outperformed their female counterparts across all stages of the navigational task. However, the advantage held by males was more prominent in the use of an allocentric perspective compared to an egocentric one. Moreover, when implementing the allocentric perspective, females displayed enhanced performance when using landmark-based strategies, while males had better performance when using Euclidean strategies.

In a neuropsychological test conducted, Weiss et al. (2003) discovered that men have superior performance on visual-spatial tasks like spatial orientation, mechanical abilities, and mathematics, while women tend to excel in most verbal tests. In the study of Silverman and Choi (2006), results revealed that males performed better than females in dynamic navigation tasks when following Euclidean instructions. Moreover, the study found that females tended to rely more on topographical navigation strategies instead of Euclidean methods.

Spence et al. (2009) trained a group of participants in a new video game. The results of this training showed that both men and women were equally capable of acquiring basic spatial skills. According to Hund and Minarik (2006), it was found that both women and men were accurate and fast in navigation when using cardinal directions compared to landmark directions. In another study, Mac Fadden (2003) found that female participants mostly mentioned landmarks and directional turns (left/right) when providing directions, whereas male participants were more inclined to mention directional indicators like NSWEs. However, these differences in communication style were not connected to differences in the way each group navigated the maps. This is because women did not pay much attention to landmarks, and neither group showed much interest in Euclidean cues. Hence, despite the observation of different navigation behaviors based on gender, there has been no examination of differences in the focus on noticeable characteristics.

Ewald's study in 2012 showed that indirect requests for directions serve as useful communication strategies for speakers dealing with potential directional guidance. Furthermore, this analysis sheds light on the intricate interrelationships between the linguistic, interactive, and cognitive tasks required for giving directions. The study also highlights the similarities in the use of directional signs by both male and female participants, which are comparable to the utilization of traffic lights, landmarks, highway numbers, road names, and time estimates.

However, the study notes that men are more likely to provide more mileage estimates than women, albeit with higher frequency errors.

Napoleon (2007) conducted a study on how men and women give directions. The study found that both genders use hand gestures, analogies, and hierarchical messages to describe object locations and improve the clarity of their directions. Men tend to focus more on the location of objects, creating explicit pictures, while women use more specific names and can adapt their directions to unexpected changes in object location or different starting points. Other studies (Friend, 2001; Lawton, 2001; MacFadden et al., 2003) support these findings, which suggest that both genders use similar strategies but with some differences in approach.

Having noticed the volume of research on address-giving in different parts of the globe and the scarcity of research on the given topic in Iran, the present study was motivated to examine if there is an observable difference between the way men and women give addresses in Iran. Stated otherwise, the present study was to figure out the gender differences in address-giving among Iranians.

3. Method

In order to find out how men and women might show differences with reference to giving directions, the researchers utilized a survey through which the mental disparities between men and women came to the fore. The criteria of categorizing the findings were based on Ward et al., (1986) schemes, including cardinal method of direction giving, relational terms, distance or mileage indicators, and pointing to landmarks to navigate.

To conduct the study, 140 males and females (70 each gender) were randomly addressed. All participants were native people from the city of Khorramabad (the capital of Lorestan Province), Iran, to ensure their thorough knowledge of the locations' directions. All of the participants were above 15 years of age and came from different social classes, including literate and illiterate.

An open-ended questionnaire, as the instrument of the study, was employed, encapsulating eight items concerning the location of eight famous city landmarks (see Appendix). Attempts were made to ensure that locations are popular enough and thus are familiar to citizens of Khorramabad. The researchers checked and documented the responses. In case there were any different opinions about a

location, the fourth rater, who was also a new Persian with a Master's degree in ELT, was asked to judge and represent the final decision.

To care for the validity and reliability of the instrument, after developing the items, a pilot study was carried out on some members of the population to find out whether the items result in the intended information. Necessary corrections were made on the content to comply with the feedback received from the pilot study participants (see appendix). In the administration phase, 70 males were asked about the addresses in the city, and the same number of females were asked to answer the same 8 questions regarding the addresses of famous locations. While being asked, the illiterate participants were requested to write down the intended addresses. Knowing that the illiterate participants were not able to write, their oral responses were audio-recorded by the researchers for subsequent transcription. In order to comply with ethical standards, participants' consent was obtained for their voluntary participation, and they were assured of the confidentiality of their responses.

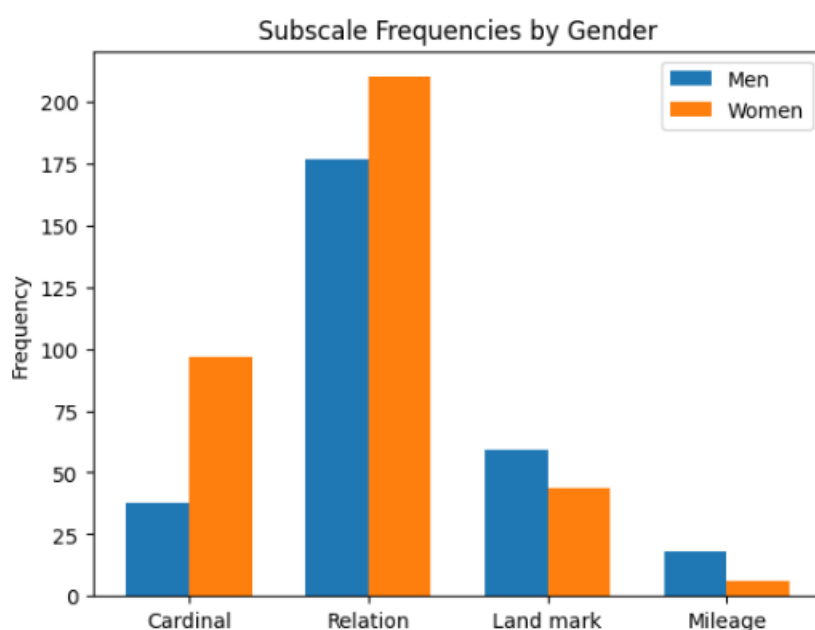
After gathering the participants' responses from the written form or audio recording of the questionnaire, they were put down for analysis. In so doing, cardinal directions, relational terms, landmarks, and mileage indicators mentioned in all directions were identified and listed, and the number of times all four subscales were used counted separately for male and female participants.

4. Result

The data gathered based on the method of the study are analyzed in this section. According to the scale provided by Ward et al. (1986), the differences between males' and females' direction giving were collected via a questionnaire, and then they were categorized according to the subscales of the material, which are: cardinal, relation, landmark, and mileage, respectively. The research findings of 140 participants (70 males and 70 females) are according to the following list:

Table 1*The List of the Use of Four Subscales in Direction Giving between Men and Women*

Subscale	Men	Women
Cardinal	38 times	97
Relation	177	210
Land mark	59	44
Mileage	18	6

**Figure 1***The Frequency Representation of Direction Giving Forms by Men and Women*

Based on Table 1 and Figure 1, a total of 135 mentions of cardinal directions were identified, 38 of which were for men and 97 for women. Additionally, a notable use of relation terms was found, with women using these terms 210 times and men 177 times. In addition, the analysis found 103 references to landmarks, of which 59 were made by men and the rest by women. Lastly, with respect to the subscale of mileage, males made use of it 18 times compared to only 6 instances by females. Overall, the relation subscale was the most frequently used by both groups while mileage was the least frequently used, especially by women.

5. Discussion

The study aimed to examine whether there are any differences between men and women in terms of giving directions. Men and women used these four major subscales of address forms differently: cardinal directions, relational terms, landmarks, and mileage estimates. With reference to Table 1, it can be seen that giving direction based on the cardinal dimensions, that is, the frequency of referring to cardinal directions among women is about twice as high as that of men. The relation dimension, which subsumes each time of explicitly referring to left-right directions, is used more by women than by men. The landmark scale that includes each time of referring to the names of buildings is used by men more than women. Mileage scale, which encompasses each time of referring to mileage or distance, was three times higher among men compared to women. These findings contribute to the broader literature on gendered language patterns and spatial communication.

On the whole, reference to the relation dimension has the first place among other dimensions (i.e., 387 times) between both men and women. Furthermore, the mileage dimension is the least used subscale by both genders. In accordance with the cognitive perspective of human psychology, Collucia and Louse (2004) argue that gender differences in spatial orientation can be attributed to a range of factors such as evolutionary factors, individual strategies, and personality traits.

Ward (1986) stated that individuals generally use turns and landmarks to provide directions, with men more likely to use absolute and objective markers than women. This is consistent with the results of the current study, in which men tended to explicitly point to landmark and mileage dimensions more compared to women.

A study executed by Dehmani et al. (2023), contradicts the results of the current research suggesting that men are more likely to use cardinal-oriented survey-based navigation strategies. Whereas, in the current study men relied more on cardinal directions compared to women. This could show the role of contextual differences in such studies. It is conceivable that when giving an address women are more likely to apply precise geocentric frameworks which is a finding that aligns with studies indicating complex and non-uniform gender-differences across navigation tasks (Chen & Chen, 2020).

Regarding the use of relational terms which was high for both genders but somewhat higher among women (210 versus 177 times). Li, (2025) corroborated this finding suggesting a communal and relational communication style orientation among women. Relational terms harbor locations within a network of social or object-to-object relationships. It is proposed that this strategy emphasizes straightforward understanding for the receiver within a shared perceptual framework. All in all, these different patterns suggest that gendered-address giving is a multifaceted phenomenon.

During a neuropsychological test, it was found that men excel in visual-spatial activities, including mechanical skills, spatial mapping, and mathematics; conversely, women performed better than men on most language skills (Weiss et al., 2003). This finding verifies our research results in which women tended to explain the directions in terms of more cardinal and relational sentences compared to men. In addition, it suggests that analyzing spatial and relational information and utilizing navigation strategies is not gender-neutral.

6. Conclusion

Throughout history, it is believed that men and women have varying systems for finding ways or giving directions (Chargo et al., 2025; Munion et al., 2019). It was believed that men prefer to talk less than women and to take shortcuts to reach a destination. According to the findings of this study, their preference to point to landmarks more than women, and using fewer cardinal orders, is a sign to verify this belief. On the other hand, women tend to explain at length based on the findings on relation subscales. It can be a verification for those studies that concluded women are more efficient in giving directions (Boone et al., 2018). However, it is important to note that both men and women bring unique cognitive and behavioral tendencies to the task of giving directions (Yacoub et al., 2024). Women tend to give more details about a direction, while men are more straightforward and they have a more holistic view of the location's address.

In conclusion, the present study indicates that gender differences in spatial communication and navigation strategies are evident in the pragmatic task of address giving. The results complicate the simplistic binary frameworks of spatial recognition by showing that strategy use and preference are mediated by mode of communication (verbal or active navigation). Understanding these differences has

implications for several sectors such as urban planners, geospatial trainers, and signage designers in order to provide more effective navigation aids.

Despite providing insightful findings about the difference between Iranian male and female participants in way-finding, it bears mentioning that this study has some limitations. The sample only included individuals over 15 years old; thus, further research is needed to explore how age, language competency, and IQ may impact the way people give directions. Further studies may also consider other factors, such as cultural differences or environmental factors, to gain a more comprehensive understanding of how people navigate and communicate spatial information.

Bio-data

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Declarations

Conflicting Interests

The authors of this article declare no conflicts of interest. They have no relevant financial or non-financial interests to disclose.

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The data collected and analyzed during the current study is available upon request by sending an email to fateme.pouya1375@gmail.com.

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Authors' Contribution

Dr. Aliakbari supervised the whole process of writing the different sections of the article and conducting the research. He also composed the results section and analyzed the data collected in the study.

Miss Abbasipoya collected the data and wrote the discussion and conclusions section of the study. She also proofread the manuscript and collaborated in editing the manuscript with Mrs. Fadaeian.

Mrs. Fadaeian wrote the introduction and literature review. As mentioned, she also shared the responsibility of editing the manuscript.

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Writing: Introduction (Author C), Literature Review (Author C), Methodology (Author A), Results (Author A), Discussion (Author B), Conclusions (Author B)

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Exploring Gender Differences in Giving Addresses: A Study of Address Forms through the Lens of Cardinal Directions, Relational Terms, Landmarks, and Mileage Estimates

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Appendix

The Address Giving Questionnaire

این پرسشنامه جهت انجام یک کار پژوهشی در حوزه ی جامعه شناسی زبان صورت گرفته است. هویت شما در این پرسشنامه قابل شناسایی نخواهد بود و اطلاعات خواسته شده در این پرسشنامه، صرفاً با هدف پاسخ به سوال پژوهش، مورد استفاده قرار خواهد گرفت. همکاری شما در پاسخ به سوالات ما را در انجام این پژوهش یاری خواهد کرد. سوالات 1 تا 4 مربوط به اطلاعات کلی درباره ی شما هستند که به تحلیل داده های به دست آمده کمک خواهند کرد. و سوالات بعدی مربوط به موضوع اصلی پژوهش خواهند بود. این پرسشنامه بیش از ده دقیقه از وقت شما را نمی‌گیرد. پیشاپیش از همکاری شما سپاسگزاریم.

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1. سن شما: 1. 15 تا 25 2. 26 تا 30 3. 31 تا 40 4. 41 تا 50 5. بالاتر از 50
 2. جنسیت شما: 1. زن 2. مرد 3. ...
 3. میزان تحصیلات شما: 1. زیر دیپلم 2. دیپلم 3. لیسانس 4. فوق لیسانس و بالاتر
 4. شغل شما: 1. آزاد 2. بیکار 3. کارمند ارگان های دولتی یا خصوصی
- تصور کنید در نقطه **A** هستید و شخصی برای رفتن به نقطه **B** از شما آدرس می خواهد، چگونه به او آدرس می دهید؟
5. نقطه A: شمشیر آباد نقطه B: بیمارستان عشایر
 6. نقطه A: ناصر خ نقطه B: دریاچه کیو
 7. نقطه A: سبزه میدان نقطه B: دانشگاه لرستان
 8. نقطه A: خیابان مطهری نقطه B: سینما استقلال
 9. نقطه A: شهرک پارسیلون نقطه B: ترمینال (کرگانه)
 10. نقطه A: شهرک حکمت نقطه B: بام شهر (خرم آباد)
 11. نقطه A: کوی ارتش نقطه B: قلعه فلک الافلاک
 12. نقطه A: بیمارستان تامین اجتماعی نقطه B: امام زاده زید بن علی
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